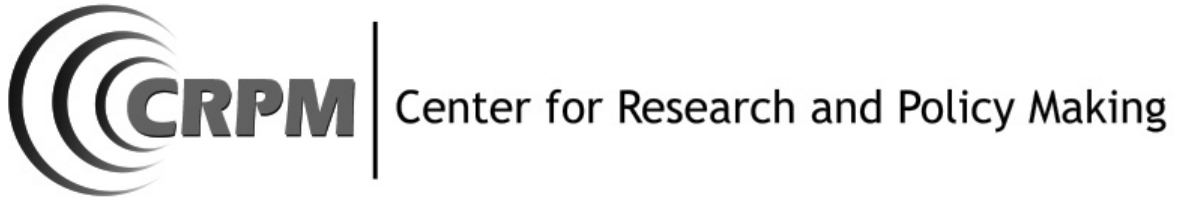# TEACHERS' IMPLICIT THEORIES OF PUPILS' INTELLIGENCE AND MOTIVATION

A comparative analysis between Macedonian and English teachers

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Research | Analysis | Trainings | Policy advice

Acknowledgements

Abstract

This thesis represents a cross-cultural study of the similarities and differences in Macedonian and English teachers' beliefs about pupils' intelligence and motivational strategies used in the classroom. It employed a mixed-method approach to explore the issue from different perspectives. Quantitative methodology was used to compare the dominant implicit theories and motivational strategies adopted by the teachers from each cultural context, and qualitative methodology was used to analyse the structure of teachers' belief-systems and their relationship with their classroom practices.

Macedonian and English teachers were found to differ more in regard to the motivational strategies adopted, than to the implicit theories held. Findings tentatively suggest that the adoption of motivational strategies is primarily influenced by the doctrines promoted by the schooling system and to a minor degree by teachers' beliefs about pupils' intelligence and motivation.

The main postulates of Dweck and Leggett's (1988) Model of Implicit Theories of Intelligence, which provided the theoretical basis of the study, proved to be relevant for identifying teachers' implicit theories in the two contexts.

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INTRODUCTION

Given my international perspective, I was interested in comparing the schooling system between Macedonia (my country of origin) and England. The differences I encountered in the two countries' schooling practices ranging from the dominant methods of teaching, learning and pupil assessment, to the use of feedback, provoked my interest in exploring their origins. Are they an expression of the differences in teachers' beliefs, or simply a reflection of the countries' different schooling standards, which teachers are required to adapt to? A review of the literature indicated a deficiency of cross-cultural studies exploring the relationship of teachers' beliefs and practices. This incited my curiosity even more, and made the realisation of the idea for the present study all the more challenging. I decided to employ the Model of Implicit Theories of Intelligence (Dweck and Leggett, 1988) with the aim of exploring the cultural universalities and specifics in the Macedonian and English teachers' beliefs about pupils' intelligence, and the motivational strategies employed in the classroom.

CHAPTER 1:
REVIEW OF THE LITERATURE

The following chapter provides an overview of the theoretical conceptions which have laid the foundations for exploring the issue of teachers' beliefs. I will begin the first part by presenting the origins of the concept of implicit theories. Then, I will introduce Attribution Theory as one of the most influential models for explaining achievement motivation, and afterwards focus on the Model of Implicit Theories of Intelligence, which provides the theoretical framework of the present study. This will be followed by an analysis of the concept of teachers' implicit theories, with an emphasis on their development and sustainability throughout the teachers' practice.

In the second part of the chapter, I will present a selection of studies which explore the cross-cultural manifestations of achievement motivation, and introduce the debates they instigated. I will conclude by identifying deficiencies in the previous research and offering suggestions as to how they could be overcome. This will lead to defining the aims of the present study.

1.1 Implicit theories

The idea that people behave like naive 'scientists' in their daily lives has been introduced into psychology by George Kelly (1955), who contended that people construe their experience and explain the events around them by employing their personal (implicit) psychological theories. He argued that the implicit theories are organised as a hierarchical system of dichotomies – bipolar constructs (e.g. good-bad, warm-cold etc.). Several of the constructs constitute the 'core' of the system. They are considered to be the most important for the person, since they define who s/he is.

Beginning with Kelly's Theory of Personal Constructs (1955), the concept of implicit theories has been widely used in psychology, even though researchers are still struggling to explain it and find ways to examine it. However, there is general agreement that the implicit theories are organised as cognitive schemes, consisting of constructs and the relationships between them. They are 'created through a process of enculturation and social construction' (Pajares, 1992: 316) and operate in a rather systematic way to provide a sense of predictability of one's own and others' actions (Wegner and Vallacher, 1977). Because of these features, implicit theories resemble scientific theories, but differ in that the former are not objectively tested (Wegner and Vallacher, 1977) and tend to resist change, even in the face of disconfirming evidence (Fiske and Taylor, 1991). The fact that they are 'inaccessible to our immediate awareness' (Wegner and Vallacher, 1977: 16) makes them difficult to express and be scientifically explored (Pajares, 1992). However, Kelly (1955) believed that if psychologists want to determine the nature of cognitive functioning and predict human behaviour, they first must understand how individuals construe their reality (i.e. their personal theories).

1.1.1 Attribution theory - an implicit theory of motivation

While Kelly (1955) was aiming to explain the organisation of the implicit theories, attributional theorists have attempted to explain how people employ some of the personal constructs as predictors or explanations of human actions. According to them, people constantly seek answers to: why a particular salient event has happened, what are the reasons (causes) for the event and what its outcomes (consequences) are (Weiner, 1992). This process of searching for the cause enables them to explain their and others' actions and predict the behaviour. However, peoples' judgments are usually not based on the real causes of events, but their personal beliefs about causes. Hence, the attribution process represents a 'sophisticated example' of implicit theory of motivation (Wegner and Vallacher, 1977).

Heider's (1958) attribution theory is considered to have marked the 'official' beginning of this field of interest. He believed that people make their attributions on the basis of two main factors: internal (within the person performing) and external (situational factors). Kelley (1971) developed the theory further by suggesting that the attribution is dependent on the available information to draw a causal attribution. Hence, it can either be made by using a covariation principle (multiple observations over time, over persons and over entities) or in the case of incomplete data, by using a configuration principle (based on a single observation and assistance from causal schemata). (Fincham & Hewstone, 2003)

Further refinement of the theory by Weiner (1984) resulted in the development of the Attributional Theory of Motivation and Emotion. Weiner identified ability, effort, task difficulty, and luck as the most important factors affecting attributions for achievement and classified them along three causal dimensions: locus of causality, stability, and controllability. The locus dimension has two poles: internal versus external; stability dimension refers to whether causes change over time or not and controllability contrasts causes one can control, such as skill/efficacy, with causes one cannot control, such as aptitude, mood, others' actions, and luck (Weiner, 1992). Weiner holds that peoples' appraisal of failure or success at a task is usually followed by basic emotion (positive or negative; e.g. sadness, happiness), after which comes a search for the cause of the outcome along the above three dimensions. The result of the search determines the future achievement expectations and more specific emotional reactions, which guide the successive achievement-related performance (Fiske and Taylor, 1991). For example, if a person fails on a task, his/her initial emotional reaction may be sadness which may lead to seeking an explanation and attributing the failure to a lack of ability. This causal explanation is likely to cause a further emotional reaction, perhaps shame, which might lower the person's self-expectations of future success on similar tasks. On the other hand, if the failure is attributed to not having luck, it probably will not influence the person's emotions and behaviour if faced with a similar situation in future. Hence, attributions can create expectations regarding the future prospects for achievement and thereby influence behaviour (e.g. approaching or avoiding a task).

`Although Weiner's theory is still widely used model for explaining the process of attribution in achievement situations, some of its aspects have been modified by other attributional theorists. One of them is Carol Dweck, who postulated the Model of Implicit Theories of Intelligence (Dweck and Leggett, 1988) to explain the framework of self-beliefs, attributions, goals and behaviours associated with people's achievement motivation. The model, which will be presented in the following section, represents an attempt to extend the understanding of attributions for success and failure by focusing on the meaning systems (self-theories) which set up the attributions (Dweck, 1999)[1].

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1 The causal relationship between the implicit theories and the attributions, argued by Dweck and her colleagues, has been questioned by other theorists (e.g. Lewis, 1995, Peterson, 1995, Sorrentino, 1995) who claim that the relationship might as well be opposite, i.e. the motivational and attributional patterns may elicit the adoption of the implicit theory.

1.1.2 Implicit theories of intelligence

'Looked at in one way, everyone knows what intelligence is; looked at in another way, nobody knows. Put another way – people all have conceptions – which also are called folk theories or implicit theories – of intelligence, but no one knows for certain what it is.'

Robert Sternberg (2000: 3)

According to Sternberg (2000), understanding people's implicit theories of intelligence is very important because they guide the ways in which people perceive their own and others' intelligence and make judgements about ability. In fact, the scientific theories have also initially existed as implicit theories in the minds of the scientists, before being externalised and 'objectively' examined. Therefore, Sternberg (2000) believes that the 'correctness' of the scientific theories of intelligence should not be taken for granted, and they should be modified if it is revealed that they share little in common with the implicit theories that most people hold.

Dweck and Leggett's (1988) Model of Implicit Theories of Intelligence offers a framework for analysing people's conceptions of intelligence in relation to their achievement motivation. The model shares many similarities with other models of personal theories (e.g. Mischel, 1968, 1973; Bandura, 1977; according to Anderson, 1995). However, its emphasis on the personal theories as meaning systems closely relates it to the ideas of Kelley's Theory of Personal Constructs (1955). Dweck and Leggett (1988) consider peoples' beliefs about intelligence as a core personal construct which can be highly relevant for explaining their goals, attributions and behaviours in achievement situations. Dweck and Leggett's (1988) model also offers a new outlook on the relationship between internality and stability dimensions in Weiner's theory (1984). While Weiner speaks of ability as an internal and stable characteristic and effort as an internal unstable characteristic, Dweck and Leggett (1988) consider that in people's implicit theories, the concepts of effort and ability tend to be more intertwined. Furthermore, the relationship (positive or negative correlation) of these two concepts creates the basis of an individual's implicit theory of intelligence and determines the distinctive attributional and behavioural patterns.

The model is built upon the idea that people basically differ in their beliefs about the nature of intelligence. It differentiates between individuals who believe that their intelligence is fixed and hence out of their personal control, and individuals who believe their intelligence is malleable and can be controlled and influenced by them. The first group is referred to as 'Entity theorists' and the second as 'Incremental theorists'. Which of the two theories people hold creates a framework of interrelated structures and fosters 'judgements and reactions that are consistent with that framework' (Dweck, Chiu and Hong, 1995a:268). Hence, the implicit theory as a concept on its own has no particular value unless it is seen in relation to the person's goals and attributions. (Dweck, Chiu and Hong, 1995b),

Elliott and Dweck (1988) suggest that people that perceive their intelligence as a fixed trait usually pursue 'performance goals' (attempting to create the impression of having adequate ability and avoid showing evidence of inadequacy); while the ones that believe their intelligence to be a malleable characteristic pursue 'learning goals' (aimed at improving their skills and knowledge and adopting new competencies in any learning situation). The basic difference here, as Elliott and Dweck (1988) put it, is among actions directed towards proving ability as opposed to improving ability. However, since the nature of the goals is often determined by the environment, through the type of achievement situation, people are not always in a position to choose the goal they would like to pursue. Their reactions in those situations are likely to be guided by the perception of the informative value of a specific goal. For example, Hong et al. (1999) showed that when faced with a performance goal, the entity theorists perceived it as indicative of their complete intellectual abilities and future intelligence, while for the incremental theorists it represented an indicator of their skill in the current task.

Dweck and Leggett (1988) argue that peoples' self-theories about intelligence are strongly related to the motivational style they are likely to develop. Entity theorists tend to adopt maladaptive motivational styles (learned helplessness or attenuated mastery), thinking there is nothing they can do to improve their ability and consequently their performance, so after a failure situation they simply give up trying or seek to find ways to hide their 'incompetence' from others. On the other hand, incremental theorists do not lose confidence in their ability after experiencing failure, but simply decide to make more effort the next time in order to improve their performance (i.e. adopt mastery motivational patterns).

The most important features of the entity and the incremental framework are presented and compared in Table 1.

Characteristics of the construct

The construct of 'implicit theory of intelligence', as conceptualised by Dweck and Leggett (1988) is shown to be quite independent and unrelated to constructs such as: self-esteem, cognitive ability, confidence in intellectual ability, social-political attitudes (e.g. authoritarianism) etc. (Dweck et al., 1995a). However, it is found to be related to the attributional style (Anderson, 1995), which is to be expected since the attributions for success and failure are an important element of the implicit theory framework

Though it was originally conceived as a dichotomous construct, consisting of two 'extremes' which in a logical sense are mutually exclusive, Dweck et al. believe that 'it is perfectly possible for an individual to hold both theories' (1995b: 323). Especially if the theories are conceptualised as knowledge structures, both of them can exist in the knowledge system, with one being more dominant than the other in most contexts. The fact that a certain theory can be fairly easily induced in an experimental manipulation, as well as the domain-specificity of the theories, speak of the possibility for holding divergent theories at the same time, and making the one or the other more accessible depending on the circumstances (Dweck et al., 1995b).

Table 1. A comparison of key features associated with entity and incremental framework[2]

Entity theory	Incremental theory
Belief that intelligence is fixed	Belief that intelligence is malleable
Performance goals: gaining favourable judgements of one's own abilities and avoiding unfavourable ones	Learning goals: increasing one's own ability
Failure is more likely to be explained in terms of lack of ability than effort	Failure is interpreted as indicating lack of effort, ineffective strategy use or something one can learn from
Selecting very easy or very difficult tasks, to protect one's self-worth in case of failure, or giving up	Selecting (moderately) difficult tasks to challenge oneself
Constant comparison of own abilities (or achievement) with those of others (proving ability)	Comparison with previous personal achievement (improving ability)
High probability for developing maladaptive motivational patterns	High probability for developing adaptive (mastery) motivation
Effort and ability are negatively related (the more effort you need to invest, the less abilities it means you have)	Effort and ability are positively related (effort influences the activation and development of abilities)
When faced with setbacks - give up or blame some external factors (e.g. the task)	When faced with setbacks - look for ways of increasing effort or engaging in remedial actions (e.g. improving the skills)
Normative feedback – considered as more informative	Process feedback – considered as more informative

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2 It is important to note that these characteristics are not always related to holding an entity or an incremental theory, but research (e.g. Dweck and Leggett, 1988; Elliott and Dweck, 1988; Burhans and Dweck, 1995; Hong et al, 1999; Butler, 2000), has found them to be quite consistently linked

Development of implicit theories of intelligence

Studies with pre-school children (e.g. Dweck and Leggett, 1988; Heyman, Dweck and Cain, 1992, Burhans and Dweck, 1995) have shown that implicit theories of intelligence seem to be activated very early in childhood, although they do not specifically relate to the children's beliefs about intelligence, but rather the notions of 'goodness' and 'badness'. These self-beliefs are found to be strongly influenced by the characteristics of the environment and the socializing practices a child is exposed to, especially the feedback from adults (e.g. parents, teachers) after success or failure situations. Specifically, feedback from the adult indicating a child's permanent characteristics (e.g. goodness, worth, intelligence etc.) might suggest that those traits are fixed and unchangeable. Alternatively, feedback directed towards the child's performance in terms of strategy employed or effort invested, suggests deficiencies which can be modified Dweck et al. (1995a).

Though early self-conceptions are relatively undifferentiated and relate more to the social than the intellectual domain, over the school years, the concept of intelligence gains importance 'as children pursue their academic studies, experience successes and failures, observe the successes and failures of their peers, and observe the reactions of their own parents to their academic efforts' (Dweck, 1999:96). During the early school years, the conceptions of ability undergo transformations which result in changes in: the perceived impact of the academic outcomes and social comparisons on ability, the self-evaluations of ability and the motivation for learning (Dweck, 2001). The first transformation occurs around the age of 7-8, and results in perceiving ability as a stable internal characteristic, which is usually defined normatively (through comparisons with others). The second major set of changes, which occur around the age of 10-12 is mainly characterised by the development of the concept of ability as capacity and its differentiation from the concept of effort (Dweck, 2001; Nicholls and Miller, 1984). As a result, for the adolescent pupils, investing higher effort may often imply having lower ability and vice versa (Nicholls and Miller, 1984). At the same time, pupils at this stage of development become more sensitive to academic outcomes, and may begin to associate ability with marks (Blumenfield, Pintrich and Hamilton, 1986; according to Dweck, 2001). However, it is worth noting that the fact that early adolescents develop a more 'mature' conception of ability does not mean that they will use it in all situations (Nicholls and Miller, 1984) and regard the notion of fixed intelligence to be necessarily true (Dweck and Leggett, 1988).

The characteristics of the secondary school environment are considered to be an additional contributor to the changes in the adolescent pupils' ability conceptions. Pupils leave the secure primary school atmosphere to face a more demanding and competitive environment, where the emphasis is on social-comparisons and ability self-assessment (Eccles, Lord and Midgley, 1991). These aspects of the context, combined with the heightened self-focus of the early adolescents, contribute towards strengthening the conception of ability as a fixed trait (Eccles et al., 1991). The developmental and environmental changes are believed to interact and result in an increased probability of developing maladaptive motivational styles within many adolescent pupils, which often leads towards dramatic decline in school achievement (Galloway et al. 1995, 1996; Covington and Dray, 2001).

Environmental (classroom) influences on pupils' ability conceptions

Even though Dweck conceives of people's implicit theories as relatively stable entities over time, she does not dispute the possibility of the environment influencing the ability-beliefs (Dweck et al. 1995b). However, other researchers (especially Carol Ames) have specifically focused on examining the environmental influences on the pupils' ability conceptions and goal preferences. Among the most commonly researched aspects of the classroom context are the grouping strategies, feedback practices, task structure, assessment practices, teacher-pupil relationships, pupils' autonomy and choice, teaching and learning methods etc. (Marshal and Weinstein, 1984). Some of these aspects will now be discussed in more detail.

- Grouping strategies. Many authors (e.g. Dweck, 1999; Holloway, 1988; Eder, 1981; Ames, 1981) criticize the practice of grouping pupils on the basis of same-ability criteria The use of this practice can emphasise ability

as a stable and unchangeable characteristic (Wegner and Vallacher, 1977). Furthermore, it may encourage comparisons with the pupils in ones own group and the pupils in other groups, especially if the composition of the groups is stable (Stipek, 1997). Finally, it can influence teachers through forming and supporting their expectations that the pupils in the low-achieving group are less able and would always be poorer achievers (Dweck, 1999). The effects of grouping by ability can be especially detrimental if the opportunities for upward mobility are small or non-existent (Eder, 1981). In contrast, the mixed-ability grouping in which pupils work cooperatively on an assignment, reduces the ability-attributions and enables the pupils to learn from one another (Ames, 1981; Marshal and Weinstein, 1984).

- *Task difficulty and structure.* The practice of giving the same tasks to a group of pupils might encourage normative comparisons of their achievement (Stipek, 1997), and strengthen the stratified perceptions of ability (Rosenholtz and Rosenholtz, 1981) since some pupils might continuously underperform relative to others. The normative comparisons of the achievement are even more common in competitive task structures, and believed to be especially harmful for the low-achieving pupils' ability-beliefs (Ames, 1981). In addition, the practice of continuously giving easy tasks to some pupils and difficult tasks to others is likely to communicate the teacher's differential expectations regarding their ability and potential for achieving success (Marshal and Weinstein, 1984), which may shape their personal ability-beliefs. Hence, the best strategy would be to enable pupils to work on various tasks, and focus on evaluating their personal progress in mastering the tasks.

- *Assessment methods.* Teachers who use marks as incentives for encouraging pupils to learn, can communicate a message that the mark itself is the principal goal of the learning, whilst the knowledge is secondary (Covington and Dray, 2001). This is likely to promote performance goals (i.e. learning to achieve a high mark or avoid achieving low mark). At the same time, giving a mark without informing the pupil about the criteria on the basis of which s/he was assessed can highlight its normative function (i.e. indicate a pupil's achievement relative to others) and shadow the informative function (i.e. providing feedback on the learning, what was achieved well and what can be further improved).

- *Feedback practices.* The feedback informs pupils about what the teacher values and expects from their performance, and hence has the power to determine their self-beliefs and serve as an incentive for the future goals and performance. Some authors (e.g. Stipek, 1997, Thompson, 1997) discriminate between feedback focused on the process (effort, strategy) and on the personal dispositions/traits (ability, stable personal characteristic). While the former type of feedback refers to unstable and changeable characteristics, and emphasises the pupils' potential for change, the latter refers to stable, and usually unchangeable, features. Several of Dweck's studies have demonstrated the beneficial effect of effort-feedback on children's ability conceptions and motivational styles. In one of her experiments, Dweck (1975) found that children who exhibited learned helplessness, when exposed to success and failure situations and given effort-feedback (i.e. taught to attribute their failures to a lack of effort) showed more persistence in the face of difficulty and used more problem-solving strategies. On the other hand, the children who were only exposed to success situations and given tokens as rewards showed no improvement in their response to failure. Muller and Dweck (1998) showed that teachers need to be careful when they administer praise to pupils. Specifically, praise which is focused on ability can be potentially detrimental to pupils' ability-beliefs and motivational patterns, since it may communicate a belief that ability is a fixed trait and a main determinant of success. The children in Muller and Dweck's (1998) experiment who were given ability praise were found to be less motivated to pursue a challenging task; more emotionally affected when faced with a difficulty; and eventually lower in their achievement - compared to the 'effort-praised' group.

Several studies (Clifford, 1984; Reid and Borkowski, 1987; according to Stipek, 1997) have established that in some failure situations, strategy feedback can be more efficient than effort feedback, because it conveys a more constructive message regarding pupils' performance.

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Teachers influences on classroom environment effects

Teachers have the power to modify some of the negative environmental influences and hence weaken (or intensify) their effects on the pupils' ability conceptions and goal directedness (Rosenholtz and Rosenholtz, 1981). Eccles et al. (1991) found that the role of the teacher is especially important during the transition from primary to secondary school. This is the period when pupils begin to develop the belief that ability is a capacity, which is frequently followed by a decline in their achievement motivation. Eccles et al. (1991) argue that the transition to a more rigid secondary school environment influences the pupils' achievement motivation in combination with secondary school teachers' efficacy beliefs. Specifically, the more self-efficacious a teacher feels (i.e. believes in his/hers 'ability to influence the learning of all pupils'); the more likely that the downward spiral of changes in the pupils' motivation and achievement will be less dramatic. Their studies showed that secondary school (i.e. junior high-school) teachers in general possessed lower self-efficacy beliefs than the primary school teachers. Their beliefs, interacting with the environmental influences of the secondary school, resulted in lower competence beliefs and lower achievement in pupils. This might be due to the secondary school teachers' belief that the pupils' behavioural patterns have already been well established and remedial action on their behalf would not be efficient (Galloway et al., 1998).

The aforementioned studies highlight the role of the teacher as highly significant in shaping pupils' ability conceptions and goal orientations. They indicate that the strategies used in the classroom can be a powerful tool in the hands of the teachers and can 'cushion' or intensify the potential detrimental effects of the changing conceptions of intelligence on the pupils' achievement motivation. Knowing all this, it would be fairly easy to train teachers to use the strategies which have proven to be effective. However, what usually prevents teachers from employing these practices are their personal implicit pedagogies. These include beliefs about the nature of pupils' intelligence and the classroom practices they consider to be the most effective. The following section explores the main features of the teachers' implicit theories, their development and sustainability throughout the teaching practice.

1.1.3 Teachers' implicit theories

Many authors (e.g. Pajares, 1992; Kagan, 1992; Calderhead, 1996) consider the construct of teachers' implicit theories (or beliefs)[3] to be highly significant for understanding teachers' perceptions and consequently their behaviour in the classroom. Clark and Peterson believe that 'the purpose of research on teachers' implicit theories is to make explicit and visible the frames of reference through which individual teachers perceive and process information' (1986: 267) and undertake specific action.

It is assumed that teachers' implicit theories about teaching and learning begin to develop during their personal schooling experience through 'apprenticeship of observation' (Lortie, 1975; according to Borg, 2004). During the many years spent as pupils, teachers have not only been learning the material from the subject areas they were taught in, but have also picked up pedagogical knowledge on the teaching and learning methods, strategies for motivating pupils etc. Since the pedagogical knowledge has not been formally transmitted to them and they are unlikely to have attended to it in a systematic way, it is assimilated in an intuitive, semi-conscious way and persists in the form of an implicit theory. Buchmann assumes that the teachers are likely to employ their personal theories in their practice as a 'ready-made recipes for action and interpretation that do not require testing or analysis while promising familiar, safe results in normal situations' (1987:161).

Their implicit nature makes these theories very difficult to be expressed and examined and hence very resistant to change. Researchers (Richardson, 1996, according to Woolfolk Hoy and Murphy, 2001; Calderhead, 1996; Kagan, 1992) have found that the teachers' formal training is not very influential in changing their already formed

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3 For a review on the definitions of the concept see Pajares (1992)

theories. Moreover, the implicit theories tend to influence the way in which teachers interpret and make use of the new information (Pajares, 1992).

Hence, it is very likely that the theories about pupils' intelligence, which were transmitted through the teachers' personal schooling experience, have sustained throughout their professional training and are reflected in their practice. They may guide the teachers' classroom activities such as selecting tasks, providing feedback, and setting goals. Specifically, teachers who hold an entity view of intelligence would be likely to emphasize performance goals or 'looking smart', while teachers inclined towards the incremental perspective would be more likely to call attention to learning goals or 'becoming smart' (Dweck and Bempechat, 1983; according to Woolfolk Hoy and Murphy, 2001).

Numerous studies have explored the teachers' attributions for the causes of pupils' successes and failures, their relationship to the teachers' practices in the classroom and their impact on the pupils' achievement (Clark and Peterson, 1986). Cooper (1979) summarised the findings of several studies on teacher expectations and concluded that they influenced the pupils' performance through the teachers' nonverbal behaviour, verbal inputs and outputs, frequency of interaction, and use of feedback (praise and criticism). However, some findings have not supported this relationship (see Rogers, 1982 for details). One explanation of the lack of support for the 'self-fulfilling prophecy' effect (Cooper, 1979) is that the teachers have not conveyed their expectations into actions, or the pupils did not recognize the specific actions as indicators of their ability (Rogers, 1982). However, another possibility is that the individual differences between the teachers have mediated the expectation effects.

Teachers' expectations are likely to be processed through their general beliefs about intelligence, and hence may result in different reactions. Butler (2000) found that the implicit theory of intelligence that teachers hold may result in different assessment of the pupils' ability in the same achievement situation. Entity theorists' responses conformed to the so-called primacy effect in person perception and evaluated as more able a person whose performance begins at a high level, but declines over time. In contrast, incremental theorists evaluated as more able the person whose performance begins at a low level, but increases over time. Butler suggests that 'entity theorists may be particularly susceptible to expectancy effects' (2000: 978). In the case of teachers, it is likely that they will perceive the pupils' initial achievement as an indicator of their ability and 'may be particularly likely to over or under estimate latter outcomes to conform to their initial judgements' (Butler, 2000: 978). Additionally, teachers may adjust their practices in order to confirm their expectations. Brophy and Rohrkemper (1981) reported that teacher attributions for a pupil's performance are likely to affect the teachers' goal-setting, his/her classroom management techniques and educational practices (according to Clark and Peterson, 1986).

However, teachers do not exist in a vacuum, and their beliefs and practices are also influenced by the features of the schooling system and the wider socio-cultural context. Therefore, having in mind that the development of a theory of intelligence '"requires the incorporation of social values and norms, which establish the criteria of success and failure, as well as the distribution of reinforcements or punishments (…), it cannot be conceived independently of the social values and of the objectives of culture in general, and of school in particular"' (Faria, 2002b: 102; quoted in Pepi, Faria and Alesi, 2006).

One way to examine the impact of the culture on the development of implicit theories of intelligence would be to explore the ways in which teachers from different cultures think and react in the same classroom-based situations involving pupils' achievement. It would also be interesting to examine whether certain types of implicit theory of intelligence are predominant in some cultures. Whilst there is a paucity of research on this particular issue, many studies have indicated differences in the ways people from different cultures perceive and react in the same achievement situations. In the following section, some of these studies will be presented, with a focus on the cultural specifics in conceptualising ability and effort and their attribution as causes in success and failure situations.

1.2 Culture, attribution and achievement motivation

Cultural differences in the attribution process

Numerous cross-cultural studies have found that the definitions of achievement motivation and the causes typically attributed in success and failure situations differ across cultures. There are basically two ways in which researchers approach this issue.

The 'emic' approach focuses on the cultural differences in the conceptualisation of various achievement-related constructs, and attempts to define achievement motivation through analysing peoples' meaning systems. The most frequent method is by examining the conceptions of success and failure across cultures, with the aim of identifying the cultural specifics in the way these concepts are defined (e.g. Salili and Maehr, 1975, Triandis et al., 1972; according to Maehr and Nicholls, 1980).

The 'etic' approach, on the other hand, aims to discover the universalities in the cognitions and behaviours related to achievement goals in different cultures (Maehr and Nicholls, 1980). Weiner's (1984) model was initially proposed in the form of a framework of related cognitions, emotions and behaviours, which were presumed to be universally valid across cultures (Miller, 1996). However, a growing body of research (e.g. Markus and Kitayama, 1991; Pepitone and Triandis, 1987; according to Miller, 1996; Rodrigues, 1980; Yan and Gaier, 1994; Tuss, Zimmer and Ho, 1995) is continuously proving the existence of cultural specifics in the attribution process. Therefore, if aiming to develop a universal attributional model of achievement motivation, it is important to explore which aspects are pan-cultural and which are unique for certain cultures. The following studies demonstrate some of the universalities and some cross-cultural specifics in the process of attribution in achievement situations.

Schuster, Forsterlung and Weiner (1989) have conducted a study with respondents from Belgium, West Germany, India, South Korea and England to investigate the similarities and differences in the dimensional placement of causes attributed in a failure situation. Their findings supported Weiner's taxonomy in which ability and effort are conceptualised as internal causes and task difficulty and luck as external. However, they found differences across cultures for the dimensions of stability and controllability. Interestingly, these differences were characteristic only for the Indian respondents, who perceived all causes as more external, variable and uncontrollable than the other nations.

Tuss, Zimmer and Ho (1995) tested the existence of the self-serving bias (tendency to attribute successes to internal factors like ability, and failures to external factors like task difficulty) on a sample consisting of fourth-grade underachievers from USA, China and Japan. Previous studies (e.g. Chandler et al., 1981; according to Tuss, Zimmer and Ho, 1995) have shown that while the 'self-serving bias' is a well-known phenomenon among the Western population, it has not been detected among Eastern populations. The findings supported their assumptions, indicating that the Chinese and Japanese pupils made more effort attributions for the failure situations relative to their American peers. In contrast, the American pupils perceived the failure situations as more uncontrollable and tended to blame poor performance on low ability and difficult tests.

Rodrigues (1980) replicated several of the classic studies by Weiner and Kukla (1970) on a sample of Brazilian students to investigate whether the same rules of causal ascription to classroom-based achievement situations apply. Rodrigues (1980) also found that the respondents would reward the hypothetical pupils more and punish them less if they had invested effort. However, one of the findings indicated an opposite relationship compared to the American sample. Namely, while in the United States, low-ability pupils, when effort was held constant, were rewarded more for good results and punished less for bad ones than high-ability students; in Brazil, high-ability pupils, holding effort constant, were rewarded more for good results and punished less for bad ones. Rodrigues concluded that 'Brazilian subjects do not value internal and unstable cause (effort) as much as Americans in the assignment of rewards and punishments to outcomes achieved (1980: 386)'.

These studies indicate that the cultural differences in the attribution process might originate from the different meanings (and attributed value) a concept can have in different contexts. Miller (1996) argues that even if the attributional categories are basically the same across cultures, their understanding is mediated by a culturally constructed meaning, which may lead to divergent motivational consequences. Hence, the culture not only determines the meaning of success and failure, but also delineates how they should be pursued (Maehr, 1984). This raises the question - what causes these differences to occur, i.e. in what ways do cultural factors influence the variations in the individuals' meaning systems? The Social Representations Theory provides some answers to this question.

Social representations of ability and effort as mediators of attributions

Moscovici and Hewstone (1984) argue that Attribution Theory has 'neutralised the context in which ordinary people deal with causes' (1984: 121). Specifically, it has neglected the individual's background, including the 'effects of the prior conditioning, which is imposed by his representations, language and culture' (Moscovici, 1984: 8). Hence, Social Representations Theory is interested in discovering the origins of attributions (Moscovisi and Hewstone, 1984), through:

- *focusing on the group instead on the individual*
- *considering the interaction of the primary (spontaneous) causality and the secondary causality*
(dependent on the language, education, individual's scientific view of the world) in attribution; and
- *exploring the social representations as mediators of attribution (Moscovici, 1984).*

In seeking to clarify the abovementioned attribution-related dilemmas, some authors (Mugny and Carugati, 1989; Räty and Snellman, 1995; Holloway, 1988; Sternberg and Grigorenko, 2004) have attempted to analyse how the concepts of 'ability' or 'intelligence' and 'effort' are socially represented in different cultures. The most illustrative studies are the ones contrasting the Eastern and the Western conceptions. They contrast the alleged Eastern cultures' emphasis on effort with the Western cultures' (especially North American and British) emphasis on ability as the most important determinant of success and failure. Whilst individuals in Eastern cultures (e.g. Japan, China, Taiwan) are also found to regard ability as an important factor for achieving success, the concept of ability seems to be much more intertwined with that of effort, which creates a perception of ability as a rather malleable characteristic (Stevenson and Stigler, 1992; Holloway, 1988; Chan and Elliott, 2002; Sato et al., 2004).

These socially constructed conceptions are believed to develop through the individual's everyday experiences by means of internalising the cultural knowledge and values. The most dominant mediators of cultural meanings are considered to be the socialising and schooling practices and the 'scientific' theories dominant in a specific context (Mugny and Carugati, 1989). They act by socially (or culturally) predetermining the categories through which individuals perceive and explain their experiences (Moscovici, 1984).

This process can be illustrated through examining how the socialising practices might influence the development of ability conceptions in the Eastern and Western cultures. People from the Western cultures typically perceive the individual as an independent being, whose sense of self-esteem should be nurtured through encouraging a belief in oneself (abilities, strengths), while at the same time neglecting the weaknesses. Though the intention of these socialising practices is to develop the child's belief in his/her potential, they tend to emphasise the personal traits as fixed entities. On the other hand, the Eastern (i.e. Asian) countries tend to encourage self-criticism through emphasizing the weaknesses, while at the same time accentuating the ways in which they can be improved. (Boekartes, 2003; Sato et al., 2004) This practice is believed to strengthen the child's persistence in achievement situations, through endorsing a belief that ability is a malleable characteristic.

Analysing the influence of the schooling practices on pupils' achievement goals, Holloway (1988) argues that some of the main features of the American educational context are likely to promote fixed conceptions of intelligence and performance goals. Among the most important aspects is the practice of ability grouping, which fosters compari-

sons made on the basis of ability and limits the potential effects of effort attributions. In comparison, the tradition in the Japanese schools is to group children with various skill-levels for the purposes of cooperation and mutual support, and to provide equal possibilities for high achievement. The Japanese educational philosophy relies on the belief that every pupil can perform at a high level, and if some do not, despite a great amount of effort, then the parents or the teachers are to blame for not providing effective early experience or training (Sato et al., 2004).

Boekartes concludes that seen through the lenses of Dweck's model, Western socializing and schooling practices are more 'in line with an entity view of intelligence' (2003:17), while the Eastern practices fit better into the incremental framework, which conceives of ability as malleable and improvable. Dweck (2001) recognises the differences in the orientation towards effort and ability among the Eastern and Western cultures, but she does not necessarily relate them to the entity or incremental intelligence framework. Some of her studies (Kim, Grant and Dweck, 2000; Chiu, Hong and Dweck, 1997; 2001) even indicate that 'Easterners' (Koreans) are sometimes more oriented towards performance goals than 'Westerners' (Americans), regardless of the fact that they believe more in the importance of effort for reaching that goal (Dweck, 2001). In addition, in their analysis of Japanese society's achievement orientations, Sato et al. (2004) conclude that even though pupils study hard and achieve the highest marks, they generally dislike the academic subjects. Hence, despite their belief in the malleability of intelligence, the pupils' goals can hardly be considered as learning-oriented.

Other studies have also placed doubts on evidence that American and English culture is fixated on ability. Comparative studies of pupils and teachers from USA and Germany (Schneider et al., 1986; Kurtz et al., 1988; according to Kurtz et al., 1990) found that American pupils and teachers tend to show a stronger attributional belief in the importance of effort in influencing achievement outcomes than their German counterparts.

Furthermore, in Elliot, Hufton and Illisin's (1999, 2001) studies, American and English pupils and their parents have emphasised effort, rather than fixed ability, as the key to success in school and later in life; relative to the pupils and parents in Russia. However, Hufton et al.'s (2002) findings suggested that although Russian pupils highlighted ability as the main determinant of success, they conceived it as a relatively malleable feature, which can be influenced by effort and learning.

Another example are the results from the Third International Science and Maths Study (TIMMS) (IEA, 2000a) which detected stronger beliefs in the importance of possessing 'natural ability' for good performance in Maths and Science in several Pacific Rim countries, contrasted to the lower 'ability' rating of the North American and English children. However, the value of effort was high in both the Eastern and the Western countries.

Pertinent to the present study, the TIMMS 1999 (IEA, 2000a) results indicated that a significant majority (about 90%) of the 14 year old pupils in Macedonia and England believed that working hard is a very important factor for good achievement in Maths and Science. However, a high percentage of the Macedonian pupils also believed that doing well in these subjects is related to possessing natural ability (80 % for Maths and 74% for Science), contrasted to a significantly lower percentage of English pupils (47% for Maths and 45% for Science) that held this belief. Macedonian pupils were also found to hold stronger beliefs in the importance of luck for high achievement in Maths (52%) and Science (53%), relative to the English pupils, who regarded luck as a less significant factor (17% for Maths and 18% for Science). Although these findings do not tell us much about the beliefs of teachers in the two countries, it is likely that teachers transmit these or corresponding beliefs (directly and indirectly) to the pupils through their classroom practices.

Conclusion
Obviously, findings concerning the cultural differences in the attributions for success and failure have not been straightforward. In addition, the data on the cultural differences in the meanings of 'ability' and 'effort' have

been rather scant and ambiguous. This might be due partially to the different methods of examining the concepts and the different populations studied. Also, the fact that most of the researchers have employed the 'attributional' approach for examining the variables can be considered as problematic, since it does not offer an insight into the factors which might be triggering and perpetuating the attributions. Hence an exploration of the cultural specifics in the implicit theories of intelligence appears promising for providing an understanding of why people from different cultures may act differently in the same achievement situations.

Aims of the study

The present study seeks to clarify some of the abovementioned dilemmas through examining the beliefs and practices of teachers from two different countries and cultural contexts. Specifically, it aims to explore the similarities and differences in the implicit theories of intelligence and the use of motivational strategies between Macedonian and English teachers. The importance of the issue lies in its potential to provide a better understanding of the cultural specifics in the teachers' beliefs about pupils' intelligence and motivation. At the same time, it will enable the relevance of Dweck and Leggett's (1988) Model of Implicit Theories of Intelligence to be tested in two culturally diverse contexts.

These issues have not been previously examined in the two countries. Therefore, the primary focus of the study will be to explore the manifestation of the construct in teachers from the two contexts, and test the appropriateness of the data-collection instruments.

In order to realise these aims, the study is going to focus on answering the following **research questions:**

1. Is one implicit theory of intelligence more dominant among teachers from England and Macedonia?

2. Is there a difference between the motivational strategies adopted by teachers from Macedonia and England?

3. How are the implicit theories' concepts organised in teachers' belief-systems?

Comparison of the contexts: The Macedonian and English schooling systems

In this section, the most important features of the Macedonian and English schooling systems are compared. Their potential in shaping pupils' and teachers' belief systems and influencing their achievement motivation is analysed.

The two systems differ in several key aspects, including the assessment practices, teaching and learning methods, grouping strategies etc. Figure 1 demonstrates the possible ways in which some of the dominant practices in each country might orient teachers and pupils towards pursuing learning or performance goals and adopting an entity or an incremental theory of intelligence. It suggests that there are some practices in both of the contexts which can be associated with promoting learning goals and values and others – with performance goals and values.

This duality of implicitly and explicitly promoted values may create an ambiguity in the goals of pupils and teachers. Since the systems offer possibilities for both the entity and the incremental framework to develop, a pupil might choose to comply with one or another set of beliefs, depending on the goal(s) s/he finds more important or useful. For this reason, the role of the teacher in emphasising certain goals and values more than other may be the deciding factor to influence the pupils' achievement motivation.

Admittedly, the associations presented in Figure 1 are rather simplistic and rely on generalisations. Their purpose is to illustrate the most common practices, which are typically related to the regulations and recommendations of the countries' educational authorities. Nevertheless, the fact that individual schools may implement policies which

are specifically focused on promoting performance or learning goals, needs to be recognised. Furthermore, many other features of the culture (e.g. childrearing practices, traditional, political and economic values etc.) which can be related to the development of a certain implicit theory, were not encompassed in the analysis. Their potential influence is recognised; however, it is to complex to be explored in this study.

Figure 1. Characteristics of the English and Macedonian schooling systems and their possible association with the entity and the incremental framework
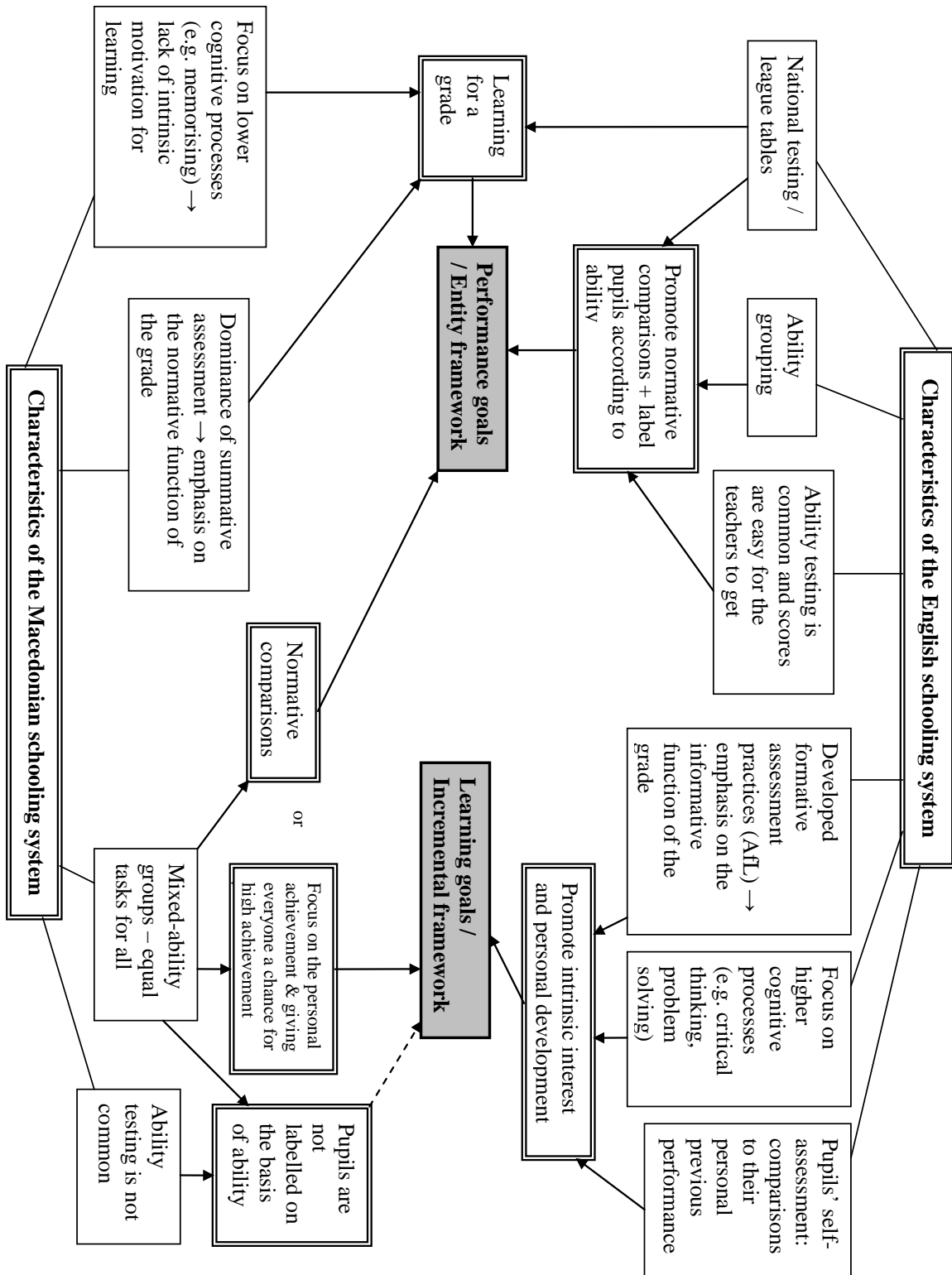
CHAPTER 2:
METHODOLOGY

Conceptual and epistemological framework of the study

The study represents a cross-cultural analysis of a psychological concept and is guided by the principles of 'universalism' (Berry at al., 2002:5). This approach to cross-cultural research assumes 'that the basic psychological processes are common to all members of the species' and 'that culture influences the development and display of psychological characteristics' (Berry at al., 2002: 5). The position promotes the discovery of psychological similarities and differences and their comparisons between cultural contexts, provided they are performed cautiously. This is usually ensured through using different methodological approaches and taking into account the culturally based meanings, during the processes of data collection and analysis.

From an epistemological standpoint, this study adopts the principles of 'postpositivism', which contends that reality exists, but can never be fully understood or explained, given both the multiplicity of causes and effects and the problem of social meaning (Fischer, 1998).

Research design

The study adopts a mixed-method design, which combines qualitative and quantitative data (see Figure2). The data collected with a questionnaire were analysed both as quantitative and qualitative data. The data from the semi-structured interviews with five teachers and their questionnaire responses were analysed as qualitative data and used to construct their cognitive maps. At the same time, the combination of the two methods was employed as a method of strengthening the validity of the findings.

Figure 2. Methodological design of the study
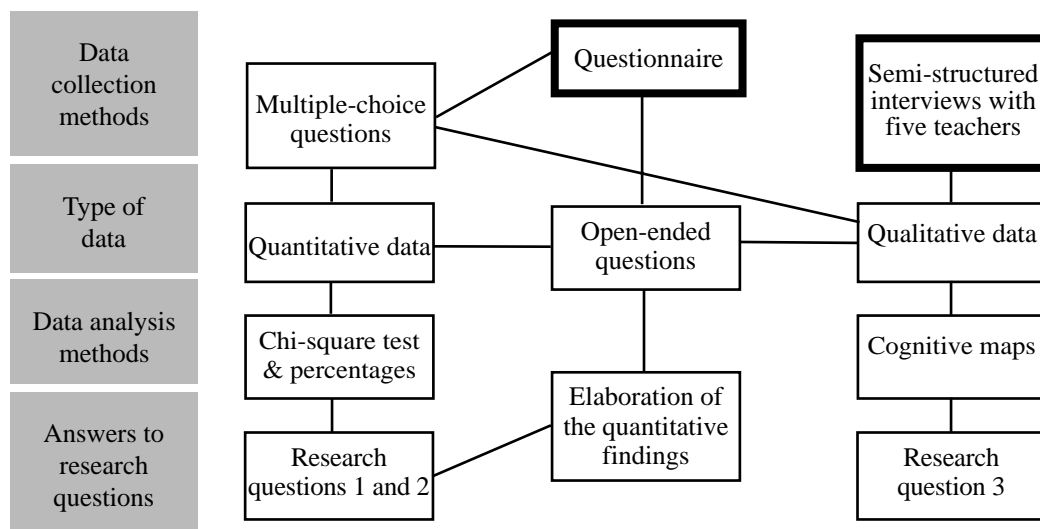
2.1 Sample

The sample consisted of 74 secondary school teachers, 39 of which were from Macedonia (Skopje) and 35 from England (Cambridgeshire).

The differences in the structure of the schooling systems in the two countries did not allow selecting teachers from exactly the same contexts. Therefore, since the English sample consisted of secondary school teachers (teaching 11-16 year old pupils), the best match were the second-stage primary school teachers from Macedonia (teaching 11-14 year old pupils).

The study relied on a convenience sampling. All teachers from the collaborating schools were invited to participate, regardless of the subject they teach, their age or years of experience as a teacher. The aim was to explore whether holding a particular implicit theory of intelligence is associated with certain demographic and subject-area factors.

The demographic characteristics of the sample are presented in Table 2.

Table 2. Demographic characteristics of the sample

Demographic characteristics		Macedonia	England
Sex	Female	32	23
	Male	7	12
Years of university education	2-years	8	0
	4-years	25	25
	Over 4-years	3	7
	No response	3	3
Subject taught	Maths and Natural sciences	18	10
	Social sciences	3	9
	Languages and Arts	14	16
	No response	4	0
Age	< 35	11	14
	36-45	6	7
	46<	16	12
	No response	2	2
Number of years working as a teacher	1-5	6	15
	6-15	7	6
	16-25	10	8
	26<	7	4
	No response	9	2

Macedonian sample

The Macedonian teachers came from 5 schools from the city of Skopje (3 from the central area and 2 from one suburban area). The schools are public comprehensive schools, which accept pupils of all ability levels and both genders. The enrolment of pupils in the school is mainly determined by the area they live in.

Data collection procedure

The recruitment of participants was done by each of the schools' Head-teachers, who were asked by the researcher to assemble all teachers that would like to participate in the study in one room in the school. The questionnaires were administered once the teachers were gathered and the nature of the study and the ethical issues explained. The complete process took 20-30 minutes. After completing the questionnaire, every teacher was asked to return it directly to the researcher. The data-collection process took place between the 25th of March and 10th of April, 2007 and resulted in a satisfactory response rate (about 50%). After processing the questionnaire data, three teachers (two incremental theorists and one entity theorist) were selected to be interviewed.

English sample

The English teachers came from 9 schools. All schools were comprehensive, all-ability schools situated in small towns or villages in the area around Cambridge. Seven of them were mixed-gender and two were all-boy schools.

Data collection procedure

It was not possible to administer the questionnaire to all the English teachers at the same time. Hence, other methods for data collection were adopted. Four schools requested that the questionnaires and consent forms be sent by post, as hard copies. The other five requested that they be sent by email, in an electronic form. Teachers completing the questionnaire in hard copy had to return it to one contact person from the school, who posted all of the completed copies back to the researcher. Those completing it in an electronic form were asked to email the questionnaire back to the researcher once completed.

The inability to provide the same conditions for data collection (and especially to repeat the procedure as it was done in Macedonia) raises questions about the validity of the data. Allowing some teachers more time to complete the questionnaire, reduces the probability of them giving automatic (intuitive) responses. At the same time, the period of data collection (May) overlapped with that time of the academic year when the national examinations take place, which made the request for completing a questionnaire an additional responsibility for the teachers. Hence, the response rate in the case of the English sample was very low (less than 10% of the teachers in each of the schools responded). This fact restricts the generalisation of the findings, since there is a high probability that the teachers which responded represent a self-selected group of more accessible teachers, perhaps interested in educational research.

After analysing the questionnaire data, two teachers (one incremental theorist and one mixed theorists) were selected for an interview. Unfortunately, none of the teachers found to hold an entity theory on the basis of the questionnaire responses had agreed to be interviewed, which limited the possibility of constructing a cognitive map of an entity theorist from England.

2.2 Measures

2.2.1 Questionnaire:

The main instrument for data collection was a questionnaire, which was devised by the researcher, specifically for the purposes of the study. However, some of the questions were adapted from previously developed scales for measuring implicit theories. It consisted of two main parts: 'Implicit theory scale' and 'Motivational strategies'. Their characteristics are explained below.

1. The 'Implicit theory scale' - consisted of six items which were designed to detect the implicit theory of pupils' intelligence a teacher holds. It comprised two sub-scales, aimed at examining two distinct aspects of the construct:

a) 'Malleability-of-intelligence-scale', the items for which (Q17 and Q18) were adapted from Dweck's (1999) scale on implicit theories of intelligence for adults, but were re-phrased to refer to pupils. They asked for teachers' agreement on statements such as: No matter how much intelligence a pupils has, it can always be changed quite a bit. These items were constructed to detect whether teachers believe that pupils' intelligence can or can not be changed;

b) 'Effort-ability-scale', the items for which (Q1, Q2a, Q2b and Q16) were adapted from Kurtz et al's (1990) study and aimed to detect the significance teachers place on ability and effort as factors influencing pupils' achievement (success). The items asked for teachers' opinion on vignettes portraying typical school situations (e.g. Two pupils in your class are performing at approximately equivalent levels on their schoolwork. However, pupil A, whom you judge to be very bright, is not working very hard. On the other hand, pupil B whilst not so capable, works very hard. Which pupil do you think is likely to be the most successful by the end of secondary school?).

This aspect of the construct is not included in Dweck's (1999) scales. However, guided by the notion that effort and ability attributions represent a significant component of the implicit theory framework, it was reasoned that their inclusion in the scale may provide additional information regarding the structure of the construct.

Construction of the items

In Dweck's (1999) scales, respondents indicate their level of agreement with a statement on a 6-point Likert-type scale. However, in the present study, a dichotomous choice was offered, with one option reflecting an entity theory and the other, an incremental theory. Since the dichotomous options were more suitable for the structure of the fist set of questions (Q1, Q2a, Q2b) of the 'Implicit theory scale', the responses on the second set of questions (Q16, Q17, Q18) were also constructed as dichotomous categories (agree-disagree). The aim was to equalise the two sets of questions for the purposes of the statistical analysis. Given the limited response-choice, space was provided for respondents to offer a supplementary comment should they wish to elaborate their answers.

Scoring of the responses

Dweck (1999) conceptualises the construct of implicit theories of intelligence as dichotomous (consisting of two extreme categories). Hence, in her studies, subjects who do not score at either extreme are omitted from the analysis. In the present study, a similar method to Dweck's was employed for dividing the entity and incremental theorists. However, the respondents found to hold a 'mixed theory' (17%)[4] were considered to be important for the study and were not excluded from the analysis.

The two provided alternatives of the 'Implicit theory scale' items were coded as 1 if the response reflected an incremental theory and 0 if it reflected an entity theory. The scores on the six items were added. Hence, the total score ranged form 0 to 6. Respondents that scored from 0 to 2 were categorised as entity theorists and the ones that scored from 4 to 6 as incremental theorists. Teachers who responded as incremental theorists on half of the items and as entity theorists on the other half (i.e. received score 3) were categorised as mixed theorists (see Table 3).

Teachers' scores were also calculated separately for the two sub-scales (see Table 3).

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4   This corresponds to Dweck's studies, where usually about 15% of the respondents are found to hold a mixed theory (Dweck et al., 1995a)

Table 3. Thresholds for determining membership in different categories

Main scale	Implicit-theory-scale (implicit theory of pupils' intelligence)	entity	mixed	incremental
		0-2	3	4-6
Sub- scales	Malleability-of-intelligence-scale (belief that pupils' intelligence is fixed or malleable)	fixed	mixed	malleable
		0	1	2
	Effort-ability-scale (significance of pupils' ability and effort for success)	ability – more significant	equally significant	effort – more significant
		0-1	2	3-4

On the basis of the score received on the 'Implicit-theory-scale', teachers were categorised as holding:

1. Entity theory of pupils' intelligence: Belief that pupils' intelligence is a fixed trait, which cannot be changed through learning or hard work; accompanied with a belief that pupils' abilities are primary factor for their success in school and/or later in life.

2. Incremental theory of pupils' intelligence: Belief that pupil's intelligence is malleable and can be changed through learning and hard work; accompanied with a belief that pupils' effort is a primary factor for their success in school and/or later in life.

3. Mixed theory of pupils' intelligence: Combination of the beliefs held by entity and incremental theorists, with predominance of one or other framework depending on the situation

Psychometric characteristics of the scale

The internal reliability of the six items of the 'Implicit-theory-scale' (calculated on the complete sample) is rather weak (Cronbach alpha = 0.486). However, it is slightly higher for the Macedonian sample (Cronbach alpha = 0.564) than for the English sample (Cronbach alpha = 0.376).

The internal reliability of the two sub-scales independently, is quite variable (see Table4):

Table 4. Internal reliability (Cronbach alpha) of the main scale and the two sub-scales

	Complete sample	Macedonian sample	English sample
Implicit-theory-scale	0.49	0.56	0.38
Malleability-of-intelligence-scale	0.64	0.21	0.87
Effort-ability-scale	0.35	0.46	0.28

Only the 'Malleability-of-intelligence-scale' for the English sample had high internal reliability (above 0.7). The relatively low internal consistency of the scale in general indicates the need for its improvement and standardisation for the two samples independently.

The scores on the two sub-scales were found to be significantly correlated in the case of the Macedonian sample ($r =0.48$, $p < 0.01$), but not within the English sample ($r=0.005$, $p>0.05$). This suggests that the two elements they were measuring (malleability of intelligence and effort-ability relationship) may reflect a similar construct for

the Macedonian teachers, whilst for the English teacher they are separate constructs. However, in order to verify these assumptions, they need to be tested on bigger and more representative samples of teachers.[5]

Bearing in mind these limitations of the 'Implicit-theory-scale', caution should be exercised when interpreting results. They should not be generalised until the psychometric characteristics of the scale are adjusted. Therefore, a large part of the analysis is exploratory and makes use of the qualitative data to explore the conceptualisations of pupils' intelligence within the two samples of teachers.

2. 'Motivational strategies', the second part of the questionnaire, consisted of 12 items in the form of vignettes. They were constructed to detect teachers' beliefs and expectations regarding pupils' motivation and the practices they employ to motivate pupils. Bearing in mind the complexity of the construct, it was narrowed for the purposes of the study and encompassed teachers':
   - use of feedback in different achievement situations
   - methods for assisting and setting tasks for pupils exhibiting maladaptive motivational patterns
   - expectations regarding the achievement of pupils exhibiting adaptive and maladaptive motivational patterns

The items included in this part of the questionnaire were specifically designed for the purposes of the present study. They illustrated everyday classroom situations involving pupils' motivation and learning and requested that the teachers indicate their most typical response to each situation (e.g. A pupil had been performing well in your subject until she received a low mark for a piece of work. Since then, any time she is faced with a more challenging task, she gives up saying she isn't clever enough to complete it. What sort of tasks would you give her in order to raise her performance?).

Seven questions were open-ended, but almost all of the multiple-choice questions also included a possibility for adding a comment. The decision to use open-ended questions as a primary source of information was based on the cross-cultural nature of the study. These type of questions offer a freedom of expression which in the case of multiple-choice questions can easily be limited if the options provided are not culturally suitable. Also, the complexity of the situations described in the vignettes usually required elaboration of the answers from the respondents. The multiple choice questions, on the other hand, required simpler responses, which can typically be expressed in one sentence (e.g. type of praise after a successfully completed task). The responses were scored by assigning codes to each answer and were analysed as nominal data.

Translation of the questionnaire
The questionnaire was initially constructed in English. The English version was then given to a bilingual Macedonian translator, who translated it to Macedonian. Afterwards, the researcher and the translator went through all of the items and made some adaptations and clarifications. Certain phrases were slightly changed from the English version in order to make them culturally appropriate for the Macedonian teachers.

Pilot testing of the questionnaire
The Macedonian version of the questionnaire was pilot-tested on a group of five teachers. They completed the initial version of the questionnaire, and afterwards elaborated their understanding of the questions. Though the questions were found to be easily understandable for the teachers, some of them were slightly changed (by adding more detail). Also, two new closed-ended options were added as a result of the teachers' comments.

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5 The issues concerning the psychometric characteristics of the scale are going to be discussed in more detail in the section analysing the limitations of the study.

Since English is not my first language, the English version of the questionnaire was first given to two native English speakers to check the use of the language and understanding of the items. However, the initial version of the questionnaire was not pilot-tested on a sample of English teachers, since the schools which were contacted were not able to provide respondents. As an alternative, it was administered to a group of four MPhil students of Education, who completed it and offered some minor comments. Still, the fact that the questionnaire was not tested on practicing teachers from England represents a threat to its validity.

Coding of the open-ended questions

Responses to the open-ended questions were coded according to their meaning and placed into broader categories. The coding was done independently by the researcher and another bilingual rater. The initial categories were determined by each rater individually. They were found to be very similar and the overlap between the raters (i.e. percentage of responses coded into the same category) was 86%. Incongruent coding was resolved through discussion and the final categories were agreed upon by the two raters. Though the initial coding schemes resulted in a larger number of categories, some of them were later merged for the requirements of the statistical analysis.

Strengths and limitations of using a questionnaire as a data-collection method

The decision to use a questionnaire as a main method for data collection was guided by the intention to encompass a reasonably large number of teachers from the two countries. It was hoped that this would increase the probability that the variations in responses were related to the cultural differences between the respondents and are not due to other factors (e.g. age of respondents, subject-area, personality characteristics etc.).

Although the use of questionnaires in cross-cultural research has been criticised, the practice of using vignettes (Peng, Nisbett and Wong, 1997) is considered to yield better criterion validity, since they 'do not impose value judgements on interpretation of a question' (Zusho and Pintrich, 2003: 58). Furthermore, vignettes were used to elicit more authentic responses from the teachers and reduce the tendency to provide socially-desirable responses. The questionnaire consisted primarily of situations depicting hypothetical pupils, which is a potentially limiting factor. However, the teachers indicated that they had experienced the same or similar types of situations during their practice and thus while answering, they usually had a concrete pupil in mind.

The main limitation of the questionnaire is the fact it relies on the teachers' self-reports. Hence, we can not be certain that the teachers actually implement the practices they have reported to use. This constraint is recognised in the analysis.

2.2.2 Semi-structured interviews

The semi-structured interviews were used as a method for elaborating the quantitative findings, analysing the characteristics of each of the three main implicit theory frameworks and verifying the validity of the questionnaire. Their format enables flexibility in their use (i.e. asking sub-questions, providing clarification etc.), which is necessary when examining personal and culturally influenced constructs. Therefore, it was considered to be an appropriate method for exploring the culturally specific teachers' beliefs.

The intention was to interview teachers who on the basis of the questionnaire were found to hold different theories of pupils' intelligence. It was hoped that this would enable examination of the similarities and differences in their beliefs in more depth, as well as provide specific information on how different teachers' beliefs are related to their practices. Also, the comparison of the responses between the Macedonian and the English interviewees was expected to uncover the cultural universalities and specifics in the implicit theories and detect some factors which might have influenced their development.

Interview procedure

The interviews began by clarification and further explanation of some of the questionnaire responses. They continued with questions structured to explore the specifics of the teachers' implicit theory.

The aim of the first set of questions was to detect the teachers' understanding of the concepts of effort and ability and how they perceive these two variables interacting in the case of pupils' achievement. Teachers were asked to:
- compare a pupil which they consider to be high achieving with a pupil they consider to be low achieving on three dimensions: intelligence, effort and behaviour when faced with a difficult task
- elaborate their use of, and their opinions regarding, ability grouping
- explain the ways in which they form expectations of pupils' achievement

The purpose of the second set of questions was to try to identify the factors that might have influenced or shaped a teacher's implicit theory about pupils' ability and the motivational strategies they use in the classroom. Teachers were asked to:
- reflect on a certain teacher that they believe had influenced their practice
- analyse how much the teacher training and their teaching practice have changed/influenced their beliefs about pupils and teaching

The interviews were conducted by the researcher. They took place in the interviewees' schools and lasted from 30 to 40 minutes.

2.3. Ethical issues

Participation in the research was completely voluntarily and the participants were informed that they could withdraw from the process at any stage. All teachers were given a Consent Form to sign, which contained information about the research and details concerning the confidentiality issues. The Macedonian teachers were provided with space to ask questions before completing the questionnaire, while the English teachers were given the researcher's contact details in case they have any questions regarding the study. Efforts were made to conceal the interviewees' identities by assigning pseudonyms, instead of their real names, and not revealing the schools they came from.

2.4 Data analysis methods

Since all questionnaire responses were conceptualised as discrete categories, the most appropriate method of data-analysis was the Chi-square test for independence.[6] It is used to determine if two categorical variables are related, by comparing 'the frequency of cases found in the various categories of one variable across the different categories of another variable' (Pallant, 2004: 256). However, since the Chi-square test is not recommended in cases when a variable has more than three categories (Brace et al., 2000), part of the data was analysed by comparing percentages of responses of the teachers from the two countries.

The questionnaire responses of the interviewed teachers were combined with the interview data to develop

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6 The statistical significance is reported only if 'no more than 20% of the expected counts is less then 5 and all individual expected counts are 1 or greater' (Yates, Moore and McCabe, 1999: 734)

their cognitive maps. The method of cognitive mapping is based on detecting the main concepts which constitute an individual's belief-system on a particular topic, and identifying their interrelatedness (Farsides, 2003). The aim was to examine the structure of the implicit theories and the similarities and differences in individual teachers' concepts of pupils' intelligence and motivation.

CHAPTER 3:
RESULTS AND DISCUSSION

In the following chapter, the main findings of the research are presented and discussed. The first section reports the prevalence of each of the three (incremental, entity and mixed) theories of pupils' intelligence among Macedonian and the English teachers. In the second section, the similarities and differences in the strategies used by teachers from the two contexts to motivate pupils, are presented and discussed, along with implications for creating a performance or a learning-oriented classroom atmosphere. The third section is organized around the constructs of pupils' ability and motivation held by five teachers – representatives of different implicit theory frameworks.

Teachers' age, gender, education, years of experience as a teacher and their curriculum subject were not found to be significantly (at   =0.05) related to holding a particular implicit theory. Therefore, these variables will not be included in the analysis that follows.

3.1. Teachers' implicit theories of pupils' intelligence: a comparison between Macedonian and English teachers

This section addresses the first research question, namely: were there differences in the dominant theory of intelligence held by Macedonian and the English teachers? In reading the analysis, caution should be exercised, since the 'Implicit-theory-scale' has not been standardised for use with these populations. Hence, the discussion will focus on the differences in the conceptualisation of intelligence (as measured) between the teachers from the two contexts.

Table 5 shows the number of teachers found to hold entity, incremental and mixed theory of pupils' intelligence. The incremental theory was found to be dominant among the teachers from both countries - around two-thirds of both groups indicating this preference. Differences between teachers from Macedonia and England in terms of adopting each of the three implicit theories, did not reach statistical significance (Chi-Square = 1.44; df=2; p=0.48)*.

Table 5. Implicit theory of pupils' intelligence

Country	Entity	Incremental	Mixed	Total
Macedonia	5 (13%)	29(74%)	5(13%)	39
England	5(14%)	22(63%)	8(23%)	35
Total	10	51	13	74

* 1 cell (16,7%) has expected count less than 5. The minimum expected count is 4,73

Significance of effort and ability for success/achievement

The analysis of the results on the 'Effort-ability' sub-scale did not reveal significant differences between the Macedonian and English teachers in the value of ability and effort for success (Chi-square=0.335; df=1; p=0.72) [7]. The majority of the Macedonian and English teachers emphasised effort as the main determinant of pupils' success (see Table 6).

Table 6. Beliefs about the importance of ability and effort for success

Country	Ability is more important (*)	Effort is more important	Ability and effort are equally important (*)	Total
Macedonia	5 (12%)	27 (70%)	7 (18%)	39
England	4 (11%)	22 (63%)	9 (26%)	35
Total	9	49	16	74
Chi-square=0.335; df=1; p=0.72				

*Percentage calculations are based on the number of teachers who responded to the question

Malleability of intelligence

Whilst scores on the main scale did not demonstrate differences between the two groups of teachers in the adoption of each of the implicit theories, the differences in scores on the 'Malleability-of-intelligence' sub-scale, reached significance (Chi-Square = 16.64, df=2; p=0.00).

Table 7. Beliefs about malleability of intelligence

Country	Entity (intelligence is fixed)	Mixed (intelligence is sometimes fixed, sometimes malleable)	Incremental (intelligence is malleable)	Total
Macedonia	3(8%)	16(41%)	20(51%)	39
England	16(46%)	4(11%)	15(43%)	35
Total	19	20	35	74
Chi-Square = 16.64, df=2; p=0.00				

*Percentage calculations are based on the number of teachers who responded to the question

Table 7 shows that while the English teachers were almost equally divided between the entity (46%) and the incremental extreme (43%), the Macedonian teachers' beliefs were in the main divided between the incremental (51%) and the mixed framework (41%). This distribution indicates that significantly more English than Macedonian teachers perceived pupils' intelligence as a fixed trait which can not be influenced through learning. At the same time, more Macedonian teachers did not possess a 'clear' conception on the malleability of intelligence (i.e. had a mixed-theory).

The results of the English sample were in line with what was predicted from Dweck's model (i.e. the majority of people are expected to be inclined towards one of the ends of the dichotomy of the concept). However, the large number of mixed theorists within the Macedonian sample suggests that the items may not be appropriate for detect-

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7 Categories marked with (*) in Table 6 were merged

ing their beliefs about malleability of intelligence. Although the responses on the two items of the 'Malleability-of-intelligence' sub-scale were constructed to be mutually exclusive, almost half of the Macedonian participants did not respond in a consistent way. Maybe the translation of the questions did not capture their essence, and resulted in their different understanding by the Macedonian teachers. Perhaps a rephrasing of the questions would show that many of the mixed theorists actually hold an entity view of intelligence. However, it is equally possible that these teachers conceptualised pupils' intelligence differently from the way it has been defined in Dweck's model.

Hence, the aforementioned results need to be read with caution since further exploration would be needed to take into account possible differences in the way the items were understood. However, the comments that some of the teachers offered in explaining their choice of answers may provide some clarification on the way they conceptualise intelligence.

Conceptualisation of intelligence: the qualitative data

About 20% of the teachers elaborated their responses on some items of the 'Implicit-theory- scale'. Though the number of respondents is relatively small, their comments illustrate certain differences in the Macedonian and English teachers' conceptualisations of intelligence.

The Macedonian teachers' comments reflected a less differentiated perception of intelligence, as a feature closely related to effort. Ten Macedonian teachers offered a comment regarding the possibilities for changing intelligence. Nine of them elaborated their belief that learning and continuous hard work can influence intelligence (e.g. 'Intellectual abilities can be developed through work'), while only one teacher commented that intelligence is an inborn and fixed trait.

In contrast, all ten English teachers that offered a comment stated their disbelief in the possibility of changing intelligence. Nevertheless, eight of them contended that pupil's performance/outcomes can be improved (e.g. 'I believe the capacity is the same – what counts is how much and in what ways that intelligence is challenged and used'; (Intelligence cannot be changed) 'but pupils can learn how they learn'). Though these teachers seem to perceive intelligence as differentiated from other concepts (e.g. metacognition, motivation), to a certain extent, they also hold a belief in malleability of ability. However, perhaps a fixation with the concept of IQ as a relatively stable 'measure' restricts them from transferring this belief into the area of intelligence.

Furthermore, six Macedonian teachers elaborated their belief that 'not very capable pupils' can 'perform at a high level if they work or try hard'(e.g. 'Hard work and persistence always lead to success'), whilst two commented that for high achievement, ability and effort need to be combined. In contrast, six English teachers expressed a reservation in these pupils' potential for high achievement (e.g. 'Achievement can be improved to some extent, but not be the highest') and only one contended that 'Every pupil should be able to perform the highest level possible'.

The finding that more English than Macedonian teachers believed in the fixedness of intelligence may be related to the fact that intelligence (or ability) testing is more common in the English educational system (Deary and Smith, 2004). Hence, the social representation of intelligence among English teachers is one of a relatively stable score on an aptitude test, which becomes internalised by individual teachers as a part of their personal theory. [8]It is also possible that their responses on the nature of intelligence might be based on what they know about intelligence (i.e. what they have read from the scientific literature), and may not be an accurate representation of their personal beliefs (Braten and Olaussen, 1998).

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[8] This observation is not limited to teachers. The social representation of intelligence as synonymous with IQ is considered to be applicable to the English society in general.

If the same logic is employed to explain the conceptualisations of intelligence within the Macedonian sample, the dominant belief in malleability of intelligence may be due to the fact that ability testing is not very common in the Macedonian schools. While psychologists test pupils' ability at the beginning of formal schooling, teachers do not have access to the pupils' files unless a pupil shows considerable learning difficulties. Therefore, Macedonian teachers may not be as acquainted with (and influenced by) the classical ('scientific') position on intelligence as a score on an aptitude test. As a result, their perceptions appear to be closer to the 'Eastern' conceptions, where intelligence is conceived as a broader concept, more intertwined with that of effort (Holloway, 1988; Stevenson and Stigler, 1992; Chan and Elliot, 2002; Sato et al., 2004).

To conclude, more Macedonian than English teachers regarded intelligence as a feature which can be influenced by effort. In contrast, more English teachers conceived intelligence as a fixed trait, differentiated from the concept of effort; but many of them also believed in the potential of effort to cause a significant improvement in the pupils' performance. Dweck et al. (1995b) emphasise that the belief in the supremacy of effort for high achievement can influence these teachers to think and act as incremental theorists.

3.2. Teachers' use of motivational strategies: a comparison between Macedonian and English teachers

This section reports differences between the Macedonian and English teachers' use of motivational strategies in the classroom. It is presented through two subtopics:
- Teachers' methods of assisting and setting tasks for pupils who exhibit maladaptive motivational patterns.
- Teachers' use of feedback in different achievement situations.

The most common motivational practices of the Macedonian and English teachers are analysed and compared cross-culturally. Their possible influence on shaping pupils' ability conceptions and achievement goals are discussed. After a careful analysis of the results, several items were detected as more discriminative and informative. Hence, the discussion will focus on their contribution for answering the second research question, regarding the motivational strategies typically adopted by the Macedonian and the English teachers.

Teachers' methods of assisting and setting tasks for pupils who exhibit maladaptive motivational patterns

In the following section, the most commonly used methods of setting tasks and assisting pupils who show maladaptive motivational patterns are presented and compared cross-culturally.

Table 8. Activities/strategies for motivating a pupil who is inconsistent in his performance

Question 4b: In one of the classes you teach, there is one pupil you feel is very bright but lazy. He works only when he wants, but when he does, produces excellent work, seemingly without much effort. Other times, you can't get him to do anything. Hence, his achievement has been very unstable. Do you think there is anything you can do to motivate him to complete all the tasks required? If yes, what would you do?					
Country	More work/ control	More challenging tasks	Discussion/ analysis of the problem	Nothing/else	Total
Macedonia	13(39%)	11(34%)	7(21)	2(6%)	33
England	4(13%)	10(34%)	7(23%)	9(30%)	30
Total	17	21	14	11	63
Chi-square = 9.14; df=3; p=0.02					

*Percentage calculations are based on the number of teachers who responded to the question

An equal percentage of teachers (34%) from the two contexts believed in the potential of giving challenging tasks to motivate a pupil who has been inconsistent in his performance (see Table 8). However, significantly more Macedonian than English teachers emphasised that giving the pupil more assignments and regularly controlling his work should result in higher achievement. Hence, Macedonian teachers appear to be more inclined to employ authoritative methods (hard work, discipline) if they believe that a pupil has high abilities, but does not work enough.

Table 9. Setting tasks for a pupil who became discouraged after a low mark

Question 3b: A pupil had been performing well in your subject until she received a low mark for a piece of work. Since then, any time she is faced with a more challenging task, she gives up saying she isn't clever enough to complete it. What sort of tasks would you give her in order to raise her performance?							
Country	Easier tasks	More diverse tasks	Offer additional explanation	Gradually Increase difficulty	Nothing/ unspecified	More structured tasks	Total
Macedonia	4(11%)	18(50%)	6(17%)	4(11%)	4(11%)	0	36
England	5(16%)	0	0	17(53%)	2(6%)	8(25%)	32
Total	9	18	6	21	6	8	68

*Percentage calculations are based on the number of teachers who responded to the question

In order to motivate a pupil whose achievement declined after receiving a low mark, half of the Macedonian teachers reported they would respond by giving her tasks with greater diversity. In contrast, half of the English teachers reported they would gradually increase the difficulty of the tasks in order to raise the pupil's self-confidence and consequently achievement (see Table 9).

Regardless of the differences between the groups in the methods preferred, most of the teachers seem to be sensitive to the pupil's problem. For example the tactic of gradually increasing the task difficulty is likely to be motivating since it is aimed at continuously challenging the pupils to exceed their previous performance (Ames, 1992). Researchers (e.g. Rosenholtz and Rosenholtz, 1981) also regard the strategy of offering diverse tasks as efficient for motivating pupils, suggesting that it enables pupils to 'demonstrate their ability in several areas rather than along a single dimension' and find an area in which they feel competent (Marshal and Weinstein, 1984: 307).

A small number of teachers from the two countries would set easier tasks. This practice is regarded by some authors (e.g. Marshal and Weinstein, 1984; Stipek, 1997) as potentially harmful for the pupil's ability beliefs, since it might strengthen or confirm her perceptions that she has low abilities.

Table 10. Activities for motivating a pupil who only performs well in group assignments

Question 7: Pupil X puts a lot of effort and performs well in group assignments, when she knows that she has someone to compare herself against. In other situations, where individual work is required, her performance drastically declines. What can you do to maintain her effort at a consistently high level?							
Country	Comparison to standards	Do what she wants / what she can	Advising / praise to increase self-confidence	Tasks to increase self-confidence	Set goals/ compete against herself	Extra work and monitoring	Nothing / else	Total
Macedonia	0	13(37%)	8(23%)	10(28%)	1(3%)	0	3 (9%)	35

England	3 (9%)	1(3%)	2(6%)	6(19%)	13(41%)	5(16%)	2 (6%)	32
Total	3	14	10	16	14	5	5	67

*Percentage calculations are based on the number of teachers who responded to the question

There are differences between the Macedonian and English teachers regarding their methods of motivating a pupil who performs well during group assignments, but underperforms in individual assignments. While more than a third of the Macedonian teachers stated they would leave the pupil to work the way she wants and/or allow her to work more often in a group 41% of the English teachers reported that they would try to encourage her to set personal goals and compete against herself (see Table 10). The strategy of setting personal goals is believed to have a positive influence on developing intrinsic interest in learning and pursuing learning goals (Ames, 1992; Stipek, 1997). In contrast, the practice of allowing the pupil to work in a group more often might strengthen her tendency to compare and compete with her peers and orient her towards pursuing performance goals.

Teachers' use of feedback in different achievement situations

The following section reports the most commonly employed feedback practices of the Macedonian and the English teachers. The findings indicated that dominant practices of the two groups of teachers differed in all but one of the portrayed achievement situations.[9]

The responses are presented in Table 11.

Table 11. Teachers' use of feedback in different achievement situations

Feedback after a low performing pupil is successful on a challenging task

Question 5: A pupil who usually performs at a very low level in your classes, successfully completes a relatively challenging task. What would you say to her?				
Country	You have worked hard	You are clever	You did the task very well	Something else	Total
Macedonia	10(26%)	9(23%)	15(38%)	5(13%)	39
England	11(31%)	4(12%)	15(43%)	5(14%)	35
Total	21	13	30	10	74
Chi-square=1.76; df=3; p=0.62					

Feedback to a pupil who does not attempt any work

Question 6: A new pupil has joined one of the classes you teach. You don't know how capable he is of completing the schoolwork required, but in your lessons he doesn't do any of the assignments. When you give him a task or ask him a question, he doesn't even attempt to do it or give an answer. When you ask him why he doesn't try, he says he is just not good at your subject. How would you respond to his comment?			
Country	Encouragement to try	Discuss problem	Something else (e.g. offer help, punish)	Total
Macedonia	24(62%)	7(18%)	8(20%)	39
England	9(26%)	17(49%)	9 (25%)	35
Total	33	24	17	74
Chi-square=10.86; df=2; p=0.004				

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9 The statistical significance was not calculated for two of the questions, because of the requirement to merge cells (i.e. categories). These questions were analysed on the basis of the percentages of responses in each category.

Feedback to a pupil who wants to improve his mark

Question 9: Pupil Y has been working very hard at your lessons. He always does his homework, finishes all of the assignments given, shows interest in the subject and asks questions. However, during the first term, his work was never assessed higher than grade C. Still, he doesn't give up and is determined to improve the mark. At the beginning of the second term, he asks you what he should do in order to improve his achievement. What do you tell him?						
Country	Keep trying/ working hard	Study with understanding	Reward for persistence	Point out mistakes, offer suggestions	Offer extra help/ feedback	Show assessment criteria	Total*
Macedonia	26(56%)	10(22%)	4(9%)	5(11%)	1(2%)	0	46
England	8(19%)	0	0	15(36%)	11(26%)	8(19%)	42
Total	34	10	4	20	12	8	88

Feedback after a difficult task

Question 11: When a pupil does well on a difficult task, which of the following comments are you most likely to say?					
Country	You have worked hard	I'm very satisfied with your work	You have used a good strategy / approached the task well	You are so clever	Depends on the task	Total
Macedonia	9(24%)	15(38%)	6(15%)	6(15%)	3(8%)	39
England	11(31%)	2(6%)	15(43%)	1(3%)	6(17%)	35
Total	20	17	21	7	9	74

Most efficient feedback to motivate a low achieving pupil

Question 13: Pupil X has been performing at a low level at your classes. You believe he can perform better. What kind of praise do you think would motivate him best?				
Country	Praise ability	Praise effort	Expect more	Specific (process) feedback	Total
Macedonia	7 (18%)	21 (54%)	11 (28%)	0	39
England	8 (24%)	11 (31%)	5 (14%)	11 (31%)	35
Total	15	32	16	11	74
Chi-Square=16,27; df=3; p=0.001					

*Total number of responses (some teachers provided more than one response)

The feedback offered by the Macedonian and the English teachers for the purpose of praising a low achieving pupil's good performance (see Table 11 - Question 5) did not differ significantly. Teachers from both countries reported they typically use task-directed feedback (e.g. 'You completed this task very well') in this type of situation. This finding corresponds to Thompson's (1997) claim that this form of feedback is the most commonly adopted by teachers. However, he doubts its efficiency, arguing that it does not 'provide specific information on the basis of which students may adequately diagnose the cause of their success' (1997: 58). Hence, pupils do not have an indicator to guide their further performance, and may attribute their success to external and uncontrollable factors such as luck.

The Macedonian teachers reported using teacher-directed feedback (e.g. 'I'm very satisfied with your work' or 'I expect more from you') more than the English teachers (see Table 11 – Questions 11 and 13). The use of this externally-based feedback as a method for encouragement can be potentially dangerous for the pupils' goal orientation, since it may communicate a message that the pupil's performance is a means to primarily satisfy the teacher. Hence, it would be likely to direct the pupils towards 'extrinsic involvement' (Marshal and Weinstein, 1984: 317) (e.g. trying to satisfy the teacher's expectations), instead of learning goals (e.g. aiming to satisfy their intrinsic needs for learning).

Furthermore, the majority of the Macedonian teachers reported motivating pupils for a higher performance by emphasising the effort and suggesting that they need to work hard, for example:
'Continue working hard, and the results will come' (see Table 11 - Question 9) or
'Try harder, you can certainly achieve more';
'There isn't a subject that you are not good at, if you try – you will succeed' (see Table 11 - Question 6).

This form of feedback is regarded as efficient in promoting adaptive motivational patterns (Dweck, 1975; Muller and Dweck, 1998), but its effects are believed to be strengthened if combined with comments on the strategy for performing the task (Dweck, 1999). However, Macedonian teachers rarely reported providing explicit feedback focused on the strategy or the specific aspects of the performance that needed to be improved. This could perhaps, in some cases lead the pupils to frustration, if they do not manage to improve the performance despite of the effort invested (Stipek, 1997). Therefore, some of the teachers stated their readiness to increase a pupil's mark simply on the basis of the effort invested, even if the pupil lags in the performance (e.g. 'He will be rewarded for his persistence'). This practice of rewarding motivation as opposed to performance outcomes is relatively common in the Macedonian schooling system because the absence of national assessment standards allows teachers to develop their personal evaluation criteria. Hence, since effort is considered important and teachers are not provided with an opportunity to assess it as a separate factor, some decide to add it to the mark for academic performance.

English teachers, on the other hand, are required to adhere to the national standards for performance evaluation and assess strictly the outcomes. However, they usually have an opportunity to provide a separate comment referring to the pupil's work rate and behaviour.
Perhaps this is the reason why they, in general, appear to separate the effort-feedback from giving advice regarding the strategy for performing the task. They tend to offer a detailed/constructive feedback on the pupil's performance by:
- telling the pupil specifically what he needs to do to improve his mark (e.g. 'I would point out exactly the areas where he needs to improve and remind him of these regularly');
- offering additional help with his learning (e.g. 'Take time to look at some assignments with the pupil and make sure he is aware of what he needs to do to improve his grade');
- acquainting the pupil with the assessment criteria to compare his work against (e.g. 'Provide him with a copy of the mark scheme and introduce in lessons how to mark work and exemplar work') (See Table 11 - Question 9).

The English teachers' approach is more in line with the idea of developing the pupils' competences for self-regulation and self-assessment (by setting personal goals, competing against oneself etc.), and is hence more likely to guide the pupils towards pursuing learning goals (Ames, 1992; Pintrich and Zusho, 2001). This reasoning might have been developed as a result of the 'Assessment for Learning Principles' (QCA, 2007), which were introduced by the English schooling authorities for the purpose of improving the classroom learning and assessment. Of course, there is a possibility that even though teachers are aware of these principles and know when they should use them, they may not actually employ them in their practice.
Relatively small numbers of teachers from the two countries mentioned using ability feedback. However, more Macedonian than English teachers reported that they gave ability praise after a pupil performs well on a difficult task (see Table 11 – Questions 5 and 11). In contrast, three English teachers stressed that they try to avoid using the

word 'clever', because they believe that the pupils may perceive it as patronising. Nevertheless, about a quarter of the respondents from the two countries reported they would use ability-feedback to motivate a pupil they believe could perform better than s/he currently does (see Table 11 – Question 13). Perhaps the belief that this type of praise will increase the pupil's confidence in his/her abilities and be motivating for the further achievement is still dominant with certain teachers, though research (Muller and Dweck, 1998) has shown its effects to be potentially debilitating for the pupils' ability-beliefs and long-term performance.

Significantly more English than Macedonian teachers reported feeling personally responsible to help a pupil in a motivational crisis (see Table 11 - Question 6) by trying to analyse the problem and undertake appropriate actions. As one English teacher responded, he would approach a pupil that believes is not good at a subject, by asking: 'Why he thinks so? What are you good at?' and added: 'It is a situation to be developed not "one liner-ed"'. In contrast, the majority of Macedonian teachers would tend not to get too involved into the pupil's problem. Instead, they would offer the pupil a brief 'effort-related' encouragement and than leave it to him to overcome his difficulties.

In conclusion, although almost half of the English teachers were found to hold a fixed conception of intelligence (see Table 7), the strategies adopted by the majority of them were in line with the incremental theory principles and were focused on developing learning goals. Their feedback in most of the situations was directed towards the pupils' internal and changeable features (e.g. effort, strategy) and aimed at developing their potential for self-regulation and self-assessment. Perhaps the dominant belief in the importance of effort in achieving success exerts a stronger influence on their motivational strategies. However, it is also possible that the adoption of motivational strategies was mainly externally influenced by the schooling system. For example, the majority of English teachers reported that they would employ contemporary and systematic motivational methods and tended to use scientifically-based vocabulary in their responses, which perhaps reflected the values and standards explicitly promoted by the English schooling authorities (e.g. AfL principles - QCA, 2007), and may not necessarily be related to the teachers' personal beliefs.

On the other hand, Macedonian teachers, faced with an absence of explicitly promoted contemporary educational standards and values[10], appear to have remained faithful to the traditional methods: additional work, teacher control of the pupil's work, not getting too involved into the pupil's motivational problems. The routinely used 'traditional' methods, perhaps interacted with their generally held incremental beliefs about pupils' ability (see Table 5) and resulted in employing less systematic feedback strategies, which might even be contradictory in certain aspects.

Specifically, whilst the majority of Macedonian teachers were found to frequently emphasise pupils' effort in their feedback, many of them also tended to stress their expectations and/or satisfaction with the pupil's work. In the former strategy, the incentive for the pupils' performance is located internally (within the pupil), while in the latter – externally (within the teacher). Teacher-directed feedback might lead the pupils to experience the praise as external and controlling, which might decrease their intrinsic motivation and 'impose an external performance pressure' (Thompson 1997: 56). Hence the combination of the two dominant strategies might lead to development of maladaptive motivational patterns in pupils (e.g. investing effort for the purpose to satisfy the teacher's expectations).

These findings suggest that teachers' beliefs about pupils' intelligence may not always be reflected in their strategies for motivating pupils – such strategies often appearing to be more related to the standards promoted by the schooling system. Hence, if the system provides the teachers with explicit guidelines on how they should react in specific situations involving pupils' learning and motivation, they are likely to adopt some of them even if they do not completely correspond to their personal beliefs. In contrast, if the system does not offer concrete guidelines, teachers

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10 There is a lack of explicitly promoted educational doctrine; teacher training is mainly theoretical and does not acquaint teachers with the contemporary educational standards; opportunities for professional development are scant. (Delceva-Dizdarevic et al, 2006)

will be more likely to act on an intuitive basis, but not necessarily in a systematic manner. Hence, as Kagan (1992) concludes - teachers' beliefs are difficult to infer from their practices, because they are usually required to adhere to certain standards in the lessons.

The following section is intended to clarify some of the abovementioned issues concerning the associations between teachers' implicit theories and classroom practices, through the examples of five teachers.

3.3 Modelling the structure of teachers' beliefs about intelligence and motivation through cognitive mapping

In order to investigate the structure and organisation of contrasting implicit theories of intelligence in more detail, and how this was reflected in teaching practices, five interviews were conducted. The relationships between the concepts comprising the three implicit theory frameworks are analysed and where possible, compared cross-culturally.[11]

The characteristics of the teachers who were interviewed for the purpose of developing their cognitive maps are presented in Table 12.

Table 12. Demographic characteristics of the teachers interviewed

Theory of intelligence	Pseudonym /gender	Country	Subject area	Age range	Years working as a teacher	Years of university education
Incremental	Mira /f	Macedonia	IT	26-35	7	4y. BD in IT + 1 y. teacher training
	Alma /f	Macedonia	Citizenship	26-35	5	4y. BD in History
	Sara /f	England	Languages	36-45	7	3y. BD in Modern Languages + 1y. PGCE
Mixed	Lora /f	England	Biology	26-35	5	3 y. BD in Biology + 1 y. PGCE
Entity	Marko /m	Macedonia	Maths	55<	30	4y. BD in Maths

Legend: BD – Bachelors Degree

PGCE – Post Graduate Certificate in Education

Teacher training – specialised (non-compulsory) 1 year-course for IT teachers

The structural representation of incremental theory of intelligence

The characteristics of the incremental framework are presented through analysis of the cognitive maps (see Figure3: Cognitive map-Mira, Figure 4: Cognitive map-Alma, Figure 5: Cognitive map-Sara) of three teachers (two from Macedonia and one from England), identified as incremental theorists. The focus here is on extracting the cor-

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11 The interviews provided extensive data, only part of which is presented in the analysis

responding and the contrasting features of the implicit theories they hold.

All three teachers were found to hold a strong incremental theory based on their responses on the 'Implicit-theory-scale' from the questionnaire. Their responses on the 'Motivational strategies' items reflected practices which were mainly in line with what would be expected from incremental theorists. However, the interviews provided additional information, some of which is contradictory from what Dweck's model would predict

In Table 13, their beliefs regarding different aspects of the implicit theory framework are contrasted. The similarities and differences are explained in greater detail in the following paragraphs.

Ability-effort relationship

All three incremental theorists shared similar beliefs on most aspects of the ability-effort relationship (see Table 13). Their characterisations of high and low achieving pupils all contain the belief in the supremacy of effort for high achievement. However, whilst they all perceived ability as differentiated from effort, the relationship between the two concepts differed. Sara had particularly emphasised the intellectual abilities of a high achieving pupil (expressed in psychometric terms - 'borderline gifted-talented') and noted that sometimes high ability alone can be sufficient for success. Alma, on the other hand, did not mention intelligence as a factor, but focused on the motivational characteristics; and Mira stressed that intellectual abilities are not the determining factor for good achievement. In her words:

> '*It is important for him/her to be intelligent, but it is not the most important factor (…) Hard working is one of the most important characteristics. In my subject, if a pupil works hard, s/he can certainly achieve a lot.*'
>
> *Mira*

Grades as motivators

There are noticeable differences in the way the three teachers treat grades as means for motivating pupils. For example, Alma mentioned on several occasions during the interview that she tends to motivate the pupils by promising them a certain grade for performing a task.

> '*When you give a specific task, to learn something for the next lesson and say that s/he is going to get a certain grade for that, that is an additional motive – the pupil has a goal. This method works sometimes, but not always.*'
>
> *Alma*

Sara also said that she might tell a pupil: '*You can achieve level 4 if you do this*' as a strategy to motivate him/her.

On the other hand, Mira emphasised that she avoids using grades to motivate pupils, because she believes that it makes them work only for grades, and not knowledge. She had also noticed that pupils are afraid of the grades, and especially of their parent's response to a low grade.

> '*I can see that they are afraid of the grades, and I try to avoid that approach, (…) It is very wrong, because if I tell someone that I'm going to give him/her a lower grade, I'm forcing them to work for a grade.*
>
> *Mira*

The first two teachers use the grade as a reward in order to control the pupils' behaviour - a practice, which according to some researchers (e.g. Butler, 1984; Thompson, 1997) may lead to developing maladaptive motivational patterns and pursuing performance goals (i.e. achieving the 'promised' grade). The last teacher understands this and

tries to avoid it as a method, and instead guide the pupils towards learning, without having to worry about grades. Her beliefs and practices are concordant to Ames's (1992) claims that pupils will be more likely to pursue learning goals if the focus of the evaluation is on individual improvement and mastery, rather than normative comparisons (fostered by grading).

Ability grouping

In their explanation of the grouping strategies, the Macedonian teachers stated that they tend to group the pupils in mixed-ability groups, so that they could learn from each other and help one another. Mira said that if she sees a pupil who is struggling with his/her work, she puts him/her to work with better performing pupils. She considered this to be motivating for the pupil and thinks that pupils feel more comfortable asking for help from their peers than from the teacher. This practice is seen by many authors (e.g. Holloway, 1988; Stevenson and Stigler, 1992; Stipek, 1997) as directing the pupils towards pursuing learning goals and creating a 'community of learners culture' (Pintrich and Schunk, 2002: 235). Alma said that she tends to give the lower achieving pupils more challenging tasks (e.g. leadership positions during group work) to build up their confidence. She believes this to be a good method of motivating them, because when they perform the task, they feel satisfied with themselves. The positive effects of this method are supported by Zander and Forward's (1968; according to Maehr, 1984) argument that giving a leadership role to a person increases his/hers achievement motivation. In general, these practices correspond well to Mira and Alma's belief that effort is the primary factor for good achievement and that every pupil can perform well if given a chance.

Sara, on the other hand, believes that grouping pupils on the basis of ability (i.e. previous achievement) is a good method. She tends to begin the work with Year 7 pupils (11 year olds) by giving them all a chance to prove themselves, but afterwards she differentiates the tasks for the more and less able pupils. She also mentioned that she does not give the pupils in the 'low-ability group' more difficult tasks because she does not believe they will do them. As she said:

'I will make, like today, I had to prepare two sets of handouts, an easy one and a hard one and the task - for the lower ability group they need to gap-fill rather that write 150 words. 'Cause I know they won't do it properly.'

Sara

This is a somewhat contradictory statement, bearing in mind that she also said that *'IQ is a bit controversial (…) I teach languages and it shouldn't be that much to do with intelligence really (…) Everyone can learn the language'*. In fact, even though her beliefs reflect an incremental theory, some of the practices Sara uses seem to be more in line with the perception of intelligence as a capacity.

Coping with a motivational crisis

Alma believes there is a difference in the ways pupils with different abilities cope with a decline in their motivation and achievement. While the 'highly intelligent' ones manage to get out of the crisis on their own, the high performing, but lower ability pupils can experience more problems and need more help from the teacher. Sara shared the same belief. However, research findings (e.g. Meyer, 1982; according to Thompson, 1997) have suggested that the practice of selectively helping pupils might be defeating for the ones that receive more support from the teacher, because it might lead them to conclude that they have lower ability than the rest of the pupils.

Mira, on the other hand, did not differentiate between the low and high ability pupils' reactions in a motivational crisis. She believes that all pupils should be approached in the same way and encouraged to achieve through individual discussions, outside of the classroom.

Out of the three teachers identified as incremental theorists, Mira showed the strongest tendency to emphasise

the importance of effort for good achievement in her subject (as she said: 'There aren't pupils that can't achieve; there are only pupils that do not try'). These beliefs are likely to have been transmitted during her early socialising and schooling experiences. She mentioned that she was raised to believe that you can achieve a lot if you work hard. Also, the teacher she believes has mostly influenced her practice used to hold the same belief about the pupils' achievement. She fondly remembered her Maths teacher who would not continue to the next topic until she was completely certain that all pupils had understood the previously taught material. Mira contended that this is a practice that she also tends to use.

Alma also strongly believed in the importance of effort for high achievement and in the malleability of intelligence, but some of her practices (e.g. using grades as incentives for learning) may possibly orient pupils towards pursuing performance goals. Although she said that she is aware of the potential negative effect of this practice (i.e. that it makes pupils study for a grade), she did not offer an alternative strategy.

Sara was found to hold the least cohesive theory of intelligence. Whilst she believed that effort is more important then ability for success, she also claimed that 'bright' pupils can do well in school even if they do not work very hard. Also, she contended that intelligence is malleable and can be influenced by the school, but defined it in terms which imply fixedness of intelligence (e.g. gifted, borderline) and reported to employ practices which restrict the pupils' possibilities for upward mobility in terms of their achievement (e.g. ability grouping).

Legend for reading the cognitive maps:

Ellipses – core categories
Squares – peripheral categories
Arrows (→) causal 'therefore' relationship between concepts
Straight line (   ) non-causal relationship
Dotted line (- - - - -) potentially contrasting relationship
+ (positive relationship)
- (negative relationship)
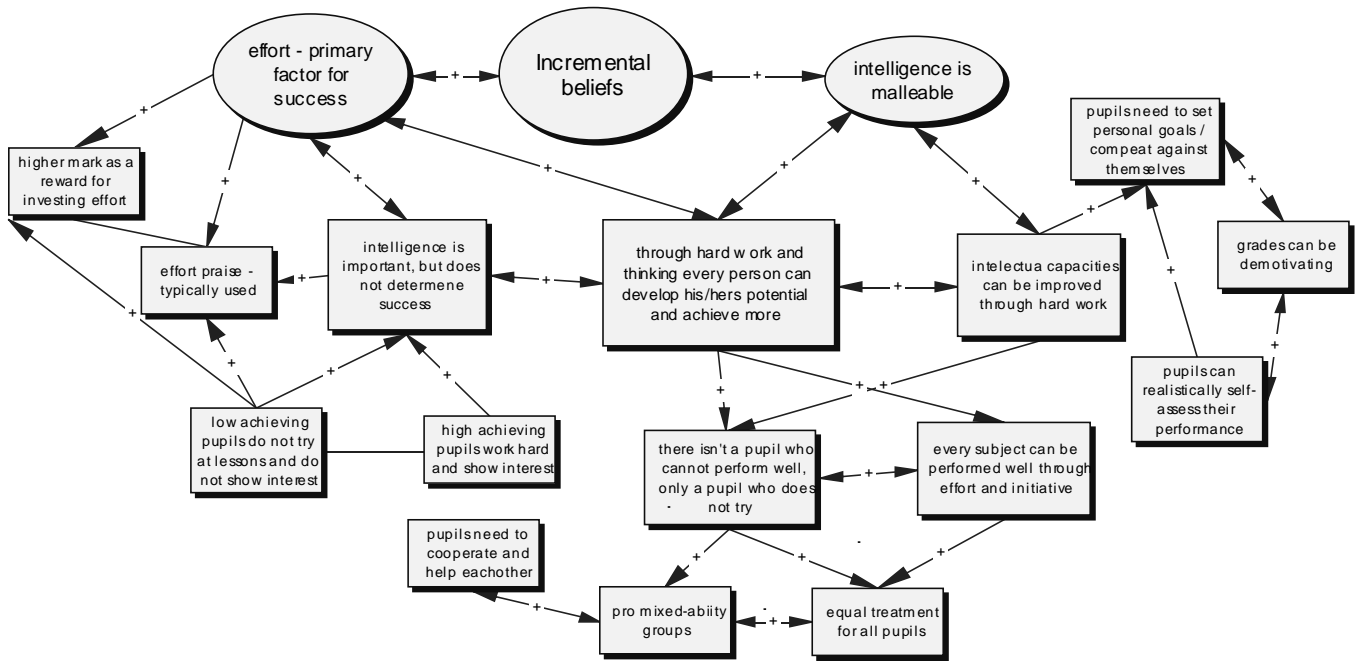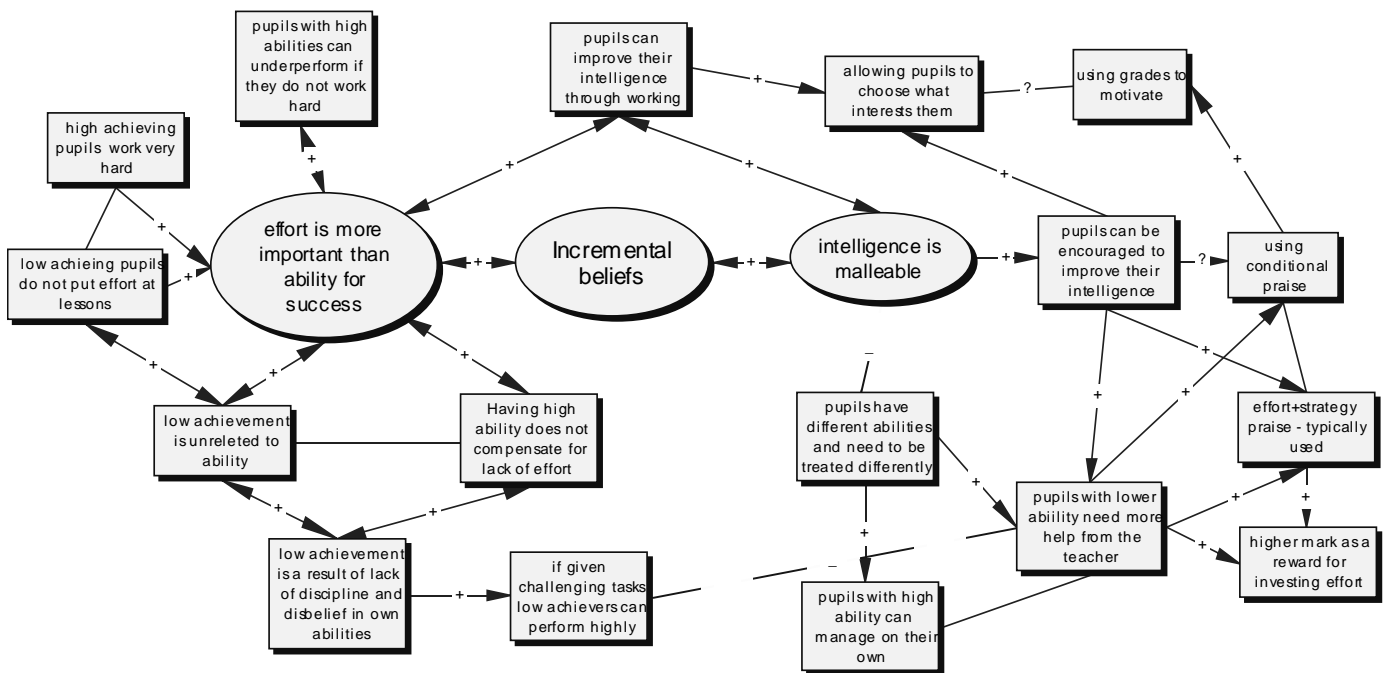**? (unclear relationship)**

Figure 3: Cognitive map- Mira

Figure 3: Cognitive map- Alma

Figure 3: Cognitive map- Sara

The structural representation of mixed theory of intelligence
Lora showed a rather typical mixed framework, characterised by two main, somewhat contradictory ideas:
- intelligence can be improved, and
- ability is the most important factor for success (see Figure 6: Cognitive map-Lora)

When asked what intelligence means for her, she had trouble defining it and was hesitant about how to use the psychometric conception of intelligence (IQ). She tried to explain her understanding of pupils' intelligence through analysing how it is related to the academic achievement:

'It's really difficult. (….) You get two sorts of pupils that get good exam grades. So, you get pupils that have a natural ability with a subject, and so can do it no matter what. And then you get those that just work really hard'

Lora stressed natural ability as a factor which can produce high achievement on its own, without the need to invest much effort. Hence, it can be implied that pupils which need to work very hard, probably do not possess enough natural ability. Lora perceived the concepts of effort and ability as negatively correlated, with high ability usually seen as sufficient for high performance, while high effort as not always sufficient on its own. In her words: *'You're gonna get some kids that are not as clever, get less good grades, but will still work very hard'.*

The characteristics of Lora's theory are best reflected in her descriptions of the features of two high achieving pupils. She thought of two pupils, both of whom were described as intelligent. However, one of them was portrayed as: having 'high natural ability', being very quick (performs tasks easily) but not very hard working; while the other pupil was described as: more considerate ('would stop and think'), very hard working and more enthusiastic when

faced with a difficult task. These descriptions support the previously determined belief that while working hard can be important for high performance, the pupils that possess high natural ability can do well without investing much effort.

Her description of a low achieving pupil focused mostly on the intellectual capacities (e.g. low ability, difficulty in remembering things, expressing ideas), which she believed have influenced the motivational problems (e.g. does not try, needs constant reinforcement). For this reason, she contended that the 'less able pupils' require special treatment from the teacher, in terms of special teaching methods, but also more support and praise. The different approaches she reported using with certain groups of pupils are reflected in the following statement, which indicates the differentiated view regarding their underlying abilities.

'With the clever kids you can just give them something and they'll do it. Whereas with the (pause) slightly weaker children you have to break it up a bit. Make sure it is broken up for them. And more things like diagrams, pictures and activities, like matching things up …'

Therefore, Lora believes that knowing a pupil's ability is important, because it helps the teacher to adjust the methods to fit the pupil's needs. She uses ability grouping at her classes and concludes that there is usually not a lot of mobility between the groups

'If we get a chance it's quite nice to have a look and see if they are in the right places, but usually they are ok where they are.'

This statement supports Dweck's (1999) claim that the use of ability grouping might facilitate the teachers' expectations that the pupils in the low achieving group will always underperform.

It can be concluded that, though on the basis of the 'Implicit theory-sale' Lora was identified as a mixed theorist, her practices appear to be more in line with the incremental framework. In addition, certain inconsistencies were detected in her statements. For example, whilst she believed that intelligence can be improved, she also stated that pupils either have or do not have a natural ability for a subject, and the ones that do not have it may not be able to succeed, despite the effort they invest. This way of thinking, according to Dweck et al. (1995b) is more typical of entity theorists. Furthermore, some of the beliefs she reported to hold did not correspond to some of the practices she said she employed, in several aspects. For example, despite her initially expressed belief that everyone can improve, she expressed a reservation regarding the pupils' potential for upward mobility in the ability groups and a tendency to keep the pupils in the groups they were initially assigned to.

It appears that out of the two central concepts found to constitute her theory, the one which refers to the supremacy of ability over effort for success is more dominant. This concept influences most of Lora's expectations and the classroom practices aimed at motivating pupils. Hence, the beliefs about malleability of intelligence would have been insufficient to detect and predict her practices, if used as an individual measure.

Lora's example indicates a possibility that the rest of the teachers from the sample, who were identified as mixed theorists, might also be more inclined towards one of the two extreme implicit theory frameworks.

Figure 3: Cognitive map- Lora
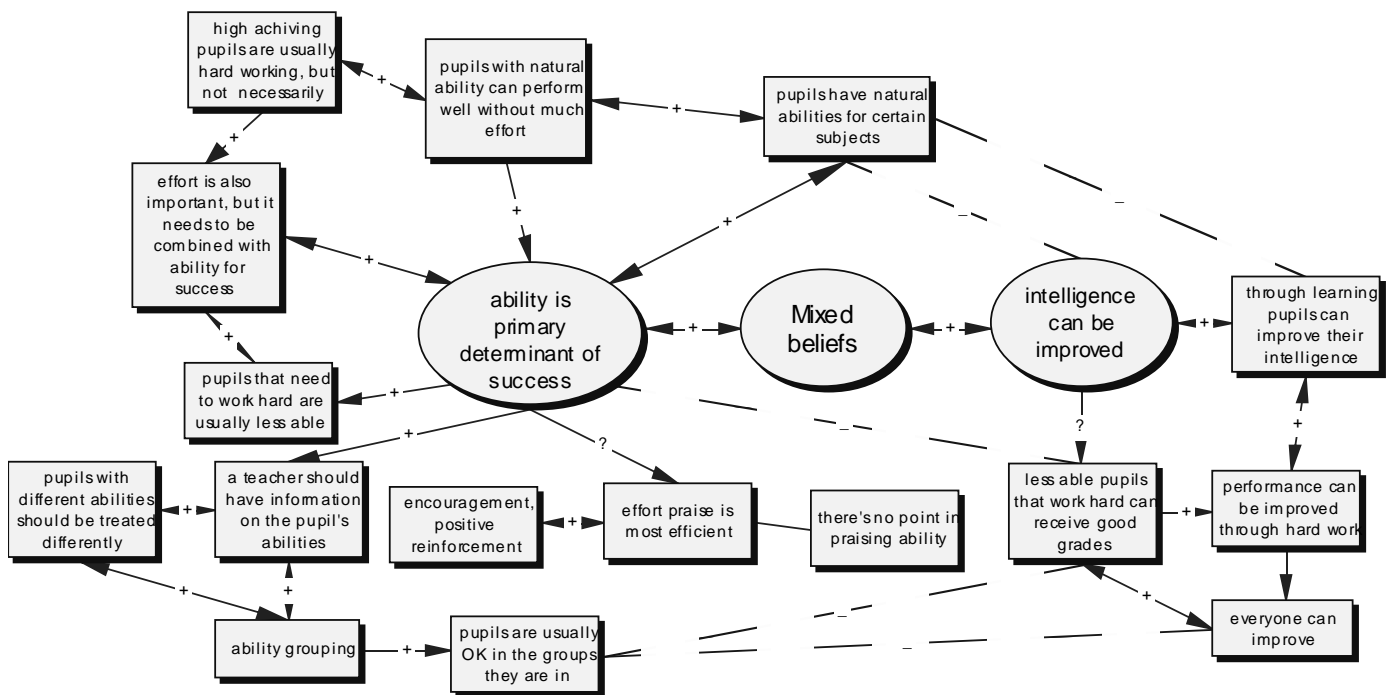
The structural representation of entity theory of intelligence

The information from the interview with Marko provided support for most of the beliefs and related practices expected from an entity theorist on the basis of the Model of Implicit Theories of Intelligence (Dweck and Leggett, 1988).

Marko's theory was characterised by two distinctive concepts (see Figure 7: Cognitive map-Marko):
- intelligence is more or less a constant
- for high achievement in school you need to have high intelligence

He strongly believed that for a pupil to have high achievement in Maths, s/he needs to have capacity, and characterised the best achievers as having high 'natural ability' for mathematics and being very methodical in their learning.
Describing the characteristics of the low achieving pupils, Marko said:

'Those are usually pupils with low ability, who don't try at all. But, there are some that have poor achievement; they work hard and on a regular basis, but their capacity does not allow high achievement, especially in Maths. Because, you know, achievement in Maths is highly related to IQ… highly related.'

Since he perceives intelligence as a fixed trait, and believes that the achievement in Maths is highly related to intelligence, his reasoning implies that the low-ability pupils are 'destined' to have poor performance in Maths, no matter how much they try. This perception of ability as independent and uninfluenced by effort causes him to view and treat the high and low achieving pupils differently. He spoke of the high achievers in his subject as an 'elite' group of pupils, with whom he has special relationship, different from his relationship with other pupils: *'Those are talented pupils, whose talent I nurture, and they have complete trust in me. I include them in the process, 'feed' them with special tasks, which they find challenging'.*

In contrast, he contended that the lower performing pupils should be given easier tasks to work on, in order to prevent them from getting de-motivated.

'The teacher should have a sense for these pupils and set lower demands. The level is very important. You should not set demands which are above their abilities; because they are going to get demoralized and you won't achieve anything.'

Marko said that he employs this principle sometimes when he gives tests. The last time he assessed the pupils' knowledge, he divided them into 3 groups according to their previous achievement and gave them differentiated tasks. The lowest achieving group received basic-level tasks, but he assessed them higher than their actual performance and contended that *'they were happy'*. *'The aim of the assessment was not to make a selection, but to motivate them'.*

However, this practice is doubted by some researchers (e.g. Stipek, 1997) to be effective for motivation, because the pupils are not being challenged at all. The tasks given are too easy and even though the pupils can do them without much effort, they can understand that it implies them having lower ability relative to their peers. In addition, Marko's beliefs that these pupils are underperforming because of lack of ability would be likely to prevent him encouraging them to work on more challenging tasks in future (Galloway et al, 1998). These beliefs on behalf of the pupils and the teacher may initiate the self-fulfilling prophecy cycle.

Marko's beliefs and practices were in line with many aspects of the entity theory framework, as defined by Dweck (1999). The belief that intelligence is fixed and success in school can be expected only when effort is combined with high intelligence, caused him to perceive the high and the low achieving pupils as able and not able, and to form diverse expectations regarding their performance and treat them differently. On the other hand, he also reported using strategy and effort feedback and stated that he considered praising effort to be more efficient than praising ability. However, this might be because he believed that ability can not be changed and therefore, praising ability would not be effective. Despite of some minor inconsistencies in Marko's theory, it can be concluded that his beliefs about pupils' ability correspond to most of the motivational practices he uses.

Figure 3: Cognitive map- Marko
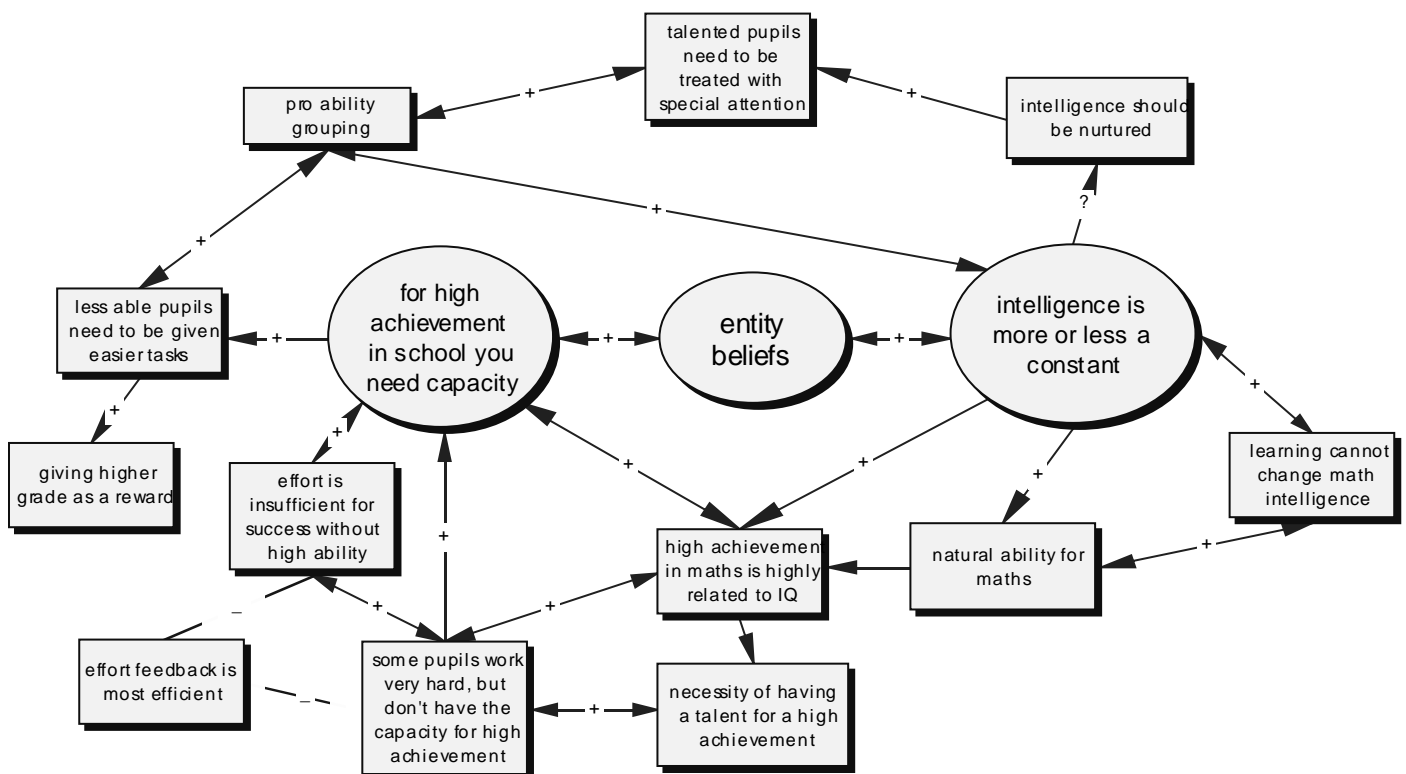
Table 13: Comparison of the key aspects of the interviewees' implicit theory frameworks

Pseudonym		Mira	Alma	Sara	Lora	Marko
Characteristics of a high achieving pupil	*Ability*	Intelligence is important, but not the determining factor	??? *	High ability (gifted-talented)	High natural ability (talent)	High natural ability
	Effort	Hard working and motivation - the most important factors	Puts maximum effort and dedication in every task	Puts a lot effort -more than required	Usually hard working, but not necessarily	???
	Reaction to difficulty	It is a challenge	Takes it very seriously, highly committed	Loves it - the more the better	Sees it as an interesting challenge; but if lazy might need 'talking round it'	It's a challenge
Characteristics of a low achieving pupil	*Ability*	Intelligence as a factor is not important	Normal (average)	Low or high ability (can be either)	Low ability	Usually low capacity Sometimes normal
	Effort	Does not try, does not show interest for the subject	Does not do the work required	Will put effort if supported by an assistant. or Does not put effort because of low self-confidence	Does not want to put effort. It is too hard for him	Usually don't try. Some work hard but their capacity is limited
	Reaction to difficulty	Is not interested, says: I can't	Says: I'm not going to be able to do this	Wants to give up	Does not want to do even easy tasks	Get demoralised
Effort-ability relationship		There isn't a pupil that can't do the work; only a pupil that doesn't try	Having high ability does not compensate for lack of effort	If you just try hard enough you can achieve Vs. If you are bright, you can get by in school without much work	If you have natural ability, you can achieve well without trying very hard	Effort is insufficient for success without high ability

* The teacher did not provide information on this issue

Pseudonym		Mira	Alma	Sara	Lora	Marko
Use of feedback as a motivational strategy	*Standard task*	Task-directed feedback	Effort-directed feedback + conditional praise	Task-directed feedback	Strategy feedback	Strategy feedback
	Difficult task	Effort feedback	Strategy feedback	Effort feedback	Task praise	Teacher satisfaction
	Low achieving pupil	Effort praise	Effort praise	Effort praise	Praise when he does do something right, but not in front of the class	Effort praise
Choosing tasks to motivate	*Pupil that does not try*	Encouragement that every subject can be performed well through effort and initiative	Giving him a chance to select what interests him	Giving him less challenging work at the beginning to encourage him	Everyone can improve, try and see what happens	Give easier tasks at the beginning and see how far he can go
	'Bright but lazy pupil'	more challenging/ interesting tasks	more challenging/ interesting tasks	more challenging/ interesting tasks	offer rewards/ praise	more challenging/ interesting tasks and regular control
Assessment		Use of self-assessment Higher mark as a reward for the effort	Acquainting the pupils with the assessment criteria Higher mark as a reward for the effort	Use of self-assessment: competing with oneself, setting personal goals	???	Different assessment standards for the more and less able pupils
Grouping practices		Mixed-ability groups: giving same tasks to all; pupils help each other	Mixed-ability groups: giving leadership roles to the lower achieving pupils	Ability grouping: giving different tasks to pupils with different ability. Less able- more help/assistance	Ability grouping: differentiated tasks to pupils with different ability. Less able- more help/assistance	Ability grouping: low ability pupils get easier tasks; high achievers - challenging tasks and special attention

SUMMARY:
IMPLICIT THEORIES' STRUCTURE

In general, the five teachers' implicit theories about ability and motivation, which were detected with the questionnaire, were reinforced through the interviews. Nevertheless, the analysis of the cognitive maps had enabled expansion of the explicit data and exploring the latent content of the teachers' statements. It revealed how the implicit theories' concepts are related in the belief-systems of different teachers and indicated the ways in which teachers' beliefs can be associated to their classroom practices.

Beliefs about pupils' intelligence and motivation were found to be fairly coherent and strongly related to the practices in the case of two teachers (Mira and Marko), but less coherent and not always related to the practices of the other three teachers.

Whilst the main characteristics of the entity and incremental theory framework, as defined by Dweck (1999) were found in the teachers' belief-systems, the findings suggest that the structure of the implicit-theory-system is not always coherent since some elements can be contradictory. This supports Nespor's (1987; according to Pajares, 1992) claims, that individual beliefs can exist as inconsistencies within the belief system. In fact, a teacher can hold divergent beliefs on the same topic and employ either of them, depending on the situation. For example, s/he might believe that effort is a primary factor for success, but that certain pupils can perform well without investing effort.

Furthermore, teachers appear to employ some methods because they are commonly used and considered as appropriate in their context. For instance, the practices of rewarding a pupil on the basis of effort, which is common among the Macedonian teachers; and the ability grouping, which is common among the English teachers, appear to be influenced more contextually than individually. It is probable that the dominant schooling practices and the social representations of 'effective strategies' in each context 'interfere' with the teachers' individual practices and may override the impact of their implicit theories. Hence, beliefs might 'influence what teachers say outside the classroom, but their behaviour in the classroom is a result of beliefs being filtered by experience' (Roehler et al., 1988; according to Pajares, 1992: 312). Therefore, even though on the basis of the questionnaire responses, the majority of teachers were identified as incremental theorists, it should not be assumed that the classroom practices[12] they use necessarily adhere to the incremental theory principles.

Pertinent to this finding, Dweck does not always claim that the effect of the implicit theories will 'spill-over' and influence the social behaviour. Moreover Dweck et al. argue that the impact of the theories is through their allied structures. Thus, if the implicit theory is not strongly linked with the other structures of the system, its impact is likely

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12 The 'classroom practices' are not limited to the motivational strategies discussed in the previous section, but encompass a wider array of methods used in the classroom.

to be weak or insignificant. 'For example, an individual might believe that his or her intelligence is fixed but that effort and learning are nonetheless of supreme importance. Such an individual might think and act much like an incremental theorist' (1995b: 324). They emphasise that since 'people do not tend to comb through their system of beliefs, spotting and eliminating contradictions and inconsistencies' (1995b: 323), it is possible that many of them 'actually hold both theories, albeit to differing degrees' (1995b: 323), and the elicitation of a certain framework is dependent on the circumstances.

Nevertheless, certain individual beliefs were found to be particularly influential in the teachers' practices. For example, the teachers who spoke of having 'natural ability' for a certain subject supported the practice of ability grouping. This finding corresponds to Mugny and Carugati's (1989) discovery that people who believed in 'natural giftedness' tended to support the use of differentiated approaches with the more and less 'talented' children. This belief appears to instigate certain practices which may not be typical in the teacher's cultural context. For example, the practice of ability grouping is very rare in Macedonia, but it was found to be employed by a teacher who displayed adherence to the entity theory of intelligence. Hence, it appears that if teachers hold a relatively 'strong' and consistent implicit theory, they will be more likely to 'bypass' some of the dominant schooling standards, and employ practices concordant with their beliefs (see Cognitive map-Mira; Cognitive map-Marko).

Furthermore, the findings suggest that although the implicit theories tend to be organised around several central concepts, some may prove to be more dominant and 'suppress' the influence of other concepts on the behaviour. For instance, the belief about 'ability-effort relationship' was found to be a stronger influence on one teacher's practices than the belief about malleability of intelligence (see Figure 6: Cognitive map - Lora).

In conclusion, although a questionnaire might predict general patterns, the specific relationships between the implicit theories' concepts and the practices are usually not as clear cut, as identified using the present multi-method approach. The fact that the teachers taught different subjects might account for some of the differences, bearing in mind that the implicit theories are often content-specific (Pajares, 1992; Dweck et al., 1995b; Dweck, 1999). It is also likely that some of the differences were influenced by the context. In particular, the findings indicated a less straightforward relationship between the beliefs and practices of the two English teachers', compared to the Macedonian teachers. This supports the previously stated claims that the more the schooling system 'equips' the teachers with specific guidelines on how to behave in the classroom, the less likely their practices would be in concordance with their personal beliefs. However, these results may be due to the selection of the interviewees and can not be generalised, since they are based on a small number of participants. Hence, future research should encompass more teachers – exemplars of each implicit theory framework, in order to enable drawing well-grounded conclusions.

3.4. Limitations of the study and suggestions for improvement

In this section, the main limitations of the study will be analysed, and proposals will be made on how they could be improved in future research.

Limitations of the data-collection instrument

Apart from the general limitations which may arise from using a questionnaire as a data-collection method (see Robson, 2006), certain problems, which are specific for the current study, will be highlighted in this part of the thesis.

Firstly, because of deficiency in previous similar studies and relevant instruments for data collection, the questionnaire had to be designed specifically for the purposes of the research. This, coupled with limitations in the time

available, prevented the standardisation of the instrument for the two populations of teachers. While the pilot-testing with the Macedonian teachers provided some useful information on how to improve the content of the questions, the inability to conduct pilot testing with the English teachers might have influenced the suitability of the questionnaire for this population. Hence, in order for the questionnaire (especially the 'Implicit-theory-scale') to be used in future, its structure and content need to be re-examined. Efforts need to be made to increase the internal consistency of the scale and the discriminatory power of individual items in order for the scale to develop into a more valid and reliable measure of the construct.

For example, the study would have been more credible if the understanding of individual concepts was initially examined, and then those findings were used during the construction of the items. Though the pilot-testing was expected to provide clarification of the concepts (e.g. intelligence), its usefulness was limited due to the small number of participants.

At the same time, correlating the scores on the 'Implicit-theory-scale' with scales measuring related concepts (e.g. Dweck's (1999) Implicit theory of intelligence test for adults, Braten and Olaussen's (1998) Conception of Intelligence Scale, Peterson et al's (1982) Attributional Style Questionnaire) would have provided information on the concurrent validity of the scale.

Secondly, the fact that most of the respondents were aligned towards the incremental extreme may be due to the fact that the characteristics of this framework are regarded as more socially desirable (Dweck et al., 1995b). Hence, perhaps adding a social desirability scale as a part of the questionnaire would have discriminated the teachers that tend to respond in accordance to the societal expectations from a teacher.

Thirdly, the questionnaire data indicated that the responses of the teachers from the two contexts differed more on the open-ended, than on the closed questions. In addition, the responses on the former had offered richer data and provided a better comprehension of how each question was understood by the respondents. Hence, it is likely that the open-ended questions elicited more valid responses, since they do not impose pre-packed options, but instead rely on the teachers' automatic reaction on the question.

Finally, the findings from the interviews and the cognitive maps had indicated a discrepancy between some of the teachers' beliefs and practices, which were not detected with the questionnaire. Therefore, perhaps encompassing more aspects of the implicit theory framework (e.g. goals, attributions, expectations etc.) would have increased the predictive validity of the 'Implicit-theory-scale'.

It can be concluded that the qualitative data has proved to be more significant for understanding the construct and the individual and cultural differences related to it. This corresponds to other authors' claims that the qualitative research methods (e.g. open-ended questions, vignettes, in-depth interviews) are superior in cross-cultural research, especially in the beginning phases (Bond, 1984), and are more efficient than the quantitative methods for exploring personal concepts such as beliefs (Pajares, 1992; Chan and Elliot, 2002).

Sampling issues

The sampling was conducted on the basis of convenience and included only schools from one city in Macedonia and one county in England. This fact limits the possibility of generalising the findings on the level of countries. Hence, the research should be seen as a pilot to explore the reliability of existing measures. Furthermore, although the number of participants from the two contexts was large enough for performing the statistical analysis employed, the representativeness of the two samples (especially the English one) was not satisfactory. There is a high likelihood that the sample was self-selected and the teachers that responded possessed specific characteristics which differentiated them from the rest of their colleagues (e.g. openness to experiences, tendency for introspection, a desire to contribute

to the development of pedagogic knowledge and practice etc.).

Furthermore, the procedure of selecting interviewees was affected because some of the teachers that completed the questionnaire did not agree to be interviewed. This reduced the number of potential teachers to choose the interviewees from and restricted the possibility of exploring the structure of the entity theory framework on a teacher from England.

Limitations of the data-analysis method

The discrete nature of the items prevented the possibility of conducting a more complex statistical analysis. This restricted the examination of the potential relationships between the main variables; implicit theories and motivational strategies. The Chi-square test also required merging many of the categories in order to determine the statistical significance, which had resulted in impoverishing some of the data.

The second method of data analysis – cognitive mapping, provided significant, but not generalisable data. One of the reasons for that was the small number of subjects and another - the subjective nature of the method and the possibility that another researcher might have interpreted the data differently.

CONCLUSION

The present study examined the relevance of Dweck and Leggett's (1988) Implicit Theories of Intelligence Model within two diverse cultural contexts. During its course, it has answered some issues, and opened new ones. The main findings are summarised below:

- There were no differences in the dominant implicit theory of pupils' intelligence held by the Macedonian and the English teachers. The majority of teachers (about two-thirds of the respondents from each context) were found to hold an incremental theory and value effort as a primary means for high pupil achievement. However, more English than Macedonian teachers conceptualised intelligence as a fixed trait, differentiated from the concept of effort.

- Teachers from the two countries were found to differ in their adoption of motivational strategies in the classroom on most of the achievement situations presented in the questionnaire. In general, strategies adopted by the English teachers were found to be more related to the incremental framework and focused on developing learning goals. Strategies adopted by the Macedonian teachers were less consistent, in that some of them were in line with the entity and others with the incremental framework.

- The dominant schooling doctrine appears to exert a stronger influence on the teachers' adoption of motivational strategies, than their implicit theories. Nevertheless, teachers that possess a 'strong' and consistent system of beliefs can 'bypass' the cultural standards and employ strategies which correspond to their beliefs.

- The two implicit theory frameworks, as described by Dweck (1999) were found to exist in the Macedonian and the English schooling context. Hence, the Model appears to be applicable for describing teachers' implicit theories of pupils' intelligence in both countries. However, some of its aspects may need to be re-examined. For instance, the attributions to ability and effort as factors for success were found to be unrelated to the conception on the nature of intelligence in the case of the English teachers. Although a number of teachers believed that pupils' intelligence is fixed, this did not prevent them from believing in the potential of effort to cause a significant improvement in their performance. In addition, the beliefs about the importance of ability and effort for success were found to be strong predictors of the interviewed teachers' classroom practices.

- The 'Implicit-theory-scale' proved to be a valid instrument for identifying teachers' beliefs about pupils' intelligence. Nevertheless, it needs to be standardised for the two populations separately and made more discriminative and reliable.

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