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## **Teachers' perspectives on self-regulated learning : an exploratory study in secondary and university education**

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## General Conclusions and Discussion

### 6.1 Short summary of the study

Since the late 1990s, innovations in secondary education in the Netherlands have changed both the content of the subjects and the didactic approach. One of the reasons for introducing self-regulated learning in secondary education was to improve the transition to higher education. The main goal of our study was to explore and compare perspectives of both secondary and university teachers on self-regulated learning. Furthermore, we wanted to relate the perspectives we found to the discipline or school subject these teachers taught. Based on previous studies, we had several indications of important similarities between the two groups of teachers, but also of major differences. The different characteristics of each group of teachers include differences in training, the different roles teachers play in their teaching practice, and the dominant role of research in higher education.

Our research consisted of two studies, the first of which can be characterized as a small-scale qualitative study in which the variety in teachers' perspectives on self-regulated learning was explored. In this study, we interviewed 37 teachers from secondary schools and from university. In order to help teachers explicate their beliefs about teaching and learning, we provided the teachers with metaphors and asked them for their reaction. Based on the qualitative analysis of these reactions, we identified four different perspectives on self-regulated learning. Furthermore, we made a first comparison between the two groups.

In our second study, which can be characterized as a large-scale, quantitative study, we investigated perspectives on self-regulated learning in a large group of teachers, as we wanted to make a large-scale comparison between secondary and university teachers. Furthermore, we wanted to explore possible connections between teachers' perspectives and the discipline in which they teach. We developed a questionnaire based on the interview data, which was subsequently filled out by 675 teachers in secondary and higher education. Different statistical analyses were used to identify teachers' perspectives on self-regulated learning and to investigate the differences between the two groups of teachers.

In the following sections, we will describe and discuss the main results of the two studies for each of the three research question (see chapter 1, section 1.3). In addition, the main strengths and limitations of this study will be discussed, and suggestions for future study and practical implications will be given.

## 6.2 Main conclusions

### 6.2.1 *Research Question 1: What perspectives do secondary and university teachers have on self-regulated learning?*

Main conclusions from the interview study (chapter 2)

We investigated the variation in teachers' perspectives in a small-scale interview study (n=37), and identified the following four perspectives: 'meaning-loose', 'meaning-strong', 'knowledge-loose', and 'knowledge strong'. Here, 'meaning' and 'knowledge' pertain to teachers' views on learning, which can be interpreted as either learning as acquiring meaning or learning as knowledge building. The terms 'strong' and 'loose' pertain to the regulation of the learning process from the perspective of the teacher, and refer to either regulation by the teacher (strong) or regulation by both teachers and learners (loose). In each perspective, we found that teachers have specific goals and views concerning the learning process of their students, as well as the regulation in their teaching practice. The main distinguishing characteristics seemed to be teachers' views on learning and on regulation. Teachers were either meaning- or knowledge-oriented, and they reported either a more 'loose' or 'strong' regulation of their teaching practice (for other characteristics, see Table 34). To illustrate the perspectives we found, we will give a short description of a typical teacher with perspective 1 and a teacher with perspective 4. A 'meaning-loose' teacher (perspective 1) believes that learning revolves around developing meaning and understanding. Regulation in this perspective is mainly loose, which means that students are, gradually, given more responsibility for their own learning process. A typical teacher with this perspective expects students to take the initiative themselves, for instance, by discovering what their best method of learning is. In this perspective, a teachers' typical main goal is the development of students both in respect to their knowledge of the subject matter, as well as their personal development. Another important goal is independence, which stresses the responsibility students have to take for their own learning process. On the other hand, a 'knowledge-strong' teacher (perspective 4) believes that learning is all about acquiring knowledge and putting this knowledge to use. Regulation of the learning process in this perspective is mainly in the hands of the teacher. A typical teacher with this perspective expects students to actively study the subject matter. Such a teacher also believes that students do not work hard (enough) and do not have the right priorities. A typical teacher with this perspective sets the increase of students' knowledge as a main goal of his or her teaching practice. The four perspectives we found, were evenly spread out over secondary and higher education teachers and over teachers in different subjects.

Table 6.1

Four perspectives on self-regulated learning as found in interview study (n=37)

Perspectives	Goals	Learning process	Students	Regulation
<b>Perspective 1 Meaning-loose</b>	Goal is development of students and independence of students.	Learning is understanding a subject and seeing connections with other subjects, your own life, or daily practice.	Students are expected to take initiative.	Student and teacher are mainly in control.
<b>Perspective 2 Meaning-strong</b>	Goal of teaching is independence of students	Learning is understanding a subject and seeing/making connections with other subjects, your own life, or daily practice.	Students are expected to work hard.	The teacher is mainly in control.
<b>Perspective 3 Knowledge-loose</b>	Goal is teaching students' norms and values (pedagogy) and independence.	Learning is increasing subject-matter knowledge.	Students are expected to take initiative.	Student and teacher are mainly in control.
<b>Perspective 4 Knowledge-strong</b>	Goal of teaching is increasing students' knowledge.	Learning is increasing subject-matter knowledge.	Students are expected to study subject matter actively but often they do not.	The teacher is mainly in control.

Main conclusions from the survey study (Chapter 5)

We investigated teachers' perspectives also in a large-scale survey study, and identified the following three perspectives: 'development-shared', 'knowledge-strong', and 'opinion-loose'. Here, 'development', 'knowledge', and 'opinion' pertain to the goals teachers have set in their teaching, which could either be the personal development of students, acquiring knowledge and skills, or forming an opinion on the subject matter. 'Strong', 'shared', and 'loose' pertain to the regulation of the learning process which is either controlled mainly by the teacher (strong), by both teacher and learner (shared), or mainly by the learner (loose). In each perspective, we found specific goals, views on both the learning process, the students, and on regulation. We will briefly describe the 'opinion-loose' perspective, since this is somewhat different from the perspectives we found in the interview study. The main goal for 'opinion-loose' teachers is to foster a critical attitude in students, and to have them form an opinion of the subject they

are studying. Important are the expectations teachers have of their students. They expect students to work hard, to do their work independently and to bring their own material to the classes or tutorials. Regulation in this perspective is mainly in the hands of the learners: They have to regulate their own learning, for example, discovering which learning strategies to use.

Table 6.2

*Three perspectives on self-regulated learning based on survey study (n=675)*

	Goals	Learning process	Students	Regulation
<b>Perspective 1 Development-shared</b>	Goal is development of students and pedagogy.	Learning is changing your view on the world and on yourself as a person.	Students are different and have more capabilities than they often think themselves.	The students and the teacher together are in control.
<b>Perspective 2 Knowledge-strong</b>	Goal is increase Of subject-matter knowledge.	Learning is increasing subject-matter knowledge.	-	The teacher is mainly in control.
<b>Perspective 3 Opinion-loose</b>	Goal is forming an opinion.	-	Students are expected to work hard and take initiative.	The student is mainly in control.

### Discussion

The two perspectives showing the strongest resemblance are the ‘knowledge-strong’ perspective in the first study (see Table 6.1), and again the ‘knowledge-strong’ perspective in the second study (see Table 6.2). Both of these perspectives, with identical names, have knowledge building as their main goal, while learning is perceived as acquiring knowledge and skills, and regulation is mainly in the hands of the teacher. Also, the ‘meaning-loose’ (see Table 6.1) and ‘development-shared’ (see Table 6.2) perspectives show a strong resemblance. In both of these perspectives, the goals of personal development of students and education of students (pedagogy) are important, and regulation is considered to be mainly in the hands of both teacher and learners. A difference is that while in the interview study the learning process was perceived as acquiring ‘meaning’, in the survey study it was perceived as ‘changing’. An explanation could be that these two categories are closely related; in the interviews they were often found together, and in the questionnaire study both items about learning as it pertains to changing as a person, and as it pertains to acquiring meaning were combined in the same scale of ‘learning as change’.

An important difference between the interview and the survey study was the position of regulation; in the interview study it was not possible to make a clear distinction between ‘loose’ and ‘shared’ regulation. In other words, regulation done by the student and by both teacher and students. ‘Loose’ and ‘shared’ regulation were often found together. Teachers talking about sharing

responsibility for the learning process with students often also talked about students' responsibility, for instance, to motivate themselves to learn. It was possible to make a distinction between 'loose' and 'shared' regulation in the survey study, in which factor analyses were used to create scales in the questionnaire. 'Loose' and 'shared' regulation were identified as separate scales.

Differences between the two studies can partly be explained by the method that was used by each. In the interview study, teachers could freely express their intentions and beliefs, while in the survey study they were asked to respond to a predetermined set of items which reduces the variation. The perspectives 'meaning-strong' (perspective 2) and 'knowledge-loose' (perspective 3) which we found in the interview study, were not found in the survey study, probably because of this loss in variation. In other research in which a questionnaire was based on a variety of beliefs found in interviews, a similar loss in variation was reported (for instance, Trigwell and Prosser, 2004). Furthermore, in the interview study we investigated the perspectives and defined groups of teachers with a similar perspective, resulting in four groups (meaning-strong, meaning-loose, knowledge-strong, and knowledge-loose). This is similar to Larsson's approach (1983). In our survey study we identified perspectives not specifically related to groups, but based on the variation in responses (similar to the approach of Pratt, 1998). We also had a different and larger sample to work with in the survey study.

The perspectives of secondary and university teachers we found are, to some extent, in line with the innovation in secondary education. The two perspectives 'opinion loose' and 'development shared' are more or less in line with the innovation, in that the teacher shares the regulation of the learning process with the students, and values students' personal development, individual differences, and sees the learning process as acquiring meaning and changing students' perspective. On the other hand, the 'knowledge-strong' perspective which has a strong focus on the transmission of knowledge and regulation by the teacher, does not adhere to self-regulated learning as encouraged in secondary education.

Furthermore, we consider the perspectives we found to be qualitatively different, and of equal importance, meaning that no one perspective is better than the others. This is contrary to research in which perspectives are often represented as one-dimensional with on the one hand 'content', 'transmission' or 'teacher' and on the other hand the 'learning process', 'conceptual change' or the 'learner'. These sides are also characterized as being either traditional or progressive (e.g., Kember, 1997; Bolhuis & Voeten, 2004). This one-dimensional interpretation of perspectives also carries a normative aspect, since progressive and learner-oriented conceptions are considered to be more desirable. Our study does not confirm this one-dimensional interpretation. We found perspectives to be more complex, that is consisting of more than two opposing conceptions, and more diverse, that is, consisting of several different categories of beliefs. In each perspective, different categories were found which consisted of, goals, beliefs and actions, as hypothesized by the model we used.

*6.2.2 Research question 2: What are the similarities and differences between secondary and university teachers' perspectives on self-regulated learning?*

Main conclusions from the interview study (Chapter 3)

In Chapters 3 and 4, we compared secondary and university teachers' perspectives to see if they are in line with each other. The main similarities found between secondary and university teachers in the interview study are the following: Both groups of teachers find the goal acquiring knowledge equally important, both groups perceive the learning process as knowledge building, applying knowledge and skills, and changing learners' view on the world, and both groups characterize the learning process as a process of discovery, a process with a clearly identified goal, and specific order. Teacher's views of students are also similar in both groups. The control of the learning process is of equal importance to both groups, as are instructional activities conveying subject matter, explaining subject matter, and structuring subject matter, as well as the motivation of learners, and learning to learn.

We found the main differences between secondary and university teachers to be in the following categories: teachers in secondary education find the goals of pedagogy and development important, while university teachers find the goals of developing opinion and fostering independence more important. Concerning the learning process, teachers at the university level consider the learning process to be mainly about structuring and acquiring meaning. University teachers, furthermore, emphasize the process-oriented character, which means that it is not the outcome of learning which is important, but rather the process of learning itself, and also that learning is never finished. Finally, the instructional activities related to creating a 'good' learning environment and to social contacts between students and teachers are more important to teachers in secondary education.

Main conclusions from the survey study (Chapter 4)

According to the results of the survey study, teachers in both secondary and university education refer to the learning process as the building of knowledge. Both groups of teachers have similar expectations of students; namely that they are not very much involved. Secondary and university teachers find both strong, and loose regulation of equal importance.

We found the most obvious differences between the two groups of teachers in the different goals that they have for their teaching practice, namely educating students (pedagogy), and forming an opinion, and the way they think about the capacities of students. Teachers in secondary education find teaching students norms and values important. Teachers in higher education, on the other hand, value helping students to form an opinion of the subjects they study. We found other differences between these two groups as well. Secondary teachers find acquiring a basic package of knowledge and skills important, and they value the personal development of their students. The learning process is more often seen as signifying 'change' by these teachers; meaning that they believe that by learning you change your view of the world, and you change as a learner. These

teachers also find it important to take the differences between students into account and they find that students often have more capacities than they might think themselves. A final remarkable difference is that teachers in secondary education report more shared regulation in their teaching practice, control over the learning process by both teacher and learners, than teachers at university. Our analyses showed that the scores on the scales 'pedagogy', 'opinion', and 'capacities' of students could 'predict', in 85,3% of the cases, whether a teacher belonged to secondary or to higher education (chapter 4, section 4.3).

#### Discussion

The similarities between secondary and university teachers are the same in both the interview and survey studies, namely that teachers see the learning process as increasing the knowledge of their students. Both groups of teachers have similar expectations of students and indicate both strong and loose regulation in their teaching practice. We found more similarities than differences between the two groups in the interview study than in the survey study. The question is what these similarities between the two groups of teachers tell us. Both groups of teachers agree on the fact that acquiring knowledge and skills is important, they have similar expectations of student, and they indicate similar (strong and loose) regulation in their teaching practice.

In both interview and survey studies, differences were found between the two groups concerning the goals of pedagogy, development, and opinion. The goals of pedagogy and development are more important to teachers from secondary education, and the goal of opinion is more important to teachers in higher education. This is in line with suggestions made in the literature about the differences between secondary and university teachers, and concerns the different goals both types of education have (Menges & Austin, 2001). These findings are also in line with suggestions that the more advanced the level of education is, the more likely that the focus of the teacher is on the content, and the less likely that it is on the learner (Marton & Booth, 1997). This is apparently reflected in our findings.

The findings from our study reveal that secondary teachers are more directed to the learners, considering the importance they attach to the personal development of students, by teaching them norms and values, and the capacities of individual students, whereas university teachers focus more on content, considering the importance they attach to their students forming an opinion of the subject being studied. Marton and Booth (1997) similarly suggest, after reflection on different studies, that secondary and university teachers differ with regard to the focus they have which in secondary education is more on the learners, who are seen as potentially variable, which means that teachers tend to distinguish between students and, for example, the way they learn. These differences are taken into account in teaching. The content is more or less taken for granted. On the other hand, in university education the content is considered variable and the learners are taken for granted. University teachers tend to focus more on the variation in content, considering phenomena from different (theoretical) perspectives, and considering the diverse ways the content is



experienced by the students (Marton & Booth, 1997, p.173). Although we found the same tendency in our data, we also found that there is no a 'black-and-white' distinction between secondary and university teachers. Especially older university teachers are more inclined to focus on the students, while younger secondary teachers are more inclined to focus on the content of the school subject.

Important for a teacher is to bring learners' knowledge of the world one step further, and to communicate about the content of the subject and the way it is understood, according to Marton and Booth (1997). They write that: "a demand for such thought contact is that the teacher is aware of the dimensions of variation that refer to content as experienced (how it is understood by the learners) and to the learners as experiencers of the content (how they approach the tasks of learning, how they experience learning itself, how they experience the learning context" (Marton & Booth, 1997, p. 175). This would imply that to have such thought contact, secondary teachers would need to focus more on content, and university teachers more on the learners.

Boulton-Lewis et al. (2001), in their interview study in secondary education, found no indication that secondary teachers are more student- focused than teachers at university. Note that in this study only secondary education teachers were investigated and that the results of this study were compared to existing studies on university teachers' conceptions. In our study, we did find a marked difference between secondary and university teachers. Differences are probably more apparent because we investigated both groups of teachers empirically in the same study.

### *6.2.3 Research question 3: What is the relation between secondary and university teachers' perspectives on self-regulated learning and the discipline they teach?*

Main conclusions from the survey study (Chapter 5)

In Chapter 5 we investigated the relation between teachers' perspectives and their disciplines. The disciplines were categorized as being either hard (e.g., mathematics, physics) or soft (e.g., languages, history). We found the following differences between hard and soft disciplines. Teachers from soft disciplines scored higher on the 'development-shared', and the 'opinion-loose' perspective. Thus, teachers from 'soft' disciplines more often have a 'development-shared' perspective which focuses on the goal of personal development of students, the learning process as signifying change, and regulation by both teacher and learner. Also, these teachers are more oriented towards the 'opinion-loose' regulation perspective which consists of the goal of developing a personal opinion, expectations of students, and regulation by the learner.

Furthermore, we investigated the differences between teachers from different university disciplines, using Becher's dimensions (2001), which identifies, 'hard'-'soft' and 'pure'-'applied' disciplines. Soft-pure discipline teachers scored significantly higher only on the 'development-shared' perspective, compared to teachers from the other groups of soft-applied, hard-pure, and hard-applied disciplines. This was the only significant difference.

### Discussion

Differences between hard and soft disciplines, and the perspectives teachers have might be related to the character of the subject. 'Hard' disciplines are, in general, characterized by one paradigm and an established knowledge base, whereas in the 'soft' disciplines there is no one clear paradigm. It is likely that the importance of the goals of 'opinion' and 'development', identifying learning as signifying 'change', and regulation as 'loose' or 'shared', suits teachers from soft disciplines more. In their disciplines' interpretations, of for instance texts, are important and are considered to be a result of research, while the nature of knowledge growth is considered to be holistic and reiterative (see Chapter 5). It is likely that these teachers want to foster a critical attitude in their students, meaning for instance that they learn to judge texts and form their own personal opinion of them. Learning is perceived by these teachers as signifying a change of view, which can also be connected to the knowledge growth category in this discipline, which requires students to compare views.

In the hard disciplines, in general, the nature of knowledge growth is considered cumulative, and results are explained as being a discovery or an explanation (Becher & Trowler, 2001). Teachers from these disciplines have a different view on goals, learning, students, and regulation compared to teachers from soft disciplines.

Although there is some research available on the differences between disciplines, explanations about the causes of these differences still need to be studied (Neumann, 2001). According to Becher and Trowler (2001), both epistemological factors and social factors are of influence, but how they relate is not clear. In two studies in secondary education, researchers also explored the subject, and took its relation to teachers' conceptions into account as well. Both studies obtained different results. Waeytens et al. (2002), in their study of secondary education, interviewed Dutch language and mathematics teachers, and found no relation between teachers' conceptions and the subject they were teaching. Boulton-Lewis et al. (2001) did find a difference between second language, science and mathematics teachers, and literature and arts teachers. For instance, teachers who thought of teaching as transmission of contents / skills were all second language teachers, whereas teachers who saw teaching as transformation taught subjects like English literature and Art.

The fact that no significant differences were found in Waeytens' study may be related to the sample or the limited amount of school subjects taken into account. Like in the study by Boulton-Lewis et al. (2001) in secondary education, and the study by Lindblomm-Ylänne et al. (2006) in higher education, we found significant differences between teachers from different subjects which makes discipline an important factor to take into account in the investigation of teachers' perspectives.

### 6.3 Strengths and limitations of this study

#### 6.3.1 *Strengths of this study*

This study contributes to our knowledge and understanding of the perspectives secondary and university teachers have on self-regulated learning. The strengths of our study will be outlined here.

Up until now teachers' perspectives in secondary and university education were studied separately. Many studies suggested that there are major differences between the two groups of teachers, and that they are even 'a breed apart' (Kember, 1997). However, others suggested many similarities, for instance Boulton-Lewis et al. (2001) in her study on secondary teachers' beliefs about teaching and learning. Although comparisons were made between the results of different studies in secondary and university education, it remains difficult to compare studies because they have been carried out in separate contexts. In our study, we took both groups of teachers into account and used the same procedure to investigate both similarities and differences between the two groups.

Furthermore, we used an open approach to the study of teachers' perspectives on self-regulated learning, meaning that we explored the variation in teachers' perspectives empirically. We identified perspectives in a qualitative study and used the results from this study to design a questionnaire, using the teachers' own language, which contributes to the quality of the questionnaire. This approach differs from previous studies on self-regulated learning, in which conceptions were derived from the literature and researchers then investigated which of these pre-defined conceptions fitted teachers best (Bolhuis & Voeten, 2004; Waeytens, Lens, & Vandenberghe, 2002).

Another strength of our study is the new way in which we used metaphors; in previous studies, for instance, teachers' metaphoric language was studied (Morine-Dershimer & Tarpley Reeve, 1994), teachers were asked to create a metaphor about their own teaching practice (Martinez, Saulea & Huber, 2001), either in words or in a drawing, or teachers were encouraged to change their teaching practice, or their thinking about a metaphor (Tobin & Tippins, 1996). In our interview study we used metaphors on teaching and learning and asked teachers to respond to these. Teachers were given the opportunity to respond to any aspect of the metaphor in an open way, for instance, teachers reacted to the idea of the teacher as a gardener. The reactions on the metaphors were of interest, not merely to see whether or not teachers agreed on a metaphor, but, more specifically, why. So the metaphors were mainly meant as triggers for teachers to respond to and to help them explicate their beliefs about teaching and learning. This seems a promising method but further research on the validity of the data generated by this method as compared to other methods is necessary, in order to fully investigate teachers' beliefs.

#### 6.3.2 *Limitations of this study*

There are some aspects that should be considered when reading the conclusion of our studies. Below we will indicate a few limitations of our study.

A major problem in the literature on teacher's beliefs is the use of self-reporting instruments. In this study we used two instruments which both rely on the self-reporting of teachers. In the semi-structured interview we used, teachers were asked both directly and indirectly, by means of metaphors, about their intentions, beliefs, and actions. Words do not always represent thoughts though, and therefore one should be careful in the analysis of these verbal reports (e.g., Calderhead, 1996). Another consideration is that for some people it is more difficult to express their beliefs than for others. A related problem may also be that teachers do not have direct access to their beliefs, because of their sometimes tacit nature (Carter, 1990; Munby, Russell, & Martin, 2001; Kagan, 1992). In our interview study, we tried to counter this last problem by having respondents react on a number of metaphors related to teaching and learning. Metaphors gave teachers the opportunity to react freely, and provided a trigger to report on what they find important in teaching and learning. In the second part of our study we used a questionnaire, which is vulnerable for social desirable responses. Furthermore, questionnaires may also contain items that teachers do not recognize as their own beliefs, for instance because of the language used (Kagan, 1990). We tried to compensate for this problem by using quotations from interviews, in other words, by using teachers' natural language, in order to formulate items. We assume that this approach may have helped teachers to recognize their beliefs in the questionnaire, and, in other words, may have triggered their tacit knowledge. Another problem indicated by Pajares is that the different contexts teachers work in cannot be taken into account in a questionnaire: "individual items fall prey to 'it depends' thinking" (Pajares, 1992, p. 327).

Another limitation in our study is the sample and response in both interview and questionnaire studies. In our interview sample, we wanted as much variation between teachers' beliefs as possible and for that reason we asked people familiar with the teacher population at a certain school, or in a certain department at university, to advise us on the teachers we could approach. It might very well be possible that the teachers in our sample were those (easily) willing to participate, and not necessarily those teachers who differ as much as possible from one another. As for the questionnaire study, a limitation in this study is the generalizability of the results of the questionnaire due to the limited response. We have to be cautious with any generalization, since the response to the questionnaire in this study was rather low (24%). The characteristics of the sample, like age and experience, did look a lot like the characteristics of the target population. From this point of view, there is no indication that our sample is not representative.

#### **6.4 Suggestions for future research**

In our study, we only investigated teachers' perspectives. We did not take teachers' behavior in their teaching practice into account, nor did we relate teachers' perspectives to their behavior in their teaching practice. Like in most

other studies, we assumed that teachers' perspectives influence the decisions they make in their classroom teaching practice, and vice versa (Pajares, 1992). Kane, Sandretto and Heath (2003), showed, in their review of studies on university teachers' beliefs and practices, that most studies investigate teachers' conceptions and assume a certain teaching practice while they have not actually studied it. This would be a suggestion for future study in which the questionnaire can be used to identify teachers with different perspectives, and its results, could subsequently, be related to observations in their teaching practices. This way it would be possible to determine the consistency or inconsistency between perspectives and behavior. More specifically, it would be interesting to do this in specific settings; with different levels, classes, and teaching methods (Trigwell & Prosser, 1994).

Another suggestion for future study would be to adapt the questionnaire we developed in several ways. Firstly, by decreasing the number of items, in order to make it easier for teachers to fill out the questionnaire, and to use it in a large-scale study provided, of course, that the reliability of the scales in the questionnaire would be the same. Secondly, teachers could be asked to fill out the questionnaire for a specific situation (either for a specific teaching method, or a specific class or group). It is likely that teachers will report different conceptions when thinking about a specific teaching method (e.g., large class or small group) or when thinking about a specific group (specific learners may require a specific approach). Context-specific conceptions can be investigated in this manner (see also Lindblomm-Ylänne et al., in press). Thirdly, the items on regulation can be adapted for the different disciplines. This way it could be possible to investigate the influence of the teaching context on the manner in which teachers fill out the questionnaire, and it would be possible to compare perspectives *within* a specific (disciplinary) context.

Changing one's perspectives is difficult according to different studies. However, it also has not been investigated much (Pajares, 1992). A suggestion for a follow-up study would be to ask teachers to fill out the questionnaire at different moments in time over a longer period of time, and to see if any changes take place and in what 'direction' these changes move. This would be especially interesting in an innovative context, to discover if the innovations influence teachers' perspectives.

## 6.5 Implications

In our study we used Pratt's model which assumes that intentions, beliefs, and (perceived) actions are three central aspects to investigate teachers' perspectives. In our survey study, we found that the perspectives we defined consisted of these same three elements, which can be seen as a confirmation of the model in another context, namely in secondary and university education, and related to another phenomenon, namely self-regulated learning instead of teaching.

Findings from this study suggest that the implementation of self-regulated learning is problematic for teachers with a 'knowledge-strong' perspective, i.e. with a focus on the increase of knowledge, a view of learning as an accumulation of facts, and the teachers as the one in control of learning activities. Although the literature indicates that a change of perspectives is difficult to achieve (Pajares, 1992), it may be useful to invest in additional training for teachers, which could focus on the intentions, beliefs and actions of teachers.

The problematic transition from secondary to higher education was one of the reasons for innovations in secondary education in the Netherlands. In this study, we investigated the teachers' view on self-regulated learning. The question is what can be done to improve the transition. In general, it seems that measures in both secondary education and at university are needed; in secondary education, a stronger focus on content is required, while in higher education, a stronger focus on the individual learner is required. Secondary education teachers may need to focus more on the variation in their subject content, as they teach to prepare their students for university. In other words, teachers should focus more on the different views and opinions of knowledge, and the necessity of forming a personal opinion of the subject matter being studied. Attention should be paid to this aspect in teacher training situations as well. Furthermore it is important that (pre-service) teachers know what they are preparing their students for; in other words that they are familiar with research and teaching (methods) in a certain discipline at university. Universities, on the other hand, could invest more in the initial support of students. Some universities already use mentoring groups in which not only content matter is discussed but personal matters as well. In a recent discussion, Van Wieringen refers to the 'educative' function of the university, by stressing that small-scale academic institutes, where the building of a social network is possible, may contribute more to the education of students and prevent attrition (Van Wieringen, 2005).

The questionnaire that we developed can be seen as an important additional result of this study. The questionnaire could possibly be used in other contexts, for instance in pre-service teacher education or in additional training for experienced teachers, to find out what perspectives teachers have on self-regulated learning. For instance, if teachers want to change some aspects of their practice, it is important that they are able to explicate what they find important. This could be a vantage point for thinking about a direction for change, and for reflection on teachers' own perspective.