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## The Influence of Feelings on Cognitive Achievement in Religious Education\*

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Received 15 August 2006; accepted 20 January 2007

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### Summary

It has commonly been assumed that when it comes to religion, affect and cognition are mutually related. In this article we examine whether feelings influence cognitive achievement in religious education on the basis of two strategic interventions in the primary school classroom. Both interventions are meant to help students achieve cognitive understanding of religious ideas by interpreting biblical parables and other stories, but they do so in different ways. The research group comprised 257 grade 5 and 6 religiously heterogeneous students.

Results of the analyses show that positive feelings, negative feelings and boredom all have an impact on students' knowledge, comprehension and application of religious ideas and learning strategies when dealing with parables. They also showed that belief in God and participation in religious practices actively affect how feelings influence achievement. There are also indications that achievement influences feelings.

Results are discussed in terms of feelings that can enhance or inhibit the use of existing knowledge and learning strategies, and in terms of aspects of students' religious identity. Implications for educational practice are considered.

### Keywords

Religious education, feelings, cognitive achievement, interrelatedness, religious ideas, parables, students' religious characteristics

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\* We wish to thank Liesbeth Linssen (RTOG, Radboud University Nijmegen) for her assistance with the statistical analyses.

## 1 Introduction

It is commonly accepted that when it comes to religion, affect and cognition influence each other (Wynn, 2005; Schilderman, 2001). On the one hand religious ideas may evoke emotion: human actions are assigned meaning in terms of a commitment to the transcendent, which raises certain expectations regarding those actions. Because the ideas contain notions that direct people's behaviour, they can be regarded as value-laden, and hence may be expected to arouse various emotions. On the other hand affects can generate religious meaning. People may experience reality as much greater than themselves and register that experience affectively as a sense of dependency. At a particular moment reality presents itself in a particular way, but it could equally well have been different. The affect that is registered could be described as a sense of dependence in the face of an awesome reality. Commitment to a reality greater than themselves causes people to assign the experience religious meaning. In other words, the wellspring of religion may be an affective encounter with reality.

Yet despite this assumption that affect and cognitive understanding of religion influence each other, little is known about this mutual influencing. In theological discourse, affects such as emotions have hitherto been considered inexplicable and impalpable, and hence were not analysed in any depth. They simply existed, and as such were relegated mainly to the mysterious, unfathomable side of religion. Empirical research into emotions and their role in cognitive understanding of religion is a fairly recent development (Corrigan, 2004). Do emotions in fact play an essential role in cognitive understanding of religion, as some theologians maintain (Schleiermacher, 1976; Kuitert, 2000)? By the same token, in the field of pedagogy of religion it is often assumed that religious education has both cognitive and affective aspects (Hermans, 2003; Zwergel, 1994; Sterkens 2001). But as yet we have little to no empirical evidence about the way emotions relate to cognitive understanding in religious education. For instance, is their influence on cognitive understanding linear or reciprocal, and how powerful is it?

This article reports on our empirical study of religious education learning practices. Taking a socio-cultural perspective, and on the basis of two strategic interventions in the primary school classroom, we examine whether feelings influence cognitive understanding. By feelings we mean emotions related to religious ideas. Religious ideas are expressions in which God's Name is mentioned that offer a practical perspective on what constitutes a worthwhile life alongside and for other human beings (Ricoeur, 1979). Both interventions are

meant to help students achieve cognitive understanding of religious ideas by interpreting parables and other stories, but they do so in different ways. On the basis of the difference between the two interventions we examine whether feelings influence cognitive understanding of religious ideas. In section 2 we outline the theoretical framework of our research in three subsections. The first describes four models of how feelings influence cognitive understanding. The second examines whether these models feature in theological explanations, and the third presents empirical research findings concerning the influence of feelings on cognitive understanding in the field of pedagogy of religion to date. The goals of our research, research questions and hypotheses are stated in section 3. The fourth section describes the method: design, participants, strategic interventions and measuring instruments. After presenting the results of our research, we reach certain conclusions and discuss the nature of the relation between feelings and cognitive understanding in religious education, together with some implications for religious education.

## 2 Theoretical framework

### 2.1 *Four models to relate feelings and cognitive understanding*

This section deals with the relation between feelings and cognitive understanding with reference to four models based mainly on philosophical ideas (Wynn, 2005). Broadly speaking, emotions are affective responses to confrontation with a given situation, their nature and intensity being determined by the subject's assessment of the significance and implications of the situation. Awareness of one's own emotions varies, and is made up of components like cognitive appraisal and awareness of physiological symptoms. Feelings refer to conscious representations of emotions that relate to religious ideas (Lazarus, 1999; Scherer, 2004). Cognitive understanding refers to comprehension of the ideas and procedures that operate in cultural practices. Through participation in such practices people can internalise these ideas and procedures (Greeno, Collins & Resnick, 1996).

Drawing mainly on contemporary philosophical literature, Wynn (2005) distinguishes four complementary rather than mutually exclusive models of the influence of feelings on cognitive understanding. According to the *first* model, feelings precede a conceptually informed understanding of the world. For instance, when people are overawed by the world around them they may experience this on an initial, pre-reflective level. They register the nature of this

environment feelingly. Yet their impressions do not remain at that level, but are penetrated by growing conceptual awareness. Thus the impressions become part of a totality of affectively toned representations via which people understand the world. In short, as perceptions of reality, feelings can precede cognitive understanding. In the *second* model feelings may expand the understanding achieved through discursive reflection. In this model it is presumed that people already have a conceptually articulated understanding of the world, and feelings build on this understanding. By articulating the meaning people attach to knowledge, feelings can deepen cognitive understanding. As embodied appraisals they may extend the understanding achieved by reflection (Armon-Jones, 1986; Lazarus, 1999). According to the *third* model feelings may shape the development of cognitive understanding. For example, recent research on the impact of affect on thought processes and behaviour indicates that “positive affect does not lead to simple biasing or distortion of perception or decision making, but rather to detailed and responsive consideration of materials and situations” (Isen, 2004, pp. 270-271). Positive affect enhances the ability to acquire new knowledge and to activate and use existing knowledge structures. Feelings can act heuristically: they may trigger a search for knowledge and insight by highlighting what is agreeable or disagreeable about things. Since people are motivated to pursue agreeable experience and avoid what is disagreeable, their attention is drawn to certain things. What attention is drawn to will differ from one person to another, because people differ in their appraisal of what is agreeable (Gohm & Clore, 2002). Feelings may pinpoint some things as deserving attention and leave others on the periphery of awareness. They direct our reflective enquiry and thus help to shape the development of cognitive understanding. Finally, according to the *fourth* model feelings may enhance our grasp of things that we do not perceive directly but only anticipate or long for. Because they are intentional in their own right, feelings prompt conclusions when people don't know enough as yet (Oatley & Jenkins, 2001). By way of these affectively toned conclusions “the mind is cast forward, in desire, to an anticipated moment of ‘resolution’ (...), where the character of this resolution” is grasped not discursively but in feeling” (Wynn, 2005, pp. 106-107).

While each of the four models presents a distinct aspect of the influence of feelings on cognitive understanding, they are also interlinked. Evaluating the first and second model, Wynn (2005, p. 133) considers the relation between feeling and cognitive understanding to be one of reciprocal influence: “The spiral may also involve feeling, which has its own content, being penetrated by discursive thought (...) and feeling taking further (while remaining infused

with) the understanding achieved in discursive or doctrinal thought.” His observations corroborate empirical findings that feelings can offer experiential information or feedback about one’s appraisal of the thing to which they appear to respond (Clare & Gasper, 2000). Evaluating the other two models, Wynn (2005) proposes that feelings cause people to adopt certain views even when, cognitively, the available information may appear inadequate. In such cases feelings can help people to cross the barrier of reaching a decision (Gohm & Clare, 2002; Damasio, 1999).

## 2.2 *Theological upholders of the four models*

This subsection presents some theological explanations concerning the relation of feelings and cognitive understanding in the area of religion, which we discuss with reference to the four models described above. On the basis of one of these models we proceed to structure our empirical study to determine whether feelings relate to cognitive understanding of religious ideas. Our study applies this model to the religious practice of learning religious ideas by interpreting parables and other stories.

The model in which feelings precede cognitive understanding is found mainly among theologians who opt for a phenomenological or experientially oriented approach (Schilderman, 2001). Schleiermacher (1976) sees religion as primarily affective: on the wings of feeling the believer rises to the heights that are peculiar to religion. A sense of dependence is expressive of the contingency of one’s own life and of being moved by the infinity of the universe. In Schleiermacher’s view this feeling response is the very core of religion. Otto (1959) likewise traces the source of religion not so much to discursive thought as to affectively informed encounter with the transcendent. He regards religion as rooted in a sense of the numinous and appeals to perception as a means of accepting feeling as a core concept in theology (Schilderman, 2001). James (1978, p. 49) perceives religion as “feelings, acts and experiences of individual men in their solitude, so far as they apprehend themselves to stand in relation to whatever they may consider the divine”. He perceives these affects not so much as feelings but as moods, inclinations towards a specific perspective on reality, and suggests that affects supply the hint for our understanding of the divine. Among the theologians who hold that affects are a prelude to cognitive understanding of religion is the Dutch theologian Kuitert. His thesis is that religion consists in an awareness that obtrudes itself on a person via experience and is best rendered as a sense of total dependence (Kuitert, 2000). Thus a sense of dependence is assumed to precede cognitive

understanding of religion. It is regarded as a mood rather than a feeling, and is considered important enough to rate as the core concept of religion.

The other three models of the influence of feeling on cognitive understanding are also encountered in theology. The view that feelings can build on previously gained understanding and expand it is found in the work of Edwards (1962), who maintains that religious ideas, grounded in non-affective perception, come first and are followed by affect. Interpreting Edwards's statements, Wynn (2005, p. 133) thinks that "a new feeling may of itself constitute a new thought, and verbalised or doctrinal thought and feeling may together produce a unified state of mind whose intentionality reflects in part the contribution of doctrine, and in part that of emotional feeling". In short, Edwards thinks that feelings further coherence in cognitive understanding of religion. The third model sees feelings as highlighting some things as deserving of attention and leaving others on the periphery of our awareness. In his *Grammar of Assent* (1955), Newman indicates that feelings focus our attention. In this book he is looking for the possibility of certain knowledge and sees religious certainty as one of the forms such knowledge can take (Ker, 1988). Feelings play a major role in arriving at religious certainty. Newman (1955, p. 105) not only believes that people (especially children) can form an affectively toned image of God "before it has been reflected on"; he also thinks that feelings may properly shape our reading of evidence. Experience that touches people profoundly ('the wounds of the soul') puts them in an affective state in which their "attention is roused, then the more steadily [they] dwell upon it, the more probable does it seem that a revelation has been or will be given to [them]" (Newman, 1955, p. 328). According to Newman, affective considerations offer good prima facie reasons to suppose that a claim to revelation is true and that counterevidence can be pushed aside. In short, feelings can direct our reflective enquiry and thus help to shape the development of cognitive understanding. Finally, according to the fourth model, feelings may enhance our grasp of things that we do not perceive directly. Wynn (2003, p. 53) observes that "just as in the case of musical appreciation, where feeling is able to take us beyond a certain sensory input so as to pick out a reality that is not yet fully revealed in sensory terms, so in relationship to God, we might suppose, feeling is able to take us beyond a certain doxastic input, to relate us to a reality that has yet to be fully revealed in doxastic terms". Once we have mastered a more discursive understanding of God, we can cultivate a wordless affective relationship with God, which rests on direct acquaintance with God. However, because we cannot fully possess the divine in our present reality, we experience Him through longing. This is the mode of understanding found

among great mystics like John of the Cross (Waaïjman, 2002). In order to reach the divine we will have to abandon cognitive thinking at some point. In that way our understanding can culminate in a state of word-less, affectively toned contemplation (*Johannes van het Kruis*, 1992).

Apart from research into the first model by psychologists of religion (Van der Lans, 1998), there has been little empirical research into the relationship between feelings and cognitive understanding of religion (Corrigan, 2004). The best way to study that relationship is to examine a practice that may be expected to be emotionally coloured. Here the practice of interpreting parables seems appropriate, since past research indicates that feelings play a role in the acquisition of cognitive understanding (Theis, 2005). The role of feelings in connection with the interpretation of parables arises from both the content and the structure of parables. By content we mean the religious ideas presented in parables. Reading religious stories as parables is an opportunity to internalise religious ideas in the Christian tradition, and to grasp how that tradition interprets these ideas. The ideas centre on human actions and offer readers a normative orientation. For example, in the parable about the unmerciful servant (Matthew 18) readers are invited to (re)consider their ideas about forgiveness (Lambrecht, 1992). This and other religious ideas can be perceived as valuations that will evoke either agreement or resistance, accompanied by various feelings (Hermans & Hermans-Jansen, 1995). By structure we mean the semantic structure of parables (Weder, 1978, 1993). While the complex semantic structure makes parables difficult to comprehend, it does make it possible to mention God's Name in a special way (Ricoeur, 1979). This semantic structure comprises two polarities: that between immanent and transcendent reality, and that between the anticipated and actual plot of the story. The first polarity arises from the relationship between events occurring in the 'everyday' familiar to listeners, and the transcendent reality to which they refer. The second polarity arises from the evocation of images that readers recognise and expect, followed by a disruption of the anticipated, 'realistic' course of events by an unusual or unexpected action. To acquire cognitive understanding of the parable, readers must follow the route indicated by the structure. According to Crossan (1973A, 1973B, 1988) the parable structure has three components: first an introductory episode, then an unexpected event that disrupts the story, and finally an open ending. When the reader risks entering and is affected by the story (first step), the deep structure of the accepted world is suddenly shattered by an unexpected or 'unrealistic' event (second step) that subverts normality. This is called the critical moment and can bring about estrangement. Yet readers must pass through the critical moment and overcome

their estrangement in order to master new knowledge. Depending on the feelings, estrangement can make the reader susceptible or not to a new point of view (third step). Feelings appear to offer good *prima facie* reasons to suppose that certain knowledge furthers insight and other knowledge does not. Put differently, feelings may direct the reader's attention to certain things, thus pointing to knowledge that is needed in order to gain insight. Positive feelings are expected to promote cognitive understanding of parables, and negative feelings to impede it (Theis, 2005). These expectations concur with the hypothesis of the third model, namely that feelings can direct our reflective enquiry and thus help to shape the development of cognitive understanding. By pointing to aspects of a situation that are considered relevant, feelings influence cognitive understanding. With the aid of this model we want to examine why some readers are more inclined than others to construct new knowledge about religious ideas.

In summary, it is expected that feelings play a role in the religious practice of parable interpretation. Their role is linked to both the content (religious ideas) and the structure (semantic structure) of the parable story. Using the third model of the influence of feelings on cognitive understanding presented by Wynn (2005), we want to determine why some students are more likely to acquire cognitive understanding of religious ideas by interpreting parables than are others.

### 2.3 *Educational research on feelings and cognitive understanding*

In this subsection we present the findings of educational research into the relation of feelings and cognitive understanding, as well as the influence of educational interventions and students' characteristics on such understanding. In each instance we first look at the findings of educational research in general and then as they relate to the subject of religious education. Since educational research treats achievement as a condition for cognitive understanding, we use the term 'achievement' below. Through their achievement students show that they have mastered and understand specific kinds of knowledge.

Educational research has shown that feelings influence achievement, although the results are not unequivocal (Pekrun, 2005; Ainley, Corrigan, & Richardson, 2005; Gläser-Zikuda, Fuß, Laukenmann, Metz & Randler, 2005). A cognitive motivational model of the effects of feelings assumes that the effects on learning and achievement are mediated by a number of cognitive and motivational mechanisms (Pekrun, Goetz, Titz, & Perry, 2002). This

model assumes that motivation, learning strategies, cognitive resources and regulation of learning are such mechanisms. Positive feelings like enjoyment, hope and pride relate positively to the use of learning strategies like elaboration and to perceived self-regulation, and predict high achievement. Negative feelings like anger relate to relatively superficial learning strategies like rehearsal and to perceived external regulation, and predict low achievement. Findings corroborate that students' feelings are closely linked to their learning, self-regulation and achievement (Boekaerts et al., 2000). The close link should be seen as reciprocal causation, in the sense that students' feelings influence achievement, but feedback of achievement in turn affects their feelings. However, empirical evidence of reciprocal links between feelings and achievement is limited (Pekrun et al., 2002). In the field of religious education, research provides evidence that feelings are major determinants in the process of understanding religious texts. Jablonski and Van der Lans (2001) found that approving or disapproving feelings are important predictors of understanding, along with membership in a religious community and familiarity with religious discourse. Disapproving feelings (insecurity, fear, tension, caution, reluctance) inhibit comprehension by limiting understanding to superficial interpretations of the text, while approving feelings (security, lack of fear, assertiveness, calmness, confidence, being at ease) lead to productive interpretations of the narrative. Educational research findings appear to concur with the hypothesis in Wynn's third model (2005). Because feelings are associated with the use of strategies that promote either a probing or a superficial learning style and with the use of cognitive resources, one could say that feelings relate to the manner in which students learn to achieve. Accordingly it is expected that feelings relate to students' manner of gaining cognitive understanding.

Apart from the research of Gläser-Zikuda et al. (2005), there is not much empirical evidence that specific educational interventions influence the impact of feelings on achievement. These interventions involve maintaining, taking advantage of and explicitly striving for positive feelings (e.g. well-being, hope) and coping with and avoiding negative feelings (e.g. disappointment, anger). In order to foster positive and avoid negative feelings students should be able to apply different affective strategies flexibly (Boekaerts, 1996; Op 't Eijnde, De Corte & Mercken, 2006). In the field of religious education there is no empirical evidence at all that specific interventions influence the impact of feelings on achievement.

In our research we investigate whether interventions that introduce students to learning strategies have an impact on the influence of feelings on

cognitive understanding of religious ideas. By using strategies as scaffolds (Collins, Brown & Newman, 1989) students are given an opportunity to acquire and assess religious ideas in the Christian religious tradition. As noted already, we devised two interventions. Both provide students with cognitive learning strategies to understand what happens in the parable and to discover its narrative structure, but only the comprehensive strategic intervention provides additional cognitive learning strategies to relate biblical stories to real-life situations and affective learning strategies to clarify feelings, their antecedents and their consequences. These latter strategies include students' interpretation of feelings by finding out why they feel happy or sad, and the reinterpretation of ideas from the perspective of their views and appraisals. We expect such reinterpretation in particular to be conducive to cognitive understanding. The affective learning strategies help students to clarify their feelings and the basis of these feelings. Clarification of feelings permits them to function heuristically by highlighting agreeable and disagreeable aspects of the story. Because people are motivated to pursue agreeable experience and avoid unpleasantness, their attention is drawn to certain things. We surmise that clarification of feelings will enable students to study the parable more attentively. It strikes us as particularly important as a way of encouraging them to move beyond the critical moment in the parable and construe meaning.

Thirdly, educational research shows that students' characteristics affect the influence of feelings on achievement. Research indicates that feelings and achievement do not relate in the same way for all students (Pekrun et al., 2002). This variation is associated with the students' cognitive appraisals, which in their turn relate to their characteristics (Goetz, Pekrun, Hall & Haag, 2006). In the field of religious education there is no evidence indicating whether students' characteristics make a difference to the relation between feelings and achievement. So far research has been confined to largely homogeneous Christian student populations (Jablonski & Van der Lans, 2001; Theis, 2005). It appears that feelings, religious characteristics and familiarity with religious discourse influence understanding of religious texts. The question is whether religious characteristics influence the impact of feelings on achievement.

### **3 Goals, research questions and hypotheses**

Our study concerns the relation of feelings and cognitive achievement in religious education. By implementing educational interventions we aim to encourage

evocation of positive feelings and enhance achievement in religious ideas by interpreting parables and other stories. We assume that feelings influence achievement. Our study is meant to contribute to theoretical explanations of the relation between feelings and cognitive understanding of religion.

The first goal is to find out whether feelings influence achievement. Achievement refers to the extent to which students know, comprehend and apply religious ideas and learning strategies when dealing with parables. A further question is whether the influence of feelings on achievement differs when using affective learning strategies. In other words, do feelings influence achievement differently when a comprehensive strategic intervention is used, in which students systematically get the opportunity to acquire affective learning strategies to clarify their feelings, as opposed to a partial strategic intervention in which they do not get this opportunity?

The second goal is to find out whether the influence of feelings on achievement differs according to students' religious characteristics like religious self-definition, belief in God and participation in religious practices. Research shows that characteristics such as membership in a religious community and feelings are important predictors of understanding of religious stories (see section 2.3). We want to find out whether these characteristics make a difference to the influence of feelings on achievement in religious ideas.

In short, we will investigate the impact of feelings on achievement in religious ideas in the primary school classroom. Our research questions are the following:

- (1) What is the influence of feelings on achievement in the area of understanding religious ideas, specifically in the interpretation of parables and other stories, when using a comprehensive strategic intervention, as opposed to their influence when using a partial strategic intervention?
- (2) Does this influence vary according to students' religious characteristics?

With regard to the first question, it can be assumed that feelings direct reflective enquiry and help to shape cognitive understanding (see section 2.2). Positive feelings promote careful thought about the relevant learning materials such as learning strategies and cognitive resources. Consequently we expect positive feelings to enhance achievement. Negative feelings promote superficial study of religious stories, hence we expect negative feelings to impede achievement. Because affective learning strategies scaffold students' communication about their feelings, interpretation of their feelings, and reinterpretation of the religious

ideas in the perspective of their ideas and appraisals, we expect them to enhance achievement (see section 2.3). We expect that the comprehensive strategic intervention, which systematically stimulates students to acquire affective learning strategies, will help them to clarify their feelings. On the basis of this clarification, feelings are more likely to act heuristically. We hypothesise that this will induce more concentrated study, which will enhance achievement. Regarding the second research question, we expect the relation between feelings and achievement to vary among students according to their religious characteristics. Religious self-definition, belief in God and participation in religious practices will affect students' feelings (see section 2.3). Furthermore, children who have been subject to religious socialization will be more familiar with religious ideas and narratives of the Christian tradition than those who have received a lesser degree of religious socialization or none at all.

## 4 Method

### 4.1 Design

To answer the research questions we used a quasi-experimental pre-test/post-test design with two non-equivalent experimental groups. The design is presented in Table 1.

**Table 1: Research design**

<i>Research groups</i>	<i>October</i>	<i>November-December</i>	<i>January</i>	<i>February-March</i>	<i>March</i>
Experimental group 1	O11	X1	O21	X3	O31
Experimental group 2	O12	X2	O22	X4	O32

In October we administered instruments to ascertain characteristics, initial achievement and feelings to students in experimental group 1 (O11) and 2 (O12). In November and December students in the first experimental group were introduced to the first part of the comprehensive strategic intervention (X1), and students in the second experimental group to the first part of the partial strategic intervention (X2). In January we administered instruments to ascertain students' feelings to the first and the second groups (O21, O22). In

February students in experimental group 1 were introduced to the second part of the comprehensive strategic intervention (X3), while students in experimental group 2 were introduced to the second part of the partial strategic intervention (X4). Directly after the completion of the second part of the interventions in March we administered the instruments on achievement and on feelings to both experimental groups (O31 and O32).

#### 4.2 *Participants*

We used multi-stage sampling to select respondents with a view to answering the foregoing research questions. First, we selected schools. In the Netherlands religious education is taught only in religiously affiliated schools, not in the public system. We selected Catholic primary schools, which constitute approximately 35% of all primary schools, all fully state funded. Of these, we confined ourselves to a sub-population (stratum) with between 10% and 30% non-Christian students. From earlier research we know that these schools teach biblical stories in religious education with due regard to religious diversity among students (Kwakman & Van Oers, 1993). This diversity was pertinent to our study, because we expected differences in religious background to affect cognitive and affective learning processes in religious education. Hence our research population comprised students at Dutch Catholic schools attended by 10 to 30% non-Christian students. In the second stage, we drew a random sample of 85 schools from this stratum. The heads of these schools were asked by telephone whether a grade 5 or 6 class could take part in the study. The schools that declined to participate did so mainly on the grounds that they had participated in enough research projects for the time being. In the end a sample of 10 schools in the southern Netherlands<sup>1</sup> participated, totalling 11 grade 5 and 6 classes. All participating schools are situated in areas of fairly similar socio-cultural characteristics in a rural and small town environment.<sup>2</sup> We then allocated our schools to one of the two experimental groups. The first experimental group comprised six classes and as many teachers, and the second experimental group five classes and as many teachers. The first experimental group consisted of 148 students, the second experimental group of 109 students.

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<sup>1</sup> Two thirds of Catholic schools are located in the southern Netherlands.

<sup>2</sup> The schools are located in Bergen-op-Zoom, Boxtel, Heerlen, 's-Hertogenbosch, Heythuysen, Oudenbosch, Sittard, Venlo, and Venray.

### 4.3 *Strategic interventions*

Two educational interventions were carefully designed according to the socio-constructivist perspective on learning and development by the authors and two experienced curriculum designers: a comprehensive strategic and a partial strategic intervention (Greeno, Collins & Resnick, 1996; Palincsar, 1998; Simons, Van der Linden & Duffy, 2000; Brown, Collins & Duguid, 1989). In this subsection we describe the two educational interventions. First we present the most complete intervention: the comprehensive strategic intervention. Then we indicate how the partial strategic intervention differs from the comprehensive one.

Firstly, the intervention gives students the opportunity to appropriate cognitive, affective and motivational learning strategies systematically. We see the presentation of these strategies as a concomitant of mediated learning (Hermans, 2003). All strategies were operationalised in questions that sought to scaffold students' comprehension. The comprehensive strategic intervention involved the following strategies: (A) Cognitive learning strategies for understanding the story and what it refers to, relating the story to real-life situations and understanding the narrative plot. These strategies involve questions like "Do you know what kind of story this is?", "Are you able to tell the story in your own words?", "Do you understand what happens in the story?", "Have you ever experienced something like that?", "Can you work out its intention?", "What is the story saying about God?", and "Does it call on us to do something?". Students are given these questions on small mnemonic cards that they use as learning aids. At the start of the programme the teacher introduces these cards and teaches students how to use them. Students are encouraged to use them while working in small groups, and gradually internalise them by asking themselves or other students the questions without using the cards. The cognitive learning strategies include heuristic strategies that scaffold students' planning of their learning process and these, too, are operationalised in drawings on small mnemonic cards. The drawings visualise three steps in acquiring new knowledge, starting from "Right from the beginning I knew what the story was about!", to "Later on I wasn't so sure anymore. What would happen next?", and finally "Then something very new happened. I know a lot more now!" These strategies can help students to discover the extraordinary event and the critical moment in the narrative. (B) In addition students were systematically stimulated to acquire affective learning strategies such as communicating about feelings with peers and the teacher, interpreting feelings by finding out why they feel happy or sad, and reinterpreting the ideas in light of

their beliefs and valuations. The affective learning strategies to scaffold students' communication about feelings were again operationalised in questions written on mnemonic cards. Examples of questions are: "What do the characters in the story feel?" "Are you feeling angry or are you enjoying yourself?" "Do you know why you feel the way you do?" Because we assume that the critical moment in particular is emotionally evocative, we expect affective learning strategies to be very useful when students grapple with this moment. The strategies help students to explore further and acquire cognitive understanding. (C) Finally, motivational learning strategies are meant to assist students to relate their current task to their learning goals. Students are introduced to these strategies through the teacher's instruction and full class discussions. The teacher introduces the strategies with questions like, "What do you want to learn? What does your current task mean for your learning?"

In the first part of the programme the cognitive, affective and motivational learning strategies are introduced to the students, who can acquire them through small-group and individual assignments. Students are given the opportunity to learn the strategies both individually and collectively. Thus the affective learning strategies on the mnemonic cards are presented in conjunction with cognitive learning strategies, and the contents of the questions that enable students to learn the strategies are interrelated. Students are then taught cognitive learning strategies to understand the story and relate it to real-life situations, and affective learning strategies to communicate their feelings (first mnemonic card), heuristic strategies (second mnemonic card), the cognitive learning strategy to understand the narrative plot and affective learning strategies to interpret their feelings (third mnemonic card), and the learning strategy to construct knowledge about God and to deal with what they have learnt (fourth mnemonic card). In the second part of the interventions students use the strategies that they learned in the first part to carry out various assignments.

Secondly, the content of the intervention derives from three sources: religious stories, contemporary events and students' real-life experience. In this way we try to ensure that learning is mediated by such tools as the religious ideas associated with religious and other stories. In both parts of the programme students are introduced to religious stories and invited to discuss their own experience. In the first part of the programme they learn to understand the Bible story of the labourers in the vineyard (Matthew 20) and are asked in small groups to construct knowledge about what is or might be just. The introduction of the unusual distribution of wages (all workers get the same wage, no matter how many hours they worked) invokes students' own notions of fairness. In the second part of the intervention students construct knowledge

about forgiveness by interpreting the story about the unmerciful servant (Matthew 18). Here the introduction of the extraordinary absolution invites students to reflect on forgiveness. Students are explicitly invited to reflect on these moments, which evoke various feelings that are assumed to enhance or inhibit cognitive understanding. Linking the narrative plot to current events and personal experience enables students to construct meaning. In this way they can acquire the following five religious ideas: (a) God is someone who gives abundantly; (b) God sometimes asks people to share abundantly; (c) if you can't handle a problem by acting conventionally, you should act abundantly; (d) a biblical parable is a religious story in which unexpected things happen; (e) extraordinary situations can be understood with the aid of stories from religious books like the Bible or the Qur'an. Although these are five separate ideas, substantively they are closely interrelated.

The comprehensive strategic intervention offers cognitive, affective and motivational learning strategies, whereas the partial strategic intervention offers only cognitive and motivational learning strategies. Two types of learning strategies are lacking in the partial strategic intervention used by the second experimental group, compared with the comprehensive strategic intervention used by the first experimental group: the cognitive learning strategy to relate religious stories to real-life situations, and affective learning strategies. The rationale underlying the exclusion of these learning strategies from the partial strategic intervention is as follows: The current practice in religious education is to give students an opportunity to acquire religious ideas by interpreting religious stories such as parables. Although they are confronted with both religious and contemporary stories, they are not assisted in interrelating the two. Although students experience feelings in the acquisition of religious ideas, they are not helped to become aware of these, interpret them and communicate about them to others. The partial strategic intervention did *not* offer students strategies to help them determine what the stories mean to them, although it did give them an opportunity to acquire religious ideas. Current practice in religious education offers students little or no support in the form of learning strategies. The comprehensive strategic intervention represents a bold advance in the innovation of religious education learning practices by offering five learning strategies.

#### 4.4 *Measures*

Data were gathered using the questionnaire on students' characteristics, the feelings questionnaire, and the Cognitive Achievement Test.

#### 4.4.1 Student characteristics questionnaire

This questionnaire was used to gather data on students' characteristics. Students were asked to report: gender (1 item: boy / girl); age (1 item: 9-13 years); religious self-definition (1 item: Christian, Muslim, non-religious, other (including Hindu and Buddhist)); belief in God's existence (1 item, ranging from 1 ("I definitely disbelieve in God's existence") to 5 ("I definitely believe in God's existence")); and participation in religious practices such as reading religious books, praying or attending religious services (5 items, ranging from 1 (never) to 5 (every day);  $\alpha = .80$ ). The results of analysis of data obtained by means of this questionnaire are presented in Table 2.

**Table 2: Personal characteristics of students organized by experimental group**

Group	N	Gender	Age (years)	Religious self-definition	Belief in God	Participation in religious practices
Experimental group 1 (6 groups)	148	77 boys 71 girls	9-10: 75.3%; 11-13: 24.7%	Christian 52.4%; Muslim 15.2%; non-religious 22.1%; other (including Hindu or Buddhist) 10.3%	Definitely believe 35.2%; have questions 11.7%; have doubts 35.9%; have difficulty believing 7.8%; definitely disbelieve 9.4%	Never or almost never 60.8%; now and then 18.2%; regularly 8.8%; at least once a week 12.1%
Experimental group 2 (5 groups)	109	56 boys 53 girls	9-10: 21.1%; 11-13: 78.9%	Christian 75.0%; Muslim 7.4%; non-religious 13.9%; other (including Hindu or Buddhist) 3.7%	Definitely believe 25.8%; have questions 34.8%; have doubts 28.1%; have difficulty believing 4.5%; definitely disbelieve 6.7%	Never or almost never 56.9%; now and then 27.5%; regularly 6.4%; at least once a week 9.2%

Statistically the first experimental group differs from the second with respect to religious self-definition ( $\chi^2 = 14.1$ ,  $df = 3$ ,  $p = .003$ ) in that group 2 has relatively more Christian students, and also with respect to age ( $t = -10.01$ ,  $df = 253$ ,  $p = .000$ ) in that group 1 has relatively more 9- and 10-year-olds. In the analysis we need to control for these discrepancies.

#### 4.4.2 *Feelings questionnaire*

In this questionnaire students reported their feelings regarding the religious ideas of the programme, which are treated as valuations (see section 2.2). Thus far research in religious education has dealt with affective variables such as openness (Krathwohl 1.00: receiving), interest (Krathwohl 2.00: responding) and attitudes (Krathwohl 3.00: valuing). Valuing is concerned with the worth or value a student attaches to a particular learning subject or situation. This ranges in degree from the simple acceptance of a value to the more complex level of commitment. Because feelings relate to the way students value basic ideas, they can be classified along with valuing in the taxonomy of Krathwohl et al. (1964). We, however, use affective terms that we derive from educational research into emotions and feelings (Pekrun et al., 2002; Op 't Eijnde et al., 2001; Scherer, 2004).

The affective terms derive from the research of Pekrun et al. (2002), who include positive and negative emotions, as well as activating and de-activating emotions, because the dimensions of valence and activation should both be regarded as basic determinants of many effects of emotions. Our items include positive activating terms of enjoyment, pride and hope, positive de-activating terms of satisfaction and relief, negative activating terms of anger and anxiety, and negative de-activating terms of boredom, disappointment and a sense of inferiority.

Students assessed their feelings in relation to the five religious ideas three times on a five-point rating scale in specified terms (1 = not at all, 5 = very much). Thus they were asked to rate how they felt when reading a statement like, "A biblical parable is a religious story in which unexpected things happen". Students then were asked to rate their enjoyment ("I am enjoying myself"), disappointment ("I am disappointed"), boredom ("I am bored"), and so on on a five-point scale. The relative frequency of both positive and negative feelings indicates involvement with a given valuation and the relative frequency of both activating and de-activating feelings indicates the action tendency evoked by the valuation.

By rating these affective terms, students reported their feelings about the religious ideas of the programme. The instrument was administered first to both experimental groups in a pre-test (O1) before the educational intervention, then a second time after six lessons (O2) and a third time in a post-test (O3) after the final lesson. By testing students on the content of the statements immediately after the lessons we believe that our rating reflects actual feelings. Factor analyses (PAF, Oblimin rotated factor analysis) reveal three feeling factors, which are labelled 'positive feelings' ( $\alpha = .92$ ; enjoyment, pride,

hope, satisfaction, relief), 'negative feelings' ( $\alpha = .89$ ; anger, anxiety, disappointment, sense of inferiority) and 'boredom' ( $\alpha = .93$ ).

#### 4.4.3 *Cognitive Achievement Test*

We developed a Cognitive Achievement Test (CAT) containing 32 tasks. The tasks involve 12 assignments testing knowledge about religious ideas and 10 assignments testing knowledge about cognitive learning strategies, as well as two relating to heuristics, six relating to affective learning strategies and two relating to motivational learning strategies. Since cognitive achievement includes knowledge, comprehension and application (Bloom, 1979: categories 1.00, 2.00 and 3.00), the CAT tests to what extent students know, comprehend and apply religious ideas and learning strategies. The first 12 assignments, which include items like "What can you learn to understand from Bible stories?", require students to select the best response from four options. The remaining 20 assignments relate to three stories: one is a biblical parable, while the other two are about activities of contemporary children of the same age as the students. After reading the story students were asked to complete six or seven assignments based on the story. The following is an example. After reading the biblical parable of the marriage feast (Matthew 22), item 23 requires students to demonstrate that they know the learning strategy for constructing the narrative plot: "You now know what happens in the Bible story about the marriage feast. Next you want to find out the intention of the story. The best way is to...". Again they were asked to choose the best of four possible responses.

Students took an average of 40 to 45 minutes to complete the CAT. Before the test was administered a trial run was conducted in two higher primary school classes that were not participating in the study. The final version of the CAT was adjusted based on feedback from the trial run. On the basis of the results of descriptive statistical analyses of the CAT data we dropped six items (nos. 6, 21, 39, 42, 43 and 47), whose corrected item total correlation value was too low ( $> .15$ ), from subsequent analyses. The remaining items ( $i = 26$ ) together form a scale that we call the Cognitive Achievement Test. Cronbach's alpha indicates that the test is reliable ( $\alpha = .81$ ).

#### 4.5 *Data analysis*

Data analysis was performed using the following statistical methods. To answer our first research question we conducted MANCOVAs (dependent variable = post-test CAT), in which we introduced — next to the pre-test CAT — feelings (positive feelings, negative feelings and boredom) as separate co-variants

prior to the intervention (O1), halfway through the intervention (O2), and after the intervention (O3). To answer our second research question we used an SEM technique to determine how the children's religious characteristics affected the influence of feelings on achievement. A model-generating analysis was conducted on the data using the LISREL program to make theoretical sense of the data while adhering to them optimally (Kline, 2005).

## 5 Results

### 5.1 *Influence of feelings on cognitive achievement*

Before answering our first research question, which concerns the influence of feelings on achievement when using different interventions, we present the results of the descriptive analyses of scores on all three measures of the feelings questionnaire in Table 3 and of scores on the pre- and post-test measures of the Cognitive Achievement Test in Table 4.

**Table 3: Means (X), standard deviations (SD) and reliability coefficients ( $\alpha$ ) of the two groups on the feelings questionnaire in three measurements (O1, O2, O3)**

	X O1* (SD)	$\alpha$	X O2* (SD)	$\alpha$	X O3* (SD)	$\alpha$
Positive feelings						
– Exp. group 1	2.67 (.83)	.88	2.67 (.89)	.89	2.53 (.95)	.89
– Exp. group 2	2.56 (.83)	.90	2.64 (.77)	.85	2.43 (.88)	.92
Negative feelings						
– Exp. group 1	1.59 (.52)	.77	1.45 (.54)	.84	1.47 (.60)	.89
– Exp. group 2	1.43 (.44)	.79	1.37 (.59)	.91	1.45 (.63)	.89
Boredom						
– Exp. group 1	2.08 (1.06)	.83	1.88 (1.03)	.83	2.25 (1.27)	.92
– Exp. group 2	2.02 (1.16)	.92	2.04 (1.22)	.92	2.48 (1.34)	.93

\* Scale: 1 (not at all), 2 (a little), 3 (quite a lot), 4 (a lot), 5 (intensely).

The research findings show that students report moderate levels of positive feelings, low levels of negative feelings, and moderate levels of boredom. Results of MANOVAs for repeated measures (General Linear Model [GLM], multivariate tests) reveal that there is a significant decrease in positive feelings ( $F(2, 247) = 6.060$ ;  $p = .003$ ) and in negative feelings ( $F(2, 246) = 4.208$ ;

$p = .016$ ), and a significant increase in boredom ( $F(2, 244) = 13.879$ ;  $p = .000$ ). Intra-subject test results reveal that the decrease in positive feelings is located between O2 and O3, the decrease in negative feelings between O1 and O2, and the increase in boredom between O2 and O3.<sup>3</sup> The results of the MANOVAs show that the factor 'experimental group' has no significant effect on the development of either positive feelings, negative feelings or boredom.

Table 4 shows the mean scores (average number of items answered satisfactorily) and standard deviations (SD) for the two experimental groups on the CAT prior to and after the intervention (pre-test and post-test).

**Table 4: Mean scores (X) and standard deviations (SD) of the two research groups on the Cognitive Achievement Test in pre-test and post-test measurements**

Group	Pre-test (SD)	Post-test (SD)
Experimental group 1	10.52 (3.67)	12.02 (5.07)
Experimental group 2	11.47 (3.87)	13.67 (4.47)

Before we examine the results of further analyses it should be noted that Table 4 shows mean scores of between 10.52 and 13.67. From these low scores (students on average answered between 40% and 53% of the questions satisfactorily) we infer that the CAT was difficult. It should also be noted that the standard deviation in the post-test is higher than in the pre-test, indicating that differences between students have increased. Results of MANOVA for repeated measures show that the difference between scores on pre-test and post-test CAT is significant ( $F(1) = 43.914$ ,  $p = .000$ , partial  $\eta^2 = .16$ ). These results, however, also show that the factor 'experimental group' has no significant effect, meaning that the students' achievement in the two groups did not differ.

To answer our first research question we conducted MANCOVAs in which we introduced — next to the pre-test CAT — feelings. The MANCOVA results show that — next to the pre-test ( $F(1) = 92.374$ ,  $p = .000$ , partial  $\eta^2 = .28$ ) — positive feelings after the intervention ( $F(1) = 4.426$ ,  $p = .037$ , partial  $\eta^2 = .02$ ), negative feelings prior to the intervention ( $F(1) = 4.501$ ,  $p = .035$ , partial  $\eta^2 = .02$ ), negative feelings after the intervention ( $F(1) = 4.856$ ,  $p = .029$ , partial  $\eta^2 = .02$ ), boredom

<sup>3</sup> Intra-subject tests refer to GLM, which tests within-subjects contrasts, and inter-subject tests to GLM, which tests between-subjects effects.

prior to the intervention ( $F(1) = 4.226$ ,  $p = .041$ , partial  $\eta^2 = .02$ ), and boredom after the intervention ( $F(1) = 12.235$ ,  $p = .001$ , partial  $\eta^2 = .05$ ) all influenced the post-test CAT. According to the MANCOVA results, however, the experimental group factor has no significant effect. This means that this factor makes no difference to the influence of feelings on the post-test CAT.

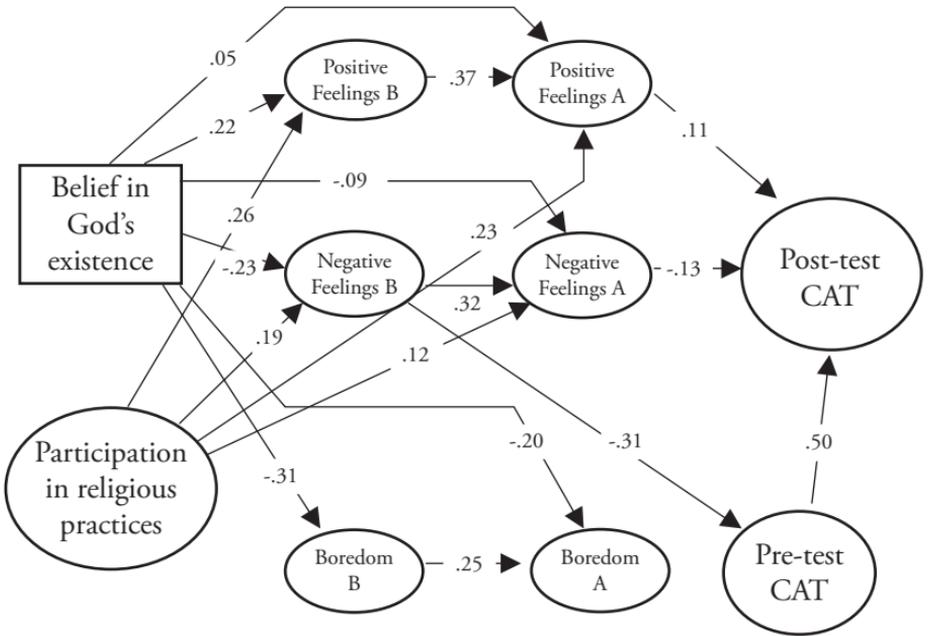
To sum up: positive feelings, negative feelings and boredom all influenced achievement, albeit to varying degrees. This accords with our expectations. However, judging by the low explained variance it must be acknowledged that feelings have only limited impact on achievement. This is very evident when the partially explained variances of feelings are compared with the partially explained variance of the initial achievement. In fact, feelings influence achievement to a limited extent only. The analyses do not confirm our expectation that the comprehensive strategic intervention would make a greater difference to the impact of feelings on achievement than the partial strategic intervention.

## 5.2 *Influence of feelings on achievement with respect to students' religious characteristics*

We also wanted to find out whether such characteristics as religious self-definition, belief in God and participation in religious practices make a difference to the impact of feelings on achievement. To find out whether these characteristics make a difference we used an SEM technique.

In our search for a well-fitted, structurally economical model we incorporated the aforementioned three characteristics, along with positive feelings, negative feelings, boredom, and the pre-test CAT as independent variables and the post-test CAT as the dependent variable. In the process we observed that when religious self-definition was omitted from the model, the fit improved markedly, whereas omission of belief in God and participation in religious practices drastically diminished fit. From this we infer that the last two characteristics are a major factor in the influence of feelings on the post-test CAT. If we take these two characteristics as indicators of one latent variable (e.g. religiosity), fit deteriorates appreciably. This is because each of the two characteristics has a different effect on the process. For the sake of the economy of the model we incorporated only feelings prior to and after the intervention. In the model the pre-test CAT acts as an auto-regressor that allows us to determine the unadulterated influence of the other variables on the post-test CAT. Since the earlier analyses indicated no difference resulting from the experimental group factor, we tested the model on all students irrespective of experimental group. The model appears in Figure 1.

**Figure 1: Influence of belief in God, participation in religious practices, feelings and pre-test CAT (auto-regressor) on post-test CAT (depiction of significant path coefficients). Positive Feelings B, Negative Feelings B & Boredom B = Before the interventions; Positive Feelings A, Negative Feelings A & Boredom A = After the interventions.**



The fit of the model is excellent, as follows: chi-square = 22.52 at 24 degrees of freedom,  $p = .55$ , GFI = .98, AGFI = .96, NFI = .97, SRMR = .031, RSMEA = .0 (90% confidence interval for RSMEA .0; .046). Let us deal with Figure 1 from left to right. First, we can affirm that belief in God influences positive feelings, negative feelings and boredom both before and after the interventions. Participation in religious practices influences positive and negative feelings prior to and after the interventions. Second, positive feelings, negative feelings and boredom prior to the interventions influence the corresponding feelings after the interventions. Third, it is evident that negative feelings have a marked impact on the pre-test CAT, whereas positive feelings do not affect it at all. Fourth, positive feelings after the intervention ( $\beta = .11$ ,  $t = 2.00$ ) and negative feelings after the intervention ( $\beta = -.13$ ,  $t = -2.32$ ) affect the post-test CAT if we control for the influence of the pre-test CAT

( $\beta = .50$ ,  $t = 9.54$ ). Remarkably, the results of the analyses of this model indicate that boredom does not affect the post-test CAT. Whereas the results of the variance analyses show that boredom influences the post-test CAT (see section 5.1), the analyses reflected here indicate no such influence. On the basis of these effects we can trace three paths for the influence of belief in God and participation in religious practices on the dependent variable, the post-test CAT. The first path proceeds via negative feelings and the pre-test CAT to the post-test CAT. The second path runs from the characteristics via positive feelings prior to and after the interventions to the post-test CAT. The third path leads from the characteristics via negative feelings prior to and after the interventions to the post-test CAT. In short, we can affirm that belief in God's existence and participation in religious practices affect the influence of feelings on the post-test CAT.

Are there any indications of a reciprocal relationship? To answer the question we first have to determine whether the pre-test and post-test CAT influence feelings. A structural model using the same variables as the one presented above and assuming that pre-test and post-test CAT influence the feelings has a good fit: chi-square = 28.93 at 24 degrees of freedom,  $p = .22$ , GFI = .98, AGFI = .95, NFI = .95, SRMR = .041, RSMEA = .026 (90% confidence interval for RSMEA .0; .059). The fit is only marginally less than the model described above but some modification indices indicate local poor fit in the case of the relation between pre- and post-test CAT and feelings. This could imply that the model in a sense favours a reverse explanation, namely that feelings influence the pre- and post-test CAT. Finally, if we design a model permitting reciprocal influence between feelings and pre- and post-test CAT, we obtain no good fit at this stage. On the contrary, the fit is considerably worse and no single relation between belief in God or participation in religious practices and feelings or CAT remains significant. In short, the fact that the model which assumes influence of pre-test and post-test CAT on feelings has a good fit indicates that achievement in its turn influences feelings.

In conclusion we affirm that a well-fitted, economical structural model is one that assumes that feelings influence the pre-test and post-test CAT. If one controls for the pre-test CAT, positive and negative feelings influence the post-test CAT. Belief in God and participation in religious practices exert an influence on post-test CAT via positive feelings and via negative feelings. Religious self-definition has no effect. In this model, moreover, boredom has no effect on the post-test CAT. This means that belief in God and participation in religious practices actively affect the influence of feelings on achievement.

## **6 Conclusion and discussion**

We now examine how the results of our study relate to the research questions. In our discussion we indicate pertinently how we interpret the findings and what new research questions they raise. Our first research question concerns the influence of feelings on achievement in the area of religious ideas, specifically in the interpretation of parables. Results of the analyses show that positive feelings, negative feelings and boredom all have an impact on students' knowledge, comprehension and application of religious ideas and learning strategies when dealing with parables. Because we consider achievement a condition for cognitive understanding, these results clearly indicate that feelings influence cognitive understanding in religious education. Hence in contrast to recent research on reading of popular culture and popular science texts (Ainley et al., 2005), we were able to prove some influence. Do religious texts in fact evoke those feelings that may enhance or inhibit students' cognitive understanding than other texts (Jablonski & Van der Lans, 2001; Theis, 2005)? Nevertheless, some caution is called for. While some influence is discernible, improved achievement is only explained by feelings to a limited extent. It is secondary to the influence of initial achievement.

The results appear to support theoretical explanations that feelings promote mastery of ideas and strategies and thus help to shape the development of cognitive understanding of religion (Wynn, 2005). In fact, the results point in that direction: positive feelings enhance achievement and negative feelings and boredom inhibit it. The fact that positive feelings influence achievement implies that they affect positively such knowledge and mastery of religious ideas and learning strategies. The following could be an explanation. Parables are stories with a complex semantic structure that requires intensive, concentrated study (Erlemann, 1999; Theis, 2005). Positive feelings that are related to religious ideas enhance the use of heuristic strategies that scaffold students' understanding of the parable story and its structure. We suspect that positive feelings stimulate students to engage in detailed and responsive consideration of the progress of the narrative, including the critical moment. Positive feelings can alert them to insights on how to explore beyond the critical moment. By broadening the scope of concern, positive feelings can help to prevent the estrangement brought on by the critical moment from making them dig in their heels and refusing to attempt to understand any further. Negative feelings like anger, anxiety, disappointment and a sense of inferiority, and boredom, on the other hand, appear to have the opposite effect. Negative feelings correlate negatively with achievement. We suspect that negative feelings inhibit

the ability to activate and use existing knowledge about parables, stimulate a more superficial study of parables and do not alert students to their existing knowledge of parables (Theis, 2005). Hence we can assume that feelings direct students' reflective enquiry and shape the development of their cognitive understanding of religious ideas in the interpretation of parables.

Remarkably, the impact of feelings on achievement is much the same in both interventions: the experimental group factor makes no difference. Since the most conspicuous difference between the two interventions concerns affective learning strategies, we must ask ourselves whether students in the first experimental group in fact benefited by these strategies. Does the finding that the affective learning strategies are not particularly effective relate to the finding that the influence of feelings on achievement is limited? In this context it is rather a case of improved achievement being attributable to the help of cognitive learning strategies, like heuristic strategies that scaffold students' planning of their learning process. In addition it could be that students in the first experimental group were overtaxed by the number of strategies. In that case a gradual introduction of diverse strategies would be more likely to achieve the full potential (Van der Zee et al., 2006). Further research into the proportional and adequate support of strategies is needed to clarify the point.

Our second research question is whether the influence of feelings on achievement varies according to students' religious characteristics, such as religious self-definition. To answer this question we designed a structural model in which belief in God's existence and participation in religious practices affect the influence of feelings on achievement. This model has an excellent fit. The first striking result is that religious self-definition does not feature in this model. We expected this characteristic to be important because it pertains to familiarity with religious (in this case Christian) discourse (Jablonski & Van der Lans, 2001). Yet the influence of feelings on achievement is not affected by religious self-definition. Our study in religiously heterogeneous classes shows that the difference in the influence of feelings on achievement does not derive from religious self-definition, but from belief in God and participation in religious practices. We consider these two characteristics to be good indicators of familiarity with religious discourse. Note that belief in God and participation in religious practices affect the influence of feelings on achievement in different ways. A second noteworthy finding is that in the model, boredom does not influence achievement. When the influence of boredom on achievement is explored in separate variance analyses, it does appear to have an effect, but in the analyses based on the structural model that effect disappears. Must we conclude that boredom no longer has an effect once belief in God and par-

ticipation in religious practices come into play? In other words, we surmise that belief in God and participation in religious practices neutralise the effect of boredom. These findings are strong indicators that belief in God and participation in religious practices are two aspects of students' religious identity that play a vital role in their learning process with regard to feelings connected to religious ideas. They offer concrete support for the theoretical explanation that students' religious identity influences their learning process (Hermans, 2003).

Further research is needed to clarify the relationship of feelings and achievement (Pekrun et al., 2002; Pekrun, 2005). We barely know what the interrelationship of feelings and achievement in religious education entails. Wynn's models (2005), other than the one we applied, could be useful for formulating hypotheses in this regard. For example, the Wynn's fourth model states that feelings may enhance the grasp of things that we do not perceive directly but only anticipate or long for. Within the cognitive science of religion, ideas about extraordinary acts by a transcendent actor can be understood as counter-intuitive representations. They conflict with people's intuitive notions of what constitutes possible actions (Pyysiäinen, 2001). Theories in cognitive science of religion posit that feelings prompt people to make inferences that their available knowledge does not qualify them to make. By enhancing students' grasp of things that they do not perceive directly, feelings prompt conclusions which the students' present knowledge does not permit. Furthermore, we have presented findings that suggest that characteristics relating to students' religious identity affect the impact of feelings on achievement. The question is whether and how the influence of these characteristics relates to the influence of characteristics arising more directly from students' experience of earlier learning practices, such as beliefs about knowledge, knowing and learning (De Corte, Op 't Eijnde & Verschaffel, 2002; Mason & Scrivani, 2004). Further research is needed to clarify this.

On the basis of our results we believe that the following points are important for the renewal of religious learning practices. First, teachers should not only be aware of feelings that are evoked when learning to understand parables, but should also bring them up for discussion. The teacher's task is to discuss with students which feelings may be evoked and how they influence the students' achievement. Second, the teacher's task is to support students systematically as they learn to interpret parables, especially by way of heuristic strategies. These strategies scaffold students' planning of their learning process and help them to discover the extraordinary or critical moment in the parable and explore beyond it. The strategies presented to students as scaffolds in our interventions appear to be suited to the purpose, provided they are introduced

more gradually so that students can learn how to apply them. Third, teachers need to bring students' belief in God and their participation in religious practices up for discussion. These two characteristics have an impact on the learning process and may be regarded as essential social differences, that is, as part of students' identity (Ten Dam, Volman & Wardekker, 2004). Social differences can become obstacles to engagement if they are not properly dealt with. When designing learning practices in religious education social differences should be considered and reflected on explicitly in order to remove possible obstacles.

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