

‘Trying hard’: Teachers’ and students’ perspectives on Year 8 students’ effort in learning

Andrea McDonough and Caroline Smith

Australian Catholic University

andrea.mcdonough@acu.edu.au

carolline.smith@acu.edu.au

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This paper considers the aspect of ‘trying hard’, or effort, a characteristic of a positive orientation towards learning, and a key element in student self-regulation. We have taken ‘trying hard’ to include interrelated factors such as persistence, effort, control over learning and dealing with distraction, essentially the processes of motivation and volition. In this paper we examine the notion of ‘trying hard’ or trying one’s best. This study focuses on mainly on students’ perspectives on trying hard, as it is commonly referred to in school settings.

Introduction

There have been sustained attempts over the last decade to explain and address student disengagement in the middle years of schooling (students aged 10 to 14) in Australia. This disengagement has been variously attributed to irrelevant, unchallenging curricula, inappropriate student tasks, ineffectual learning and teaching processes as well as changed cultural and technological conditions (Luke et al., 2003).

In earlier research related to the present project, the persistence of students was studied through posing them a range of increasingly difficult problems in mathematics (Sullivan & McDonough, 2007; Sullivan, Tobias, & McDonough, 2006) and English (Sullivan, McDonough, & Prain, 2005) with the intention that eventually nearly all students would confront a task which was difficult for them. Students were asked to rate their self-confidence and achievement, their persistence, their perception of the value of schooling, and what constitutes successful learning. It was found that the students were surprisingly confident in a self-report of their own ability in an interview situation. They perceived effort as important and themselves as trying hard. The students also seemed to have goals focused on aiming to please the teacher by getting questions correct and scoring well on tests.

However, based on observations in classes, a different picture emerged. Students overall seemed neither confident in their learning nor did they try hard (Sullivan & McDonough, 2007). This disparity was perhaps due to students being willing to try harder within the one-on-one interview situation, or due to students having a different understanding from their teachers of what “trying hard” in the classroom might entail. Students also may not be aware of, or may have little knowledge of, self-regulatory strategies, thus limiting their ability to use them (Ames, 1992).

In an exploration of one aspect of the issue, a recent paper from the larger WHOLE project from which the present paper also emanates, reported on data collected through focus interviews and a questionnaire from 24 Year 8 teachers from one school (Tadich, Deed, Campbell, & Prain, 2007). The data indicated that teachers did not believe students in the middle years make as much effort as they might, and believed their students demonstrated high levels of disengagement, characterised in a variety of ways including boredom, lack of confidence, poor attitudes, absenteeism and disruptive behaviour. In addition, the teachers reported low levels of persistence and significant difficulties in engaging students in learning.

The purpose of the research reported in this paper is to explore what teachers and students understand by effort, generally referred to in school culture as 'trying hard', and whether there is any dissonance between their views. We seek to gain a deeper understanding of these perspectives, and thus we chose to include more intensive work with a smaller group of teachers and students. This paper reports preliminary findings but also suggests aspects for further research.

Overview of the Literature

Orientation to Learning

The notion of 'trying hard' or effort, is an element of the broad and complex field that attempts to understand and describe students' orientation to learning. This study draws on the work of Boekaerts (2006), Corno (2004), Dweck (2000) and Ames (1992) to provide an overarching theoretical perspective to consider student orientation to learning and the role of effort within it. Dweck and Ames categorised students' approaches to learning in terms of whether they hold predominantly mastery goals or performance goals, with each form of goal giving "different conceptions of success and different reasons for approaching and engaging in achievement activity" (Ames, 1992, p. 262).

Students with mastery goals associate effort and outcome, tend to have a resilient response to failure, remain focused on mastering skills and knowledge even when challenged, do not see failure as an indictment of themselves, and focus their attention on the intrinsic value of learning. Students holding predominantly performance goals tend to focus on ability and self-worth. They are interested in whether they can perform assigned tasks correctly as defined by the endorsement of the teacher, seek success but mainly on tasks with which they are familiar, avoid or give up quickly on challenging tasks, derive their perception of ability from their capacity to attract recognition or do better than others, and feel threats to self worth when effort does not lead to recognition.

Dweck (2000) also distinguished theories of intelligence that students hold: a fixed perspective, termed entity theory, that refers to a belief that intelligence is genetically predetermined and remains fixed throughout life; and an incremental perspective that

describes a belief that intelligence and/or achievement can increase by manipulating factors over which learners have some control. Students holding incremental perspectives tend to hold mastery goals, while an entity view can result in performance goals.

Student self-regulation

Boekaerts (2006) has related mastery and performance orientations to aspects of student self-regulation. Self-regulation refers to a complex, multi-level, multi-component process that targets affect, cognitions and actions, as well as features of the environment in the service of goals. In schooling it tends to be domain (subject) specific. According to Boekaerts, all humans, even the very young, have the capacity for self-regulation, a characteristic she notes was identified by Vygotsky as long ago as 1978. In the classroom, self-regulation refers to the need to establish, plan, strive for and revise. Boekaerts concluded that researchers agree that students are capable of steering and directing their own learning, actively and constructively engaging in meaning generation and adapting their thoughts, feelings and actions to steer and direct the learning process. However, students cannot achieve this readily unless the conditions for self-regulation are present.

Conditions for effective self-regulation to occur

Two sets of conditions within which self-regulation can occur are identified in the literature, originating in historically separate lines of enquiry: cognitive learning processes and motivation processes (Boekaerts, 2006). Learning process researchers believe that students must have access to a repertoire of cognitive and learning strategies and know the context in which they work. These researchers and practitioners have focussed on fostering metacognition, for example the Project for Enhancing Effective Learning (PEEL) (Baird & Northfield, 1992; Mitchell, 2007). Learnings from this line of enquiry have found their way into text books in the form of teaching tools for enhancing metacognition, conditions for active and metacognitive learning and principles of teaching and learning for best practice (e.g., Victorian Department of Education and Early Childhood Development).

According to Boekaerts (2006), motivation process researchers have focussed on the affective domain, seeing that successful academic functioning extends beyond cognitive reasoning and use of symbols; it is a product of feelings, attitudes, regulation of effort towards goals as much as it is about cognitive ability. These researchers recognise that students need to have a range of motivation and volition strategies and the knowledge of the contexts in which these work in order to engage in effective self-regulation. For Ryan and Deci (2002), motivation originates in the psychological need for competence, autonomy and social relatedness. Students may have the capacity to use metacognitive knowledge and strategies but lack the motivation and volition to apply these in a new domain or in an altered classroom environment. Indeed students make key decisions about the task at hand such as whether it has intrinsic value and will be enjoyed; whether it has utility value in that it is important for attaining future goals; whether it has attainment value in terms of the

importance of grades, and relative cost relating to what will be sacrificed in doing the task. There are many reasons why students do not feel the need to invest time and effort into using metacognitive or motivational strategies. As Boekaerts puts it, “skill does not automatically create will” (p. 349). In other words, access to metacognition is not enough to successful self-regulation (Boekaerts, 2006; Corno, 2004).

Volition

For Corno (2004), motivation is the psychological state that precedes commitment to action or volition (i.e., staying on task, follow-through). As such, she distinguishes between motivation and volition, where volition is the tendency to increase effort when needed. Corno considers that volitional competence is one of the most crucial factors in self-regulation. Both Boekaerts (2006) and Corno consider the movement from motivation to volition as a fraught stage in the learning process, referring to it as ‘crossing the Rubicon’. It critically depends on students’ perception of the task, their perceived level of competence and their orientation (mastery or performance) belief.

Effort, engagement and flow

Effort may be defined as the extension of mental and physical energy over time toward the achievement of a learning goal based on one’s perception of the demand-capacity ratio (Boekaerts, 2006). The student making an effort is

- aware that a discrepancy may exist between current goal state and the desired goals state;
- willing to work through series of tensions to reach the desired outcomes;
- willing to interrupt an action plan when distraction/obstacles occurs;
- willing to reflect on the whys of distraction and strategy failure and on possible ways of dealing with perceived obstacles and the emotions they trigger; and
- willing to select strategies that ensure progress in competence development in the present context.

Boekaerts (2006) suggests that students invest and renew effort provided they expect a successful outcome and have a predominantly mastery orientation. So a confident student who meets obstacles but who has a mastery orientation, motivation and volitional competence will continue to invest effort. Positive engagement reinforces volition and a sense of positive energy, and may result in the phenomenon known as flow. Flow (Czikszenmihalyi, 1990) is the phenomenological experience of positive affect and feeling of being lost in time; that the work is effortless even though effort is being invested. In flow, motivation becomes intrinsic rather than extrinsic. Developmental change in a domain is emergent, the result of effort invested in experiencing and working through a succession of tensions between the old (prior knowledge) and new understanding. Novices without

substantial domain knowledge and metacognitive strategies experience making an effort even with poor results and are very unlikely to experience flow (Boekaerts, 2006).

On the other hand, a student who has low confidence and a performance orientation may decide that the effort is not worth it. If they have doubts or perceive the task to be too difficult, disengagement may occur, manifesting instead in avoidance behaviours or 'scaling back'. Scaling back can occur through a perceived shift in difficulty level - the region of discontinuity. Further, students who have worked for a long time under unfavourable classroom conditions are likely to show unproductive work habits.

Boekaerts' dual processing model

Boekaerts (2006) has proposed a dual processing model that provides a useful framework for understanding mastery and performance orientations and effort as aspects of self-regulation. She considers that when faced with a task in class, students have access to two self-regulation pathways in their striving for a balance between goal priorities. She has termed these the growth pathway, concerned with achieving gains in resources, that is, extending domain knowledge, and the well-being pathway, concerned with maintaining well-being, that is, feeling safe, happy, getting on with peers. For students on the growth pathway, learning activity is congruent with personal goals and the learning task consistent with the guiding principles of the students' goal system or learning intention. This is a top-down pathway, from task to growth.

For students on the well-being pathway, obstacles and setbacks threaten their sense of well-being. They perceive the learning environment as unsafe, potentially leading to emotions such as loss of face, not looking cool, being teased or insulted by other students. For these students, attention will be directed towards threat, meaning away from the growth pathway and on to the well-being pathway in an effort to restore equilibrium in the well-being system. Under these conditions, disengagement can be beneficial to well-being. This is a bottom up direction, from well-being to task. Effective self-regulation would necessitate drawing on strategies for getting back on the growth pathway. This is referred to as volition-driven self-regulation, referring to the effort students invest to stay on or get back on the growth pathway by blocking out or attenuating activity in the well-being pathway. Extending from Boekaerts' (2006) pathways model, it appears that this avoidance behaviour may also reflect lack of interest rather than self doubt. Students' theory of effort and knowledge about distracters is crucial to move learning and self-regulation forward.

Hence, the best predictor of self-regulation of effort is students' conditional knowledge about the difficulties they might face. To remain on the growth pathway, students need to be able to interpret within a domain, otherwise they are not able to determine whether to invest effort or not. In other words, students they need to know what effort is required and the contexts in which the strategies are effective, activating both metacognitive and motivational aspects of their engagement.

Research focus and data collection

The literature outlined above clearly shows the complexity and multidimensional nature of trying hard or effort within the broader framework of self-regulation. The purpose of the research reported in this paper was primarily to explore what teachers and students understand by “trying hard” with a focus on whether there is any dissonance between their views. We hoped in the present study to gain a deeper understanding of these perspectives, in order to assist schools to address the issue of student disengagement in the middle years. Thus we chose to include more intensive work with a smaller group of teachers and students. This paper reports preliminary findings on the issue of trying hard.

The data come primarily from two schools in regional Australia which are participant within the broader WHOLE project. School A is a small rural Catholic P-12 college and School B a Catholic regional secondary college. The data collection in each school occurred over approximately a two month period.

Each of the two researchers was associated with one school, observing lessons within one Year 8 class group and conducting semi-structured interviews with the teacher of that group and a selection of students. Some classroom based written data were collected also. The focus of the data collection from School A was trying hard within the contexts of learning science and mathematics, as the same teacher taught the group of students for these two curriculum areas. For School B, the semi-structured interview discussions focused primarily on trying hard in the context of learning of mathematics. The interviews included reflections on the observed lessons and gave insights into teacher and student perceptions of what it means to try hard and how and why this might occur.

Survey data, looking more broadly at student learning, were collected from all the students in each of the two classes who returned a consent form for the research and were present at the time the survey was administered. This represents most in the School A class but only about half of the students in the School B class. The survey, developed by the researchers in the WHOLE project, was based on the instrument reported by Martin and Marsh (2006) that sought students’ responses to items associated with motivation and volition. Some of the items were removed and others similar to those proposed by Dweck (2000) added, predominantly seeking to explore students’ incremental (mastery) or entity (performance) perspectives on intelligence, and included some items that referred specifically to trying hard. The questionnaire consisted of mostly Likert type items, reflecting the structure of the Martin and Marsh survey, with some one open items including one that asked students to list words describing themselves when trying hard at school.

Student perspectives

In 2007, survey data were collected from 333 Year 8 students from the three WHOLE project schools. Such data are not available in 2008, but surveys were completed by the Year 8



focus classes which are from two of those same schools. Although the data in Table 1 are from different students, they do give an overall picture of student perspectives on trying hard and related concepts of learning and understanding. The students responded by completing a scale of 1 (Strongly Disagree) to 7 (Strongly Agree).

Table 1

Mean scores, student survey data, Perspectives on learning and understanding

Item	2007	2008	2008
	WHOLE data n = 331	School A n = 19	School B n = 12
Learning at school is important	6.0	5.9	5.8
I don't really care about school anymore	2.6	2.6	3.5
I feel very pleased with myself when I understand what I'm taught at school	5.3	5.3	6.0

On average, the students are in agreement with the statement that 'learning at school is important' and show that they do care about school, although less so for School B students, and that understanding what they learn is viewed positively. Table 2 gives further insights regarding trying hard.

Table 2

Mean scores, student survey data, Trying hard and related outcomes

Item	2007	2008	2008
	WHOLE data n = 331	School A n = 19	School B n = 12
People are either good at school work or not. They cannot get better by trying	2.1	1.7	2.5
If I try hard, I can do most of my schoolwork well	5.8	6.4	6.1
Sometimes I don't try hard at schoolwork	3.7	4.5	3.9
Sometimes I don't try hard at schoolwork so that I have an excuse if I don't do so well	2.6	2.8	2.8
Each week I'm trying less and less	2.3	2.0	2.9
My friends would say that I keep on trying when the school work gets hard	4.5	4.5	4.8

The response to the item regarding whether people can get better at school work by trying indicates that, on average, the students hold an incremental view of intelligence, associated commonly with a mastery view toward learning (e.g., Dweck, 2000). Related to this, the students indicate that they associate effort and outcome. In response to the item on whether they sometimes do not try hard in their school work, students generally were neither positive nor negative, but did indicate overall disagreement with the item related to not trying hard so they have an excuse when they do not do well. The overall disagreement with the item regarding trying less and less and the agreement with the item regarding the perception of friends suggest that these students see themselves as trying hard, although not to a large degree. Table 3 gives some insights into the views of any relationship between trying hard and the teacher and other students.

Table 3

Mean scores, student survey data, Impact of teachers and other students on trying hard

Item	2007	2008	2008
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	WHOLE data n = 331	School A n = 19	School B n = 12
Often the main reason I work well at school is the personal encouragement of teachers	3.7	3.3	3.2
I would try much harder in a different class. This class holds me back	2.9	3.7	2.4
In school, I try my hardest no matter what the other students say	5.0	4.6	4.8
In school, I try my hardest no matter what the other students do	5.0	4.5	4.5

Items included in Table 3 related to factors which impact upon trying hard, indicate that overall students do not see the encouragement from teachers as a key reason they work well at school and do not see the class overall or what their peers say or do as inhibiting factors. The data in Tables 1 to 3 suggest that the student views are generally consistent across the 2007 cohort and class groups from 2008 and that the students do, overall, see themselves as trying hard at least to some degree.

Other data collected from the 2008 Year 8 students included a list of words students chose to describe themselves when trying hard in school. Most responses could be described as giving a positive view, but some were negative. There were a number of words given only by one student but those given multiple times are included here to represent the type of responses gained. For School A these words were: Focused (5); Ask questions (5); Smart (5); Happy (4); Determined (3); Intelligent (2); Ambitious (2); Persistent (2); and Unsocial (2). For School B words given by more than one student were: Positive (5); Frustrated (3); Persistent (3); Smart (2); Good / Feel good (2); Hard (2); and Stress(ful) (2). These data suggest that overall students associate trying hard more with positive factors than negative ones.

However, as might be expected there are complexities in student learning and individual views of trying hard that do not necessarily appear in data such as those above. Two case studies are presented here to give preliminary insights into such factors. Prior to discussing the perspectives of the students a brief picture of each of the classroom learning environments, as observed in those classes, is included.

The School A learning context

In School A, data were collected from a single Year 8 class which was taught by the same teacher for science and mathematics. The class was followed for these subjects over a period of 4 days in total over two separate research periods. The class was described by the teachers as 'good', recognised as such throughout the school and considered exceptional in the school context. The teacher believed that students in this class tend to be focussed on the work and appear to want to succeed, particularly in mathematics. The classes that were observed might be described as traditional in nature as the students worked primarily

through examples in the text after the teacher had used the board to introduce the content. The teacher recommended a range of students to be interviewed based on his perceptions of their orientation to trying hard, as well as classroom observations of student behaviour. An advantage of intensive work with the class was that students began to know and form a relationship with the researcher.

Not all data are reported for the purposes of this paper. Instead, for both schools we have chosen to build a case study of a particular student that may provide insight into that student's perceptions of trying hard in the light of the literature discussion.

Madison (pseudonym) was described by her teacher as a student who tries very hard in class even though she does not find mathematics easy. He has been coaching her in mathematics after school. In class, Madison was observed to be a quiet girl who rarely talked to her friends. She tended to focus when the teacher was talking, and quietly went about her work when asked to do so. She would put up her hand for help when needed.

In her interview, Madison described the work they were doing in mathematics (algebra) as 'easy'. She likes mathematics and believes it is important to learn because it is used 'in everyday life'. She enjoys some aspects of science, such as electricity, which the class was learning at the time of the research. Madison believes that 'it's important to do well' and she is 'happy to try hard'. In her survey, she writes that 'trying hard for her is being focussed and happy'. When trying hard she seeks help from the teacher or friends, but only resorts to the worked examples in the textbook when help is not immediately available. She 'listens hard to teacher' and blocks out friends who are talking. She wants to do well at school and 'tries hard in everything', even though there are subjects she does not enjoy, such as humanities. She says she wants to do well in school, which is why 'I keep going'. Madison receives strong support from home.

As noted above, student survey data display some consistency across students in Year 8. So while conclusions can be about the general view of the class through averaging the survey data responses, this tends to hide the wide diversity of responses within the cohort. Madison's survey data show a number of items that differ from the average, as Table 4 indicates.

Table 4
Survey items where Madison expressed a very strong opinion

Item	School A Class average	Madison's response
Often the main reason I work well at school is the personal encouragement of teachers	3.3	7
I feel very pleased with myself when I understand what I'm taught at school	5.3	7
In school, I try my hardest no matter what the other students say	4.6	6

Sometimes I don't try hard at schoolwork	4.5	1
I don't really care about school anymore	2.6	1
People are either good at school work or not. They cannot get better by trying	1.7	1

The data suggest that Madison self-regulates through the growth pathway as she reports that she is not distracted, keeps on trying hard, is pleased when she understands, and wants to succeed. She is highly motivated to try hard and do well at school. She has developed volitional strategies to persist with her work, such as blocking out other students' talking, and seeking help. This extends to additional help from the teacher after school. The data in Table 4 show that the teacher's encouragement clearly plays an important role in Madison's motivation to learn. Madison may be experiencing flow when she talk about being 'focused and happy' when trying hard. Madison is clearly strongly supported by her parents. Although reported by the teacher as one who finds mathematics difficult, it would appear that Madison's incremental view of intelligence is a key factor in providing her with a mastery orientation to her work.

The School B learning context

The class observed at School B is a mainstream Year 8 mathematics class. At the Year 8 level there is also an advanced mathematics class, and a Numeracy class to cater for those who are not performing to the standard of the mainstream class. As requested by the researcher, the students interviewed for this research were selected by their teacher as not performing to their full potential within their mainstream mathematics class.

Two lessons were observed in this class, one at the beginning of a Measurement topic and one towards the end. The lessons were held in a room where the students sit at round tables that each can accommodate approximately six students. The teacher chooses to teach the class in this room when possible, and appears happy with, and at times encourages, verbal interaction between students. At the first observed lesson there were 21 students present, with additional students for the second lesson.

The two lessons each consisted of a range of activities including some hands on physical involvement, a selection of increasingly difficult closed tasks, and then increasingly difficult open tasks, and a concluding discussion, or task with discussion. The students were able to talk to their peers and indeed at times were encouraged to work together. Groups were formed for parts of each lesson, in one lesson as selected by the teacher, and, in the other as selected by a small group of students. The teacher took an active role in each lesson, posing the tasks, roving as the students worked on problems and offering hints and posing further challenges to individuals, small groups and the whole class as he saw appropriate. The students were generally compliant and did not cause any major disruptions in either lesson. However, it appeared that the level of engagement and the level of effort or "trying hard" varied across the class and at different times within the lesson. The five focus

students were interviewed individually following each of these lessons. Data from one of those students is discussed in this paper.

School B case study

Tegan (pseudonym) was described by her teacher as a weaker student and one who “dumb[s] herself down” and feels that it is “not cool to be seen doing school work”. At the time the data collection began, the teacher was aware that Tegan was wanting to change to the Numeracy class.

During the first lesson observation Tegan did not cause any problems for the teacher but did not show a great deal of interest in the task. However, in the interview that followed she said had enjoyed the observed lesson as it was “easy, fun, not a bore [because the students had been] working in a group”. Her apparent limited interest may have been associated with low confidence as in the interview she emphasised that she not comfortable in the mainstream class and wanted to change to the Numeracy class. She also stated that maths was not her favourite subject and, indeed “probably [her] worst subject. However, she gave some interesting insights when questioned about the effort she put into her maths learning. She said “I try as hard as I can but I give up too easily”. This apparent contradiction was reiterated when she was asked what stopped her from learning in that class. Tegan replied: “Myself; I give up too easily. I don’t concentrate sometimes”. So it appears that Tegan was aware of the limited effort that she put in and felt that her level of effort contributed to her difficulties in learning mathematics.

In the second interview Tegan stated that the lesson “wasn’t boring but I just didn’t feel that I achieved anything. I just talked a lot, didn’t really do much work. I did help and stuff, just towards the end of it”. She spoke also about not concentrating. But she also found the lesson “easy [as] we weren’t just doing book work. We were doing hands on stuff like finding the area of the box. We were in groups ‘n stuff”. So Tegan’s attitude appears somewhat similar to the first observed lesson in that she was basically comfortable with the lesson, in that she found it not boring. But she thought it was possibly because of the group work that she was “maybe ... more laid back than usual”. In the survey, completed by Tegan about two weeks after the interview, she wrote that she associated the words “good, possitive (*sic*), hard, [and] results” with herself trying hard in school. So it appears she associated effort and outcome. But Tegan also strongly agreed with the statement “Sometimes I don’t try hard at school”. In the second interview Tegan stated that any success she had achieved was mainly due to “studying, listening in class and asking for help” but clearly she characterised herself as not always trying as hard as she might. However, it is noted that at this time she no longer spoke of wanting to move to the Numeracy class, suggesting that she was now more comfortable in the mainstream Year 8 mathematics class.

Interestingly, a short time after Tegan completed the survey, her teacher reported that Tegan was trying harder than she used to; he added that Tegan had shown improvement in her effort as well as in her skills and marks over the year. He said she had put barriers in front of him since the beginning of the year and described her as a student who is so “frustrated with her lack of success in the past that she finds it very difficult to be positive about [maths]”. In talking of Tegan and another student after the student survey had been completed, he stated “Their attitude to maths was terrible, and still is. They are still not happy about maths but at least now they have a go and you can see improvement in them as well”. He suggested that the way he interacted with Tegan played a role in how she responded to the subject:

I have to be very careful how I couch her “failures”; I’ve got to be very careful the way I approach her about that. I say to her “Don’t be too disappointed. There are only a couple of things you didn’t understand. You repeated those errors over and over so if we can just get past those couple of things, the rest is fine. You are understanding a lot of it, so there are just a couple of things we’ve got to go over again”. So you have to approach her on that sort of level for her to continue to want to have a go at it because her initial reaction.

The teacher’s description of Tegan’s behaviour at the beginning of the year suggests she was very much oriented toward a well-being pathway, as she was not prepared to discuss work when it was returned to her, seemingly strongly fearing failure. The teacher appears to have tried to address this situation through his interactions, and what he saw as his relationship with Tegan, as described above. Indeed, Tegan’s teacher described teaching as a “relational profession”. He added: “The relationship thing underpins everything. We’ve got to try and understand where they are coming from and see it from their point of view”. The fact that Tegan gave a score of 5, and therefore showed some agreement with the statement “Often the main reason I work well at school is the personal encouragement of teachers” suggests that she also may have seen the relationship as playing some role.

Conclusion and recommendations

The data presented in this paper suggest that the students generally saw themselves as trying hard and did not believe that their effort was dependent on the rest of the class. This concurs with findings from earlier related studies. However, this study makes clear that there are students like Tegan who have contrasting views in relation to how hard they try and that the student may see the situation differently from how it is viewed by the teacher.

It appears that for students, such as Tegan, who are not performing to their potential, some changes in attitudes and effort may be possible over the course of the Year 8 experience and that one factor may be the way in which the teacher interacts with students, and most particularly whether the teacher sees those students as individuals and makes an effort to get to know them in some way. This finding was also evident in other data not discussed here, for other individuals in the School B Year 8 class. For Madison, the relationship with

the teacher seemed to play a key role in her effort to learn mathematics. The relationship with individual students may be an aspect of teaching for which it is worthwhile for teachers to pay more attention.

Other than “studying, listening in class and asking for help”, Tegan appeared to be aware of few resources for self-regulating her learning of mathematics both in terms of metacognitive strategies and motivational processes. Helping students develop such strategies might be an area that can usefully be given further emphasis.

Trying hard as an element of self-regulation is a complex phenomenon, and while these data indicate a general orientation towards trying hard, the actual strategies that students employ need closer examination. As such, the data reported here represent the first set in relation to this study. We intend developing further data collection procedures and instruments to enable us to provide deeper insights into the process of self regulation, and trying hard in particular.

References

- Ames, C. (1992). Classrooms: Goals structures and student motivation. *Journal of Educational Psychology*, 84 (3), 261-271.
- Baird, J., & Northfield, J. (Eds.). (1992). *Learning from the PEEL experience*. Melbourne: Monash University Printing Services.
- Boekaerts, M. (2006). Self regulation and effort investment. In K. A. Renninger & I. E. Sigel (Eds.), *Handbook of child psychology: Child psychology in practice*. Chapter 9 pp. 345-377. 6th edition (4). John Wiley and Sons Inc.
- Corno, L. (2004). Introduction to the special issue - Work habits and work styles: Volition in Education. *Teachers College Record* 106 (9), 1669-1694.
- Csikzentmihalyi, M. (1990). *Flow*. New York: Harper Perennial.
- Dweck, C. S. (2000). *Self theories: Their role in motivation, personality, and development*. Philadelphia: Psychology Press.
- Luke, A., Elkins, J., Weir, K., Land, R., Carrington, V., Dole, S., Pendergast, D., Kapitzke C., van Kraayenoord, C., Moni, K., McIntosh, A., Mayer, D., Bahr, M., Hunter, L., Chadbourne, R., Bean, T., Alvermann, D., & Steven, L. (2003). *Beyond the middle: A report about literacy and numeracy development of target group students in the middle years of schooling (Vols 1 & 2)*. Brisbane: J. S. McMillan Printing Group.
- Martin, A., & Marsh, H. (2006). Academic resilience and its psychological and educational correlates: A construct validity approach. *Psychology in the Schools*, 43(3), 267–281.
- McDonough, A., & Sullivan, P. (2008). Focusing Year 8 students on self-regulating their learning of mathematics. In M. Goos, R. Brown, & K. Makar (Eds.), *Navigating currents and charting directions* (MERGA 31 Conference proceedings, Vol. 2, pp. 337-343). Brisbane: Mathematics Education Research Group of Australasia.

- Mitchell, I. (2007). *Teaching for effective learning: The complete book of PEEL teaching procedures* [3rd Edition]. Melbourne: PEEL Publications.
- Ryan, R. M., & Deci, E. L. (2002). An overview of self-determination theory: An organistic-dialectical perspective. In E. L. Deci & R. M. Ryan (Eds.), *Handbook of self-determination research* (pp. 3-34). NY: University of Rochester Press.
- Sullivan, P., & McDonough, A. (2007). Eliciting positive student motivation for learning mathematics. In J. Watson & K. Beswick (Eds.), *Mathematics: Essential research, essential practice* (Proceedings of the 30th annual conference of the Mathematics Education Research Group of Australasia pp. 698-707). Adelaide: MERGA.
- Sullivan, P., McDonough, A., & Prain, V. (2005). Student engagement in the Middle Years: Describing influences and possible teacher actions. *Proceedings of the Australian Association of Research in Education Annual Conference*. Sydney, November.
<http://www.aare.edu.au/05pap/sul05134.pdf>
- Sullivan, P., Tobias, S., & McDonough, A. (2006). Perhaps the decision of some students not to engage in learning mathematics in school is deliberate. *Educational Studies in Mathematics*, 62(1), 81-99.
- Victorian Department of Education and Early Childhood Development. (2008). Principles of Teaching and Learning (PoLT). Retrieved 29th October 2008 from
<http://www.education.vic.gov.au/studentlearning/teachingprinciples/onlineresource/default.htm>