Handing over the baton:

An intervention study looking at improving students' motivational

attitudes towards taking greater ownership of their learning at KS4

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Declaration

I hereby declare that except where explicit attribution is made, the work presented in this thesis and research on which it draws is entirely my own work.

Signed:

Date: 3rd September 2014

Word count: 46,189

Acknowledgements

Firstly my thanks go to Dylan Wiliam, for being an inspirational academic tutor to work with over the past four years. In particular I have valued his candid and constructive advice in sharpening my approach towards research undertaken.

I would like to acknowledge with thanks the support and encouragement provided by my former Headteacher, Alex Biddle, who has been instrumental in providing me the opportunity to study and supported the full participation of students and staff in all the various stages of data collection. To this end my gratitude also goes to Dr Steven Currow, then Head Governor for endorsing this opportunity.

Special thanks go to H. Beukes, N. Fosker, C. Fox, L. Fyfe, E. Goodall, J. Hay and S. Wittington, whose participation has been fundamental to the success of this research project. I am grateful for the manner in which they wholeheartedly embraced the new approaches proposed, allowed me to observe them, critically appraise their practice and willingly gave up so much of their precious time to provide detailed feedback.

I would also like to thank my family for their support in helping me complete this venture. My particular thanks go to my daughter Eyraina for doing the first rough draft of the transcriptions for me to fine tune and correct and my son Peter for his statistical advice and introducing me to the vast array of instructional YouTube videos on statistical analysis!

Lastly my thanks go to Christ who has provided a real sense of purpose in undertaking this study and has been my source of strength throughout. It has been a challenging few years but wholly worthwhile.

Abstract

This empirical study, set in secondary school classrooms, examines theoretical constructs around ownership practices: looking at how personal significance and interest affect effort investment, how the role of the teacher and contextual approaches to learning provide incentives to pursue ownership and how active possession can be enhanced through opportunities for self-determined choice with tools to understand learning strategies. This study focuses mainly on the initial stages of nurturing skills towards a sense of ownership and is more about building confidence in taking steps towards controlling learning through self-regulation, process orientated approaches to improvement and help seeking strategies. Sample groups from six domains undertook the full study providing data through questionnaires completed by students at the beginning and end of the study, semi-structured interviews and observations to monitor interventions implemented by teachers, and reflective group interviews with students at the end of the study. Based on the data collected by the questionnaires and interviews, the strongest contributors to perceived change were: setting learning activities into the context of personal goals and involving students in co-constructing new knowledge; provision of choice, expectations of a readiness to learn, scaffolding and tools for managing tasks proactively; personal impact on achievement through proactive help-seeking; and action based process orientated feedback through honest, positive appraisal. The evidence provided by the data suggested that student' attitudes towards taking ownership for their learning altered as a consequence of the interventions and the impact was not related to gender, IQ or social background. Teachers reported changes in motivation towards taking ownership in individual students, higher levels of achievement being attained than previously expected, and positive changes in whole class attitudes and learning behaviours. Taken as a whole, the data suggested a positive trend towards improvements in the quality of learning in the classroom and students taking greater active possession (ownership) of their learning.

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<u>Reflective statement</u>

This has been a challenging and highly rewarding journey of study affording invaluable insights into the realities of social research and a sense of value in exploring my own professional experiences. The initial taught courses provided a forum for building understanding of research processes and progressively raising the level of academic rigour through open discussions and assignments. Additionally, the formative feedback given throughout each stage of the EdD course has been invaluable in both honing the quality of my writing and in providing a broader perspective on approaches to research. Of particular importance in helping utilise this feedback productively has been the periods of time between submissions which have allowed for a level of detachment and greater critical awareness of evaluating personal convictions against relevant theoretical perspectives and academic literature.

Taking on this research degree with a large family and a management post was always going to be about juggling priorities, being creative about finding time and training myself to detach from all the various pressures when studying in order to attain some clarity of thought in my own journey of research. This clarity has formed progressively over the years through reading widely and in challenging my understanding on aspects of my own practice with colleagues. The research literature has informed my understanding of influencing factors that increase students' engagement in their own learning and has allowed me to draw together a broad range of perspectives and approaches to data analysis. However, most of the perspectives tended to be from psychologists and therefore I believe my study has a valuable part to play in the discourse on research in this area as it comes from a practitioner's perspective.

Different areas of investigation developed over the EdD course as I progressed through the four taught courses and Institution Focused Study (IFS) which influenced the direction I chose to take in my journey of research into nurturing ownership of learning. The unit on Foundations in Professionalism helped me establish that I wanted to pursue research around real life challenges of teaching rather than theories alone and underpinned the thesis focus on context-specific practical applications that were versatile enough to be adapted to individual needs. This unit also influenced my perspective on interventions for the thesis study in that, as for increasing levels of

professionalism, the catalyst for change could be through its 'pursuit' rather than its 'attainment'. In other words setting up the pursuit of ownership could initiate positive change, with teachers and students in the study able to progress at varying speeds along the ownership continuum. In this first unit the focus was on teachers as key players in nurturing effective learning at classroom level, gaining a sense of their autonomy, competence and integrity, and taking a diagnostic approach through reflection and dialogue towards raising standards. Additionally, during the completion of the assignment on servant leadership for the specialist unit on Leadership and Learning I examined the notion of empowering staff to raise the capacity for student learning in classrooms.

The two Methods of Enquiry units provided exposure to various approaches used in undertaking educational research, a range of methods for data collection and an opportunity to do a trial quantitative research project that involved evaluating current literature to inform a theoretical framework and construct an attitudinal questionnaire on motivations towards taking ownership of learning. This experience proved to be an invaluable pilot study for developing the focus for questions used in the IFS group interviews which provided yet further data that informed the nature of questions and thematic groupings used in the final questionnaire for the thesis.

The findings provided by the first questionnaire marked a starting point in shaping the direction for my research journey towards the thesis as they provided empirical evidence to suggest that students showed different attitudes to learning in different domains and that in Art there were attitudinal shifts in goal orientation towards achievement goal behaviours and a greater sense of responsibility and ownership towards work. However, the reasons for this change in attitude were not dealt with in the questionnaire and therefore I used the IFS to explore students' views and experiences on learning in Art against the backdrop of their experiences in other subjects.

The IFS study into how students perceive their ownership of learning and autonomous practice provided an opportunity to draw parallels between the experiences cited by the students in my study with those in other ethnographic research projects conducted to

examine similar constructs around motivations towards learning. This afforded a level of verification that my data collection methods had produced data that fell within expected outcomes and gave me confidence to further explore the ideas raised. Admittedly, the research undertaken was too broad for the limitations of the IFS and effectively resulted in more of a presentation of findings than a succinct analysis and drew together a highly complex view of aspects that affect students' ownership of their learning. But it did provide an invaluable platform for generating a focus for the thesis and the findings supported by the literature have been integral to formulating the constructs on ownership that have been explored in the thesis.

The IFS raised the interactive nature of learning as a much stronger influence on ownership practices and the drive to raise standards, than any of the other factors explored in the study and this fed directly into the aspects developed on co-constructing knowledge used for the thesis. It drew out practical aspects such as the need for time in processing learning which actually formed an important catalyst for implementing interventions effectively in the thesis. It highlighted the strength of impact that teacher expectations had on learning behaviours which again played a major role in the interventions developed in the thesis. In particular the IFS set the challenge for me to find a way to generate interventions that communicated respect to the students and established respect for the teacher because students perceived reciprocated respect as integral to obtaining effective support for learning and a sense of value enabled them to ask for help (a lack of value was seen as a loss of belief and reduced the student's motivation to invest effort). Similarly students reported negative effort investment when expected to produce a standard based on their ability and positive effort investment when the expectation of standard was backed by their teacher's belief in them, along with practical support to enable them to attain that standard. So when designing the focus for my interventions I wanted to address this change from a sense of frustration based on the student's ability beliefs to a shared goal with the focus on actions to successfully achieve the task together. For the thesis this translated into the intervention on process-orientated feedback and changes to instructional language in order to engage students in dialogue over processes and away from attributing success to individuals.

My research has been strongly influenced by the work of current researchers in the field of educational psychology in the Netherlands and America: The psychological perspectives that have played a major role in shaping my study have been those put forward by Monique Boekaerts on personal goals and motivational beliefs, Judith Harackiewicz and Suzanne Hidi on interest and competence valuation (endorsing both mastery and performance to increase self-regulation), Carol Dweck on incremental effort beliefs and reactions to failure, Barry Zimmerman on building self-efficacy through involvement in planning and co-constructing knowledge, Edward Deci and Richard Ryan on self-determination and teacher transmitted value and Paul Pintrich on developing control beliefs through help seeking strategies. These psychological perspectives have been complemented by the work of Dylan Wiliam and Paul Black on assessment for learning and effective feedback providing perspectives based on practical experiences in the field of secondary school education.

It is worth noting that the research used to inform my understanding on varying aspects related to ownership stem from psychology and psychiatry as these provide theoretical explanations for learning behaviours. However, generating these learning behaviours through specific interventions as developed for the thesis have been drawn from my own experiences in teaching students to take greater ownership of their learning and from the work on effectively utilising feedback to project students forward set out in a number of papers by Dylan Wiliam that address some of the complex realities of teaching and learning in secondary school classrooms.

I believe this project contributes to the development of knowledge and understanding on motivating students to take ownership of their work and holds a place in the discourse within research on raising standards through motivating students to engage more in their learning because it straddles the divide between theories and effective practice and provides a catalyst for change that engages teachers in improving instructional practices and students in developing more autonomous learning behaviours.

The nature of my work has been centred on affecting professional practice within the context of secondary school classrooms and I have been quite humbled by the degree of impact that my interventions have generated. As I look back over the experience of

conducting the thesis study I know that I have had great difficulties in trying to detach myself from the findings in order to be more objective. The sheer quantity of data produced by the interviews was initially difficult to sift through as my personal attachment to sections of dialogue that denoted a change in approach or a personal achievement for that member of staff overshadowed the intentions of the study. There were also interesting sections of additional information about how the ideas presented within the interventions were being successfully trialled in other classes or how the teachers had led their departmental staff differently as a consequence of what they were learning through being part of the study. The process of re-evaluating what I was trying to say in my analysis developed through a number of redrafts but it was only when I received the initial feedback on my first full draft that I realised the only way forward was to radically redraft all the analysis chapters and start again from scratch with the statistical analysis of questionnaire data in order to present a sharper report.

As a practitioner I have gained a great deal from doing the EdD course and immersing myself in the tortuous complexities of social research. It is easy to underestimate the commitment that a course such as this requires and the discipline of spending hundreds of hours bent over a laptop in order to tease out a research path and grapple with the problems that it presents. But ultimately there is a great sense of value when ideas that intuitively live with you over years of practice are pushed under the microscope and disseminated in a way that can then be shared with fellow practitioners. In some ways the defining feature of the EdD is that it relates directly to experience within professional practice and although there is a tendency to select research papers that share similar experiences, I believe that this serves to add credibility to the study because if similar outcomes are experienced then there is greater likelihood in the validity of claims being made.

Introduction

Independent approaches to learning in the classroom have been a subject of great interest within educational literature and research and addressed within government initiatives as a significant factor towards raising standards in schools. In my institution, within the full School Improvement Plan, under 'Provision', based on the OFSTED report from May 2010, there was an identified need to develop *"strategies to improve independent learning in key stages 3 and 4 (objective 2.1)"*. Also within 'Provision' objective 2.1, there were targets to *"Create more opportunities for students to develop as managers of their own learning. Develop students' skills and confidence as active and independent learners"*. It is important to clarify here that my aim in this study is not to develop students purely as 'managers of their learning' by taking ownership of a task simply to fulfil it, but rather that managing tasks is a learned tool that aids progress towards broader goals of deepening understanding and developing personal interest or engagement with learning within a domain.

For my thesis I have chosen to use the term *ownership* within the context of learning to denote the *right of possession:* the *right* of the student to be involved in their own learning, taking responsibility to invest effort in order to make a positive difference to their levels of achievement. I believe *ownership* implies an element of intrinsic motivation because it stems from interest and perceptions of internal control (Pintrich, 2003) and deals with values, feelings and personal significance (Krapp, 2002). I believe this aspect of personal significance, the notion of something being meaningful, drives the desire to take *ownership* and that the learner, to enact their *ownership* rights, would need to assume an active role in learning processes (Vygotsky, cited in Daniels, 2001:42) and take some degree of control. This control could be viewed as the right to take responsibility for managing learning, a notion shared by Benson (cited in Lewis & Vialleton, 2011) who uses control in place of responsibility to emphasise the student's right to autonomy. This is significant as students who view success or failure as dependent on their own agency have greater potential for high achievement than do students who deny its importance (Maclellan, 2008).

Chapter 1

<u>Exploring *ownership* within the context of research literature</u>

The starting point for this thesis has been my own personal interest in nurturing *ownership* with students over my teaching career and both exploring and challenging my assumptions through a quantitative research study developed in Methods of Enquiry 2 (MOE2) and a qualitative research study carried out for the Institution-Focused Study (IFS). In MOE2, my study examined data collected through an attitudinal questionnaire on achievement goal orientations, competence, relatedness and perceived autonomy. The evidence suggested students in the sample group held varying domain-specific motivational attitudes towards learning and that in Art, they displayed more intrinsically motivated behaviours, leaning towards taking more responsibility and *ownership* of their work through high levels of effort, trust in their teachers giving honest feedback, and the recognition of the importance of their own agency to manage their work (MOE2:12). In the IFS I explored these findings further through semi-structured group interviews which provided a wealth of qualitative data on factors that affect *ownership* and motivations towards self-determined improvement. I had asked the question: *What factors motivate students into taking ownership of their work and raise their own standards?* (standards in this context implied levels of progress set against both the students' aspirational and targeted goals) and concluded that current research, supported by my own data, formed a complex picture of influential factors that support and nurture a sense of *ownership*:

> "Goal orientation that shows competence valuation (Boekaerts, 2002) combining performance and mastery goals (Hidi & Harackiewicz, 2000) pursued through mastery orientated behaviours (Dweck, 2000) within each domain; Intrinsic motivation (Boekaerts, 2002) developed through motivational beliefs that enhance a sense of self-worth (Seifert, 2004); Transformation of situational interest to individual interest, *Internalization and identification* (Krapp, 2002) to take on *ownership* and make the learning process more meaningful and enduring; Incremental effort beliefs (Dweck, 2000) to raise determination and increase enduring

persistence supported by a sense of teacher transmitted value (Deci & Ryan, 1994); Self-regulation developed through growth pathways (Boekaerts, 1993) and support seeking well-being pathways; Tools for self-improvement through effective feedback (Black & Wiliam, 2009; Martens, Brabander, Rozendaal, Boekaerts, & van der Leeden, 2010; Kluger & DeNisi, 1996) which can be used autonomously in a co-operative learning environment (Turner, Meyer, & Schweinle, 2003) with support structures for task management, dialogue to enable cognitive growth and positive social interactions with teachers and peers that provide a feeling of relatedness (Deci & Ryan, 1994)" (IFS p50).

I have chosen to extract and examine further some of the key elements here that I believe establish and nurture *ownership* with students in the classroom and provide malleable variables that have a capacity to be influenced through intervention. The complex interaction of varying factors interests me in that by examining the overall picture of factors present within a domain and equally so those absent within a particular class group, intervention needs could be identified and addressed. To explore these factors and their contextual significance to *ownership* through intervention I have chosen to examine the literature and research studies under three headings: Firstly, I will examine the intrinsic nature of *ownership* based on personal significance related to interest and goals associated to vocation, achievement and relatedness and how these affect effort investment. Secondly, I will examine the role of teachers and contextual approaches to learning that provide incentives to pursue *ownership* by building incremental effort beliefs and malleable ability beliefs through interactive dialogue, acknowledgement of difficulties, mastery approaches to failure and proactive help-seeking. And lastly, I will examine *ownership* as active possession, requiring opportunities for self-determined choice in managing learning tasks and tools to understand learning strategies.

The intrinsic nature of ownership

In this section I examine the intrinsic nature of ownership based on personal significance related to interest, goals associated to vocational aspirations, achievement

and relatedness and how these affect effort investment. I believe students need to identify with a purpose so that they can establish *why* they should invest their time and energy in learning within a particular domain. Maclellan (2008) proposes four key constructs in activating students' ownership of learning: Goal orientation, which underpins students' definition of their own competence through pursuit of both mastery and performance goals, volition, interest and attributions. Some students are also motivated and sustained through contextual factors and self-efficacy beliefs (Pintrich, 2003). Heggestad and Kanfer (2000) suggest that this impacts on effort and self-regulation through the display of motivational traits (preferences of goal directed effort), motivational skills (self-regulatory competencies) and achievement motivation which combines personal mastery with competitive excellence. There is some evidence however to support motivation and learning in classrooms as neither conscious, intentional nor self-regulatory and that cognitive processes occur outside conscious awareness and control (Pintrich, 2003). It appears to be accepted in the literature that primarily needs and motives can operate at a more implicit and subconscious level and are counterbalanced by the cognitive and conscious processes stressed in social-cognitive models (Pintrich, 2003). A cognitive model that builds directly on this perspective is Deci and Ryan's (1994) self-determination theory which mediates social-cognitive constructs through perceived competence (fulfilling the desire for mastery), autonomy (control beliefs and regulatory styles) and relatedness (the desire to belong to a group). Dweck's (2001) achievement goal models assume personality traits and individual characteristics as primary motivators where people consciously balance their self-theories against general theories about people and their reactions to other people's behaviour and outcomes. A more synthesised view of motivational practices in school learning contexts that also lends substance to my view of the importance of teachers providing experiences and direction that clarify the reasons *why* effort is worth investing in a particular domain has been put forward by Boekaerts (2002). She suggests that students develop motivational beliefs as a direct result of learning experiences and the opinions, judgements and values that students hold about objects, events or subject matter (malleable functions of contextual factors). These beliefs influence self-efficacy and outcome expectations within a domain and may be dominantly favourable or unfavourable providing a positive or negative context for learning. If these motivational beliefs influence knowledge and actions during tasks and serve as a filter through which

new phenomena are interpreted and subsequent behaviour mediated (Lodwyk, Winne & Jamieson-Noel, 2009), then in terms of investigating ownership there is good reason to focus on providing positive, stimulating experiences that establish personal significance.

Personal significance: Effort invested due to interest

There is supporting research to confirm that autonomously regulated behaviours are characterised by the experience of interest (Martens, de Brabander, Rozendaal, Boekaerts, & van der Leeden, 2010). Interest is a psychological state that functions as a powerful determinant of attention, recognition and memory and is important to this study because students can actively control (take ownership of) interest in important or required tasks (Hidi & Harackiewicz, 2000) and high interest in a subject domain enables students to make meaning when dealing with tasks thereby increasing task value and significance whereas low interest can signal a lack of understanding (Boekaerts, 2002). Based on Hidi and Renninger's (2006) definition of interest as purely resulting from the interaction between a person and a particular content through positive emotions that accompany engagement, and perceptual and representational activities related to engagement, there is good reason for considering how to raise interest through interaction to enable students to engage more effectively with the domain content and increase their active participation in the process of learning. Boekaerts (2002) states that interest can also be dispositional with patterns of developing interest based on stored knowledge about and value for a domain, idea or vocation. Drawing on both these perspectives Krapp (2002) suggests that a working interest can be caused by an already dispositional interest or by external factors that create situational interest. I believe both content driven and dispositional perspectives on interest are worth drawing on to establish momentum for motivational forces, to engage students in the activity of learning and invite them to consider taking ownership of the task as a consequence.

Hidi and Harackiewicz (2000) divide interest into *situational interest* (immediate response to environmental factors) and *individual interest* (enduring preference developed over time). They suggest that both forms of interest have a *triggered* phase and a *maintained* phase (Hidi & Renninger, 2006:118) and each phase is sequential, distinct and progressive and the length of each phase is influenced by individual

experience, temperament and genetic disposition. For this study I am interested in three of these phases as they engage students into taking ownership of their learning: maintained situational interest (meaningful or personally involving work) which increases and elaborates on domain knowledge and helps establish a perceived relevance (Maclellan, 2008) forming the first rung of the ladder towards ownership; and both emerging (*triggered*) (sparked by positive feelings, stored knowledge or value) and well-developed (*maintained*) individual interest (anticipation of subsequent steps in processing work, deeper levels of strategies, effort investment that feels effortless and self-regulation) which gives the tasks greater intrinsic importance associating them directly to ownership qualities of increased attention, persistence and engagement with learning (Maclellan, 2008).

The quality of the transition between the phases is significantly influenced by the ability of the teacher to communicate well, relay a love of the subject (Hidi & Renninger, 2006) and provide contextualised external support to help students feel positive about emerging abilities to work with the content (Hidi & Renninger, 2006). In the IFS situational interest was reported as being triggered by teachers' enthusiasm and involvement in moving the student's learning forward, exemplars of work and transferable skills to support success in different domains that were personally valued whereas individual interest was reported as based on experience and stored knowledge, personal enjoyment, satisfaction and challenge, the recognition of their own competence and the desire to develop skills. Krapp (2002) recognises that situational interest can be triggered by context but that this interest, if given the opportunity to extend into the learning phase through a process of internalisation and identification, can become meaningful and enduring (hold intrinsic value). Hidi and Harackiewicz (2000:154) define this process as affective-cognitive synthesis and point out that in research, interest and intrinsic motivation are often used to imply the same thing although actually the relationship between these is such that interest feeds intrinsic motivation and can only be synonymous with it once that interest has been sustained. The key here is the use of informational rather than controlling rewards to help students make the transition between situational (perceived relevance) to individual interest (intrinsic importance) (Pintrich, 2003). Research has moved away from a simplistic intrinsic-

extrinsic continuum and takes more account of how internal and external factors work together to facilitate motivation and learning (Hidi & Harackiewicz, 2000).

Personal significance: Effort investment to attain life-goals

Teaching patterns can help to establish value in tasks through reasonable levels of challenge (Alonso-Tapia & Pardo, 2006) and by increasing the perception of value for the relevance or usefulness of the task (personal significance) (Pintrich, 2003). To encourage ownership teachers need to help students adapt their behaviours in response to this perceived personal significance through 'identified' regulation processes (Niemiec & Ryan, 2009) which are relatively volitional and in a sense intrinsic in motivation because they relate to students who acknowledge the importance of the domain for their self-selected goals (Vansteenkiste, Lens & Deci, 2006). Boekaerts (2002) highlights the importance of understanding the personal goals a student is trying to achieve and avoid in order to understand how and why they regulate themselves, arguing that educational psychologists need to broaden the way they conceptualise the dynamics of learning contexts to consider the whole person in context. Students hold intrinsic goals (energized by psychological drives for growth, relationships and community) and extrinsic goals (characterized by a means-end structure towards, image and wealth) (Vansteenkiste, Lens, & Deci, 2006) and both have a part to play in establishing a reason for taking ownership of learning in order to attain them. The sense of autonomy within ownership can be attitudinal (cognitive processes of choosing and defining a goal), emotional (affective process of feeling confident about one's own choices and goals) and functional (regulatory process of developing a strategy to achieve these goals) (Noom, Dekovic & Meeus, 2001).

Krapp (2002) suggests the reason that goals hold significance is because they relate to a person's sense of identity. Dweck (2000) however places more emphasis on 'self-theories' that are tempered by sensitivity to domain and situation and nurtured through a view of intelligence as malleable over time. Hijzen, Boekaerts, and Veder (2007) also recognise the domain-specific nature of motivations stressing that students' perceptions of the connections between their personal goals and school goals impact on motivational levels at school. But Deci and Ryan (1994) propose that intrinsic motivation and

integration of extrinsic motivation (ownership qualities) are based on the psychodynamic elements of deeply held basic needs for competence, autonomy and relatedness (*Self-determination theory)* and that behaviour is motivated through intention (desire to attain a future state along with the means to attain it) and purpose. There are elements worth considering within these models that hold valuable application for nurturing ownership in this study: Domain specific influences on goal pursuit, nurturing beliefs in malleable intelligence based on the notion that ability is incremental rather than fixed and utilising students' self-determined pursuits through intention and purpose.

Achievement goals are traditionally viewed as performance goals (the desire to look smart, win positive judgements of competence and avoid negative ones) and mastery goals (the desire to learn by increasing competence and knowledge) (Dweck, 2000). There is empirical data from correlation studies that highlight the unreliability of holding simplistic dichotomous views on mastery and performance goals and lend support for a perspective on positive and negative learning approaches towards mastery and performance goals that qualitatively influence student motivation, learning and achievement (Pintrich, 2000). This perspective on learning approaches was further developed by Harackiewicz and Linnenbrink (2005) who define orientations as: approaching mastery (judged on self-defined improvement and progress in learning), avoiding mastery (concerned with not learning or failing to understand material but judged on not being wrong on the task itself), performance approach (demonstrating competence and being the best) and performance avoidance (concerned with trying to avoid appearing incompetent relative to the others in the group).

Dweck (2000) highlights that performance goals are necessary, desirable and natural and only have negative effects when they become the only way to prove ability. In research undertaken by Hidi and Harackiewicz (2000:162) they have found that students who strongly endorse both performance and mastery goals have higher levels of self-regulation and grades than students who endorse only one or neither goal, suggesting that mastery and performance goals can interact positively to promote adaptive behaviours. They see the motivational processes through which this occurs as identification of competence valuation (caring about doing well) and task involvement

that enhances intrinsic motivation: mastery goals used as the process for skills acquisition and performance goals as an outcome promoting interest after the skills are developed (Hidi & Harackiewicz, 2000). This was certainly evidenced in the IFS study where students expressed performance goals and the desire to do well (self-value) at the heart of their reasoning to persist. I therefore endorse this combination of goal orientations as particularly effective in nurturing both ownership and high levels of achievement but this perspective is not fully supported or universally accepted by much of the literature on goal theories (Pintrich, 2003).

Students exhibit both mastery and performance goal orientations at different times and in different domains and a strong influential factor on which orientation is dominant is the teacher-led learning environment being either dominantly co-operative or competitive (Boekaerts, 2002). Vansteenkiste, Lens, and Deci (2006) in their research on goal framing have found that teachers who adopt autonomy supportive styles improve learning, place importance on understanding the students' perspective, encouraging them to solve problems through self-initiation and experimentation and provide choice on what to do and how to do it. Additionally, they found that intrinsic goal framing promotes deep-level processing (both self-reported and observed) and that test performance, free-choice and persistence are greater in comparison to controlling goal conditions. This intrinsic versus extrinsic goal framing induces a different quality of engagement and motivation with respect to learning rather than just enhancing the quality of motivation for learning. The impact of goal framing relies on a best fit between the presented goal and the learner's goal orientation (Hidi & Harackiewicz, 2000) whether established by educational contexts or self-set by individuals. This is fully supported by Dweck (2000) and Pintrich (2003) who identify mastery and performance goals as major elements in striving for competence with mastery goals providing the predictors of interest forming links to learning through higher levels of self-efficacy, increased value, positive affect and more adaptive cognitive and metacognitive strategies with performance goals uniquely predicting grades achieved forming links to learning through increases in effort (Harackiewicz & Linnenbrink, 2005).

The contextual influences of teachers on ownership

In this section I examine the role of teachers and contextual factors affecting learning that provide incentives to pursue ownership by building incremental effort beliefs and malleable ability beliefs through interactive dialogue, acknowledgement of difficulties, mastery approaches to failure and proactive help-seeking.

Motivational beliefs

Motivational models address the *quantity* of effort and the 'why' of student choice, and cognitive models address the *quality* of effort and the 'how' of student choice and both operate simultaneously in the classroom context (Schunk & Zimmerman, 1994). Students who see themselves as capable and expect to do well tend to perform better and persist more (Pintrich, 2003) but those who perceive themselves less able use mechanisms to protect self-worth, offering any excuse other than ability for their poor performance, preferring to withdraw effort and feel guilty rather than feel ashamed (Seifert, 2004). Therefore nurturing the belief that ability is not *fixed* but *incremental* so that they can activate their own agency is key to motivating them towards increasing confidence in their abilities (Dweck, 2000). Hadwin and Webster (2013) suggest that self-efficacy judgements (confidence in their own abilities) tend to be anchored on current tasks, goals and confidence and that self-regulation involves calibrating self-judgements on performance and process based task measures. In terms of nurturing a sense of ownership, Pintrich, (2003) and Dweck (2000) highlight that students who realise the importance of their own agency in gaining success or failure hold higher potential for achievement and that fixed attitudes can be nurtured into malleable ones through encouraging proactive task determination, greater opportunities for taking ownership of the assessment criteria, self-monitoring and encouragement for critical self-reflection on learning behaviours. However, Birenbaum (cited in Maclellan, 2008:147) highlights that enacting this change is emotionally challenging and its integrity is easily compromised by reliability and validity issues with learning negatively affected by immature attitudes.

Boekaerts (1993) has found that when tasks are set in context, students are enabled to increase their competence through self-regulation that integrates both motivational and cognitive perspectives. This is activated by domain-specific knowledge and metacognitive strategies related to the task and through motivational beliefs, including domain-specific capacity, interest and effort beliefs. Motivational beliefs that are associated with personal agency and control require a desire for challenge and tolerance for task difficulty (Maclellan, 2008) but this also relies on the effectiveness of effort investment which depends on two capabilities within the student: firstly, the student's capacity to initiate a solution plan and secondly, the student's capacity to judge whether it is worthwhile to continue with the solution plan or to give up because it is not leading anywhere (Boekaerts, 2002). In her research work, Boekaerts (2002) has found that in many older children, theories of effort are underdeveloped and need assignments to build up domain specific effort beliefs. This is an important consideration as unfavourable motivational beliefs impede learning by directing the learner's attention away from the learning activity itself and instead on to their low ability. In response she suggests that teachers would need to focus more on achievement and strengths, giving *process* orientated feedback that would communicate a feeling of progress: highlighting effort, strategies and potential self-control of learning within a supportive and caring community of learners (Pintrich, 2003).

In the context of the classroom, emotions play a role in response to achievement of success or failure as well as acceptance or rejection by peers (Turner, Meyer & Schweinle, 2003). Failure that is seen as the result of a lack of intelligence through the fixed perspective of entity theory results in defensive, helpless behaviour, but when viewed through the perspective of incremental theory, intelligence can be increased with effort and failures are viewed as a natural part of the learning process (Dweck, 2000). It is this latter point that holds vital significance for mobilising a student towards taking ownership as it justifies a perceived value in investing effort. Some students are not motivated to learn because they see themselves as incapable whilst others are perfectly capable but lack motivation therefore the teacher holds a pivotal role in orchestrating an environment that nurtures feelings of competence and control (Seifert, 2004). The desire to be part of a group also results in individuals taking on values, beliefs and behaviours that are endorsed by others (Vansteenkiste, Lens & Deci, 2006).

These positive emotions temporarily create a broader mind-set and prompt individuals to expand the self, share information with others and push themselves to their limits (Boekaerts, 2002). Therefore an important influential factor in motivating student ownership of learning is the teacher's approach to monitoring of learning, intervening when necessary and modelling social skills (Hijzen, Boekaerts & Veder, 2007).

Students' self-confidence in their capabilities to perform a task (self-efficacy) (Seifert, 2004) matters because it is a predictor of the degree of challenge chosen by students, the measure of effort invested and the quality of academic performance (Zimmerman, 2000). Boekaerts (2002) has also found that self-efficacy beliefs affect effort investment and are domain specific suggesting that there is value in encouraging and recognising effort invested by students coupled with appropriate feedback, as a means to helping them view themselves as responsible for their own learning. These domain-specific self-efficacy beliefs are formulated through feedback from other students and actual experiences and become gradually more accurate and realistic (Boekaerts, 2002). In my IFS study students identified the teacher as confirmatory of how well they were doing, and identified peers to gage pace and calibrate standard supplemented by exemplar material. This is important for ownership as students that are high in self-efficacy are more likely to be self-regulating, strategic, metacognitive and ascribe outcomes to their own agency than students who are not (Seifert, 2004). However, there is a problem with high levels of self-efficacy in that students may overestimate their capabilities and may not be motivated to change their behaviour when faced with feedback about their weaknesses (Pintrich, 2003). Therefore, calibrated beliefs on knowledge, efficacy and competence are clearly important factors (Pintrich, 2003) in facilitating genuine ownership.

Students need to acknowledge personal difficulty and desire interaction with more knowledgeable others in order to advance their learning through help-seeking, whilst retaining a sense of control (Maclellan, 2008). Seeking help as a strategy for ownership needs to be made explicit as one of the barriers to students asking for help is that children commonly feel dumb in front of peers and the teacher if there is an expectation that help should not be required (Schunk & Zimmerman, 1994). This focus on lack of competency and fear of failing was identified by students in the IFS sample as marking

a threshold for investing effort along with frustrations in the classroom associated with a lack of effective management of learning and a lack of teacher transmitted value. Conversely effort was increased when there was access to trusted sources of help supported by help seeking strategies involving teachers and peers, and where time was given to apply these strategies, to establish how the problem could be tackled. Students who are trained to believe they possess effective strategies that help them learn are apt to feel high in self-efficacy (Schunk, 2005).

Ryan and Pintrich (1997) suggest that help-seeking improves the ability of the learner to solve the problem independently, helping them to clarify procedural instruction and master content. In the context of small group activities, instruction tends to be more effective when it makes thinking and sharing problem solving strategies public with the role of the teacher becoming less about transmitting and more about co-constructing knowledge as joint participants with students in the activity (Schunk & Zimmerman, 1994). Thoonen, Sleegers, Peetsma, and Oort (2011) have found that students' well-being in their classroom correlates positively with the extent to which teachers encourage them to co-operate and communicate with other students. Furthermore, combining achievement goals and motivation in classrooms that help students adopt processing strategies that are cognitively expansive and attentive to problems in the situation result in more progress towards goal attainment and positive emotional outcomes (Turner, Meyer, & Schweinle, 2003). Kostons, van Gog, and Paas (2012) have found that modelling the correct answer supports learning but getting students to engage in resolving mistakes and determining resolutions made in a modelled answer is more effective and engaging as a teaching tool. However, in co-constructing knowledge there needs to be mutual trust, respect, openness and recognition that teaching and learning requires taking risks in collaboration with others (White, 1998). As effective strategies are context specific and need to be embedded into everyday routines in the classroom, there cannot be one solution that will work for everyone but rather individual adaptations of interventions that suit the specific teachers and learners involved (Wiliam, 2007). Therefore teachers and students need to be encouraged to see learning as an on-going process where the teacher is sensitive and responds to the indications of how learning is progressing (Taber, 2005).

Contextual approaches to learning that provide incentives to pursue ownership

In relation to learning in the school environment Boekaerts (2002) suggests that students are cognitively, emotionally and socially dependent on their teachers who formulate learning goals, determine interactions and coerce them to adjust to the learning environment created. She further suggests that students develop socio-emotional goals (Boekaerts, 1993) that affect how they respond to their learning contexts and attach meaning to the behaviour of their teacher and peers. Therefore, teachers have a central role in facilitating ownership opportunities for their students. Furthermore, Thoonen, Sleegers, Peetsma, and Oort (2011) make reference to a trend in research of positive correlation between teacher's efficacy beliefs and cognitive and non-cognitive outcomes for students such as achievement in core academic subjects, motivation, attitudes towards school and performance and skills. They suggest that this is because teachers with high self-efficacy are more creative in their work and believe in their ability to influence the learning and motivation of students even those who are difficult or unmotivated.

In Postlethwaite and Haggarty's (2002) exploratory study into students' thinking about effective teaching the major aspects students cite as effective teaching qualities are to do with relationships. This is supported by Niemiec and Ryan's (2009) findings that students who feel that their teachers genuinely like, respect and value them are more likely to exhibit identified and integrated regulation (as defined on page 36) for arduous tasks. In my IFS study, the reasons put forward by students for the importance of this reciprocated value and respect between them and their teachers was that it was integral to obtaining effective support for their learning. They believed teachers had a tendency to provide more help to those students that they liked or valued, who in turn were more willing to work harder for their teachers and that a sense of being valued made it easier to ask for help where as a lack of value felt like a loss of belief and reduced the student's motivation to invest effort.

Watkins (2005) in his review of the research on classroom communities has found that the way in which classrooms are managed is more influential than any other variable and therefore teachers need to attend to social relations and learning, and the social

nature of classroom management. Although significant in affect this relational aspect is complex and multifaceted. Its complexity is raised in Gonzalez and Gilbert's (1979) study of classroom interactions where they conclude that student-teacher interactions are too complex to make generalisations about because they are strongly influenced by the students' personal beliefs of their teacher's role and the working systems that the teacher establishes in the classroom. Focussing change on relational aspects that teachers convey to their classes in a short term intervention study is extremely difficult because relationships are by nature developed over time and through experiences and at the start of the intervention both students and teachers will have established beliefs that first need breaking down before new attitudes can become adopted. Teachers can however help to establish perceived meaning and develop approaches that support and build a sense of confidence and self-determination in their students which can translate into intrinsically motivated learning orientated behaviours (Seifert, 2004). The longer term effects of this are explored in Waaler, Halvari, Skjesol and Bagien's (2013) longitudinal study on intrinsic motivation where they identify a causal link between the use of intrinsic regulation and a sense of well-being eight months later.

Teachers have influence on how students interpret and experience material and can transmit value through interaction that will impact on the learner's motives, values and goals (Ryan & Niemiec, 2009). To this end, Turner, Meyer, and Schweinle (2003) propose learning environments that build *'Affective goal structures'* that help students adopt processing strategies that are both cognitively expansive and attentive to problems. Teachers then can influence autonomy or self-determination by facilitating learning through nurturing 'favourable motivational beliefs' (Boekaerts, 2002) that are extrinsically motivated through reward or penalty and intrinsically motivated through the self-gratifying nature of the activity and a feeling of self-determination. By *allowing* students to adapt a learning activity to their psychological needs they are given greater perceived ownership whereas to *deny* them this right would be interpreted as an external pressure to comply. Deci and his colleagues (Vansteenkiste, Lens & Deci, 2006) have found that rewarding students for their intrinsically motivated behaviour could also undermine their intrinsic motivation and sense of autonomy because it becomes controlled by the reward. However, in certain cases when external regulations of behaviour are internalised, extrinsic motivation can in fact enhance intrinsic motivation

but Martens, de Brabander, Rozendaal, Boekaerts, and van der Leeden, (2010) in their work on inducing mind-sets in self-regulated learning have found that the importance lies in the way students interpret the extrinsic incentives.

Considering the continuum of regulation from externally controlled to the stronger ownership qualities of internally controlled, it is the situational level of attributions, event-specific stability dimensions and not controllability that seems to be more important in predicting future expectancies and motivational behaviour (Pintrich, 2003). The social psychology viewpoint suggests that contexts can overwhelm personality traits when there are strong cues in the environment for this to occur although traits still remain the primary influence on behaviour (Pintrich, 2000). In the IFS study the interactive nature of learning was raised as a much stronger influence on ownership and the drive to raise standards than any of the other factors along with the impact of the teacher's belief in the student and how this was used by the student to give reasons for investing higher levels of effort. This marked a difference between being expected to produce the highest standard based on their own ability within 'competitive' learning environments and the expectation that the standard would be achieved because the teacher believed it possible and would provide the support needed.

The language of instruction plays a significant role here. Controlling environments highlight overt coercive strategies, rewards and deadlines through controlling language such as 'have to' or 'should' and are internally controlled through inducing guilt or shame. On the other hand autonomy supportive language such as 'you can', 'we suggest you', has been found to increase conceptual learning (Vansteenkiste, Lens & Deci, 2006) and suggests greater perceived choice and opportunities for ownership. In a later study by Vansteenkiste, Sierens, Goossens, Soenens, Dochy, Mouratidis, Aelterman, Haerens and Beyers (2012) their findings show a connection between choice (student voice) and their consequential sense of being respected and therefore more volitional in their learning. They also suggest that autonomy support along with clear expectations has the effect of reducing problem behaviour and therefore teachers need to promote volitional functioning (a sense of ownership) and autonomy support that takes the student's perspective.

In Turner, Meyer, and Schweinle's (2003) analysis of teacher discourse they have found that there is instructional discourse (discourse around conceptual understanding), motivational discourse (discourse about challenge, persistence and a constructive view of error), affective discourse (evoking positive emotions and alleviating frustration) and social discourse (encouraging peer collaboration and support). Classroom contexts that are mastery orientated, with the focus on intellectual development and improvement as reasons for engagement exhibit higher levels of motivational discourse from the teacher and the students are more likely to seek help. However, non-supportive motivational behaviour in the same context increase the use of avoidance behaviours and lead to higher perceptions of a performance goal structure (Turner, Meyer & Schweinle, 2003).

Research on the influence of context on teaching and learning has reaped mixed results and Entwistle (2000) proposes that this is because individuals perceive aspects of provision differently with research indicating that while level, pace, structure and clarity contribute to effective learning, generally it is explanation, enthusiasm and empathy which are most likely to evolve a deep approach to learning. Further to this, Baeten, Kyndt, Struyven, and Dochy (2010) have found inconsistencies in results and conclude that there is no real significant change to deep (intention to understand the material) or surface (intention to reproduce the material) learning in student centred learning environments but rather that there are numerous factors that encourage or discourage the adoption of a deep approach to learning. Strum and Bogner (2008) in their comparative study of student-centred versus teacher-centred approaches, have found that although student orientated learning environments are perceived to be more interesting, enjoyable and valuable than teacher centred approaches, students actually learn less in terms of short term learning effect. Furthermore they suggest that mixed approaches rather than one single approach may realise optimal effects in terms of performance, attitude and interest in the subject. Clearly context is important in terms of shaping some actions but it is not as important as understanding the internal dynamics that lead to those actions (Pintrich, 2003). As Vygotsky (Daniels, 2001:25) suggests the role of context is 'that which weaves together' rather than 'that which surrounds'.

Ownership as the active possession of learning

In this section I examine the notion of ownership as the active possession of learning, requiring opportunities for self-determined choice in managing learning tasks and tools to understand learning strategies.

Extrinsically motivated students could be seen as those seeking to attain an outcome that is separable from the learning itself and to do so through controlled motivation (pressure or coercion) or autonomous motivation (experience of volition and choice), regulated through varying degrees of relative autonomy (Vansteenkiste, Lens, & Deci, 2006). Niemiec and Ryan (2009) suggest that understanding how to facilitate internalization of this extrinsic motivation is critical as more autonomous types of extrinsic motivation are associated with enhanced student learning and adjustment and essential for students' self-initiation and ownership. For the ownership process of self-determined choice to be activated there need to be activities that effect regulation of behaviour and motivation, internalization of extrinsically motivated behaviour and recognition of personality influences (Valas & Sovik,1993). Deci and Ryan (1994) propose that these elements can be addressed through:

- A meaningful rationale so that students understand the importance of the task
- An acknowledgment of feelings related to learning
- Interpersonal styles that emphasise choice rather than control and where tasks are more autonomy supportive in nature
- A focus on the style and language with which tasks are administered as this also significantly influences motivation

Developmental and individual factors such as knowledge, cognitive and self-regulatory resources can influence how students may react to different levels of choice and control and therefore it is important to understand the parameters that impinge on the effective and adaptive provision of choice and control (Pintrich, 2003). Effective instruction provides opportunities for self-initiation and choice or a reasoned rationale for constrained choice building in some empathy with the learner's perspective, avoiding pressure to motivate behaviour and providing positive timely feedback (Vansteenkiste, Lens & Deci, 2006).

Looking at the metacognitive perspective on learner control over task selection Kicken, Brand-Gruwel, and van Merrienboer (2008) have found that there is a need for self-assessment skills and knowledge of standards as the less proficient self-directed learners 'do not know what they do not know' and are prone to basing decisions on subjective, distorted perceptions of their learning resulting in inappropriate task selection or ending practice too early because they believe they have already reached the desired goal. Therefore students need regular guidance on their task performance and tools to plan, monitor and assess their performance. In this way students are supported in building an honest view of their strengths and weaknesses and how to formulate effective learning goals.

Tools to understand learning strategies and support ownership

One of the greatest tools that enable students to become involved in regulating their learning is access to effective feedback (Black & Wiliam, 2009) which identifies areas of weakness (Martens et al, 2010) and points them towards greater effectiveness as learners. Kluger and DeNisi (1996) have looked at the effects of feedback interventions on performance in work places and their findings suggest feedback is effective when focussed on aspects of the task and particularly effective when greater detail and goal setting is involved. Furthermore, ineffective feedback occurs when it is directed at the individual falling short of or exceeding goals with responses to feedback changing behaviours negatively when it confirms the goal has been reached (negative response of easing off), suggests modifications to the goal (positive response of actively improving), provides insufficient clarity or applicable actions for improvement leading to the goal being abandoned or the feedback simply being rejected. Deci and Ryan (cited in Martens et al, 2010) propose three functional significances regarding feedback: informational (relevant feedback conveyed in a relevantly supportive way), controlling (used to exert pressure towards a specific outcome) or amotivating (conveying incompetence / targets beyond the learner's reach). Feedback can also be in the form of verbal persuasion that is calibrated to realistic levels of accomplishment in terms of task component capabilities (Maclellan, 2008).

Hattie and Timperley (2007) propose that feedback on tasks operate at four levels: How well tasks are understood, processes needed to complete tasks, self-regulating and monitoring actions and personal evaluation (self-esteem). Their findings also show that feedback is more effective when perceived as a low threat to self-esteem because low threat conditions allow greater attention to be paid to the feedback. Black and Wiliam (2009) propose that each of these levels has two steps: diagnostic interpretation of a student's contribution in terms of what it reveals about their thinking and motivations and prognostic in choosing the most effective response. The prime focus of feedback given needs to be about moving a learner forward and activating them as owners of their own learning: establishing where they are in their learning, where they are going and what needs to be done to get there. This is an important area for intervention to focus on as the most common mistake made with feedback is a focus on what students did not know or mistakes that were made (Martens et al, 2010) which looks backwards, lowering the students' sense of self-worth (IFS) and having a negative impact on effort investment. This raises the importance of teachers understanding how their students will respond to the feedback, which can only be effective if the learner can understand and act on it to positively affect their future performance (Wiliam, 2011).

Martens, de Brabander, Rozendaal, Boekaerts, and van der Leeden, (2010:314) suggest that feedback could act as an extrinsic incentive, dependent on the manner in which it is given, stating that positive feedback containing descriptive evaluations, diagnostic comments and encouraging reflection can be seen by some students with moderate levels of interest as an attempt to control them (Martens et al, 2010). From the IFS data, students expressed demotivation when feedback was over generalised or lacked clarity or calibration denying them understanding and were significantly more motivated to invest their own agency in raising standards when the feedback was seen as honest, critical and provided by a respected and trusted source. Trust in their teachers effectively underpinned their willingness to take up the challenges within the feedback given and invest more effort.

Self-regulated learning draws its theoretical origins from social cognitive theory which posits that behavioural, environmental and personal factors interact reciprocally as students regulate their learning on academic tasks (Lodwyk et al, 2009). If this

mediation of needs and motives is situated and malleable then it can be assumed that their causal relationship to behaviour has the potential to be changed or influenced by context (Pintrich, 2003). Research has shown that students who are self-regulatory, in other words those who set goals or plans and try to monitor and control their own cognition, motivation and behaviour, are more likely to do well in school (Pintrich, 2003) although there is still some debate as to whether the metacognitive (knowledge of one's own cognitive processes) aspect of this regulation has to be a conscious process (Wiliam, 2007:232).

Hijzen, Boekaerts, and Veder (2007) define self-regulation as goal orientated processes whereby students target their cognitions, feelings and actions in the service of their goals. This marks a shift in research from self-regulation focussed on meta-cognitive aspects of learning processes (social cognitive theory) towards considering determinants of learning behaviour and control systems (Rozendaal, Minnaert, & Boekaerts, 2005; Lodwyk et al, 2009). Kostons, van Gog, and Paas' (2012) research shows that students do not apply and acquire self-regulation skills merely by engaging in self-regulatory learning but actually need training through instructional prompts highlighting the process of self-regulation challenging students to regularly consider how much effort results in their high performance and whether they should be selecting more challenging tasks. In terms of ownership through regulation, there need to be jointly agreed learning goals choosing appropriate motivational strategies for the learning situation and using cues in the environment that elicit further interest and confidence in the students' own capacity to undertake the task (Boekaerts, 2002). Furthermore, there needs to be a shift from timely detailed information to the appropriateness of timing and the nature of information for fostering self-regulation (Boud & Molloy, 2013).

Boekaerts (2002:595) suggests that self-regulation should not get used to describe all actions taken by students but rather only those actions where students systematically attempt to attain personal goals. Nota, Soresi, and Zimmerman (2004:199) propose self-regulated learning strategies include: self-evaluation (checking over work), organising and transforming (plan outline prior to starting), goal setting and planning (realigning standard aimed for and planning steps towards goals), seeking information (use of supportive resources), keeping records and monitoring (notes from class), structuring

the learning environment (positive work space and minimising distractions), self-consequences (give treats for success), rehearse and memorise (rewriting information), help seeking (from peers or teacher) and reviewing tests, notes and texts. Furthermore, students self-regulate more effectively when using their own knowledge and beliefs to formulate conceptions about the characteristics and demands of a task (Lodwyk et al, 2009).

A clear theme that has emerged from the literature related to self-regulated learning is that ownership with reference to autonomous learning does not imply students working alone or simply being given more independence but rather that it involves greater consideration of learning stages and learning outcomes: gaining understanding of their learning, taking responsibility for their learning and working with teachers to structure their learning environment. This could be through the development of scaffolds which are forms of support to help students in bridging the gap between their current abilities and their intended goal (Rosenshine & Meister, 1992). Scaffolding could be in written form such as cue cards, anticipating errors or models or as 'think aloud' models of expert thinking, demonstrating strategic problem solving through breaking the problem into parts. Students who process the new knowledge critically and collaboratively in this way verify coherence between the knowledge presented and their prior knowledge (Rozendaal, Minnaert & Boekaerts, 2005).

Boekaerts (2002) suggests that self-regulation is driven by personal goals connected to environmental demands (aptitude) and transferable approaches to learning (outcome), whereas Deci and Ryan (1994) see the tendency towards self-regulation as a pursuit for relatedness through internalisation and regulation of extrinsically motivated behaviours that provides a sense of competence within a social matrix. Both are about finding a connection between desired goals and environmental demands but from slightly different vantage points in that Boekaerts sees the drive from the perspective of students using contextual opportunities to support their ambitions and Deci and Ryan suggest that students respond to contextual opportunities to fulfil their basic needs for acceptance. Although I possibly sit more in Boekaerts' camp I can see the application of Deci and Ryan's approach in the day to day regulation of learning processes within the context of secondary school classrooms. I am particularly interested in their work on

types of regulation that mark the development of increasingly autonomous practices, transforming external to internal regulatory processes which lie at the heart of developing ownership in students. Deci and Ryan (1994:6) propose four types of regulation with introjected and identified regulation providing the ownership focus for this study:

External regulation: Students regulate their learning to attain rewards or avoid punishment or respond to external pressures and deadlines. This form of regulation is counter-productive to ownership as the regulation has an external locus of causality and is poorly maintained once the controlling element has been removed (Niemiec & Ryan, 2009).

Introjected regulation: Students regulate their learning to satisfy ego and self-esteem, and are encouraged to behave in a socially acceptable way to avoid feelings of guilt. This form of regulation also engages with activities that comply with internal pressure (Vansteenkiste, Lens & Deci, 2006) and marks the initial processes towards finding some personal significance within a task and the pursuit of socio-cognitive goals. The igniting of personal significance places this form of regulation at the gateway towards taking ownership even though the locus of causality is predominantly external (Niemiec & Ryan, 2009) and activated by performance goal orientations (Wiliam, 2007).

Identified regulation: Students regulate their learning by adapting their behaviour to perceived importance and personal significance, identifying with the underlying value of the activity. The locus of causality is predominantly internal (Niemiec & Ryan, 2009) and the relatively volitional nature of this form of regulation suggests motivation based on intrinsic value and relates to students who acknowledge the importance of the domain for their self-selected goals (Vansteenkiste, Lens & Deci, 2006). This is therefore the strongest form of regulation to nurture ownership and drive motivations towards taking responsibility for raising achievement.

Integrated regulation: Students regulate their learning, fully integrate and identify with the external values and regulations, adopting them as their own. The locus of causality is internal (Niemiec & Ryan, 2009) and students that display this form of regulation have already internalised skills and learning strategies and have taken ownership of their learning. This applies to this study in that it marks the end of the journey towards

ownership; however I am more interested in examining how students can be guided into navigating their way through to this point.

Gender and IQ have been identified as significant predictors of students' achievement but Nota, Soresi, and Zimmerman, (2004:199) have found that self-regulation strategies are a stronger predictor than either of these student background characteristics for both English and Maths. Research however, gives contradictory evidence regarding self-regulation. In Rozendaal, Minnaert, and Boekaerts' (2005) study examining the ability to regulate self-functions as an important determinant of learning behaviour they demonstrate that changes in interest and persistence over time does not differ significantly between groups indicating that self-regulatory learning based environments may not necessarily be more motivating than direct instruction. However, they do find that student motivation may function as an important precondition for higher order learning processes to occur and deeper interaction with the subject matter. Thoonen, Sleegers, Peetsma, and Oort (2011) have also found that a model for teaching and learning that replaces external control over learning processes by paying attention to meaningful goals and self-regulated learning does not always improve students' motivation, particularly those students with learning difficulties, who find great difficulty in regulating their own learning. The problems here can be that students don't exhibit the basic abilities to plan, monitor and self-evaluate performance that are needed to work autonomously and teachers make the common mistake of assuming students already have well developed self-directed learning skills resulting in expectations of complex decision making that overwhelm the student (cognitive overload) (Kicken et al, 2008)

Harlen and Crick's (2003) study on testing and motivation for learning found that students who prefer more structural, precise, and sequential approaches to learning, have higher self-esteem than those who favour a more exploratory and creative way of learning. Also tasks need to be embedded with instructional cues that provide key information about how students should engage with both the task and resources associated to the tasks to enable students to 'construct' understanding (Lodwyk et al, 2009). In a recent longitudinal study of 11 schools in two countries, Coyle's (2013) findings highlight the strongest contributors towards motivation for learning as the

environment, identity and engagement, with students communicating an overwhelming need to be engaged in the learning process. The teacher is key here in helping students to visualise and develop planning of activities to be carried out so that they do not get lost in developing their work and can self-regulate more effectively (Alonso-Tapia & Pardo, 2006). Schunk and Zimmerman (1994) highlight that students' belief about a task influences their motivation to learn and their interest in the content influences their cognition and use of strategy. They also draw a connection between the use of scaffolding strategies to improve learning and activating metacognitive control. This discourse on the relationship between metacognitive and cognitive learning, associating beliefs about the structure of knowledge with the ability to control learning is explored in Metallidou's (2012) ethnographic study on epistemological beliefs as predicators of self-regulated learning strategies. She supports the development of sophisticated epistemologies which place an emphasis on ability being increased through effort, learning as a gradual process and knowledge as complex, interrelated and evolving.

Well-structured tasks usually involve a linear and hierarchical procedural routine, appropriate resources and useful information or sub goals (detailed requirements) and precise criteria for assessment (Lodwyk et al, 2009). These tasks lead to 'target' understanding (content of the syllabus) and personal understanding formed through content knowledge and beliefs and feelings about educational context based on past experience (Entwistle, 2000). Facilitating these processes effectively takes students through an evolving continuum from the learner as a novice and observer to the learner as participator and active contributor through simulation, participation and interaction (Hung, Seng Chee, Hedberg, & Thiam Seng, 2005). An important consideration in this process would be to differentiate between the tools needed to initiate ownership and those for augmenting the learner's capabilities.

In Bliss, Askew, and Macrae's (1996) study on effective teaching and learning through scaffolding, they have found that teachers are able to talk about scaffolding but not really implement it successfully in the classroom and reasons for this include directive teaching strategies or lack of effective teacher-pupil interaction. Learning can be supported through dialogue used to ascertain the learner's level of development and their progress coupled with the suggested differentiated analysis of domain knowledge

allowing its match to pupils' intuitive understanding (Bliss, Askew & Macrae, 1996). Taber (2005) suggests that to identify how best to invest teaching time a pre-test prior to starting a new topic would help to identify whether the essential prerequisite learning for the new topic was in place, whether students shared known common misconceptions that could interfere with new learning and whether students already had a sound understanding of some of the material prescribed in the schemes of work. In order to nurture a student to develop from other-regulation towards self-regulation they must be active in the learning situation and the teacher needs to be aware of when not to give assistance (Flem, Moen & Gudmundsdottir, 2000) in order to activate greater responsibility and ownership in the learning process. This also requires a diagnostic approach towards assessing the effectiveness of a particular sequence of instructional activities as student outcomes can sometimes bear little relation to what was intended (Wiliam, 2011). This mismatch between teacher expectations and the learner's cognitive structure can be as a result of the absence of relevant prerequisite knowledge, leaving the learner unable to make sense of the presented material in terms of existing ideas or when the learner interprets the new material in terms of alternative existing ideas and there is need for more explanation or examples to correctly relate new to existing knowledge (Taber, 2005).

Scaffolding as a support system can provide structured help to enable progress in learning from teachers or more able peers where the intention is to support the learner in developing new skills, with decreasing support given as the new skills assimilate into their repertoire of thinking skills (Coombs & Chng, 2001a). Coombs and Chng (2001a) propose four processes involved in constructing these scaffolds and learning plans: Setting out the learning objectives (Purpose); developing activities to renew prior learning (Strategy); developing task based activities to achieve the new learning goals (Outcome); and assess and review to improve learning outcomes (Review cycle). This cyclic process using learning plans helps students to actively define and redefine their purpose for learning to keep it alive and relevant and provide a personal task-management scaffold for student learning in order to convert teacher-centred curriculum management into student-centred learning tasks (Chng & Coombs, 2001a). Lodwyk, Winne, and Jamieson-Noel (2009) use the term strategic learning to suggest a similar cyclic process involving metacognition and self-regulation through: planning

(comprehending the task, setting goals, engaging with the task), monitoring (checking understanding, testing, listening and presentation), and regulation (adjusting tactics, rereading, and self-checking questions). This strategic approach to study is more focussed on performance aspirations (high achievement) through meta-cognisic alertness (able to monitor one's own effectiveness against assessment criteria) and self-regulation (organised study methods and time management) (Entwistle, 2000). Britton and Glen (cited in Schunk & Zimmerman,1994:182) theorise that students' time management is composed of: a goal manager (desires and goals), a task planner (sequential tasks and sub tasks) and a scheduler (converting tasks into timed events) and that these are all influenced by deadlines, degree of concentration and length of persistence. Rosenshine and Meister (1992) also advocate the use of self-checking procedures through checklists to prompt critical thinking. These all act as support systems that in themselves are not necessarily owned by the student but provide clear directives that allow ownership to function effectively and give confidence to the learner that their invested effort is being utilised to best effect. The point where greater ownership is enacted is when instruction and feedback address the interrelation of task (context), structure (form) and information (content) and an opportunity to revise work is given (Vardi, 2013).

Conclusion

The literature discussed in this chapter provides a sound springboard from which to develop a theoretical framework for my study on key elements that nurture ownership in students in the classroom and provide the potential for change through intervention. Areas of overlap and interrelatedness have emerged as I have explored the intrinsic nature of ownership, and how personal significance and interest affect effort investment, how the role of the teacher and contextual approaches to learning provide incentives to pursue ownership and how active possession can be enhanced through opportunities for self-determined choice with tools to understand learning strategies. The defining qualities of ownership that I have tried to unpack in this review of the literature address perspectives on supporting students in owning the motivational drive to improve through proactively seeking support or utilising the support given through perceived control over the application of these tools on their learning. It is also about teachers

genuinely valuing students as directors of their own learning from the position of a facilitator rather than director by giving students a role in constructing new knowledge and planning tasks. This study focuses mainly on the initial stages of nurturing skills towards a sense of ownership and is more about building confidence in taking steps towards controlling learning through self-regulation, process orientated approaches to improvement and help seeking strategies.

Chapter 2

The Theoretical Framework

Having looked at ways in which the literature defines concepts around ownership of learning and drawing upon my own professional experience and previous research, I chose to construct mind-maps and thematic tables to repeatedly distil the wide breadth of information into distinct and relevant dimensions that could provide specific *indicators* for data collection and intervention (De Vaus, 2002) for my short-term study. From this process emerged overarching themes (see appendix A, p161) of Personal significance, Self-determination, Mastery approaches to problem solving and Feedback for ownership, from which I concluded that the focus of interventions for this study should be developed around:

1. Setting learning activities into the context of students' personal goals, helping them establish why it is worth taking ownership for their learning. (*Personal significance*)

2. Developing task structures that provide support for students to take responsibility for management of tasks and ownership of self-regulation processes. (*Self-determination*)

3. Supporting ownership practices in classrooms by encouraging greater proactive engagement in knowledge building through learning processes. (*Mastery approaches to problem solving*)

4. Promoting positive feedback that enables students to self-regulate more accurately and experience greater ownership and personal impact on achievement. (*Feedback for ownership*)

Moving back through the filtering process I then selected practical applications based on research findings provided in the literature to inform each intervention focus. Selecting key affective variables on ownership practices helped to determine how the requirements for implementing each intervention could be developed and aided in the construction of a questionnaire. To explain each intervention focus in greater detail I have set out the selected affective variables against research findings from the literature

and concluded each focus area with the relevant intervention that was given to teachers to implement in the study. I have included tables to demonstrate how I have chosen to evidence the affective variables, use them to inform question design and whether the focus of the corresponding intervention provided a measure of impact. The questions are coded to reflect the four thematic sections (A: Personal significance, B: Self-determination, C: Mastery approach to problem solving, and D: Feedback for ownership).

These four thematic sections are interrelated and therefore the quantitative data produced in response to the interventions set out in this chapter will be examined both as a whole and within a more qualitative framework based on information-processing theories in cognitive psychology highlighted by the research findings in Anderson, Reder and Simon's (1996) review on claims about situated learning and education. In this review they imply effective learning occurs through 'learning-by-doing' which combines abstract instruction and related concrete illustrations (Anderson, Reder & Simon, 1996) recognising the complexity of human cognition as both context-independent and context-dependent.

In terms of this study on ownership I use the concept of abstract instruction, which is largely context-independent, as instruction about approaches to learning through learning experiences that develop motivational beliefs about self-efficacy and outcome expectations (Boekaerts, 2002). The link here to Anderson, Reder and Simon's (1996) work is in training students how to respond to cues that signal the relevance of an available skill. The difference is that the cues that signal skills in taking greater ownership of learning deal with overarching transferable skills that help students change ability belief structures, the motivational drivers for effort investment and goal orientation in order to make sense of, and take greater control over, shaping their learning experiences. These skills are more abstract in nature because they inform understanding rather than provide a context-specific practical skill. It is also worth noting that Martens et al, (2010) link students' interpretations of extrinsic incentives (cues) to inducing mind-sets in self-regulated learning.

Therefore the category of questions that relate to a measure of change in personal responses to external cues that effect perspectives towards goal orientations, ability beliefs and effort beliefs has been called developing an *'ownership mind-set'*. The questions included in this category look specifically at: Personal life goals (considering domain relevance to career aspirations, personal interest and socio-emotional goals); Achievement goal orientations (looking for dominances in 'Performance' orientations of success as higher scores or grades, with failure seen as a lack of ability, or 'Mastery' orientations of success as improved understanding or skills, with failure seen as the need for more strategies and effort investment); Self-efficacy beliefs (built through a realistic grasp of standard, a personal response to feedback on strengths and weaknesses, a sense of value and support when making mistakes and sufficient challenge); and Reasons for effort investment (through perceived interest in tasks, understanding the purpose for tasks, proactive help-seeking and a belief that effort investment raises achievement).

I propose that nurturing this mind-set primes students to respond to the provision of cognitive resources through opportunities or activities provided by teachers that require students to enact a level of control and responsibility (ownership) for managing, directing or driving their own learning. This is similar to the way that Anderson, Reder and Simon (1996) discuss applying understanding (gained through abstract instruction) to practical situations (context-dependent) as *related concrete illustrations.* For the purposes of this study the 'doing' part of the learning process in regard to ownership is where student's active response to teacher initiated instructional intervention enables them to experience a direct interaction with context-specific cognitive resources. To this end the related questions in this category deal with ways of '*operationalizing ownership'* and measure changes in engagement with self-regulation and ownership practices. These questions look specifically at: Provision of opportunities for students to become more active learners (through think aloud problem solving and group work, co-organising tasks with the teacher and active involvement in learning processes), placing responsibility on the student to direct their learning (through choice in tasks and strategies, clear instructions for successful task completion, continuity of learning across lessons) and providing tools to support effective task management and completion (through scaffolding, time planning, and checklists).

In choosing to aggregate the various questions qualitatively as set out above, I am not looking for correlations between the questions but for evidence of change within one or more of a range of separate skills that show movement of some kind towards a change in mind-set or in experiencing a level of control through an activity that effects the overall attitudinal orientation towards taking ownership. I liken this to stages in triple jumping where the athlete could potentially improve in any of the four phases: approach phase, hop phase, step phase and the jump phase. Change would not need to correlate for performance to improve as improvement in one phase is not related to improvement in the other phases. To this end, I believe that to find overall changes in mind-sets or activating students to engage in taking control over their learning and then examine the strongest components that effect these changes would provide greater understanding of where to start or how to ignite ownership.

Key affective variables on ownership supported by research findings

The four sections addressed in this study cover a broad range of variables and ideally I would have asked many more questions to really tease out subtle attitudinal changes. However, this would have resulted in questionnaires that were impractically long given the time available for students to complete them. I have therefore tried to narrow my focus on the specific function of the questions selected in generating evidence for the variables as they relate to implementation of related interventions.

1. Personal Significance

Intervention to set learning activities into the context of students' personal goals, helping them establish why it is worth taking ownership for their learning. For this intervention focus seven key variables affecting *ownership* were identified:

1. **The significance of a particular domain for life goals** (including achievement goals and social orientation) based on the research findings of:
   - Vansteenkiste, Lens, and Deci (2006) that students give importance to domains that they perceive as important for their life-goals.

- Boekaerts (2002) that personal goals affect why students regulate themselves.
- Pintrich (2003) that goal orientation underpins students' definition of their own competence.
- Hidi and Harackiewicz (2000) that students' competence valuation promotes effort and interest.
- Boekaerts (1993) that students develop socio-emotional goals, 'well-being goals' that affect how they respond to their learning contexts.

2. **The strength of personal interest in a domain** based on the research findings of:
   - Martens, de Brabander, Rozendaal, Boekaerts, and van der Leeden (2010) that autonomously regulated behaviours are characterised by the experience of interest.
   - Hidi and Harackiewicz (2000) that students can actively control interest in important or required tasks.
   - Boekaerts (2002) that high interest enables students to make meaning and increase task significance, but low interest can signal a lack of understanding.

Table 1: Generation of evidence for affective variables related to life goals and personal interest

Generating evidence for affective variables	Question functions	Questions used in questionnaire	Intervention focus:
1. Significance of domain for life goals (performance / social orientation) *Looking at goal orientations that generate value for investing effort within the domain and a reason to take ownership of the learning.* **2. Personal interest in domain** *Looking for 'individual' interest: foundational to mastery orientations to learning, self-motivated effort investment and strong ownership tendencies.*	To establish the motivational perspectives that students relate to the domain (why they invest effort).	**A1.** I have to do well in Domain because I need it for my future career. **A2.** I want to do well in Domain because it interests me as a subject. **A3.** What my classmates think of me is more important than doing well in Domain.	Developing an ownership mind-set. *1a* Developing an ownership mind-set. *1a* Developing an ownership mind-set. *1a*

3. **Students' understanding of 'why' doing the task is beneficial for their learning or attaining their life goals** based on the research findings of:
   - Deci and Ryan (1994) that self-determination needs a meaningful rationale so that students understand the importance of the task.
   - Pintrich (2003) that students who understand the relevance or usefulness of a task recognise it as having more personal significance.
   - Maclellan (2008) that perceived relevance is essential for ownership.
   - Taber (2005) that pretesting helps to establish students' need for new knowledge by highlighting whether essential prerequisite learning is in place or any shared misconceptions are held that could interfere with understanding.

4. **The level of interest experienced in tasks set** based on the research findings of:
   - Hidi and Renninger (2006) that situational interest is *triggered* by relevance or fun and *maintained* through students' active participation in the process of learning.
   - Krapp (2002) that a working interest can be transformed into a personal interest when it is seen as a learning opportunity which lasts through the learning phase (*maintained*) and becomes meaningful and enduring.

5. **The involvement of students in planning work *with* their teacher** based on the research findings of:
   - Lodwyk, Winne, and Jamieson-Noel (2009) that joint planning aids strategic learning, task comprehension, goal setting and engagement with the task.
   - Alonso-Tapia and Pardo (2006) that teachers need to help students visualise and develop precise planning of activities so that they can self-regulate more effectively.
   - Flem, Moen and Gudmundsdottir (2000) that to nurture a student from other-regulation towards self-regulation they must be active in processing the learning.
   - Hung, Seng Chee, Hedberg, and Thiam Seng (2005) that mutual co-construction between practitioner and learner facilitates legitimate peripheral participation (novice/observer) to central participation (active contributor).

6. **The level of challenge experienced in tasks** based on the research findings of:
   - Maclellan (2008) that motivational beliefs associated with personal agency and control require a desire for challenge and tolerance for task difficulty.
   - Alonso-Tapia and Pardo (2006) that reasonable challenge establishes task value.
   - Hidi and Renninger (2006) that self-set challenges are indicative of emerging individual interest (initial ownership) and challenge that leads to knowledge building is indicative of well-developed individual interest (ownership).
   - Boekaerts (2002) that goals set to challenge and within reach increase effort investment but those set too low or too high are abandoned or reduce effort.

7. **The level of active involvement invested in tasks** based on the research findings of:
   - Bandura (2001) that students are metacognitive when they display active motivational and behavioural participation in their own learning process.
   - Vygotsky (in Daniels, 2001:42) that students need to assume an active role in learning processes to enact their ownership rights.
   - Schunk and Zimmerman (1994) that learning is more effective when students are joint participants in the activity.

Table 2: Generation of evidence for affective variables related to task value, situational interest, task organisation, challenge and active involvement

Generating evidence for affective variables	Question functions	Questions used in questionnaire	Intervention focus:
3. Understanding why doing the task is beneficial for their learning or attaining their life goals: *Looking for acknowledgement of task value and a reason for investing effort and taking ownership (implicit in nature of task or explicit through rationales given in lessons).*	To establish the level of **personal significance** experienced in domain specific lessons: - The **purpose or reasons** for tasks are made personally significant.	**A4.** I understand why the tasks we do in Domain are important.	Developing an ownership mind-set. *1b*
4. Interest in task: *Looking for situational interest or self-motivated personal interest. Either would support greater effort investment and ownership.*	- Significance is created through the generation of **interest**.	**A5.** The work we do in class is interesting.	Developing an ownership mind-set. *1b*
5. Planning work with the teacher: *Looking for evidence of the teacher helping students organise the work, making explicit the responsibility to get involved in taking ownership of managing learning.*	- Personal significance is made explicit through **involvement in planning** learning activity.	**A6.** We organise how we are going to do tasks with the teacher.	Operationalizing ownership. *1b*
6. Level of challenge in task: *Looking for calibration of challenge to students' ability (foundational for ownership): reasonable calibration for ownership would see answers predominantly between 5 and 9.*	- Personal significance is drawn out through calibrated **challenge that motivates effort investment.**	**A7.** How challenging is the work you usually do in Domain lessons? **Too difficult (12) - Too easy (1)**	Developing an ownership mind-set. *1b*
7. Level of active involvement in task: *Looking for engagement with activities within lessons – opportunities to be active learners and voluntarily invest effort (take ownership of effort investment).*	- Learning is made personally significant through expectations of **active involvement.**	**A8.** How involved do you get in lesson tasks? **Fully involved (12)** **- Not involved (1)**	Operationalizing ownership. *1b*

Interventions for implementation relevant to these variables:

Intervention 1a (informed by variables 1 - 3)

To establish a reasoned rationale for tasks, communicating this clearly to students to enable them to see how the unit of work or tasks fit into the bigger picture of their life goals and doing well (GCSE).

Prompts for consideration:
- *What real life metaphors can be matched to the task? (authenticity)*
- *Why do the students need this unit of work? (objectives related to assessment)*
- *Focus on the importance of skills acquisition and breadth of strategies as the primary way to access higher achievement not simply more effort investment (try this.., not try harder).*
- *Draw out enthusiasm by displaying enthusiasm for the domain.*

Intervention 1b (informed by variables 4 - 7)

To build on or ignite interest and involve students in co-constructing the unit of work through initial activities that help to diagnose whether students have the necessary prerequisite knowledge or hold any misconceptions that will affect learning in the new unit of work or task. (*Diagnosis here could be done through verbal or written processes, either formally or informally. The desired result is to establish with students their need for new knowledge and its links to their prior knowledge and to gain better calibration of challenge in subsequent tasks*)

Prompts for consideration:
- *Draw out interest by displaying personal interest or value for the task.*
- *Trial innovative task organization.*
- *Involve students by questioning about processes not affirmation of understanding.*
- *Exemplars to work from - used as identification of quality or inadequacy.*
- *Use students to support their peers towards successful task completion.*

Make explicit the organisation or planning of lesson tasks with students at the start of the lesson (on board, rough paper, in planner, exercise book) and refer to it during the lesson.

2. Self-determination

Intervention to develop task structures that provide support for students to take responsibility for management of tasks and ownership of self-regulation processes.
For this intervention focus six key variables affecting *ownership* were identified:

1. **Opportunities for self-determined choice in task or strategy** based on the research findings of:
   - Vansteenkiste, Lens, and Deci (2006) that effective instruction for ownership provides opportunities for self-initiation and choice or a reason for constrained choice. Also that encouraging problem solving through self-initiation and experimentation provides choice on what to do and how to do it.
   - Boekaerts (2002) that favourable motivational beliefs are intrinsically motivated through self-determination – allowing students to adapt the learning activity to their own psychological needs and giving a sense of autonomy; denying them this would be interpreted as an external pressure to comply.
   - Maclellan (2008) that pro-active approaches to task determination, continuation and completion increase opportunities for ownership and responsibility for learning.

Table 3: Generation of evidence for affective variables related to choice within tasks and choice in strategies to tackle tasks

Generating evidence for affective variables	Question functions	Questions used in questionnaire	Intervention focus:
1a Awareness of choices within tasks *Looking for the invitation to students to take an active role in directing (ownership) their learning.*	To identify the presence of two crucial aspects related to self-determination essential for taking ownership:		
1b Choice in strategies to tackle tasks *Looking for whether the teacher supports students in trialling strategies or experimenting through the use of their own knowledge before supplying solutions thereby encouraging the student to engage with taking some ownership of the learning process.*	- Choice within tasks. - Choice in strategy – encouragement to utilise their own knowledge to tackle new problems.	**B1.** I can choose from different task-based activities in Domain lessons. **B2.** The teacher encourages me to try working out the answer myself.	Operationalizing ownership. *2a* Operationalizing ownership. *2a*

2. **Information on the sequential breakdown of tasks** based on the research findings of:

   - Harlen and Crick (2003) that students favour a more structural, precise, sequential processing approach to learning. (Taken here in the context of generating interest and engagement in the process but not in terms of long term deep learning).
   - Chng and Coombs (2001a) that scaffolding enables progress in learning by supporting the development of new skill, with decreasing support given as these are assimilated.
   - Rosenshine and Meister (1992) that scaffolds form the support that bridges the gap between students' current abilities and their intended goals.

3. **Information on time management through planning tasks both in and out of the lessons** based on the research findings of:

   - Britton and Glen (1989, cited in Schunk & Zimmerman,1994) that students need to be taught to manage their time through setting personally desired goals, plan sequential tasks to achieve these goals and convert these into timed events that fit with their life styles.
   - Entwistle (2000) that strategic self-regulation focuses on organised study methods and time management.

4. **Provision of checklists to prompt thinking and task organisation** based on the research findings of:

   - Rosenshine and Meister (1992) that self-checking opportunities through checklists to prompt critical thinking provide students with a sense of ownership in how they can self-organise and manage their own learning.

Table 4: Generation of evidence for affective variables related to sequential breakdown of tasks, time management, checklists to prompt thinking and task organisation

Generating evidence for affective variables	Question functions	Questions used in questionnaire	Intervention focus:
2. Aware of the sequential breakdown of tasks *Looking for scaffolding to help students take ownership of the smaller steps within tasks in order to successfully complete them.*	To identify the presence of tools that enable ownership through self-regulation: - Scaffolding (step by step break down of tasks).	**B3.** The tasks are explained in small steps to help me do them.	Operationalizing ownership.*2a*
3. Time management, planning tasks both in and out of the lesson *Looking for student engagement in time planning with their teachers in order to organise their work and complete tasks.*	- Time planning (explicit direction of workload organisation).	**B4.** The teacher helps us plan our time so that we can complete tasks by the deadline.	Operationalizing ownership.*2a*
4. Checklists to prompt thinking and task organisation *Looking for student ownership of task management guided by the teacher: explicit planning that provides students with the opportunity to take ownership and drive their learning because they know what needs to be done.*	- Checklists (clarity on what to do in order to complete successfully against assessment criteria).	**B5.** We make checklists to help us organise and manage our work.	Operationalizing ownership.*2a*

5. **The level of student awareness of task structure (what to do & how to do it)** based on the research findings of:

   - Lodwyk, Winne, and Jamieson-Noel (2009) that well-structured tasks are embedded with instructional cues that provide key information about how students should engage with the task, resources associated to the task and the precise criteria for assessment.

Table 5: Generation of evidence for affective variables related to awareness of task structure

Generating evidence for affective variables	Question functions	Questions used in questionnaire	Intervention focus:
Awareness of task structure (what to do/ how to do it) *Looking for perceived clarity of instruction and calibration to the students' understanding (foundational to ownership practices).*	To establish the level of clarity in understanding instructions related to successful task completion.	**B6.** How well do you understand what you are expected to do in Domain? **Very clear instructions (12) - Instructions are confusing (1)**	Operationalizing ownership.*2a*

6. The way students perceive teachers' expectations regarding approaches to learning as predominantly self-motivated or teacher-led based on the research findings of:

- Kicken, Brand-Gruwel, and van Merrienboer (2008) that learning environments provide opportunities to personally adapt learning activities when the teacher has set up expectations of independent, proactive learning behaviours and provided guidance material and scaffolding to enhance the students' *cognitive perspective.*

Table 6: Generation of evidence for affective variables related to perceived teachers' expectations

Generating evidence for affective variables	Question functions	Questions used in questionnaire	Intervention focus:
Perceived teachers' expectations *Looking at learning environments that have been set up to be predominantly supportive of ownership practices or teacher led.*	To identify expected learning behaviours in lessons as predominantly teacher-directed or student-driven.	**B7.** When I get to my Domain lesson I am *usually* expected to: **Be ready to continue with my work (12) - Wait to be told what to do (1)**	Operationalizing ownership. *2b*

Interventions for implementation relevant to these variables:

Intervention 2a   (informed by variables 1 - 5):

To make explicit choices or constraints on choice within tasks, ensuring clarity of instruction for processing tasks that includes sequential steps or sub goals that extend across lessons and time frames to allow students more opportunities for personal management of tasks.

Intervention 2b   (informed by variable 6 but supported by 1-5)

To make explicit expectation of readiness to continue with set tasks on arrival reinforcing the classroom as a place for building on learning rather than a place to wait for instruction.

Prompts for consideration:

- *Provision of self-checking opportunities through checklists to prompt critical thinking or task organisation.*
- *Openly planning the layout of a week or two weeks of learning to show overlap from one lesson to the next.*
- *Openly planning sequential steps to manage tasks in lessons.*

- *Provide small tasks that run over into other lessons that students can 'get on with' on arrival into the next lesson.*

Make explicit the expectations for the start of lessons (learning behaviours not just attitudes so that readiness to learn is a practical activity that they DO on arrival).

3. Mastery approaches to problem solving

Intervention to support ownership practices in classrooms by encouraging greater proactive engagement in knowledge building through learning processes. For this intervention focus six key variables affecting *ownership* were identified:

1. **The reasons students give for failure being task difficulty or the need for more strategies** based on the research findings of:
   - Boekaerts (2002) that the reason students give for their success or failure is consistent with their self-concept of ability in that domain.
   - Dweck (2000) that reactions to failure are either *helplessness oriented*, perceived as out of the student's control and focused on 'ability', or *mastery oriented,* perceived as a challenge to overcome in order to gain mastery with the focus placed on 'task' - both reactions directly influence effort investment. Therefore students need help to recognise that failure is a natural part of learning and focus more on task difficulty and the need for more strategies. This is supported by the belief that intelligence is malleable and ability is incremental rather than fixed.

Table 7: Generation of evidence for affective variables related to attitudes to failure signalling task difficulty or the need for more strategies

Generating evidence for affective variables	Question functions	Questions used in questionnaire	Intervention focus:
1. Failure seen as task difficulty or the need for more strategies *Looking for helpless or mastery orientations towards failing or making mistakes with the aim to move students away from ability concepts and more towards a mastery approach of recognising the need for more skill or knowledge before tackling the problem. I want to look at getting stuck and failing together as they both signal a wall reached in the learning process and can stifle ownership.*	To establish whether students perceive ability as fixed or malleable.	C1. When I get stuck I think I do not have the ability to do the task. C2. When I get stuck I think I need to try harder to find the solution.	Developing an ownership mind-set.*3a* Developing an ownership mind-set. *3a*

2. **The use of 'think aloud' problem solving or talking through solutions with peers** based on the research findings of:

- Vygotsky (in Daniels, 2001) that learners develop higher mental functions such as self-regulation supported initially by adults and then more autonomously by using 'private' speech to talk themselves through the activity.

- Rosenshine and Meister (1992) that 'think aloud' models of expert thinking demonstrate strategic problem solving through breaking the problem into parts.

- Ryan and Pintrich (1997) that in small group activities, instruction tends to be more effective when it makes thinking and sharing problem solving strategies public.

- Rozendaal, Minnaert, and Boekaerts (2005) that students who process new knowledge critically and collaboratively verify coherence between the knowledge presented and their prior knowledge.

- White (1998) that co-constructing knowledge involves taking risks in collaboration with others.

Table 8: Generation of evidence for affective variables related to think aloud problem solving

Generating evidence for affective variables	Question functions	Questions used in questionnaire	Intervention focus:
2a. Think aloud problem solving *Looking for opportunities to establish collaborative think aloud processes modelled by / with the teacher.* **2b. Talking through solutions with peers** *Looking for evidence of think aloud problem solving with peers.* *(Both questions look for evidence of problem solving modelled through the use of speech that students can later use as private speech to talk themselves through problems helping them take greater ownership).*	To identify the use of open 'speech' and collaboration to teach problem solving strategies.	**C3.** Sometimes we work out how to do tasks 'out loud' with the teacher. **C4.** Sometimes we work out how to do tasks by talking to each other in groups.	Operationalizing ownership. *3a* Operationalizing ownership. *3a*

3. **Encouragement for proactive help-seeking** based on the research findings of:
   - Lodwyk, Winne, and Jamieson-Noel (2009) that to help students regulate and adjust strategies they need a proactive attitude towards asking for help and seeking other informational resources.
   - Ryan and Pintrich (1997) that help-seeking improves the ability of learners to solve problems independently, helping them to clarify procedural instruction and master content.
   - Maclellan (2008) that students need to acknowledge personal difficulty and desire interaction with more knowledgeable others in order to advance their learning through help-seeking, whilst retaining a sense of control.
   - Webb, Farivar and Mastergeorge (2002) that guiding students into seeking help for understanding rather than confirming correctness requires directed activities that establish norms in cooperative behaviour.

Table 9: Generation of evidence for affective variables related to proactive help-seeking

Generating evidence for affective variables	Question functions	Questions used in questionnaire	Intervention focus:
3. Proactive help-seeking *Looking for teacher expectations of students to recognise the need for help and actively pursue it rather than wait to be noticed. (Act on their right to take possession of the learning process: ownership).*	To identify expectations of proactive help seeking.	**C5.** My teacher wants me to ask for help when I need it.	Developing an ownership mind-set. *3a*

4. **Students' confidence in their own abilities and feelings of incompetence in front of their peers or teacher** based on the research findings of:
   - Seifert (2004) that confidence pertains to a person's judgement of their capabilities to perform a task and to them ascribing outcome to their own agency.
   - Pintrich (2003) that students who believe themselves capable and expect to do well tend to perform better and persist more.
   - Boekaerts (2002) that students take account of feedback from other students and actual experiences in formulating and developing their domain specific self-efficacy beliefs.

- Zimmerman (2000) that self-efficacy matters because it is a predictor of the degree of challenge chosen by students, effort invested and quality of academic performance.

- Seifert (2004) that mechanisms used to protect self-worth tend to offer any excuse other than ability for poor performance: Students would rather withdraw effort and feel guilty than ashamed.

- Dweck (2000) that communicating a sense of self-worth motivates students towards gaining confidence in their abilities, nurturing the belief that ability is not *fixed* but *incremental* so that they can activate their own agency.

Table 10: Generation of evidence for affective variables related to feelings of incompetence in front of peers and teachers

Generating evidence for affective variables	Question functions	Questions used in questionnaire	Intervention focus:
4. Develop confidence in their own abilities and not feel incompetent in front of peers / teacher *Looking for a sense of openness, trust or value that supports trial and error, thereby building confidence and self-efficacy beliefs that underpin ownership practices.*	To identify students' sense of value and support when making mistakes.	**C6.** In Domain making mistakes makes me feel silly in front of my classmates and teacher.	Developing an ownership mind-set. *3a*

5. **Learning environments that highlight the demonstration of success or focus on intellectual development and improvement** based on the research findings of:

- Turner, Meyer, and Schweinle (2003) that dominantly 'co-operative' learning approaches nurture mastery and learning goals, focus on intellectual development and improvement as reasons for engagement, use motivational discourse and encourage proactive help-seeking.

- Maclellan (2008) that dominantly 'competitive' learning approaches nurture performance goals with students more likely to engage in self-handicapping behaviours such as cheating, avoiding help or withdrawing effort.

- Hidi and Harackiewicz (2000) that students who strongly endorse both performance and mastery goals have higher levels of self-regulation and grades

from students who endorsed only one or neither goal suggesting that mastery and performance goals can interact positively to promote adaptive behaviours.

Table 11: Generation of evidence for affective variables related to learning environments that focus on the demonstration of success (performance) or intellectual development and improvement (mastery)

Generating evidence for affective variables	Question functions	Questions used in questionnaire	Intervention focus:
5. Learning environments that highlight the demonstration of success or focus on intellectual development and improvement *Looking at perceptions that students hold about their learning environments as predominantly 'co-operative' or 'competitive'.* *Perceptions of learning environments that are process orientated towards quality outcomes rather than achievement alone are more likely to support ownership practices.*	To establish what the balance is of mastery or performance attitudes towards the demonstration of success.	**C7.** In Domain lessons success is seen as improving your understanding or skills. **C8.** In Domain lessons success is seen as getting higher scores or grades.	Developing an ownership mind-set. *3a* Developing an ownership mind-set. *3a*

6. **Autonomy supportive language used to support students' perceived control of learning processes. (verbally negotiating ownership)** based on the research findings of:
   - Vansteenkiste, Lens, and Deci (2006) that language of instruction plays a significant role with controlling environments highlighting overt coercive strategies through controlling language or through inducing guilt or shame and autonomy supportive environments highlighting supportive language which increases conceptual learning.
   - Deci and Ryan (1994) that in controlling or autonomy-supportive environments the style and language with which the tasks are administered significantly influences motivation.
   - Turner, Meyer, and Schweinle (2003) that motivational discourse enhances challenge, persistence and a constructive view of error and affective discourse encourages positive emotions and alleviates frustration.

- Pintrich (2003) that feedback on the process of learning highlighting effort, strategies and potential self-control of learning helps to nurture control beliefs (ownership).
- Boekaerts (2002) that encouraging and recognising effort invested by students by focussing on achievements and the strength of the solution plan (process orientated feedback) helps them view themselves as responsible for their own learning.

Table 12: Generation of evidence for affective variables related to autonomy supportive language to support students' perceived control of learning processes

Generating evidence for affective variables		Intervention focus:
6. Autonomy supportive language to support students' perceived control of learning processes *Looking for occasions where autonomy supportive language is used (verbally negotiating ownership and explicitly communicating expectations of responsibility to manage work).*	**Observation only:** *Autonomy supportive language is not evidenced through the questionnaire, but forms part of the intervention process.*	Developing an ownership mind-set. *3b*

Interventions for implementation relevant to these variables:

Intervention 3a (informed by variables 1-6)

To encourage students to view failure as the signal to look for more strategies by focussing instruction on learning processes that lead to quality outcomes, providing opportunities for think aloud problem solving and encouraging proactive help-seeking. *(Establish a class environment that positively promotes trial and error as part of the learning process).*

Prompts for consideration:
- *Getting students engaged in <u>resolving</u> mistakes and <u>determining resolutions</u> made in modelled answers.*
- *Focus responses to mistakes on <u>the process alone</u> not the student who made them to realign attitudes towards the need to gain more knowledge and away from feelings of incompetence (their lack of ability).*

- *Positive recognition for trial and error by <u>recognising effort</u> and <u>praising solution plans</u> rather than focussing predominantly on getting it right or wrong.*
- *Make explicit the expectation for students to resource their need for help through any resources that are at their disposal (peers, books, teacher, internet etc.).*

<u>Intervention 3b</u> (informed by variable 6)

To communicate instruction for tasks and learning activities through language that implies choice and responsibility on the part of the learner to engage in the learning rather than demand compliance.

Prompts for consideration:
- *Use of suggestive language such as 'you can / could' or 'have you tried.....?'*
- *Positive negotiating language that <u>relates their desired achievement goals with their present achievement in class</u> coupled with <u>suggested changes</u> to their approach to help them **direct their improvement** more effectively **themselves.***

<u>4. Feedback for ownership</u>

Intervention to promote positive feedback that enables students to self-regulate more accurately and experience greater ownership, and personal impact, on achievement. For this intervention focus four key variables affecting *ownership* were identified:

1. **Feedback that identifies strengths in order to build confidence and identifies weaknesses with specific things to do in order to improve them** based on the research findings of:
- Boekaerts (2002) that teachers need to focus more on achievement and strengths highlighting effort, strategies and potential self-control to develop students' motivational beliefs.
- Black and Wiliam (2009) that effective teaching is diagnostic, interpreting a student's contribution in terms of what it reveals about their thinking and motivations and prognostic in choosing the most effective response.

- Wiliam (2007 & 2011) that feedback needs to give implicit or explicit advice on actions for improvement and is only effective if the learner can decode and use it to affect future performance.
- Black and Wiliam (2009) that feedback needs to move a learner forward activating ownership by establishing where they are in their learning, where they are going and what needs to be done to get there.
- Kluger and DeNisi (1996) that effective feedback is task orientated, detailed and involves goal setting.
- Dweck (2000) that setting learning goals allows teachers to become more rigorous in setting high standards focussing on critical feedback: information about what is wrong with the current work and how to improve it.

Table 13: Generation of evidence for affective variables related to feedback that identifies strengths and weaknesses and provides actions for improvement

Generating evidence for affective variables	Question functions	Questions used in questionnaire	Intervention focus:
1. Helps identify weaknesses with things to do to improve them and strengths to build confidence *Looking at advice and feedback that builds confidence and provides actions to improve standards that students can utilise to drive their own progress (take ownership).*	To identify feedback that can be acted upon to gain improvement.	**D1.** The teacher helps me see what I can do to improve my work.	Developing an ownership mind-set. *4a*
	To identify competence valuation (building the student's confidence in their own ability to achieve).	**D2.** The teacher helps me see the things I have done well.	Developing an ownership mind-set. *4a*

2. **Feedback that helps students gain a realistic grasp on their standard** based on the research findings of:
- Brand-Gruwel and van Merrienboer (2008) that students need regular instrumental guidance on their task performance and tools to plan, monitor and assess their performance in order to build an honest view of their strengths and weaknesses and formulate effective learning goals.
- Pintrich (2003) that for effective self-regulation students need calibrated beliefs on knowledge, efficacy and competence.

Table 14: Generation of evidence for affective variables related to feedback that helps students gain a realistic grasp of their standard

Generating evidence for affective variables	Question functions	Questions used in questionnaire	Intervention focus:
2. Help students to gain a realistic grasp of their standard (Clear, understood, perceived as honest and critical) *Looking for some indication that students believe they receive honest feedback that helps them gage their standard more clearly.*	To establish whether students believe that they have a realistic grasp on their standard.	**D3.** The teacher helps me to get a realistic view of what standard I am working at.	Developing an ownership mind-set. *4a*

3. **Feedback that encourages perseverance recognising that achievement is due to effort invested** based on the research findings of:

- Hidi and Renninger (2006) that emerging individual interest is supported by models, peer or expert support and encouragement to persevere.

- Boekaerts (2002) that students set thresholds for determining sufficient effort investment but effort is misdirected unless students have the capacity to initiate a solution plan and then to judge whether it is worth persisting with or giving up on because it leads nowhere.

- Rosenshine and Meister (1992) that support systems provide clear directives giving confidence to the learner that their invested effort is being utilised to best effect.

- Hijzen, Boekaerts, and Veder (2007) that self-regulation occurs when students can see value for increasing effort in order to attain their goals.

- Boekaerts (1993) that students are enabled to increase their competence through self-regulation using a dual processing approach that integrates both motivational and cognitive perspectives activated through motivational beliefs, capacity, interest and effort beliefs.

Table 15: Generation of evidence for affective variables related to encouragement to persevere through effort investment

Generating evidence for affective variables	Question functions	Questions used in questionnaire	Intervention focus:
3. Encouragement to persevere / recognition of achievement due to effort invested *Looking for perceptions of developing competence and perceived value for investing effort to raise standards.*	To establish the provision of encouragement to attain more through invested effort into skills acquisition.	**D4.** My teacher encourages me to try achieving more by improving my skills in Domain.	Developing an ownership mind-set. *4a*

4. **Evidence self-checking for pace and standard** based on the research findings of:

- Nota, Soresi, and Zimmerman (2004) that self-regulated learning strategies include realigning standard aimed for, planning steps towards goals and seeking information through the use of supportive resources.

- Lodwyk, Winne, and Jamieson-Noel (2009) that to help students regulate and adjust strategies they need a proactive attitude towards seeking informational resources.

Table 16: Generation of evidence for affective variables related to self-checking for pace and standard

Generating evidence for affective variables	Question functions	Questions used in questionnaire	Intervention focus:
4. Evidence self-checking for pace and standard *Looking for resource provision and evidence of self-checking / monitoring.*	To identify the breadth of resources available for self-regulation of pace and standard.	**D5.** What do you do to check how well you are doing in Domain : ○ I don't check how well I am doing. ○ I compare my work to my classmates. ○ I compare my work to examples of high quality work ○ I check my work against the examples in the text book ○ I check or mark my own work (using assessment criteria or answer sheets) ○ I ask the teacher to check my work. ○ Other (please explain)………………	Operationalizing ownership. *4b*

Interventions for implementation relevant to these variables:

Intervention 4a   (informed by variables 1-3)

Encourage students to persevere by conveying genuine information about developing competence, recognising effort invested and pushing skills acquisition so that the high quality outcome ignites further interest. Feedback needs to be honest, critical, process orientated and specific so that students understand what they have to do to complete the task successfully.

Intervention 4b   (informed by variable 4)

Encourage students to self-check on pace and standard through the provision and identification of alternative resources.

Chapter 3

Method

The intention in this study is to operationalize theoretical constructs around ownership practices within the empirical setting of secondary school classrooms (Denscombe, 2002).This study has been structured as a *design experiment* primarily because it addresses theoretical understandings about the nature of learning in context (Collins, Joseph & Bielaczyc, 2004) and encompasses classroom experiments with teachers assuming responsibility for instruction (Cobb, Confrey, diSessa, Lehrer, & Schauble, 2003). Using a design experimentation approach provides greater opportunities to deepen understanding about *ownership* practices and develop an explanatory framework that involves both the process of learning and the means to support it (Cobb et al, 2003). In the tradition of design experiments and educational innovations I have used a mixed method approach combining quantitative and qualitative assessments (Collins, Joseph & Bielaczyc, 2004). I have built in opportunities for clarification and comparison of data provided by *attitudinal questionnaires* completed by students at the beginning and end of the study, *interviews and observations* monitoring intervention implementation by teachers, and *reflective group interviews* with students at the end of the study. This design provides richer data by combining both pre-structured, quantitative data collection methods that emphasise the quantification of factual evidence in terms of the social sciences (Kvale, 1996) with emergent qualitative approaches that explore and expand understanding of ownership practices within a 'real life' context (Presser, Rothgeb, Couper, Lessler, Martin, Martin & Singer, 2004). In terms of more general measures of attitudinal change within developing an *ownership mind-set* and *operationalizing ownership* the quantitative data simply provides an indicator of change in these categories rather than a measure of change with the qualitative analysis used to examine the details of the changes presented.

Context influences research methods and data samples for analysis in field work (Valero & Vithal, cited in Halai &Wiliam, 2011:2) and this study has been no exception. The school context changed during the final stages of gaining acceptance for my research proposal with the premature retirement of the Headteacher, who had played a strategic

role in ensuring I had full backing and support to run the intervention programme. This reduced the window for conducting the study to the second half of the summer term before new management could potentially halt or impose restrictions on the project. This was a shorter time frame than I had originally anticipated. However, as my research focuses on *instigating* ownership through intervention rather than necessarily examining the effects of a sustained response, there was good reason to believe that it would work within a 6 week period (5 weeks of intervention with students). Furthermore, I have approached this thesis from the premise that students want a stake in defining their own educational paths and that the interventions I propose 'unlock the door' inviting them to activate their ownership rights and redefine their personal goals. Further contextual factors that impacted the research design and implementation were experienced when selecting sample groups of teachers and students as the final set of participants generating the data for analysis were constrained by which teachers volunteered to be part of the study, corresponding class sizes and the availability of the participants for data collection (Breakwell, Hammond, Fife-Shaw, & Smith, 2006). The final sample groups were selected based on the greatest potential breadth in data for analysis and comprised of 7 teaching groups of year 10 students in a range of subjects, some of which were grouped by ability and others were mixed ability classes with teachers of varied experience, age and gender.

Halai and Wiliam (2011) discuss the way action research can bridge the gap between knowledge and action and is affected by multiple changes in context. This was experienced through the realities of negotiating implementation of interventions with teachers. To bridge a gap suggests that a specific need, or gap is uncovered and it is this diagnostic aspect that I wanted to focus on in this study. The interventions needed to evolve from reflection and diagnosis and implementation needed to be aligned with the teachers' personalities and teaching styles in order for them to be successfully adopted, owned and valuable in affecting change in student behaviour. To this end the research design was set out in four phases:

Phase 1 involved getting the teachers to understand the purpose of the interventions and reflect on their own practice to identify related areas where greater motivation for taking ownership could be developed.

Phase 2 involved identifying present levels of motivation for taking ownership from the perspective of the students (questionnaire 1) and used this information diagnostically to support the intervention programme by the dual function of recognising good practice in motivating ownership and identifying the weaker areas.

Phase 3 involved actively 'bridging the gap' through interviews and observations to build an understanding of what motivation for taking ownership in teachers' classroom practice could look like and enable them to then build a sense of ownership in their students.

Phase 4 involved reflection on changed attitudes and behaviours by all participants, diagnostically through questionnaire 2, and reflectively through discussions with teachers and students. This final stage served an important function in identifying the perceived impact and personal progress in perceived ownership made during the intervention programme.

To explore the various phases of implementing interventions designed to increase motivation for taking ownership and to consider their impact, I have chosen to address the following research questions:

1. **How do interventions designed to increase motivation for taking ownership play out in different classrooms within a secondary school context?**

2. **Do teachers perceive a change in students' behaviour towards taking ownership for their learning as a consequence of implementing interventions designed to increase motivation for taking ownership?**

3. **How are students' attitudes towards taking ownership for their learning altered as a consequence of interventions designed to increase motivation for taking ownership?**

In order to explore these research questions I have used a mixed method approach towards data collection: questionnaires on attitudes and behaviours related to ownership practices; semi-structured interviews with staff to support and monitor implementation of interventions; observations to monitor fidelity of implementation and student

behaviour in the context of the classroom; and student group interviews to review their perceptions and experiences of the interventions.

Interviews

The semi-structured interviews had an element of progressive focusing which was co-constructed through dialogue between the interviewer (myself) and the interviewees (teachers in the study) (Kvale, 1996). Frequency of meetings would ideally have been twice a week but logistically this was quite difficult to achieve as staff had other commitments, trips interfered with classes and there were a couple of days with staff absences. However, a compromise was established that ensured meetings occurred between each teacher-student contact time or after a maximum of 2 lessons.

The interview forum needed to be a place of genuine and honest dialogue in order to negotiate some ownership by the teachers for reconstructing the proposed interventions in a way that would fit the cohort, topic under study and minimise their own self-consciousness in trialling the new approaches. It was essential for their trust in me and the process of implementing the proposed interventions that they perceived these interviews as safe and supportive. Therefore, I sought to strike a balance between cognitive knowledge seeking and ethical considerations around emotional interaction (Kvale, 1996) as there was definitely a need to support emotional responses to the proposed interventions in order to nurture trust and to enable personal interpretations that matched the teacher's personality and teaching style.

The programme of semi-structured interviews took the format of a preliminary discussion that lasted approximately one hour. During this time the various interventions and thematic groupings within the study were explained and discussed in detail as was the relationship between the questions on the questionnaire and the interventions (as set out on the teachers' intervention support sheets: Appendix B, p 167). Examples from my own practice were also shown to give student based evidence to support understanding of how the interventions could be interpreted in a given context. In the second interview, teachers in the sample were asked to identify which interventions they felt applied to their particular classes and the topics being taught and

a discussion developed around how they intended to change their practice in order to implement these interventions. The third interview focussed on students' responses to the initial questionnaire and was predominantly a feedback session to realign selected interventions and acknowledge areas where strong motivation for taking ownership was already in place. The self-assessed areas for intervention and those raised by the first questionnaire are set out on page 80 (Table 18). All subsequent interviews followed a structured format with pre-set questions (appendix C, p170) to prompt feedback and allow for discussions on changing approaches towards implementing the interventions in order to maximise their impact on students' perceived ownership of the learning. The effectiveness of these interviews relied on interpersonal conversations where knowledge and understanding of how the reality of implementation and indeed the refinement of the interventions themselves evolved from the dialogue, (a hermeneutical approach) (Kvale, 1996).

Kvale (1996) raises the issue that interviews are not reciprocated interactions between two equal partners but that one partner is usually more dominant than the other. This was most evident when listening back to the interviews and witnessing changes in my own behaviour and that of the teachers as the intervention programme developed and as we established our roles and built respect for each other. Interestingly, the dominant partner tended to shift between myself as interviewer and the teacher being interviewed at different points in the programme dependent on what was being tackled or discussed or which teacher was being interviewed.

At the end of the study a series of five semi-structured group interviews were conducted to gain some experiential evidence from the students' perspectives on interventions (questions used in appendix C, p170) and to unpack any unexpected changes in attitude that had emerged in the second questionnaire. For the student interviews I chose to group students together according to domain experience where possible and this resulted in both mixed and similar ability groups, mixed and single gender groups and inconsistent group sizes. Student participation was voluntary and by invitation based on observed changes in behaviour or attitude during the intervention period. With such mixed groups of students I reinforced their importance by defining them as the representative source of information for their domain. This had the added effect of

enhancing their efforts to supply experiential evidence but was not sufficient in some cases to help them overcome power imbalances between particular pupils which became evident when more than one representative of a domain was present in the group.

Transcription

There are always difficulties in transcribing an animated discussion as words on a page are devoid of context and lack facial expression, body language and intonation which can change their meaning. Kvale (1996) suggests that transcriptions only need to be detailed, ad verbatim, if they are being used for sociolinguistic or psychological analysis. As this is not the case for this study I have chosen to transcribe the material provided from interviews in three ways: Firstly, to look at the *narrative* accounts for general similarities and differences in experiences perceived by students and by teachers when implementing the interventions or observing their impact; Secondly, to examine how interventions within thematic sections were being interpreted and developed by different teachers or experienced by students through a process of *categorisation*; And lastly, through *interpretation* by looking at the deeper speculative aspects that surface from the transcripts in relation to concepts around ownership. *Interpretation* is inspired by hermeneutical philosophy and allows recontextualizing what has been said in to a specific conceptual context (Kvale, 1996). Where quotations form the transcribed interviews have been used in this thesis they have been faithful to the original oral account although unnecessary repetition of words has been suppressed and names of students or requested confidential statements have been omitted.

Questionnaires

The attitudinal questionnaire was designed in four thematic sections to measure particular related variables and allow exploration of concepts and constructs around ownership (Oppenheim, 1992). In the theoretical framework I demonstrate in detail what function each question plays in exploring ownership and how it relates to both research literature and proposed interventions. I also highlight the dual function of the questionnaire in providing data on changes towards developing an *ownership mind-set* and *operationalizing ownership*, as well as providing an indication that targeted

interventions were being trialled in classrooms. This design emphasises substantive rather than methodological concerns to generate meaningful data that could have some bearing on my research questions (Presser et al, 2004).

The questionnaires (appendix D, p173) were made subject specific by replacing 'Domain' with the subject name to increase interest and clarity of domain focus. Questions were arranged in thematic groups and set on individual pages to retain continuity of thought when answering (Oppenheim, 1992) and the layout ensured similar styled questions had response boxes of equal size to give them a sense of equal weighting (Breakwell et al, 2006). It took students between 10-12 minutes to complete questionnaire 1 and 8-12 minutes to complete questionnaire 2. The timings were dictated by the allocation of time provided by the school for the conducting of this study to ensure minimum impact on teaching time in the classroom. There were 28 questions and I wanted to ensure that the sample size exceeded three times this number in order to establish greater validity in my data set. Consideration was given to wording and sequencing of questions to reduce unintentional bias (Oppenheim, 1992; Foddy, 1993) and improve validity (Breakwell et al, 2006). Closed questions were used to reduce ambiguity and support objective coding although regardless of measures taken there will always be an element of forced choice, lack of understanding or misinterpretation of the question by respondents *(*Breakwell et al, 2006*)*. To minimise the impact of this I ran a pilot study 'pre-test for understanding' (Foddy, 1993) with a group of 5 year 10 students.

Students in the pilot completed the first draft of the questionnaire. Each student focused on a different domain and made notes beside questions to explain how they had interpreted them. Immediately following completion the students discussed their responses in a recorded interview where it was established what meanings had been attached to the various questions. It revealed a wide range of interpretations pertaining to context and time specific memories upon which their judgements were being made. The pilot confirmed that many of the questions had the intended interpretation but certain words required changing to language more familiar and accessible to the majority of students taking part (Oppenheim, 1992). The word 'feedback' caused the greatest misunderstanding in that it only implied written comments or grades to all

students in the pilot study. To ensure that verbal, written and resource based feedback was considered when answering questions the intended definition was made explicit in the heading for that section of the final draft. The pilot also raised the importance of conducting the questionnaire in domain specific lessons to ensure memories focused clearly on that domain and that the second questionnaire needed to emphasise the time frame for recalled experiences (intervention period).

With my intention to compare attitudinal and behavioural responses in order to place them on a continuum in relation to each other, in relative, not absolute terms (Oppenheim, 1992) it seemed appropriate to use attitudinal scales (Creech, 2010). Likert's attitudinal rating scale was used for 23 questions (Cohen, Manion & Morrison, 2007), a semantic differential rating scale was used for 4 questions (opposite adjectives at each end with choices made on a number line between them), and 1 question was an inventory of self-regulation activities with an 'other' option for open ended responses (Oppenheim, 1992). To avoid including a middle 'uncertain option' I adapted the Likert scale of 5 or 7 intervals to 6 and changed the 'mostly' option to 'slightly' as students from the post MOE2 study in reflective interviews had reported that 'mostly agree' sounded stronger than 'agree' and therefore interfered with the consistency of weighting or progressive order and increased the possibility of inconsistent data.

There is a lack of criteria for validating attitudinal scales in part due to the different frames of reference and the strength of response people use when answering, for example one person's strongly agree could be another person's agree (Foddy, 1993). Furthermore, the degree of validity (factual truth about the present or future) is limited by the degree of reliability (consistency of a measure) (Oppenheim, 1992). Some reliability can be established if correlation is shown between responses to sets of questions related to the same attitude (Oppenheim, 1992) or general patterns and trends emerge in the data (Kemp, 2001). To further address this, questions were designed requiring negative and positive responses to confirm the same attitude with reversed weighting applied when using the data for analysis (Cohen, Manion & Morrison, 2007).

Accuracy and reliability of measures for analysis were carefully monitored: Each student was coded to allow demographic data to be aligned with questionnaire responses

post completion and each response was given a case number. This data could be traced and verified through every filtering process via a central data sheet. Name tags were paper clipped to each questionnaire to ensure correct distribution, completion was done in a quiet, controlled environment and all tags were removed before collection to retain confidentiality. Several random checks were made after each new procedure to confirm accurate alignment of data and all coding and data entry was double checked for accuracy by an independent observer.

Observation

Observation has provided a vital function in this study. It has enabled critical examination of student behaviour in lessons revealing responses to intervention and emergent patterns of behaviour not addressed in the initial framework. The observations provided unfiltered access to data on students' behaviour rather than relying only on the verbal reports provided by teachers. The physical presence of the observer acted as a reminder to the teachers of their role in participating in the study and it could be argued that simply by undertaking observations increased fidelity as well as having the function of measuring fidelity in implementing interventions. It was through this process that fine tuning of the interventions trialled could be discussed particularly in terms of the reactions being generated by students as it became apparent that teachers, simply by the fact that they were so involved in the teaching, were not always aware of how their interventions were affecting students around the room. Teachers also found it helpful to refer to events that occurred in the observed lessons to clarify how they were tackling implementation in other lessons.

The format taken in recording observations was based around the affective variables and question functions identified in the theoretical framework. Two smaller sets of observations were also carried out on each occasion recording types of help seeking activities used by students and the level of engagement in learning at 10 minute intervals throughout the lesson (60 minute lesson).

Participants in the study

Participants for this study were selected from an 11-18 State Comprehensive School situated in Berkshire, with approximately 1100 pupils on roll serving both affluent and disadvantaged catchment areas. Teaching staff of students in year 10 (14-15 year olds) were invited to volunteer for the intervention project and out of the 15 who volunteered 7 were selected. My selections were based on gaining the broadest range of subjects taught including the core subjects of Maths, English and Science in order to see whether the interventions were versatile enough to accommodate the needs of very different domains. I chose a range of class sizes to look at whether implementation was affected by numbers of students in a group and cumulatively to provide the greatest number of students with the least overlap in the domains chosen for the study. I also ensured that a full range of student abilities and profiles within the year 10 cohort as a whole were represented in the study to ensure a more accurate and richer data set. By using these different selection processes the final sample comprised of 127 out of the full cohort of 188 students. The 7 teachers had subject specialisms in English, Food technology, Geography, History, Mathematics (2 groups) and Physics. I also included my own Art class of 17 students as I wanted to look at responses from students who I believed exhibited high levels of ownership and to gauge firstly what this looked like in terms of questionnaire response and secondly to identify natural fluctuations in questionnaire responses between the first and second questionnaires with no real changes made to the delivery of lessons by the teacher. Also of interest was the fact that 9 of these students were involved in other subjects where intervention was taking place which may have affected their learning behaviours in Art.

The staff selected for the programme ranged in experience, age and gender providing richer data with respect to differences in implementation and their collective breadth of subjects helped to establish any similarities or domain specific restrictions for students in developing their sense of ownership. An overview of the teachers' demographic data and sample unit sizes is set out in table 17.

Table 17: An overview of the teachers' demographic data and sample unit sizes

Subject teachers in the sample	Gender	Age group	Years in teaching	Class size	Sample units (% of group)
English Group taught: set 3	Female	30-35	11	25	22 (88%)
Food technology Group taught: mixed ability	Female	50-55	3	20	16 (80%)
Geography Group taught: mixed ability	Female	25-30	6	28	26 (93%)
History Group taught: mixed ability	Male	30-35	8	24	22 (92%)
Mathematics Group taught: set 1	Female	50-55	30	34	30 (88%)
Mathematics Group taught: set 4	Female	25 -30	5	16	13 (81%)
Physics Group taught: mixed ability	Female	55-60	20	18	10 (56%)
Art (known group) Group taught: mixed ability				17	13 (76%)

The final sample units, as indicated above, were composed of those students who were present in lessons in the initial and final week of the study and had successfully completed all sections of both questionnaires. The reduction of sample sizes was as a result of unavoidable student absences despite several sessions arranged for those who missed the opportunity to complete the second questionnaire in their lessons and individuals chased daily but there were no real differences in attitude by these students from their peers in the initial questionnaire and therefore it could be assumed that similar changes would have been noted had they completed the second questionnaire. The final sample for analysis involved 109 students and accounted for 84% of all potential response cases involved in the intervention study (152 cases out of a potential 182) and was comprised of 80 females and 72 males with 11 registered for Free School Meals (FSM), 34 registered as Gifted and Talented (G&T), 24 with English as an Additional Language (EAL) and 28 identified by the school as having Special Educational Needs (SEN): 6 with speech, language or communication needs, 6 with learning disabilities, 5 with moderate learning difficulties, 7 with Behavioural, emotional and social difficulties and 1 on the autistic spectrum (one of these students has a statement of Special Educational Need as specified in the 1981 Education Act and two are on School Action Plus: where actions taken by the school have not resulted in

adequate progress made and therefore support has been sought from external services such as the Local Education Authority, Health Authority or Social Services).

Students for the end of study interviews were selected to ensure as close a representation of the range of student profiles and domains present in the full sample group. To this end the final interview sample of 17 students included: 12 females, 5 males, at least 3 students from each domain and 2 FSM, 6 G&T, 1 EAL and 3 SEN.

Ethical considerations

This study has been carried out in accordance with the Ethical Guidelines set out by BERA (2002; 2004) with the ethical implications on all parties involved directly and indirectly considered and addressed. Within Kvale's (1996) seven stages of ethical consideration this study has addressed issues of: Improving the human situation being investigated (*Thematizing)* where knowledge produced through the intervention programme has both intentionally and through personal report resulted in a positive impact on the experiences of teachers and students and the quality of learning; Consideration for the consequences on participants of being part of this study has been addressed through informed consent, clarity on how the data collected would be used in the final report and the confidentiality of students' responses protected through coding (*Designing);* Clarification of aspects within interviews that would remain confidential or be used as potential quotes in the report was communicated to both teachers and students and the requests made for particular statements not to be quoted were upheld *(Interview Situation)*; Oral statements were faithfully transcribed suppressing only unnecessary repetitions of words and those aspects that breached confidentiality or were requested to be omitted (*Transcription);* Depth and criticality of analysis were addressed both during interviews and post interview to enable participants to clarify how their statements were being interpreted and fully informed consent was given for the quotations from these interviews to be used in reporting (*Analysis)*; Information and knowledge that was presented in interviews with teachers has been triangulated through lesson observations and further student interviews (*Verification)*; and lastly the consequences that the published report could have on both the institution and the interviewees has been carefully considered when reporting my findings (*Reporting).*

Informed consent was obtained through letters to students and their parents and discussions with teachers regarding the project and purpose of the research. An opportunity to clear concerns was also provided at the start of interviews before the recorder was turned on. Care was taken to only communicate essential information to students completing the questionnaires in order to avoid biasing the data (Kvale, 1996). Although it was not made easy for students to opt out of completing the questionnaires those involved in interviews had greater opportunity to do so and from the original 28 who either volunteered or were invited for interview, 11 chose not to attend although 7 of these were students who had volunteered to come in during the holidays and who encountered transport difficulties and family commitments that stopped them from attending.

Confidentiality and *consequences* are not a major concern in this project as sensitive issues are not being addressed and the student sample is quite large thereby allowing confidentiality in questionnaire responses to be retained. However, to ensure students who have participated in interviews anonymity, they have not been identified in the report. The teachers are identified members of the project and therefore their contributions cannot remain confidential but consideration has been given to the use of quotes in order to reflect an unbiased and accurate analysis of reported experiences and avoid exposure of any students who are named during feedback sessions.

Conducting research in my own institution has held its own ethical challenges in that the quality of the data depends on my integrity and ability to maintain a professional distance (Kvale, 1996) particularly in terms of subjectivity and my relational position with the teachers and students. Because of the nature of this research and the short 5 week duration of the fieldwork portion of the study, it proved advantageous to be known by and have some knowledge of the teachers on my intervention programme. I needed them to both trust and respect me in order to place themselves in the vulnerable position of trialling new approaches under my critical observation and direction and be willing to expose themselves to critical evaluation by their students. I made a deliberate point in the first meeting to allow some narrative exploration of the teachers' life stories so that I could establish a rapport with them as individuals and gain some perspective on their professional approaches towards teaching. However, it cannot be overlooked that

working closely with staff I respect has resulted in growing relationships that may have subtly intertwined with both the outcome of my project and the nature of the data perceived in observations. To address this I tried to take a more objective documentary approach towards observations avoiding interpretive notations but discussed subjective and interpretive aspects with teachers in interviews to realign accuracy in reporting my findings. It was clarified to teachers that this study was not about coaching to make lessons outstanding but an investigative study to ascertain whether certain interventions increased ownership practices in students. To this end the teachers in the sample were collecting and reporting on observed changes as a direct result of their interventions and perceived themselves as both participants and research partners in the programme. The highly structured feedback sessions also reduced my personal input as the programme progressed although this was not the case with some of the teachers who needed greater clarification of ways to implement the interventions.

Chapter 4

Analysing the impact of the intervention study

At the start of the study teachers were given an outline of interventions, in a similar format to the boxes set out in the theoretical framework showing how interventions related to questions on the questionnaire and what evidence was being looked for (appendix B, p167). They then identified interventions they felt were relevant to them to focus on (Phase 1) and these were realigned to fit with the needs of the group based on results from the pre-intervention questionnaires (Phase 2). This highlights the centrality of the questionnaire to this study in steering the interventions and the diagnostic impact of particular question results revealing which part of each intervention needed the greatest attention. The self-identified and diagnostically allocated interventions are shown in table 18 on page 80. This phase relied heavily on the quantitative data produced by the first questionnaire as teachers were able to see how their students perceived their practice in direct relation to each question and where there was a potential for change through taking part in the study. In every case interventions selected for trialling differed from those originally selected partly as a result of the questionnaire. Additionally the motivation to trial the interventions genuinely was supported by the fact that further comparative data would be collected through the questionnaire at the end of the study and would provide some measure of their impact. Without this mixed method approach of qualitative reflective discussions and quantitative evidence of attitudes the study would not have had such a strong sense of purpose or degree of genuine participation.

During the intervention period, feedback interviews with teachers and observations of lessons were conducted and these formed the basis for honing stronger motivation for taking ownership in each teacher's classroom practice and building a sense of ownership in their students (Phase 3). These interviews focussed on the nature of the interventions being trialled highlighting the 'how' rather than the 'what' of implementation. This allowed teachers the opportunity to creatively apply their understanding of both the content and of the cohort being taught when considering implementation related to their specific learning contexts. This is an important aspect of

Table 18: Interventions identified by teachers prior to the questionnaire against those identified by the questionnaire data as worth trialling to support greater ownership

Sample teachers	Interventions identified by teachers prior to initial questionnaire results Teachers expressed interest in trialling:	Interventions identified as a result of the data provided by the initial questionnaire. All teachers trialled 3b: to use the language of possibility and implied choice.
English	1a - personal significance 2a - choice within tasks, scaffolding, time planning and checklists 4a - questioning as a means to moving learning forward 3a/4b - stand back more and allow them to do more	1b - to increase student involvement in planning tasks 2a - to increase choice and tools for self-management 2b - to make more explicit expectations of proactive learning behaviours 4b - to provide more focus on resources to aid self-checking on pace and standard
Food technology	1a - personal significance 2a - time planning and checklists	1b - to increase student involvement in co-constructing and planning tasks (exposing their need for new knowledge) 2a - to increase tools for self-management 2b - to make more explicit expectations of proactive learning behaviours 4a - to encourage effort through improving clarity of instruction
Geography	1b - co-constructing the unit of work 2b - expectations of learning behaviours 3a - positive approach to failure 3b - use of language not to tell but to negotiate 4a - specific feedback and incentives to invest effort	2a - to increase choice in strategies and access to higher attainment levels through task selection 2b - to make more explicit expectations of proactive learning behaviours 3a - building confidence through process orientated feedback and proactive help-seeking
History	1b - co-constructing the unit of work 2a - choice of method, planning across lessons 2b - expectations of learning behaviours 3a - assessing usefulness of strategies 3b - use of language not to tell but to suggest 4a - students understand what they have to do to complete the task successfully 4b - self checking with resources developed	2a - to increase choice in method, and provide scaffolding to enable students to access higher attainment levels 2b - to make more explicit expectations of proactive learning behaviours - through use of resources 3a - building confidence through praise – realigning learning through process orientated feedback.
Maths Set 1	None identified as it was felt that all were covered in present practice or were not applicable.	3a - positive approach to trial and error through process orientated feedback 4a - to encourage perseverance through specific actions for improvement
Maths Set 4	1b - co-constructing the unit of work 2a - choice of questions in sections with increasing challenge and planning over time 2b - make explicit expectations of learning behaviours 3b - using less controlling language 4a - specific feedback and incentives to invest effort	1b - to increase student involvement in co-constructing and planning tasks (exposing their need for new knowledge) 2a - to increase tools for self-management 2b - to make more explicit expectations of proactive learning behaviours - through use of resources 3a - building confidence through praise – realigning learning through process orientated feedback
Physics	1a - personal significance and interest 1b - involving students more in co-constructing the unit of work	1a - personal significance and interest- enabling students to learn new knowledge in interesting ways 1b - to increase student involvement in co-constructing and planning tasks 2a - to increase choice in representation of new knowledge and provide scaffolding and check lists 2b - to make more explicit expectations of proactive learning behaviours

this study as there was a diverse range of teachers and students involved in the study and the intervention programme needed to be robust enough to effect change even when there were different things happening in each classroom.

Interviews were arranged, where possible, to provide feedback twice a week. This resulted in varying numbers of feedback sessions attended by the teachers participating in the study: English: 7, Maths set 4: 7, Geography: 6, History: 6, Physics: 5, Food technology: 5, and Maths set 1: 3 (in the first two weeks).

During the period of intervention the group participating in the study being taught by the English teacher were looking at 'Conflict poetry' and undertaking a piece of related controlled assessment; the Food technology group were completing a practical coursework unit; the Geography group were looking at ways to present data and then undertaking a piece of controlled assessment using data that had been collected in May; the History group were looking at the impact of the Civil Rights movement on Black Americans from 1941-1975 and then undertaking a piece of controlled assessment building on this; the Maths set 4 group were looking at a range of topics including ratios, percentages and averages; the Maths set 1 group were looking at a range of topics including scale factors, transformations, and congruence; and the Physics group were looking at Hooke's' law and time line graphs among other things.

During the study all teachers were observed twice. The third observation for some of the teachers had to be cancelled due to absence or provided inaccurate data due to disruptions in the timetable or rooming. I have therefore chosen only two of the three observations for use in data analysis. At the end of the intervention period the post-intervention questionnaire was administered, groups of students were interviewed and teachers from the study were asked to reflect on their experiences in their final feedback session (Phase 4). Although further discussion on the reflective comments by teachers is beyond the scope of this thesis I have included some of their reflections in the appendix G (p179) because they provide an interesting insight into motivations for participating, the impact on their professional practice, the difficulties encountered and the effect on workload as a consequence of taking part in the study.

In analysing the qualitative data I am interested to see 'How interventions designed to increase motivation for taking ownership played out within different classrooms' (research question 1) and 'whether teachers perceive a change in students' behaviour towards taking ownership for their learning as a consequence of implementing the interventions' (research question 2). I explore these two research questions in greater detail in Chapter 5 under the four themes explored in the theoretical framework and questionnaire using data produced by teachers and students in interviews, lesson observations and quantitative data related to individual questions.

In analysing the data from the attitudinal questionnaires, which I do in this chapter, I am interested to gain an initial overview of the responses related to 'changes in students' attitudes towards taking ownership for their learning as a consequence of interventions' (research question 3), whether students noted changes in their classroom experiences that would suggest interventions were being trialled and to gain some understanding of the effects of interventions on subgroups within the full sample. This research question is also explored more qualitatively as part of the discussions in chapter 5. The emphasis when analysing the quantitative data is in determining overall change and where particular changes have occurred whilst using a qualitative approach to discuss these changes. To make sense of the argument related to developing an *ownership mind-set* and *operationalizing ownership* the quantitative data has been grouped together qualitatively to reflect these two categories rather than through statistical aggregation methods such as factor analysis.

Examining the data produced by the pre and post intervention questionnaires

I predominantly used Likert's attitudinal rating scale (Cohen, Manion & Morrison, 2007) which were coded using values ranging from: 6 (Very strong motivation for taking ownership) to 1 (Very Low motivation for taking ownership). There were some semantic differential rating scale questions (Oppenheim, 1992) which were coded using values ranging from 12 (Very strong motivation for taking ownership) to 1 (Very Low motivation for taking ownership) except A7 which was scaled symmetrically from the centre. When calculating the average changes in developing *ownership mind-sets* the questions were adjusted as follows: A1, A2, (7-A3), A4, A5, (6.5-|A7-6.5|), (7-C1), C2,

C5, (7-C6), C7, C8, D1, D2, D3, D4. And when calculating the average changes to *operationalizing ownership* the questions were adjusted as follows: A6, (A8/2), B1, B2, B3, B4, B5, (B6/2), (B7/2), C3, C4. These transformations were undertaken for ease of analysis and interpretation and are detailed in the table on page 175 in appendix E.

To enable greater fluency when discussing data provided by individual questions I have extracted the qualitative themes for which each question was designed to provide evidence:

Measuring changes in personal responses towards goal orientations, ability beliefs and effort beliefs (developing *ownership mind-sets):* A1: *subject importance for career aspirations*, A2: *personal interest*, A3adjusted: *prioritising learning over the opinions of peers,* A4: *understanding the importance of tasks*, A5: *interest in tasks,* A7adjusted: *perceived levels of challenge*, C1adjusted: *failure (not) signalling a lack of ability*, C2: *resolving problems through trialling solutions and increasing effort,* C5: *proactively seeking help*, C6adjusted: *confidence in openly making mistakes*, C7: *success defined as improved understanding or skill*, C8: *success defined as improved scores or grades*, D1: *understanding actions for improvement*, D2: *recognising things done well,* D3: *realistic understanding of standard*, D4: *feel encouraged to improve skills through effort investment*.

Measuring changes in engagement with teacher initiated self-regulation and ownership practices, *Operationalizing ownership:* A6: *opportunities to organise tasks with the teacher,* A8adjusted: *opportunities for active involvement in tasks,* B1: *provision of choice in tasks*, B2: *provision for choice of strategy*, B3: *provision of scaffolding for task completion*, B4: *time planning opportunities for successful task completion,* B5: *opportunities to use checklists for managing work*, B6adjusted: *provision of instructions that ensure understanding of how to complete tasks,* B7adjusted: *opportunities for continuing or extending previous learning at the start of lessons,* C3: *opportunities for think aloud problem solving*, C4: *opportunities for group problem solving*.

I include all eight sample groups in some comparison tables but when examining changes to attitude in direct response to the interventions I have chosen to only look at

the sample groups that experienced intervention for the full length of the study. This involved taking out the sample group for Art (my group who received no intervention), and Maths set 1 (receiving negligible intervention due to leaving the study after week 2). Where data is presented it is labelled as either 'Full sample' or 'Intervention groups'.

A feature of the responses was that they were domain specific, individual and reactive to context. This was evidenced through the differences recorded in responses provided by students who experienced intervention in more than one domain. The data from both questionnaires was analysed using Analysis of Variance (ANOVA) to determine the statistical significance of differences between sub-groups.

By gaining an initial overview of changes in student' attitudes as recorded by the pre and post questionnaires there is evidence to suggest that intervention resulted in changes beyond random variation. The overall measures of average change in motivations for taking ownership of learning as shown in figure 1 were small but worth noting as the increases in average responses within domains show that the intervention study made a difference and that this was a positive difference. As all the questions related in some way to developing ownership it could be argued that the interventions resulted in increased ownership. This is further substantiated by the negligible change recorded for Art where no intervention occurred and Maths set 1 where partial trial of open problem solving occurred before the teacher withdrew from the study in week two.

Figure 1: The Pre and post average scores for motivation for taking ownership in each domain (Full sample)

	Art	English	Geography	History	Maths Set 4	Foottech	Maths Set 1	Physics
Post	4.82	4.71	4.70	4.64	4.53	4.52	4.34	4.12
Change	-0.02	0.09	0.12	0.15	0.10	0.27	0.04	0.78
Pre	4.83	4.63	4.58	4.49	4.44	4.25	4.30	3.34

Post Pre
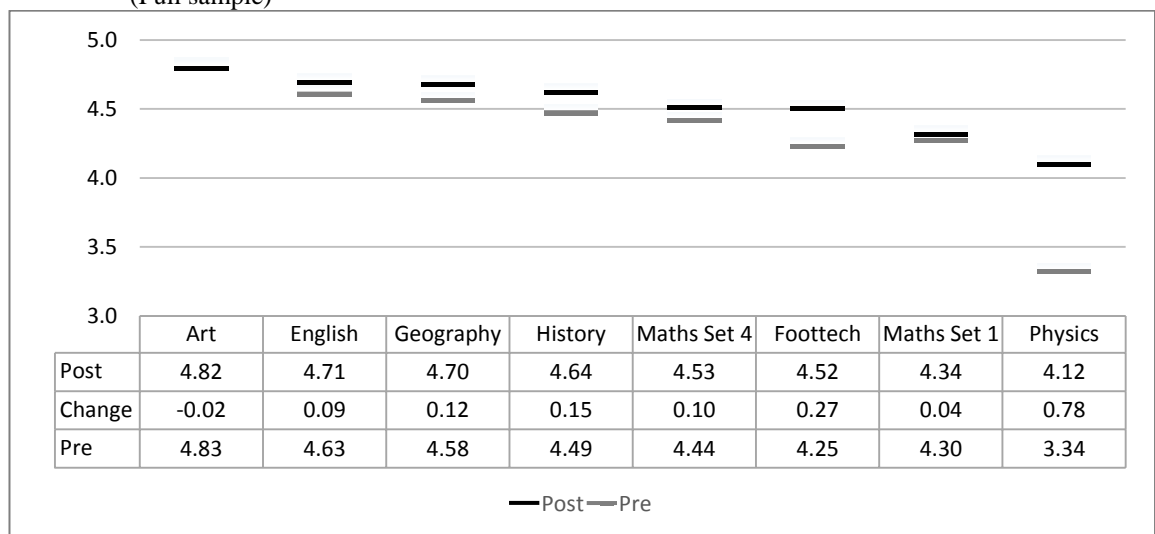
Additionally the changes that occurred were statistically significant as demonstrated in figure 2 showing average differences in responses for students receiving intervention and those not receiving intervention with error bars displaying the 95% confidence intervals ($\pm 1.96\ StdE$).

Figure 2: The average differences in responses for students receiving intervention and those not receiving intervention with 95% confidence intervals ($\pm 1.96\ StdE$) (Full sample)

	With Intervention	Without Intervention
U. 95%	0.28	0.09
Av Dif.	0.20	0.03
L. 95%	0.12	-0.04
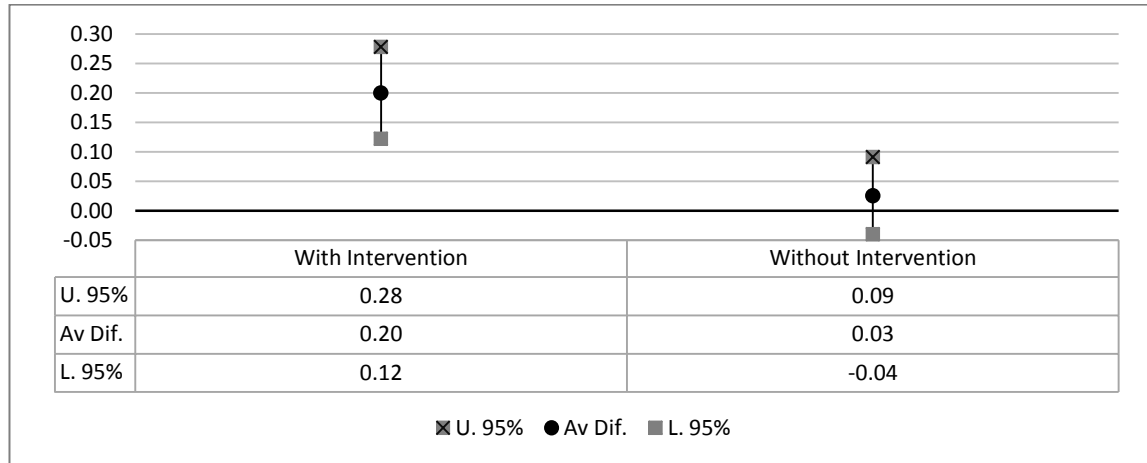
Figure 3 shows average changes within the qualitative categories of developing an *ownership mind-set* and *operationalizing ownership* for the full sample from pre to post intervention within each domain. Again the results for Art are negligible but for Maths set 1 it is worth noting that 82% of the positive change towards *operationalizing ownership* was generated by the only area of intervention trialled by this subject: *opportunities for think aloud problem solving* (C3), *opportunities for group problem solving* (C4) and *opportunities to organise tasks with the teacher* (A6).

Figure 3: The average change towards developing an *ownership mind-set* and *operationalizing ownership* from pre to post intervention within each domain (Full Sample)
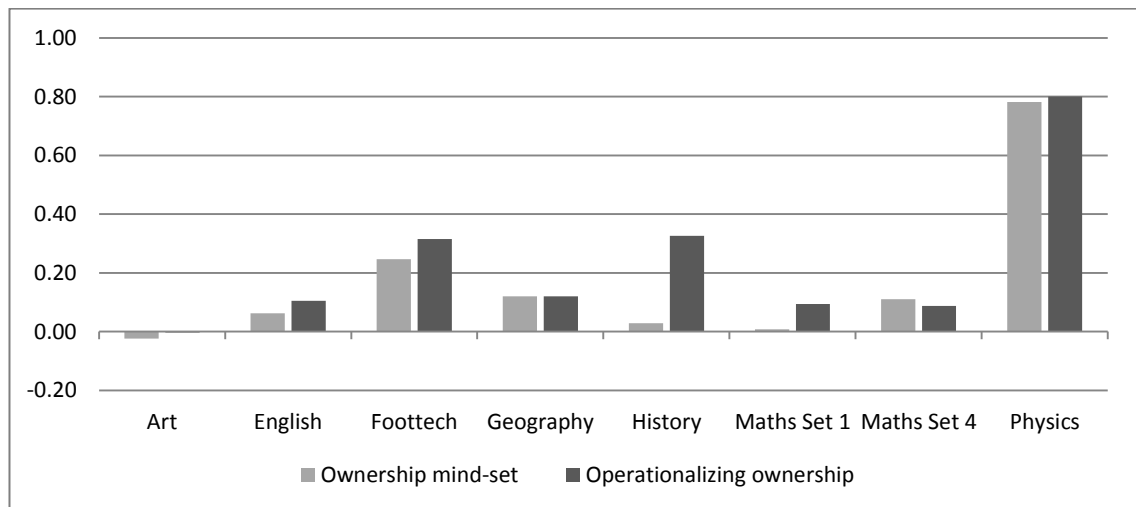
Examining other factors that may affect students responding to intervention

It was important to examine whether EAL, G&T, SEN, FSM, Gender, IQ or Target grades bore any significance on responses to the intervention. However, it should be noted that a limitation of this study was in the low student numbers within some of the categories as these present issues over the reliability of the data, as in the case of students with Free School Meals (7 students) and those with English as an Additional Language (11 students).

The effects of EAL, G&T, SEN, FSM and Gender were estimated using ANOVA to determine whether the average change for a student within a certain category was statistically different from the average change for a student not in that category (male v. female; SEN v. non-SEN) and then tested for significance. The graph demonstrating this (figures 4), have been plotted specifically to highlight these differences: when the y-axis equals zero it denotes no difference in the expected change for those within a particular category and the effects of a category are only statistically significant when the confidence interval ($\pm 1.96StE$) does not include zero.

The graph in figure 4 suggests that EAL, G&T, SEN, FSM and Gender did not significantly affect responses to interventions in this study.

Figure 4: The average differences in responses for EAL, G&T, SEN, FSM and Gender, for students receiving intervention (Intervention groups only)

	EAL	G&T	SEN	FSM	Male	Female
U. 95%	0.21	0.09	0.33	0.33	0.12	0.19
Av Dif.	-0.05	-0.14	0.12	0.00	-0.04	0.04
L. 95%	-0.31	-0.37	-0.10	-0.32	-0.19	-0.12

✕ U. 95% ● Av Dif. ■ L. 95%
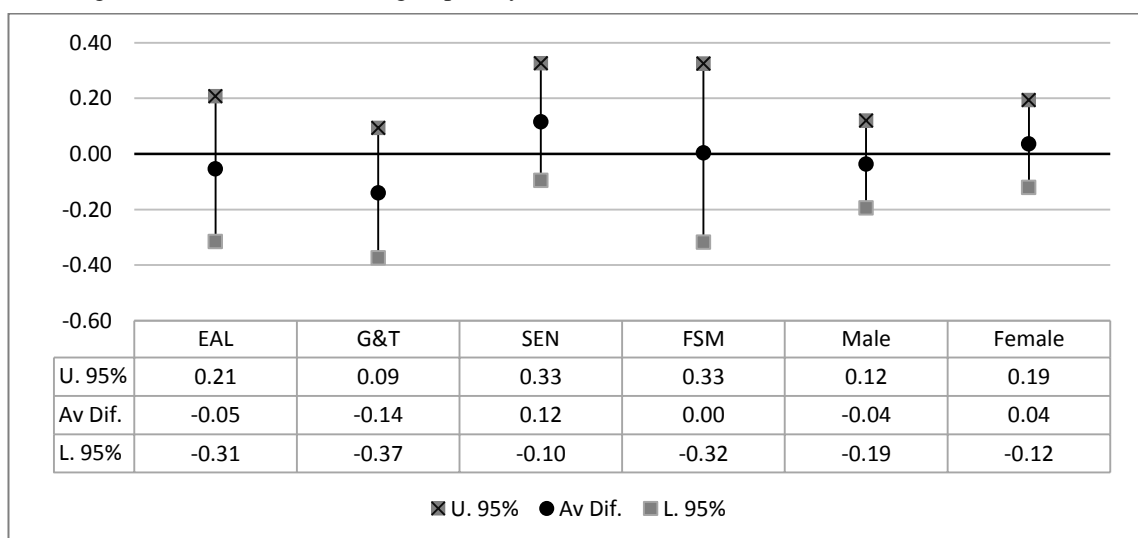
To examine whether IQ (Average CATs scores) or Target grades (estimated using data on prior attainment, school context and the Family Fisher Trust) bore any significance on responses to interventions the data was analysed using ANOVA, comparing the estimated change for students with a certain IQ range or Target grade to all other students. I chose to divide the Average CATs scores into small ranges to better determine its effect although this did decrease the reliability due to smaller sample numbers in each category. The graph in figure 5 confirms that there appears to be no significant relationship between IQ and attitudinal responses to intervention.

Figure 5: The average differences in responses for Average CATs scores for students receiving intervention (Intervention groups only)

	<85	85 - 89	90 - 94	95 - 99	100 - 104	105 - 109	110 -114	115+
U. 95%	0.31	0.41	0.32	0.29	0.56	0.23	0.24	0.37
Av Dif.	-0.03	-0.01	-0.03	-0.04	0.24	-0.10	-0.12	0.03
L. 95%	-0.36	-0.43	-0.39	-0.36	-0.09	-0.42	-0.47	-0.32
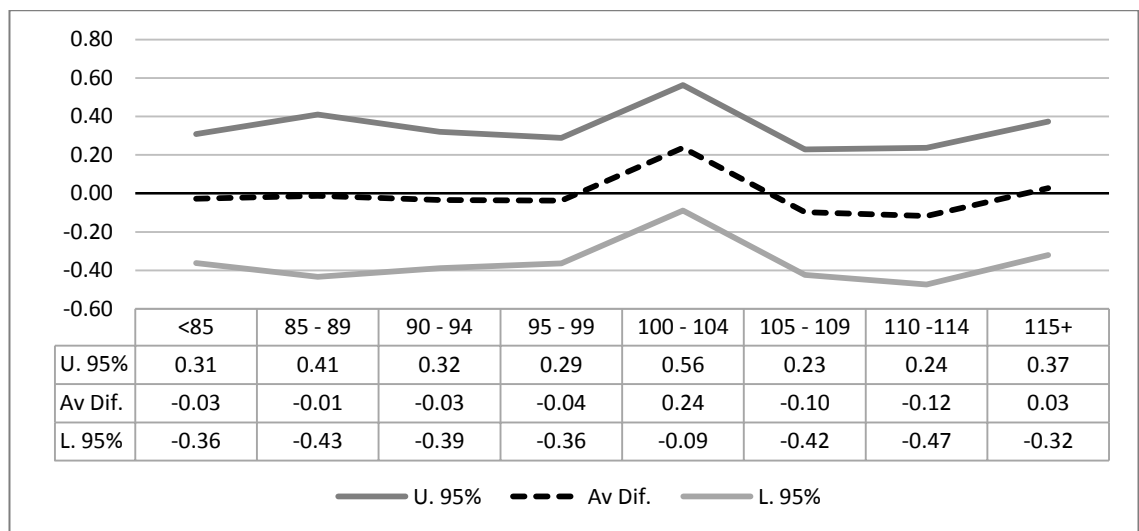
Figure 6: The average differences in responses for target grades for students receiving intervention (Intervention groups only)

	E	D	C	B	A
U. 95%	0.30	0.05	0.30	0.13	0.24
Av Dif.	-0.02	-0.15	0.12	-0.05	0.06
L. 95%	-0.33	-0.35	-0.06	-0.23	-0.12
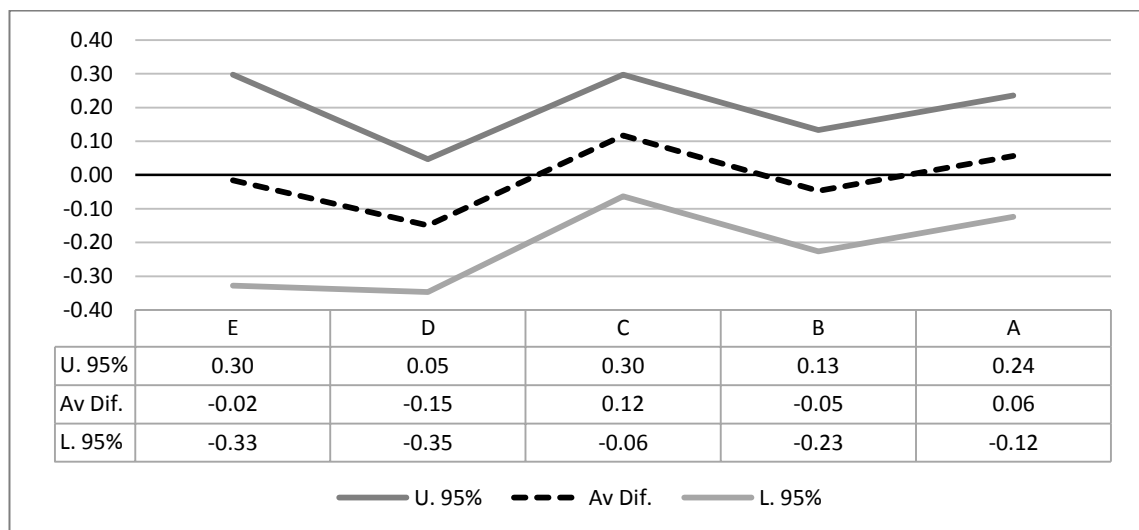
The graph in figure 6 confirms that there appears to be no significant relationship between target grades and attitudinal responses to intervention trialled in this study. (The grades for A* and A were grouped together for analysis due to the small number targeted an A*).

Although the results are not significant for the student group targeted a C general trends show more positive responses suggesting that the middle ability cohort of students may have gained the most from being part of this study.

In the same way the student group targeted a D (19 students) show general trends that suggest that there may have been a negative response to intervention. The reason for the overall negative response is not reflected in the data for IQ and therefore it is not because the student is by ability a D student but it could have something to do with the personal reaction of the student to being in the D target group and how this may have affected their sense of self-efficacy. Looking only at these students' questionnaire responses it became clear that the negative impact was mostly attributed to an increased focus on *success defined as improved scores or grades* (C8), a decrease in *success defined as improved understanding or skill* (C7) and greater awareness of their own ability hampering task completion (negative score for C1 therefore: *failure signalling a lack of ability*). Of interest was the change in *perceived levels of challenge* (A7) which tended to polarise after intervention suggesting that some students perceived their work to be less challenging whilst others in that same subject group perceived it to be more challenging. This shift up or down denoted a move away from the optimal levels of challenge and had a negative impact on the overall score. This may relate to the changes in perceived levels of skill experienced by students affecting their perceptions of the level of challenge presented by the tasks (Csikszentmihalyi, 1990).

Examining the proportional contribution of individual questions to the overall change recorded between pre and post questionnaires

To gain an overview of where the greatest recorded changes in individual questions occurred between the pre and post intervention questionnaires the average change for each question was put into rank order as shown in table 19.

Table 19: Questions ranked according to average change between the pre and post intervention questionnaires (Intervention group only)

Average Change		QUESTIONS FROM THE QUESTIONAIRE	Intervention focus
0.752	B5	We make checklists to help us organise and manage our work.	Operationalizing ownership. 2a
0.661	B7	When I get to my Domain lesson I am *usually* expected to: **Be ready to continue with my work - Wait to be told what to do**	Operationalizing ownership. 2b
0.477	D1	The teacher helps me see what I can do to improve my work.	Developing an ownership mind-set. 4a
0.422	A6	We organise how we are going to do tasks with the teacher.	Operationalizing ownership. 1b
0.358	B1	I can choose from different task based activities in Domain lessons.	Operationalizing ownership. 2a
0.275	D2	The teacher helps me see the things I have done well.	Developing an ownership mind-set. 4a
0.239	D3	The teacher helps me to get a realistic understanding of the standard I am working at.	Developing an ownership mind-set. 4a
0.239	B3	The tasks are explained in small steps to help me do them.	Operationalizing ownership. 2a
0.220	B4	The teacher helps us plan our time so that we can complete tasks by the deadline.	Operationalizing ownership. 2a
0.183	D4	My teacher encourages me to try and achieve more by improving my skills in Domain.	Developing an ownership mind-set. 4a
0.174	C5	My teacher wants me to ask for help when I need it.	Developing an ownership mind-set. 3a
0.174	A5	The work we do in class is interesting.	Developing an ownership mind-set. 1b
0.165	C7	In Domain lessons, success is seen as improving your understanding or skills.	Operationalizing ownership. 3a
0.156	C8	In Domain lessons, success is seen as getting higher scores or grades.	Developing an ownership mind-set. 3a
0.156	C6	In Domain making mistakes makes me feel silly in front of my classmates and teacher. *(inverted)*	Developing an ownership mind-set. 3a
0.156	C2	When I get stuck I think it is because I need to try harder to find another solution.	Developing an ownership mind-set. 3a
0.156	A1	I have to do well in Domain because I need it for my future career.	Developing an ownership mind-set. 1a
0.138	A3	What my classmates think of me is more important than doing well in Domain. *(inverted)*	Developing an ownership mind-set. 1a
0.133	B6	How well do you understand what you are expected to do in Domain? **Very clear instructions -Instructions are confusing**	Operationalizing ownership. 2a
0.128	A4	I understand why the tasks we do in Domain are important.	Developing an ownership mind-set. 1b
0.083	A2	I want to do well in Domain because it interests me as a subject.	Developing an ownership mind-set. 1a
0.073	A7	How challenging is the work you usually do in Domain lessons? **Too difficult - Too easy**	Developing an ownership mind-set. 1b
0.069	A8	How involved do you get in lesson tasks? **Fully involved - Not involved**	Operationalizing ownership. 1b
0.064	B2	The teacher encourages me to try working out the answer myself.	Operationalizing ownership. 2a
-0.046	C1	When I get stuck I think it is because I do not have the ability to do the task. *(inverted)*	Developing an ownership mind-set. 3a
-0.064	C4	Sometimes we work out how to do tasks by talking to each other in groups.	Operationalizing ownership. 3a
-0.147	C3	Sometimes we work out how to do tasks 'out loud' with the teacher.	Operationalizing ownership. 3a

There were 5 questions with high scores for average change (0.35-0.75) and 10 questions with moderate scores for average change (0.16-0.28). Looking at these weightings also enabled some analysis of where implementation of particular interventions had been more apparent or effective due to the direct relationship between questions in the questionnaire and aspects of each intervention. Additionally, it is worth noting that where the average change is high it suggests the original value for the pre-score was low.

The highest average change of 0.75 was in response to B5 confirming greater *opportunities to use checklists for managing work*. This also confirmed that intervention 2a was actively being developed in the classroom and that students acknowledged the checklist as a management tool. The next highest average change of 0.66 was in response to B7 confirming that teachers created more *opportunities for continuing or extending previous learning at the start of lessons.* This provides evidence that intervention 2b was actively being developed and that students perceived a greater responsibility to engage in learning activities at the start of lessons. The third highest average change of 0.48 was in response to D1 (*understanding actions for improvement)* confirming that feedback from the teacher had moved towards a stronger focus on identifying actions for improvement. This suggests that teachers were actively trialling intervention 4a and 3a which both address a change in language towards process orientated feedback. The fourth was question A6, with an average change of 0.42 confirming that students perceived more *opportunities to organise tasks with the teacher*. This also provides evidence that intervention 1b on co-constructing knowledge related to lesson tasks was being trialled and that students were becoming more active participants in their own learning. The last of this top group was B1, with an average change of 0.36 confirming that students perceived greater *provision of choice in tasks* confirming trial of, and positive responses to, intervention 2a.

Looking at the next group of 12 questions with moderate scores for average change (0.16-0.28) there was evidence to confirm increased perceptions of *subject importance for career aspirations* (A1) and more *interest in tasks* (A5), confirming trial and positive responses to intervention 1a and b. There were increased perceptions of *provision of scaffolding for task completion* (B3) and students experiencing more *time*

planning opportunities for successful task completion (B4) confirming implementation of intervention 2b. There were also increased perceptions of *resolving problems through trialling solutions and increasing effort* (C2), *proactively seeking help* (C5), increased *confidence in openly making mistakes* (C6), *success defined as improved understanding or skill* (C7) and an increase in *success defined as improved scores or grades* (C8). These give some evidence that a mastery approach to learning through intervention 3 was being developed in conjunction a performance approach towards increasing students' awareness of standards. This approach was supported by a shift in focus regarding feedback evidencing the trial of intervention 4a with teachers helping students *recognise things done well* (D2), gain a more *realistic understanding of standard* (D3) and *feel encouraged to improve skills through effort investment* (D4).

Considering the level of correlation between questions

There were correlations between changes in responses to questions as shown in table 20, but the interesting aspect of this data is in the nature of the questions that correlated with each other. I have chosen to cite those with the strongest correlations (> 0.40).

- D1: *Understanding actions for improvement* correlated with
  - *Recognising things done well* (D2)   (0.52)

- A2: Invested effort due to *personal interest* in a domain correlated with:
  - *Success defined as improved understanding or skill* (C7)   (0.50)

- D4: *Feel encouraged to improve skills through effort investment* correlated with:
  - Gaining a *realistic understanding of standard* (D3)   (0.50)
  - *Success defined as improved understanding or skill* (C7)   (0.45)
  - *Recognising things done well* (D2)   (0.44)
  - *Understanding actions for improvement* (D1)   (0.43)

- A8 (adjusted): *Opportunities for active involvement in tasks* correlated with
  - *Provision of instructions that ensure understanding of how to complete tasks* (B6 adjusted)   (0.49)

Table 20: Table showing the level of correlation between questions in the questionnaire

	A1	A2	A3inv	A4	A5	A6	A7adj	A8adj	B1	B2	B3	B4	B5	B6adj	B7adj	C1inv	C2	C3	C4	C5	C6inv	C7	C8	D1	D2	D3	D4
A1		0.34	0.19	0.30	0.32	0.19	0.27	0.03	0.17	0.13	0.21	0.18	-0.10	0.05	0.19	-0.27	-0.02	0.29	0.16	0.32	-0.08	0.23	0.21	0.27	0.34	0.13	0.38
A2			0.17	0.24	0.33	0.16	0.32	-0.06	0.20	0.06	0.20	0.09	-0.15	0.02	0.13	0.01	0.12	0.33	0.15	0.31	-0.05	0.50	0.13	0.32	0.17	0.35	0.35
A3inv				0.14	0.08	-0.06	-0.02	0.08	0.04	0.08	-0.01	0.12	-0.19	0.12	0.05	-0.01	0.02	0.19	0.11	0.09	0.05	0.16	0.01	0.40	0.25	0.19	0.20
A4					0.33	0.00	0.12	-0.02	0.29	0.11	0.13	0.18	0.00	0.09	-0.03	-0.08	-0.14	-0.04	0.13	0.28	-0.16	0.17	0.35	0.21	0.29	0.18	0.34
A5						0.27	0.17	0.13	0.30	0.16	0.12	0.31	-0.04	0.20	0.06	-0.11	0.14	0.20	0.27	0.26	0.02	0.29	0.24	0.30	0.29	0.21	0.33
A6							0.17	0.00	0.21	0.01	0.16	0.31	0.12	-0.05	0.06	-0.18	0.05	0.09	0.25	0.07	-0.17	0.07	0.01	0.14	-0.05	0.15	0.09
A7adj								0.09	0.22	-0.04	0.20	0.11	0.03	0.08	0.24	0.03	-0.04	-0.03	0.12	0.30	0.06	0.27	0.07	0.06	0.10	0.09	0.19
A8adj									0.01	0.09	0.13	0.20	0.02	0.49	-0.02	0.09	0.12	-0.02	0.04	0.22	0.15	0.08	-0.09	-0.12	0.00	-0.08	0.02
B1										0.11	0.23	0.32	0.21	0.06	0.07	-0.14	0.21	0.15	0.18	0.12	0.08	0.11	0.00	0.22	0.20	0.24	0.19
B2											0.36	0.27	-0.09	0.25	0.06	0.00	0.07	0.16	0.10	-0.02	-0.02	0.12	0.07	0.13	0.29	0.06	0.22
B3												0.33	0.13	0.15	0.09	0.09	0.01	0.22	0.32	0.13	0.09	0.12	-0.02	0.14	0.25	0.08	0.23
B4													0.27	0.28	0.04	-0.03	0.06	0.07	0.25	0.21	0.02	0.20	0.02	0.36	0.33	0.05	0.25
B5														0.02	0.08	0.03	0.01	-0.11	0.08	0.09	0.04	0.04	-0.04	0.01	0.03	0.00	0.04
B6adj															0.27	0.14	0.25	-0.03	0.10	0.27	0.10	0.19	-0.17	0.06	0.24	0.09	0.14
B7adj																-0.02	0.19	-0.12	-0.15	0.00	0.05	0.18	0.02	0.07	-0.01	-0.03	0.06
C1inv																	0.05	0.01	-0.12	-0.06	0.34	0.11	-0.17	-0.03	-0.06	-0.05	0.01
C2																		0.28	0.02	-0.02	0.16	0.21	-0.03	0.07	0.19	0.03	0.09
C3																			0.22	0.16	0.02	0.12	-0.08	0.28	0.31	0.26	0.28
C4																				0.35	-0.16	0.24	0.05	0.15	0.18	0.28	0.36
C5																					-0.13	0.25	0.04	0.18	0.26	0.32	0.34
C6inv																						0.08	-0.09	-0.10	-0.04	-0.07	-0.01
C7																							0.06	0.22	0.20	0.28	0.45
C8																								0.25	0.18	0.10	0.25
D1																									0.52	0.37	0.43
D2																										0.25	0.44
D3																											0.50
D4																											

Legend:
- -0.20 (negative)
- 0.20
- 0.30
- 0.40
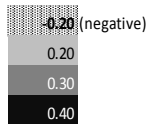
These correlations suggest links between feedback on standard and a mastery approach towards improving through skills acquisition supported by the recognition of achievements, that understanding improves involvement of students in their own learning and that personal interest is linked to a mastery approach to learning. These links are integral to ownership and supported by research done by Black and Wiliam (2009) on activating ownership by establishing realistic standards and providing task orientated feedback, Deci and Ryan (1994) on self-determination as reliant on fulfilling the desire for mastery and Boekaerts (2002) on the importance of recognising achievement and strengths to develop students' motivational beliefs. The importance of interest as a characteristic of autonomously regulated behaviour is backed by the research of Martens, de Brabander, Rozendaal, Boekaerts, and van der Leeden (2010) and its importance in enabling students to access understanding and increase task value is supported by Boekaerts (2002).

Considering the contribution of individual questions to the qualitatively selected categories of developing an *ownership mind-set* and *operationalizing ownership*

Contributions of individual questions related to developing an *ownership mind-set* are shown in figure 7.

Figure 7: Contributions of individual questions related to developing an *ownership mind-set* (Intervention groups only)
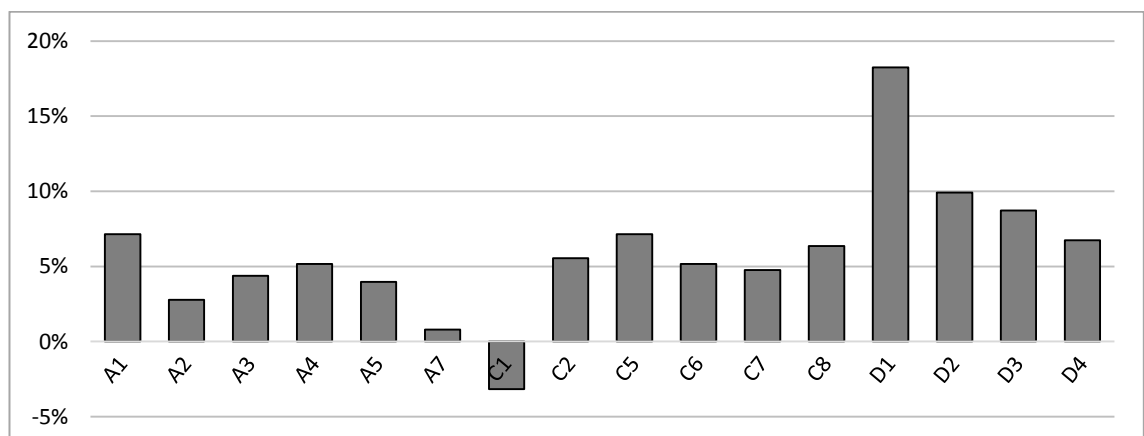
The more dominant questions evidencing changes in perceptions related to developing an *ownership mind-set* in this cohort were: *understanding actions for improvement*

(D1:18%), *recognising things done well* (D2:10%) *realistic understanding of standard* (D3:9%), *subject importance for career aspirations* (A1:7%), *feel encouraged to improve skills through effort investment* (D4:7%) and *proactively seeking help* (C5:7%).

The more dominant questions evidencing changes in perceptions related to *operationalizing ownership (*shown in figure 8) in this cohort were: *opportunities to use checklists for managing work* (B5:27%), *opportunities for continuing or extending previous learning at the start of lessons* (B7:25%), *organising tasks with the teacher* (A6:12%), *provision of choice in tasks* (B1:11%) *provision of scaffolding for task completion* (B3:7) and *time planning opportunities for successful task completion* (B4:6).

Figure 8: Contributions of individual questions related to *operationalizing ownership* (Intervention groups only)
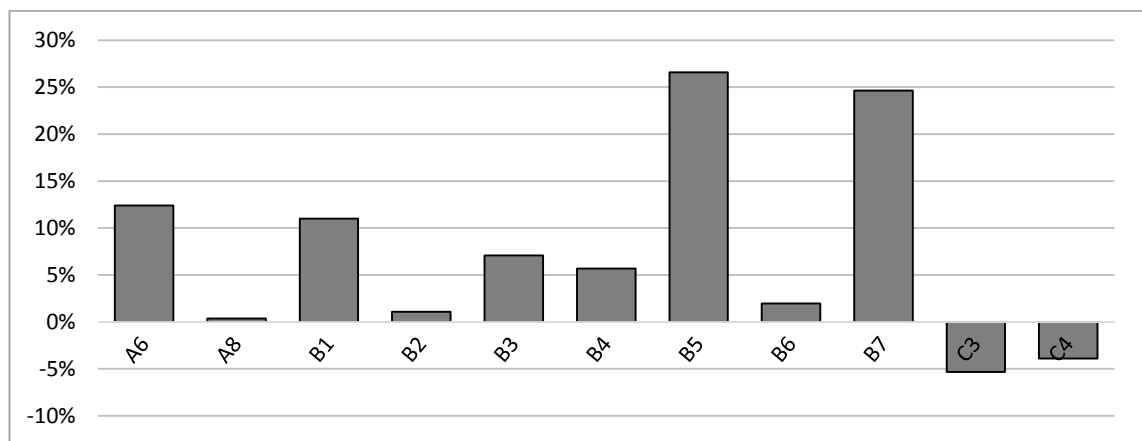
Also worth noting here are contextual limitations created by the nature of work undertaken by students during the study which restricted the provision of *opportunities for think aloud problem solving (C3)* and *group problem solving* (C4) (as shown in figure 8) and the heightened realisation of limits to ability (the negative score for C1 as shown in figure 7 suggests increases in: *failure signalling a lack of ability*). These all resulted in negative responses that affected overall average scores.

Concluding comment on data analysis

This chapter provides statistical evidence that suggests this study made an impact on developing greater *ownership* and that responses to the interventions were not affected by social factors, gender, IQ or target grades. The evidence also confirms that aspects of

all the interventions were trialled by teachers. This data provides some indication of 'how students' attitudes towards taking ownership for their learning changed as a consequence of interventions' answering, in part, research question 3 and providing aspects for greater exploration through thee qualitative data presented in chapter 5.

The category for developing an *ownership mind-set* has drawn similar results to those presented by Pintrich, (2003) and Dweck (2000) on nurturing a sense of ownership, through highlighting the importance of personal agency in gaining success and developing malleable ability beliefs though proactive task determination, self-monitoring and critical self-reflection. In this category the strongest effective drivers of change for motivating students towards taking ownership were: encouraging them to invest personal agency in order to gain success through proactively seeking help, developing a realistic understanding of standards, support for identifying things done well, ensuring that they understand actions for improvement, raising the importance of tasks for attaining personal goals, increasing task interest, and encouraging effort investment to persist with trialling solutions placing greater emphasis on determining processes than ability levels.

For *operationalizing ownership* through the use of structured learning tools and self-determined learning opportunities the questions that showed particular increases and therefore potentially could be the most effective activities that motivate students towards taking ownership included: increased opportunities for choice in tasks and use of strategies, involvement in organisation and time planning with the teacher, support for task completion through scaffolding, task management through checklists and opportunities for student driven continuation or extension of learning across lessons. This process of *operationalizing ownership* relates closely to Flem, Moen and Gudmundsdottir's (2000) findings that nurturing a student from other-regulation towards self-regulation and activating greater responsibility and ownership in the learning process needs the student to take active participation in the learning situation.

Chapter 5

Examining how interventions affected motivation for taking ownership

In this chapter I address research question 1, looking at *how interventions designed to increase motivation for taking ownership played out in different classrooms* and research question 2, *whether teachers perceive a change in students' behaviour towards taking ownership for their learning as a consequence of implementing the interventions.* There is also more evidence provided by both the teachers and students in this chapter to address research question 3 regarding *how students' attitudes towards taking ownership for their learning changed as a consequence of interventions* giving further weight to changes discussed in chapter 4. In the following discussion I draw on data produced by teachers and students in interviews and on quantitative data that relates to changes recorded for individual questions within each domain and under the four thematic headings set out in the theoretical framework.

1. Examining changes to Personal significance

Interventions 1a and 1b (p50) are focussed on motivational perspectives and ways to increase levels of personal significance through clear explanation of purpose, generation of interest, calibrated challenge, involvement of students in organising tasks and co-constructing new knowledge. (Data from questions A1-8 are drawn upon to support the qualitative discussions in this section)

Considering the effects of intervention on motivational perspectives that students relate to a domain and communicating the importance of tasks

The variables underlying these questions centre on setting learning activities into the context of students' personal goals, helping them establish why taking ownership for their learning is worthwhile. I have based my perspective on the research that suggests students give importance to domains that they perceive as important for their life-goals (Vansteenkiste, Lens & Deci, 2006) and that these affect why students regulate themselves (Boekaerts, 2002). The data from questions related to *subject importance for*

career aspirations (A1) and *personal interest* (A2) showed little variation over the course of the intervention except in Food technology (31% increase in subject interest) and Geography (12% increase in subject importance). However, there was a significant impact on socio-emotional goals related to learning contexts (Boekaerts, 1993) that underpin students' competence valuation (Pintrich, 2003; Hidi & Harackiewicz, 2000) with significant shifts towards *prioritising learning over the opinions of peers* (A3) in Physics (30% increase), Food technology (25% increase), Geography (23% increase) and Maths set 4 (23% increase).

A sense of purpose also relates to understanding 'why' doing a task is beneficial for learning (A4: *understanding the importance of tasks*) which links strongly with nurturing a perceived relevance (Pintrich, 2003; Maclellan, 2008) through co-construction and joint planning and through effectively communicating task importance (Deci & Ryan,1994). In the final feedback session the Maths set 4 teacher talked about the impact of getting students to co-construct new knowledge with her.

> **Maths set 4 teacher:** It seems to me that before, when I explained, it took a lot longer for them to realise that we are doing something very important… I have picked up in the lessons that when I say what we're going to do, they all seem to just be alert a little bit faster and a bit more involved a bit quicker… I think they actually quite **enjoy** being part of it. And I think they feel quite proud of themselves if they can.

Student responses in interviews gave further evidence of changed perceptions in other subjects as demonstrated in this example from a student talking about changes in Physics:

> *FST1: I feel I've been wanting to do more, it's just like the whole class dynamic changes when she actually sort of like sits down and explains why we're doing something. Because the class gets really angry that she's not explained it or something, I don't know, it's stupid. So like the whole class has been more involved in the lesson. So that's, sort of like, changed all the learning and stuff.*

Considering the effects of intervention on co-organising work with students and providing more opportunities for active involvement in tasks

I support the claim that by enacting ownership rights, students need to be actively involved in their learning (Vygotsky cited in Daniels, 2001:42) as joint participants (Schunk & Zimmerman, 1994) in order to stimulate greater metacognition (Bandura, 2001). The scores on *opportunities for active involvement in tasks* (A8) and *opportunities to organise tasks with the teacher* (A6) did improve substantially within the combined *Very Strong* and *Strong* categories as a result of intervention suggesting that students in the study were enacting their ownership rights to varying degree: Physics (40% increase), History (27% increase), Geography (23% increase), Food technology (19% increase) and English (14% increase). Although the questionnaire data did not provide evidence for changes in perception for Maths set 4, there was an attempt at developing mutual co-construction to facilitate *the novice observer into an active contributor* (Hung et al, 2005). This was evidenced through the feedback interviews:

Feedback 4:

> **Maths set 4 teacher:** And because I've been including them more now in the explanations and what to do, they were really ready for it….. I've been focusing especially on co-constructing the new knowledge and what their part is and sort of putting it together with them, not just telling them. And yesterday I started the lesson by looking back at what we did on Friday. So I wrote basically the same questions on the board as Friday and it was really interesting to see how keen they were to come up to the board and write it on the board. And so (boy named) for example came up and wrote the steps down and then yeah! And as he was doing it, I got the class to explain why he's doing it, and what he's doing, so they were really involved and I saw them all looking back in their books and trying to remember what it was they were doing.

Maths set 4 students' perceptions:

> **FST6:** *I think everyone's getting more involved **now** than what it used to be at the start of the year.*
>
> **I:** Do you know why that might be?

FST6: I think maybe she just breaks down the class, like she breaks down little tasks that we do, and then we'll mark them which I think involves everyone a bit more

*FST7: Well I find Maths more fun than what I used to, because we work more as a **class**, so it's more fun working as a group than on your own.*

In Food technology to get students to be genuinely involved and engaged in co-constructing new knowledge they needed a clear explanation of the course structure against assessment criteria to provide a context and value for investing in their own learning.

Feedback 5:

Food technology Teacher: So I think they grasped it, they made notes, from the power-point, they've got the overall marking booklet so they can see how to get their A's. And they're taking it on board – loads better. They knew what they had to do by the end of today and they now know it's in their hands. *...(In the next lesson)* They sat and were doing their testing and evaluating this morning. But I wasn't having to run round, it was one at a time, **little** things they were stuck with. …It was loads better. And I'm not stressed the difference is huge!

A Food technology student's perception of the change in approach was:

MST2: There's more organisation in the lessons. Like to plan your timing and things like that so you can do better.

I: Do you find that helpful planning the work out?

MST2: Yeah, like it's easier to spend time, like to know what you're doing, rather than to just get straight into something and like, have no clue.

The more co-operative change in student behaviour referred to above is indicative of the experiences of several teachers in the study but also perceived by the students and has emerged as a by-product of getting students to be more actively involved in constructing the learning. This has been the case in other ethnographic studies where the promotion of volitional functioning (a sense of ownership), autonomy support that takes the

student's perspective and clear expectations, have had the effect of reducing problem behaviour (Vansteenkiste et al, 2012).

A Physics student's perceptions of changed attitudes:

> *FST5: I think, I find, in Physics, whereas before, sometimes Miss would try to get us involved, whereas most people would try to make a joke of it. So of course, quite a few of them are friends in the group, so they'd all be having jokes, but then there's a few of us who aren't really friends with them, so we just want to keep quiet because we don't really want the joke to be on us. But I think now, because everyone gets involved, and it's less like threatening, we're not as afraid to answer it because we know, if we get it wrong, it's less likely that it's going to be, "Oh the joke's on you", and I think that just means that everyone is a lot more willing to get involved which is good.*

In co-constructing knowledge there is also an element of establishing students' need for new knowledge by highlighting whether essential prerequisite learning is in place or any shared misconceptions are held that could interfere with understanding (Taber, 2005). There is also a need for teachers to have an oversight in focusing the activities so that students can engage with the task, set goals and self-regulate more effectively (Alonso-Tapia & Pardo, 2006; Lodwyk et al, 2009). This focus was demonstrated by the approach to intervention 1 taken by the History teacher:

Feedback 1:

> **History teacher:** In this first lesson here *(showed results of co-constructed resources on laptop)* what they've got is a shared overview of basically where their progress should be taking them and then they were working together to break down the controlled assessment question: Taking their feedback, from their working in groups, and the idea of sharing what they'd come up with independently to try and lead to some level of understanding. And then similarly, they were working independently within groups to plan different ways that they could then structure an answer to that question and they came up with three different methods. They were then able to pool their learning in that way and they've then chosen from their own, sort of options, which one they feel then fits with their best understanding of the question.
>
> **I:** Is that the way you'd have normally done it?

History teacher: To some extent, yes, in that I think that you need to provide options but I think when I was planning the lesson myself I came up with three possible ways of doing it so I made sure that it wasn't just a case of handing it to them and seeing what came back and in that way I was able to interpret what they were saying and perhaps guide the responses a little bit to hopefully a slightly more understandable language.

I: Did you feel that they were more engaged in the development of it?

History teacher: More of them, still not all of them. So within that they then, as I say, feel they've co-planned the task into different options and then they can personalise it as well by seeing which one they feel most comfortable with, explaining that no one is better than another they all offer the same option ability to get top marks….We're moving on to planning the paragraphs so breaking down and going into themes and more detail. What I'm going to be doing is using exemplar material for them to identify the language which they should be using to meet the controlled assessment mark scheme.

I: So they're going to be able to self-regulate in a sense because they can see what 'quality' is and they can then change theirs accordingly?

History teacher: Yeah. What we're going to be doing is then pooling knowledge both from what they come up with independently and also what they can extract from previous successful pieces. Then I'll take in, type up, and then share with them so they've got a reference sheet which again is based on what they themselves have come up with. They then go in to detail in terms of actually planning their paragraphs.

These resources were high quality supportive tools for learning but in the initial stages of this study some clarity needed to be gained on who was actually engaging with the good resources and who was doing the regulating and goal setting (characteristics of ownership). In the following extract based on discussions over an observed lesson I tried to highlight that the perceptions of the teacher were not the experience of the students and realign the thinking on how to effect a change in approach. (This improved significantly later on in the study)

Feedback 3:

> **I:** (*Observation feedback*): You explained the plan - it's a great plan but then it was off the board 3 minutes later and then popped up periodically: You made reference to it in the lesson. All the kids were very engaged when the plan was up, **all** looking**, all** taking it on and then the only person that made reference to it was you. I watched the kids, none of them looked up at the plan.
>
> **History teacher:** They weren't doing that, no.
>
> **I:** And I think what I'm trying to say is the ownership of the planning was in your hands.
>
> **History teacher:** Rather than being handed over to theirs.
>
> **I:** Yes, do you see? Now if they had written things down. If the whole of the beginning bit had been extraction from the students - they've fed it back in - it's then theirs. You've given them the same information, which maybe took two minutes longer than it would have done if you'd just read it out but it's from them, they're not just listening engaged, they're actively engaged. …. And there were things that **kept coming up** and I thought, had they got something, where they wrote **their own list** down.
>
> **History teacher:** A sort of my to-do-list.
>
> **I:** Where they did their own précis of what you were saying - what it means. For you 'sources' means something, for them it might not mean the same thing. So if they could write down what things mean, get it clarified, they could then take ownership of the process through it.
>
> **History teacher:** Because they've got it in their language.
>
> **I:** It's a different sort of ownership: you want them to take it on board and **use** the information. You've done masses of learning because you've set them up. So for you it's natural, it's understood and internalised but for them it's not and from the questions that were being asked, I don't think it's fully internalised, as to what they **are actually** - in the detailed aspects - doing.

This really highlighted how important it is to pull students in to being active in processing the learning so that they can be nurtured from other-regulation towards self-regulation (Flem, Moen & Gudmundsdottir, 2000).

Considering the effects of intervention on situational interest

The work of Martens, de Brabander, Rozendaal, Boekaerts, and van der Leeden, (2010) shows that there is an intrinsic relationship between interest and autonomy. To increase interest therefore is an important element in nurturing ownership of leaning and this study, as discussed previously found that interest did increase. The level of increase in situational interest (A5: *interest in tasks*) was most evident in subjects with greater numbers of low ability students: Maths set 4 (23% increase) and Physics (30% increase) within the combined *Very Strong* and *Strong* categories.

Physics provided an interesting platform to develop situational interest at both student and teacher level exploring ways to increase situational interest triggered through relevance or fun and then to maintain it through students' active participation in the process of learning (Hidi & Renninger, 2006). This was a significant change for the Physics teacher who established that neither she nor her students were interested in the work at the start of the intervention period:

Feedback 1:

> **Physics teacher:** Actually Physics really is a boring subject unless you like it or have a reason to want to do it. The practical is not exciting and it always involves calculations or plotting graphs.

We subsequently discussed making various tasks more interesting which the teacher then trialled:

Feedback 3:

> **Physics teacher:** Now my second activity: I'd made my mind map, not a brilliant one, and that was in the middle of the room and they came up to look at it then go back and add. With the exception of one girl and one boy who just refused to get up, they participated with varying degrees of manipulating the rules but at least they were engaged in the task. Actually the lesson as a whole was better than a normal lesson 4 on a Wednesday straight after lunch because normally they are not at all co-operative.

> **I:** The fact that we've got them engaging in the lesson engaging in the activities and by default learning things even if they're copying down the spider diagram, that is a huge amount more interesting than sitting doing a question from a textbook.

> **Physics teacher:** Yeah….. And it's beneficial for me because I enjoy the lesson more. Before, it was just a battle.

Feedback 4:

> **Physics teacher:** Normally I would have done questions and answers to try and get across the boring facts that they need to know. Instead of doing that, I made statements and cut them into halves so they had to match up the two halves of the statement. They really engaged with that and it was harder than I'd thought but I think that is probably better because they then really had to study the two halves…… Some of them were doing it on their own some were doing it together.

Feedback 4:

> **Physics teacher:** I try to be more positive. But I don't think there was much opportunity to be negative in the lesson today because they were all doing what they wanted.

When discussing this lesson there was hardly anything negative said which was quite unusual for this teacher and the focus was on students being engaged in activities. This teacher had moved from a predominantly single thread lesson to one with a set of shorter focussed activities where the students did not have enough time to get bored. In the student interviews this positive change brought about by increasing situational interest and involvement in the learning was supported:

> *FST5: But I think with, actually teaching, we've been shown through it a lot more because before we were given our work, set for the lesson, and just expected to do it, and with our class that often **didn't** happen. So I think being guided through it all helps us because it keeps most of us on track and most of us **do** get work done now.*

> *FST1: They never used to, like our class is like a problem class right, so no-one, literally no-one would do their work except for about three people in the class, and now like, it's more of a calm classroom so people do their work. They don't always do it perfectly and everything, but everyone would at least try something off of the board, even if they don't do the whole lot. So it sort of changed the class dynamic really because it's just less frustrating to be in that classroom now.*

In student responses for History there was also evidence of greater working interest being transformed into personal interest as they saw learning opportunities (Krapp, 2002) and experienced task significance and understanding (Boekaerts, 2002):

> *FST2: I don't really mind the controlled assessment in History because before when we were, like preparing for it, like actually learning the facts, I didn't really **understand** it so I wasn't enjoying it but doing the controlled assessment **made** me understand it. So then, I kind of enjoyed it more.*

Considering the effects of intervention on calibrating levels of challenge

When examining *perceived levels of challenge* (A7) it became evident that students perceived challenge differently and that the data was unreliable because for some when tasks were enjoyable they seemed less challenging. If challenge is associated with the underlying value of a task (Alonso-Tapia & Pardo, 2006), a product of interest that leads to knowledge building (Hidi & Renninger, 2006; Boekaerts, 2002) and a motivational belief that is associated with personal agency, then the elements discussed in this chapter may suggest that challenge was indeed better calibrated as a result of intervention.

2. Examining changes to Self-determination

Interventions 2a and 2b (p54) focussed on the provision of structured learning tools to encourage self-regulation and the development of stronger self-determined learning behaviours. This involved clarity in teacher expectations and instruction, the provision of choice, scaffolds, checklists and time frames to support the extension of learning across lessons. (Data from questions B1-7 are drawn upon to support the qualitative discussions in this section)

Considering the effects of intervention on expected learning behaviours as predominantly teacher led or student driven

Teachers' expectations regarding approaches to learning tend to be defined by a greater focus on teacher-led learning or student-motivated learning. The important focus here is

teachers' expectations of independent, proactive learning behaviours which are supported by guidance material and scaffolding to enhance the students' cognitive perspective, providing opportunities to personalise and adapt learning activities (Kicken et al, 2008). I have focussed on teachers being explicit in defining the learning behaviours that they want to establish, leaving less room for misunderstanding by students or frustration from teachers who consider certain behaviours as natural but who do not actually communicate this to their students. I looked specifically at student perceptions of the classroom as being a place to be told what to do (teacher-led) or a place of continuing learning (student-motivated) (B7: *opportunities for continuing or extending previous learning at the start of lessons*).

Although the questionnaire supplied some evidence that after intervention students perceived changes in teacher expectations of them to take greater ownership of their learning behaviours (B7: *opportunities for continuing or extending previous learning at the start of lessons*) it was more evident that a change of attitude had taken place in the teacher and student interviews. This may be accounted for by Pintrich's (2003) findings which suggest behavioural change can be outside the students' conscious awareness and control. The largest recorded change in *opportunities for continuing or extending previous learning at the start of lessons* (B7) occurred in History (32% increase) and in looking at the student perceptions below there is a change in attitude towards personally acknowledging ownership of driving the learning activity and that there is an attitudinal shift from teacher-led to student-motivated learning:

> **FST9:** *In History, we've just been expected for the past few weeks to just get in and get on with it because we know, he knows, we know what we're meant to be doing. If you get that, so yeah, we've just been expected to get on with it.*

> **FST10:** *It's just before we started doing all this work we sort of had to **wait** for the teacher to tell us what to do. Now as soon as we get in the class we have to just get straight into work because otherwise we won't be able to finish all the stuff we have to do in time so we've sort of got more independent with stuff like that.*

In English the changes were directed towards moving expectations of learning away from the confines of separated classroom experiences into a more continual experience of learning across lessons:

Feedback 4:

> **English teacher:** So I **am** really seeing differences, just in the way I'm approaching tasks with them… I was just aware that I needed to make sure, that when they come in they know what they're doing and they are ready. Whereas before I might have just waited until the lesson had started with "today we are doing.." ….. And because I'd already spoken to them: that we were going to be prepping for the controlled assessment. And loads of them just wanted to take off with it straight away. Which was really nice and a lot of them had spent time at home really preparing for it.

This change in expectation that work continued beyond the lesson was picked up by a student:

> *FST2: So we analyse a poem in class and we might not get through the whole poem in class because it's quite a long poem, so you could keep working on it at home and things… Before we just left it and saved it for the next lesson.*

The English teacher also made explicit key information to help students in planning and directing their own learning:

Feedback 6:

> **English teacher:** I think by breaking up what I want them to do in smaller stages and giving them more time is making it more explicit to them. Whereas before I might have said, "Oh you know we need to plan for such and such ..… Oh well that's an idea... make some notes". Whereas now I am being more explicit and I think I'm honing in more on my questions and I'm trying to get them to think for themselves as well, a little bit more.

Maths set 4 and Physics were dealing with lower ability students with challenging behaviour and by making expected learning behaviours explicit they experienced more

co-operative attitudes from their students (another example of a sense of ownership and clear expectations, reducing problem behaviour (Vansteenkiste et al, 2012).

Feedback 4:

> **Maths set 4 teacher:** …. It was really quite interesting to see because when the others came in they were sat down. For a Monday afternoon, they were calm, they were ready, they were quiet and I must say there's been an improvement in their expectation of what's going to happen at the start of the lesson, they were all ready.

A Physics student described how her teacher's expectations had affected learning behaviours in lessons.

> *FST1: Well like I said, Physics has been calmer and the teacher sort of expects more of the work to be done because she knows it's a calmer environment so she knows that people aren't just going to be all hyper and that. She knows they're capable of doing the work.*

Considering the effects of intervention on self-initiation and choice

In order to increase opportunities for students to take responsibility and ownership for their learning, pro-active approaches to task determination (B1: *provision of choice in tasks*), continuation and completion (B2: *provision for choice of strategy*) were encouraged (Maclellan, 2008). The example below shows how the Geography teacher implemented this intervention:

Feedback 3:

> **Geography teacher:** So what I did: We were in the IT room to do their graphs. So, on the board I just scribbled down the expectations: "Remember you have a choice of graphs from the A3 sheet. It's up to you what you do." But, I think I said **aiming**, something like '**if you want to get** like a B plus, you need to have four sophisticated, and just reminding them what sophisticated was, so they could pick. And I reminded them they just had that lesson to finish it. And actually it was a really purposeful lesson. All of them, maybe not for the whole lesson for some of them, were just getting on with it and I didn't have to answer any questions about, "What type of graph should I do?" So that was good because they were clearly picking from that sheet.

There was also a focus on encouraging problem solving through self-initiation and experimentation in order to provide choice on what to do and how to do it (Vansteenkiste, Lens & Deci, 2006). An example of this was developed in Physics:

Feedback 3:

> **Physics teacher:** Now my starter activity was based on giving them a choice because they have to be able to interpret distance time graphs. So on the board I sketched a graph and they could choose from three things: either they could write a story based on the sketched graph; or they could sketch a graph of their journey to school or another journey; and if they really didn't want to do anything at all with graphs they could use the science words and describe any journey. Most of them chose to sketch a graph of a journey of their choice.

And in English self-initiation was explored through allowing students more scope to adapt the learning activity to their own psychological needs thereby giving them a sense of autonomy and self-determination (Boekaerts, 2002):

Feedback 4:

> **English teacher:** We've only done this course once before, and the class that I had then I was **much** more rigid with: "This is what you're doing, this is the task, I suggest you do such and such". Probably the nature of the group but also I think **now** having realised where my weaknesses are with the kids in not allowing them to take that ownership, I think **this** has really helped….. And (named boy) bless him, just straight away got down: "Can I have some paper? I know where I'm going". And I said, "Really!? You don't want a planning sheet?" He said, "No, I was really excited from last lesson" and he just started working brilliantly. And there were about three or four that I was really working with today and coaching… Both the LSAs who work with me were both commenting really positively on how well they've worked all week, even in my absence.

In the final feedback sessions teachers spoke of how the intervention study had made them aware of their level of control in the classroom and its restrictive impact on students taking ownership of their learning through self-initiation and choice:

English teacher: It's really helped me just be more aware of how I'm approaching certain situations, backing off a little bit more and not feeling that I have to control every situation in the classroom.

Geography teacher: And also, as a teacher, sometimes **you** want to do everything, but this has allowed me, with certain students to step back and actually, this is all the help I'm going to give you, you're going to have to work it out yourself.

History teacher: Lessening my own level of control over students. I'm deliberately trying to empower them with decision making responsibility for the direction that their work is going to take them. I think I confuse control and progress and actually to say that they're at A and identify point B and encourage them to find their own way there, I think can actually be better. Recognising that you can set some free and they will flourish, you can then actually devote more time to those who don't.

Considering the effects of intervention on prompting thinking and task organisation through the use of checklists

All subjects apart from the Maths groups showed substantial increases in *opportunities to use checklists for managing work* (B5) ranging from 20% - 38% in the combined *Very strong* and *Strong* categories. Rosenshine and Meister (1992) suggest that self-checking opportunities through checklists to prompt critical thinking provide students with a sense of ownership in how they can self-organise and manage their own learning and provide a means to bridging the gap between students' current abilities and their intended goals.

In the intervention feedback sessions with teachers many conversations focused on trying to define effective checklists that were fit for purpose and provided students with personalised learning tools that avoided over precise, sequential processing approaches to learning as highlighted in the work of Harlen and Crick (2003). I have chosen two different examples trialled in this study to illustrate this. The first example is taken from English where checklists were provided by the teacher as a tool to help students monitor and assess their own work (Brand-Gruwel & van Merrienboer, 2008):

Feedback 3:

> **English teacher:** I gave them criteria that they had to checklist against, so they were able to do it without me telling them **how** to do it in a way. … The task was to get them to analyse the poem, so they had to, obviously think about the effect that it had on the reader, and it's open to different interpretations. So it was allowing them to think a little bit about why the writers use particular techniques. But they had a success "criteria" which links to the assessment objectives and what I got them to do was, as they were structuring their paragraph, to be ticking off the checklist as they'd hit each criteria to help them structure it. …… Then what we did, when they'd done that, I showed them my example and we used the checklist to see what I'd done well and perhaps what I hadn't done. Then I got them to read their examples and we listened and obviously, even as they were reading them, some of them were aware of what they hadn't done against the checklists. So some of them said, "Oh I haven't actually made a comment about what Wilfred Owen's purpose was here. I've commented really well on language but I haven't actually said why he's used it." So that was quite good and having the verbal feedback from them then discussing it, was really nice actually

> **I:** So the checklist in a sense establishes a way that they can then analyse what you're going to give them next time.

> **English teacher:** Yeah. And I've told them that they can use that checklist against any analytical paragraph that they're writing on a poem. And it's just four key stages.

The second example looks at personalised to-do-lists as developed in History:

Feedback 4:

> **History teacher:** So they've got the post-it note where they've tried to put down their own little to-do list. For some of them they've struggled to break down the tasks and they were just writing, 'Do paragraph 2', and that, whilst you can tick off and you know what you've got to do it's not explicit enough and needs to be broken down.

We discussed how these personalised checklists could act more as a thinking stimulus rather than necessarily a list of tasks where students noted, in their own words, the aspects needing to be evidenced. Task completion would

then become a natural outcome, rather than the focus, of the learning process.

Feedback 5:

> **I:** How did the students respond in comparison to last time?
>
> **History teacher:** Oh much more positively. I think it was there and accessible for them and there were far fewer questions to me and the ones that there were, were sort of pushing the envelope a little bit more so in that way I think it was very, very, encouraging that they were able to take, as you say, take ownership, I don't think I'm using that out of context. But it did feel like they were very much more on task, knew where they were going and also knew where they wanted to get to and how to get there. So yeah, I was very pleased by that one and in fact a lot of that is stuff that hasn't changed, you know stuff which has been there already but it's just presenting it in a different way and making it more accessible.

This last comment about resources already being available but presented differently has been about moving students towards taking greater ownership of these resources and actually take control of applying them to move their learning forward. The notion of students activating control over using resources provided was dealt with repeatedly over the intervention period and drew attention to misconceptions by teachers that providing resources, or referring to them, implied their use. An example of this was in a conversation over self-checking resources used in English:

Feedback 4:

> **English teacher:** With the self-checking prompts. Some of them did it, without me sort of explaining in too much detail, but quite a lot of them needed me to stop and really go over it. Even though, in my mind I'd thought – well we've done stuff like this before. You know it. Actually, I probably haven't made it that explicit.
>
> **I:** They haven't actually had to use it.
>
> **English teacher:** Well that's it.
>
> **I:** That's the difference. You can know something exists but until you actually have to use it you don't understand how important it is.

English teacher: Yeah, so taking that time out, working with them on it, then getting them to really make sure they were doing it. Because sometimes, I think I do often give them self-assessment checklists and what have you, but normally, I don't give them the **time**. It's normally as an add-on or as part of their homework. And I think actually not all of them **do it**. Whereas, because I actually designated about 20 minutes of the lesson to them using the thing and checking, and peer checking, that did help, **a lot**, and hopefully then that'll build on that the next time we come to use it.

Checklists were also used as a tool to help students place their progress within the broader overview of the course or confirm completion of necessary tasks and topics. As these students' responses demonstrate:

From Physics:

> *FST1: We have a checklist at the front of our book and we have to tick off when we've learnt, when we understand it, because that way, when she marks our work we could just literally be copying off other people but on the checklist we tick what we actually know. And it's just for us and the teacher to know so it's not like embarrassing if you don't understand something.*
>
> **I:** And did you have that before or is that something that's new?
>
> *FST1: It's new. We've only had it this last half term.*
>
> **I:** And is that helpful?
>
> *FST1: Yeah and it's like, if you miss a lesson, you can see what you haven't learnt, so you can ask about it, so you don't miss out on anything really.*

From Geography:

> *MST1: In Geography, before I just kind of like do everything and just kind of do it how I wanted to do it, but I've seen, like making a checklist or writing on top of my work what I need to do the next lesson, doing it at the end of each lesson, it kind of helps me complete the work in the following lesson.*
>
> **I:** Brilliant. So it's given you more focus?

MST1: Yeah, Just remember what I need to do and then just crack on really.

FST4: In Geography, we've also got the whiteboard on the side. She's sort of written out an action plan that goes into more detail about the sections.

FST3: Yeah for each lesson.

FST4: Yeah, she writes it out each lesson, tailored to what we're currently on. So we have the sections, like planning the investigation, as an example. And she'll write on the board what we need to include and the way we should structure it, so we could go through. So it's quite methodical.

Also in Food technology both personal note taking around power-point slides, individual checklists for time planning and a class checklist that provided an overview of the course with how students were progressing, were introduced during the intervention period:

Feedback 3:

> **Food technology Teacher:** They all had paper and they had to write down what they needed for each slide, what they had to do. Then we went through one topic together with support from the LSAs and then I did a tick list, which I've used with both groups. They were thrilled to see it because they could see they were making progress. …. And they did what I wanted, they all took ownership and did absolutely everything. (Girl named: SEN) who really struggled, had a smile the whole lesson and she achieved what everyone else did.

Considering the effects of intervention on the use of scaffolding and engaging students in time planning to support the extension of learning across lessons

Chng and Coombs' (2001a) research findings show that the effect of scaffolding enables progress in learning by supporting the development of new skills, with decreasing support given as these are assimilated. In this study the questionnaire recorded increases in the *provision of scaffolding for task completion* (B3) in the combined *Very Strong* and *Strong* categories for Food technology (30%) and Maths set 4 (16%). There was also a 40% increase in the combined *Strong* and *Moderate* categories for Physics. The

following example suggests that in Physics the students' experience of scaffolding was in support of task completion and thinking structures to provide meaning:

> **FST1**: *Because she'll actually tell us what you have to do in all the steps, like 1, 2, 3, 4, on the board and she'll tell you why you're doing each and what you will achieve and what you do with the results, like put them into a table, make a graph and stuff.*

> **I:** And you find that really helpful?

> **FST1:** *Yeah, because otherwise you just, every five minutes you're going, "What do I do now? What do I do now?" It's annoying.*

The student responses in interviews highlighted the more subtle use of scaffolding that occurred in this study which is illustrated here by these History students:

> **FST10:** *Well in History we've got this sheet that's like, 'band five', like band five is the highest one. So then you can sort of apply that to what you're writing in the controlled assessment. So you can compare and see: you need to show your own knowledge and evaluate the sources so you can get the highest possible grade you can get, that's what helped me.*

> **FST6:** *I think the sheet in History, that he gives us, like this term has really helped because now, I sort of don't need to look at the sheet, now I just do it myself, I try and figure the answer out by myself, and then I'll ask him.*

To maximise the successful achievement for students of personally desired goals through sequential tasks as discussed above (Britton & Glen, cited in Schunk & Zimmerman, 1994) involved both organised study and time management (Entwistle, 2000). It was about placing the scaffolds and checklists into a timeframe that got students to think across lessons focussing on their personal pace of learning and taking greater responsibility to drive their own progress. This was more apparent in the interviews than in the questionnaire with only Food technology and Physics recording substantial increases in students' responses to the question on time planning (B4: *time planning opportunities for successful task completion*). The effect was subtle and has

already emerged in relation to other aspects already discussed so I have chosen here to illustrate two different approaches that the teachers of Geography and Maths set 4 took in establishing learning across lessons and communicating time frames to work within:

Feedback 4:

> **Geography Teacher:** So Monday's lesson, I stopped a few minutes before the end and I gave them each a post-it note and I said, "Right it's obviously five days till Friday, some stuff is going to go out of your mind, can you just do two or three bullet points about the next steps that you need to take when you come in to Friday's lesson." So they all did that and then I had a look at them. A couple of them were 'do more work' so I was like, okay that's not so good, but most of them were actually quite focused. So for example it'd be: finish talking about graph 1, then explain it. But I had them this afternoon and they came in and I just quickly went through, like recapped on the steps that they had to put in their analysis, but then they just got on with it. And I said, "Refer to your post-it notes again." And I must say, and this is what struck me, I took **very few** questions about what to do, which to me, showed that they knew what to do because they had made their own checklists.

Feedback 4:

> **Maths set 4 teacher:** I keep doing time planning. I warn them sometimes that I'm going to talk a bit longer. So I did that on Friday and I did that yesterday again. I said it might take a little longer than you're used to but you're going to be part of it all. …….. And I said to them 'what are we working towards for next lesson?' So I keep sort of telling them what we're doing now, what we are going to be doing, why we're doing it, those sorts of things. And I help manage tasks in and across the lessons.

3. Examining changes to Mastery approaches to problem solving (Data from questions C2-7 are drawn upon to support the qualitative discussions in this section)

This section deals with deeper, personal motivations that are effected by self-efficacy and ability beliefs which have been formulated over a long period of time and are unlikely to show much change in a short study such as this. Looking at how the

interventions and the manner in which they have been implemented, I believe the better measure of the effectiveness in using a mastery approach can be found in the section on Feedback for ownership because interventions 3a and 3b (p60-61) related predominantly to how feedback was being presented to the students. The analysis of the proportional contribution of individual questions to the overall change recorded between pre and post questionnaires provided some evidence of changes in attitude towards a mastery approach with the strongest responses focused on *resolving problems through trialling solutions and increasing effort* (C2) (dealing with ability beliefs and attitudes towards failure) and *success defined as improved understanding or skill*s acquisition (C7) (gaining mastery through invested effort). To a lesser degree but worth acknowledging was the apparent growth in *confidence in openly making mistakes* (C6) and taking responsibility to *proactively seek help* (C5).

Considering the effects of intervention on nurturing a mastery approach to problem solving by using autonomy supportive language to increase students' perceived control of learning processes (Language focus of 3a & 3b)

I have taken Boerkaets' (2002) position on attitudes to failure and success as being consistent with a student's self-concept of ability within a domain. This attitude is displayed when reacting to failure either through perceptions of the problem being out of their control and a result of ability (helpless orientated), or through perceptions of the problem as task difficulty that can be overcome through applying other strategies (mastery orientated) (Dweck, 2000). The importance of dealing with this issue is that both reactions directly influence effort investment. Based on the belief that intelligence is malleable and ability is incremental rather than fixed (Dweck, 2000) the interventions that were trialled (3a & 3b) sought to detach the student from the problem so that more strategy was the only viable option for them to consider and therefore their ability became a malleable skill rather than a fixed point of reference. This process was summed up well by the History teacher: "You've got 3 independent bodies essentially: there is the teacher, the pupil, and the work. …. then in fact the balance of numbers says that you've got two people working against one problem and together we can do something."

The effect of focusing language on process and strategy and not the student with the problem was fed back by the Maths set 4 teacher after first trialling it:

Feedback 3:

> **Maths set 4 teacher:** So I went into the lesson very much focused on the **process.** So today we did percentages. So my starter was just to remind them how to do it, the way we did it on Monday. They didn't seem, you know the usual candidates didn't seem, too keen to get involved, trying to find other things to do rather than doing the maths, but then when I started going through the answers I kept saying things like, "It's not about whether you can do it or not, it's not about your ability, but whether you just remember the process and apply the process, and that's what we are going to look at: how we arrive to the answers. And I know this is the first lesson we've done it like this but it was almost instantaneous, that that one specific, (named boy) almost instantly got involved. And it was really remarkable how quickly they all just sort of zoomed in on what we were doing. Even though there was still a bit of chatting going on here and there it wasn't at all how it usually is, where I have to keep asking, keep asking, keep asking, especially those two boys, to be involved. And the other thing proved to me that it made a difference, you know (named girl) who doesn't want to try anything on her own. She's like, "I don't know, I don't know." So I went to her, because I didn't have to look after the usual characters and I said, "Do you want me to sit here for a bit?" And wait for it, she said, "No, I would like to try this on my own first and see how I get on." And she **did do it**! And I saw her doing it. And I think she asked me once when she got stuck a little bit but there was none of that like, "Oh I can't do it." Like, right from the start. So she gave it a good go on her own.

I have taken the position that self-efficacy beliefs are influenced by feedback (Boekaerts, 2002) and students increase in confidence if they believe they are capable of performing the task (Seifert, 2004) and are willing to persist until they do (Pintrich, 2003). But to build confidence in ability so that students can activate their own agency (Dweck, 2000) teachers need to communicate a sense of self-worth. For this study I have encouraged teachers to communicate self-worth by focussing praise on the process and strategies used rather than directly awarding praise to the person because, by default, they will know they have done well and all those in earshot of the feedback can

utilise it rather than see it firmly attached to the person being praised. This falls in line with Boekaerts' (2002) findings, that encouraging and recognising effort invested by students by focussing on achievements and the strength of the solution plan (process orientated feedback) helps them view themselves as responsible for their own learning and this in turn helps to nurture control beliefs (ownership) (Pintrich, 2003). This was explored through conversations over awarding praise with the different subject teachers but I have selected the example from History because it deals with implementing a change from confirmatory praise of effort and achievement to awarding *genuine* praise for process and strategy:

Feedback 4:

> **History teacher:** I tried with the praise. I forced myself to say, 'Well done, you're working well.' I was trying so hard and every time I found myself praising I realised it was because of something they'd achieved or "Yes, you're doing that right". I couldn't say anything, it was conscious in my mind. I had no idea how to make that productive at all.

> **I:** I think you are absolutely brilliant at being confirmatory and you're really good at helping the kids understand where they are. Praising effort doesn't have to be, "Oh well done." Praising effort can be the **recognition of an aspect done well** but rather than confirming: "You've achieved it," saying, "That's a very interesting way of doing…"

> **History teacher:** So not putting a ceiling on it: Closed, done, and now next problem. It's like you're on the way.

> **I:** That's right. The praise that this study is promoting is the praise of effort and good use of a solution plan. And that it has to fit with your personality.

> **History teacher:** Yeah I think that clarifies it. It makes a lot more sense now in terms of how to deliver the praise but then make sure it's leading onto more, rather than just drawing a line under: "You have acquired a skill. How can you use it? Where will you use it again?"

> **I:** Like the girl who was extending things, you were really animated with your praise in terms of what she was doing, how she was

getting the idea, and you were praising the solution plan. …. I think we can praise in many ways. You can praise with the physical words but you can also praise by implication and you can acknowledge the quality of what's there, and the discussion where you pay respect to the other person's point of view. That is praise, that's very genuine praise. Talking through with that boy, and his 'yes!!' afterwards, that was a very big amount of praise but you didn't go, "Oh that's really good, well done." But before you'd say, "That's right, that's good, yeah, you've got it," in that kind of confirmatory way but that wasn't so prevalent really, in the lesson today.

History teacher: So by being a little bit less direct it allows them to realise that they've been praised. It almost ends up being self-praise in a sense, 'I've got it'.

The teacher in Geography trialled building self-efficacy beliefs through indirect feedback, praising a student by reading out his work as an anonymous exemplar of good practice:

Feedback 4:

Geography Teacher: So I read out a bit of (named boy)'s work as an example, that I'd read at the end of Monday's lesson. I just thought it was pretty good. So I said, "Do you mind if I use your work?" And he was like, "No that's fine." But when I read it out I didn't mention him I just said, "This is a really good example of analysis." And then I made sure, at the end of the lesson, because I'd gone round and read a few people's work, that I said something like your analyses have come on really well rather than saying x did it or y did it.

I: What kind of response did you get from (that boy)?

Geography Teacher: Well, I think he was quietly chuffed because I've never used his work as exemplar work before and he, actually throughout the rest of the lesson, was writing a substantial amount and getting stuff done.

Deci and Ryan, (1994) suggest language of instruction affects the learning environment and influences motivation and that to nurture a sense of students' control over their learning, more autonomy supportive language needs to be developed (Vansteenkiste, Lens & Deci, 2006). Teachers in the study initially all struggled, to varying extents, with trying to change their use of language towards an emphasis on process and implied student' choice in taking control of their learning. In Food technology the process of getting the teacher to change her use of language required an understanding of why her present form of control-orientated language and methods of instruction were worth relinquishing. The example cited was from an observation feedback with very honest reflections made by the teacher who subsequently developed greater use of questioning to co-construct new knowledge, engaged her students more in their learning and provided opportunities for them to take greater control of their learning. This example also illustrates the difficulties that arise in taking the dual role of researcher, in exposing practice and guide, in helping the teacher gain an understanding of the value of re-aligning their practice to the intervention being trialled. In this example the Food technology teacher was looking at intervention 3b and the importance of changing their use of language.

Feedback 4:

Food technology Teacher: I'm too dictatorial, I'm too, and I know you say keep asking them.

I: When you were talking to the kids and you were telling them what to do.

Food technology Teacher: It's the telling.

I: They switched off and hardly anyone was listening to you. I know that sounds awkward.

Food technology Teacher: No, no, I appreciate that.

I: It's possibly that the language that you use is mainly the language of direction and control. When you came up to some of the students you scaffolded it for them, in the sense that you did a version of it.

Food technology Teacher: Instead of asking them.

I: Yes, So what you've ended up with is a child who's asked for a solution to the problem and you have given them the solution. And

they'll only have probably remembered the first few words you said. So when you leave them although you feel you've solved the problem, you've just left them with a bigger problem because now they've already asked, you've given them the solution, they can't remember the solution and they still can't do it. Whereas if it was conversational, "Well what do you think that means?" "How else could I say that?"

Food technology Teacher: If I could do that as a whole with them though. I can see (named 3 boys) not even acknowledging it and I know I'm going to have to go through it another 6 times.

I: The other thing that you did, you said things like "Watch", "Look at the screen," instead of "Okay, let's think about this, can everybody stop work on their computers a minute, turn your chairs round" - so you're establishing a physical readiness to do something different -"What is this about? Anybody?" So everything you want, is asking them to look at the screen and determine for themselves what it is that you want them to get, and you can just keep prodding and pushing them...

Food technology Teacher: But I just keep explaining over and over again, and I can hear it.

I: And it's counterproductive. What you want is for them to get on well, to move forward quickly. But by doing what you presently do you're trying to rush it through by telling them rather than extracting it. And by doing that you're actually putting the brakes on because the number of people who almost immediately put their hand up or asked for help, asked you the same thing that you had just told them. So they weren't listening.

Food technology Teacher: I appreciate that they weren't...

An example where autonomy supportive language was used to imply choice in order to help students drive towards higher aspirations and take greater control of their learning was trialled by the Geography teacher:

Feedback 3:

Geography Teacher: We had coursework catch up and (named boy) was in and his graphs were pretty simple but he actually wants to do a higher paper so I used that. I was like, "You know you want

to do the higher paper, perhaps you can think about doing these other graphs"' and now he's started doing one, very slowly, but.

I: It gives them confidence because they now think **you** think that it's okay for them to go for it. Whereas if you said, "Oh no, I don't think so" it's immediately a door they can't go through. It's a very subtle game of confidence building.

Geography Teacher: Yeah, but to see him do that is hopefully starting to build his confidence. ….. And also (named boy) who, although his target is an A and he is a lot more able, he's very lazy, but he also was actively asking, "H**ow** can I do it?" And I said "Well the instructions are in temporary." So they were able to get on it themselves with just a few clarifications on some points. I wasn't standing over them.

I: So was that different from previous times?

Geography Teacher: Definitely! Yeah especially with him. The fact that he activly asked to do it and then without me helping him too much, did it, is actually very different because all his previous graphs have been simple scatter graphs and bar charts. So that was really pleasing actually.

Geography student:

> *FST12: So if she thinks you can get like to a particular grade then she'll tell you what you should improve and what you need to add. So yeah, I think that a teacher's confidence of you, with them knowing that you can get like a certain grade, you feel more confident in being able to get **that** grade.*

All the teachers in the study trialling a change in their language towards greater implied choice and autonomy support reported its positive effects on attitudes towards learning in their classes, more positive emotions and alleviation of frustration particularly over problem solving through trial and error. This is in line with Turner, Meyer, and Schweinle's (2003) research findings about 'co-operative' learning environments. Furthermore, Deci and Ryan (1994) state that extrinsically motivated behaviours provide a sense of competence within a social matrix and that self-regulation is influenced by the pursuit for relatedness. This is evident in the changes described below but is an aspect that is not easily measurable. The definition of change is simply in the

fact that perceptions by teachers have moved from experiences of trying to control and direct their teaching environments to a more facilitative approach through, among other things, a change in language and that students have consequently perceived greater enjoyment and active control over their learning. Some of the changes perceived by teachers were relayed in the final feedback sessions:

> **History teacher:** That's the trouble it's a mood generally around the class. There are a number of students who previously were very inclined to put up the barriers and say I don't get it and I think there have been notable breakthroughs with a number of them. And they are now reporting much more positively on the controlled assessment. The highest ability ones have flourished because they've been able to get on with what is expected through the clear expectations and it's allowed them to then come to me only when they've got things which take them beyond that, and that's been quite exciting actually. I'm not surprised who the students are but I think the level of thinking that they've shown that they are capable of is. At the lower end I think they still need much more proactive challenging from me and hauling them out. But as the culture's gradually changing from asking me to bringing work up saying, "Is this right?' Some of the lower end have started doing that a little bit more and (boy named) has now produced some work, he's asking for it to be checked, he's checking it himself and saying, "Yeah, I need to do this." So yeah, there's been progress all round, I think.

> **Physics teacher:** Previously, I wouldn't have expected many of them to do the graph but I think the majority of them actually tried to do it. They didn't know how to do it but they **wanted** to know how to do it. So they seem to be more willing to actually **want** to know something and want to either improve their graph skills or find out new information which before they really wouldn't.

Physics student:

> *FST5: I find in Physics, it's a lot less scary, before you'd kind of go in and it's like eyes down mouth shut, but now it's like a class because, to put it bluntly, we do work and that's obviously good….. But I think now, it's more of a positive atmosphere and we kind of get things done and help each other out when we need to … Also like if you're mean it used to be like, it's funny, but now it's like - what are you doing?*

Geography and Maths student:

> *FST3: I'd say in both Geography and Maths it's more of a friendly atmosphere more interactive, people wanting to learn and get involved, it's more how it's become.*

> **I:** Why do you think that is the case? Have you noticed anything or has it just been that you lived it.

> *FST3: I think it's just improvements of attitude in terms of everybody, including teachers like wanting to help you out and things.*

Considering the effects of intervention on think aloud problem solving and students' sense of confidence in making mistakes in front of their peers

Sharing problem solving (Ryan & Pintrich, 1997) or using think aloud models of expert thinking (Rosenshine & Meister, 1992) can help students build mastery attitudes to problem solving. In the question that looked for evidence of *opportunities for think aloud problem solving* (C3) there were perceived increases in the *Very strong* category for Maths set 1 (10%) and in the combined *Very strong* and *strong* categories for Food technology (19%). There was also an increase in *opportunities for group problem solving* (C4) perceived in the *Moderate* category for Physics (40%). Implementing these aspects of the intervention design was hampered by controlled assessments being carried out in English, Geography and History but think aloud problem solving did occur in the form of conversations with individuals where solutions were teased out. The following example from History provides some insight into how teachers engaged students in 'open speech' to resolve problems:

Feedback 4:

> **History teacher:** I'm trying to resist the temptation to deliver the answer and make the questions not closed but very focused on where they've got to go and try and let them get to it a little bit more.

> **I:** It's quite difficult doing that though.

> **History teacher:** Yeah, absolutely. When you know what the answer is that you're looking for and to keep having to find, you

know, different ways round it to eventually get them to bite, but when they do then it's set. So that's defiantly been one of the big things, certainly trying to hand it over to them much more and get this idea of them **owning** the learning and making sure **they** feel that **they** made that breakthrough. It's much clearer then, when you go away, that they feel much more confident about getting on and doing it rather than just trying to recap: What was it that he said? Which isn't the purpose of it, but to get past that, and say, "Yes I know" and just be able to get on with it.

It is worth noting here the perceived increase in confidence and depth of understanding displayed by the students as they took greater ownership of their learning. This supports Rozendaal, Minnaert, and Boekaerts' (2005) findings that open problem solving helps students process new knowledge critically and verify coherence between the knowledge presented and their prior knowledge. However, working openly on problems requires risk taking and collaboration (White, 1998) which can be daunting for students who lack confidence. In this study students responding to C6 expressed marginally more *confidence in openly making mistakes* in front of their peers with small changes visible in History, Maths set 4, Food technology and Geography but the interviews provided more evidence to suggest the impact was greater and in all subjects. I have chosen to use the responses in interviews provided by the Maths set 1 teacher and students, because the impact of trialled interventions, even though the teacher withdrew from the study in the second week, had an impact on the way the teacher approached open problem solving and on the way the group responded:

Final feedback:

> **Maths set 1 teacher:** What I did pick up on was that rather than me guiding the students, to get the students to work more with each other. And it was easier to trickle it down too, because I did, what you said for me to do, about getting someone to come up to the board, which I would do naturally, but if they struggled to leave them there and get the others to feed into them. It worked really well.

The Maths set 1 students talked about their experiences of open problem solving with the class and how their attitudes changed as a consequence of this trialled intervention:

FST11: Its good seeing how other people work through it, compared to like how I would work through it, and seeing how, maybe theirs is easier and mine is a bit difficult.

I: Do you get involved in going up and doing stuff on the board?

*FST11: Sometimes I do, but I don't know, I don't really like going up to the board because sometimes, she'll get you to like walk up to the board and just fill it in and ask the class whether you think it's right or not. But I think, like I don't know, I don't really like doing that because I'm always scared that I'm going to get it wrong and look like an idiot. So it's just better when everyone, like she does **now,** and everyone says the wrong answer you don't look like such an idiot. You look less like an idiot because only one of the answers are right and everyone else got it wrong too.*

I: How confident are you to try and solve problems with the class?

FST11: I don't know, I'm more used to like just giving it a go and just dealing with what happens, whereas before, I used to be like, 'no I'm not doing it'. I used be like really stubborn.

I: Okay. So it's helped to sort of prise you open a bit.

FST11: Yeah, and you kind of get used to other people making mistakes as well once you see other people make mistakes, you kind of more like - the cleverer people as well when they make mistakes - you're more confident to go up and do it as well.

FST3: Yeah and more people put up their hand now as well.

FST4: A lot more of the quiet people because there are some people who never put their hands up but a few of them have started to get involved.

This more open attitude towards problem solving on the board with help from peers was equally effective in diminishing concerns over getting things wrong in Maths set 4. (The student referred to in this example was particularly defensive and disruptive and therefore the fact that he was admitting mistakes and not concerned about losing face was significant):

Feedback 4:

> **Maths set 4 teacher:** I didn't say anything about the fact that (boy named) added his answers up wrong on the board. I didn't condemn him for it at all. I said, "It's brilliant that you tried and this working here is really good." And "Can anybody, sort of spot, **why** that answer might be wrong?" And so then they said, "It's because he didn't line up the numbers underneath each other in tens and hundreds and thousands." And **he** said, "Yeah. Miss, I put the 2 underneath the 1 and it shouldn't be there." And so then we did it correctly.

Considering the effects of intervention on proactive help-seeking

From the perspective that help-seeking improves the ability of learners to solve problems independently, clarify procedural instruction and master content (Ryan & Pintrich, 1997) it is integral to ownership. Therefore in order to adjust strategies and self-regulate students need to develop proactive attitudes towards asking for help and seeking other informational resources (Lodwyk et al, 2009; Webb, Farivar & Mastergeorge, 2002) and be given time to engage their own thinking in resolving the problem (IFS study). In the observations undertaken for each domain in the first and third week of the study recording types of help seeking activities (appendix F, p177), the results predominantly confirmed a shift in help seeking activities towards less clarification of tasks and greater use of learning tools to enact control over learning. A contributing factor to this change in behaviour was the provision of time to engage in self-regulation. The example below illustrates how this affected learning in English and the subtle shift from teacher-led to student-led orientation in the help being sought:

Feedback 6:

> **English teacher:** …. And to really try and get them to take ownership, and to not just keep going but to pause and take time and look at what they're doing and **think** for themselves a little bit more. So I think I have been using words like 'reflect more on this' and more questioning with them as well.
>
> **I:** I've also noticed, and I don't know if you've done it before, but you've gone up to someone, you've talked with them, battled

through something, gone away and then gone back to them. So that sense of giving **time** has been much stronger.

English teacher: Yeah, I have. That's just a recent thing because I think before, I would've stuck with them, almost told them what to do and then left them, whereas now I am trying to allow them that time and then come back to them. And I'm getting more of a sense from them that they want to be having that time to be doing it as well. ….. I don't know if you saw at the end, (boy named) came up to me with what he'd been working on, he wanted to show me what he'd done and how he'd re-tweaked certain things. Again it's that sense of pride and I think he felt really chuffed with what he'd done and he didn't want to leave the lesson without me acknowledging it.

Maclellan (2008) suggests that a characteristic of students taking control (ownership) of their learning is their ability to recognise when help is needed from the teacher. This more proactive approach towards identifying need and taking greater control over learning was evidenced in the teacher feedback sessions and student interviews:

Final feedback (about 2 students):

Maths set 4 teacher: I think the one person, I've spoken about her before. She has always been, "Oh I can't do this, I don't know" and she was very reluctant to think about things for herself and very much asking the person next to her all the time. And on a few occasions now, she said, "I did this on my own." And she, sometimes, would be working **even** if her friend would then be talking to someone else, whereas in the past she would have just participated and waited for them to get back on board so she could get the answers. So I've seen in her, taking more ownership and really trying harder which is good.

The other person to me, which was a real surprise and which I'm really happy about, is (girl named: SEN). I've just seen her turn around really because she was someone who hardly came to school and when she did come to school, she was just very much, "I can't do this." And really for the past few weeks, she's been saying "Miss, Miss, come over" you know very quietly and when I do go over she goes "Right, how do I do this?" even after I've explained it and she still couldn't understand, she would want me to tell her again. And it's really quite interesting as well, she will recognise questions on the page and say "Miss, I'm not going to do this one"

and she would say, "because this looks too hard, but I'm going to do this one" and I just think it's brilliant that she just didn't look at it and go "I'm not going to do any of it" and that she's decided now that she wants to do this. And her work, even the layout of her work and the way she's been doing it, it just shows me she seems to take more care of it now than she did before.

Geography student (SEN):

> *FST8: In Geography I try and do the work myself and if I'm still stuck I put my hand up for help.*

> **I:** Okay so was that different to previously?

> *FST8: Yeah.*

> **I:** So what would you do previously?

> *FST8: Just put my hand up and ask for help.*

History student:

> *FST10: Well in History what we used to do, we just used to ask the teacher for help straight away but he's come up with this like checklist where you have to read through your work and then read through your plan and then ask some other people. So now you don't necessarily need him to help you. You can check your own work and then work out what to do for yourself…… you realise you* ***can*** *actually do it yourself.*

Considering the effects of Mastery and Performance orientations on self-regulation

I have been particularly interested in the work of Hidi and Harackiewicz (2000) regarding the positive interaction between mastery and performance goals to promote adaptive behaviours, as their findings suggest students who strongly endorse both performance and mastery goals have higher levels of self-regulation and attainment from students who endorsed only one or neither goal. Taking ownership requires the student to engage in self-regulatory activities and therefore exploring this hypothesis is of interest to me in this study.

To gain an average score for mastery orientation I used the data generated by C2: *resolving problems through trialling solutions and increasing effort* (which suggests students see ability as malleable through effort because failure is seen as a signal of the need for more strategies) and C7: *success defined as improved understanding or skill*. To gain an average score for performance orientation I used the data generated by C1 re-expressed to show *failure signalling a lack of ability* (which suggests students see ability as fixed) and C8: *success defined as improved scores or grades*.

The average score for self-regulation was calculated using the questions in the questionnaire that directly relate to self-regulation: The need to *understand the importance of tasks* (A4); *provision of choice in tasks* (B1); *provision for choice of strategy* (B2); *provision of scaffolding for task completion* (B3); *time planning opportunities for successful task completion* (B4); *opportunities to use checklists for managing work* (B5); *provision of instructions that ensure understanding of how to complete tasks* (B6/2); student driven learning through responding to *opportunities for continuing or extending previous learning at the start of lessons* (B7/2); *proactively seeking help* (C5); in receipt of feedback that can be acted upon (D1: *understanding actions for improvement*); and a *realistic understanding of standard* (D3). I accept that selecting these questions does not provide a definitive data set but within the available data for this sample group these questions provide the best fit.

To ascertain mastery or performance dominance the score for performance was taken away from the score for mastery: positive scores suggested stronger mastery orientation, '0' suggested an equal balance and negative scores suggested a stronger performance orientation.

The data from the intervention groups prior to intervention suggested that there was marginally higher self-regulation when mastery and performance orientations were balanced in contrast to those with stronger performance orientation but this was not the case for *all* those with stronger mastery orientation. (This was also evident when looking at the full sample). Therefore, Hidi and Harackiewicz's (2000) findings are not fully supported by my study and are further refuted by the post-intervention data which

demonstrated that actually the relationship was linear between increases in mastery and higher levels of self-regulation.

I also wanted to look at the effect of interventions on changes in attitudes towards defining success in a particular domain as mastery orientated (C7: *success defined as improved understanding or skill*) or performance orientated (C8: *success defined as improved scores or grades*) and any changes to the balance between mastery and performance orientations for each domain. To do this I converted their sample counts for Mastery (C7) and Performance (C8) into percentage scores of each sample group as shown in table 21. The one drawback of this is that single case changes in the smaller samples make greater impact but the results are still informative of trends in the changes to the balance between mastery and performance within each sample group.

Table 21: The changes (M-P) in cumulative percentages for Mastery (M) and Performance (P) orientations, pre and post intervention (Full sample)

Domain	Cumulative percentages for *Very strong* and *Strong* orientations: Mastery to Performance						Cumulative percentages for *Very strong*, *Strong* and *Moderate* orientations: Mastery to Performance					
	Pre		Pre	Post		Post	Pre		Pre	Post		Post
	M	P	M-P	M	P	M-P	M	P	M-P	M	P	M-P
Art	85	23	**62**	*69*	*15*	*54*	100	78	**22**	*100*	*85*	*15*
English	81	41	**40**	*77*	*68*	*9*	96	86	**10**	*96*	*96*	*0*
Food tech	56	81	**-25**	*62*	*50*	*12*	93	93	**0**	*87*	*93*	*-6*
Geography	62	38	**24**	*77*	*53*	*24*	100	96	**4**	*100*	*96*	*4*
History	64	45	**19**	*59*	*45*	*14*	86	88	**-2**	*100*	*82*	*18*
Maths set 1	73	70	**3**	*70*	*77*	*-7*	90	97	**-7**	*97*	*100*	*-3*
Maths set 4	83	38	**43**	*67*	*62*	*5*	100	77	**23**	*92*	*92*	*0*
Physics	20	50	**-30**	*50*	*40*	*10*	50	60	**-10**	*100*	*90*	*10*

In the cumulative categories of V*ery strong* and *Strong* orientations there is a marked reduction in the difference between mastery and performance after intervention and in both Food technology and Physics the emphasis has been on increasing mastery orientation in particular. Geography is also interesting as although the strength of response has increased in both mastery and performance the balance between them has remained the same. Also worth noting is that in the category for *Very Strong* and *Strong* orientations after intervention mastery is stronger than performance except in Maths set 1. In the category that also takes *Moderate* responses into consideration the difference between mastery and performance is smaller except in History and Art. Food

technology, History and Physics have made the most significant change through increased mastery orientation and Maths set 4 has equalled the balance more through increases in performance orientation. These results sit in line with my experience of the subjects: Maths set 1 was more performance orientated and changed very little due to little invested intervention, History faithfully implemented the interventions with a clear focus on mastery to attain performance and Maths set 4 worked on giving students a more realistic understanding of their performance which raised awareness considerably of the importance of achievement thereby pushing up performance scores in particular. It could be assumed therefore that to nurture greater ownership there needs to be more self-regulation and an emphasis on more mastery orientation (used as the process for skills acquisition) with performance orientations providing an identification of competence valuation (caring about doing well) (Hidi & Harackiewicz, 2000).

4. Examining changes to Feedback for ownership (Data from questions D1-4 are drawn upon to support the qualitative discussions in this section)

Interventions 4a and 4b (p64) relate to increasing a sense ownership through promoting positive feedback by identifying strengths, providing actions for improvement, a realistic grasp of standard that enable students to self-regulate more accurately and encouragement to persevere through effort invested into improving skills.

Considering the effects of intervention on identifying strengths and providing actions to improve weaknesses

This really brings us back to previous discussions about process orientated feedback highlighting effort, strategies and potential self-control in order to develop students' motivational beliefs (Boekaerts, 2002) and the notion of feedback needing to move a learner forward in order to activate ownership, establishing where they are in their learning, where they are going and what needs to be done to get there (Black & Wiliam, 2009). Examples tackling these aspects have already been a strong focus of analysis and further show the strong interconnected nature of the interventions trialled in this study. It is worth noting that the third greatest recorded average change in attitudes related to

feedback with a stronger focus on identifying actions for improvement (D1: *understanding actions for improvement*). This strongly correlated to increases in perceptions by students of positive recognition for their achievements (D2: *recognising things done well*) particularly in English and History. Students spoke of how praise for achievement motivated them to invest more effort as in this example.

History student:

> **FST2:** *The other day in History I wrote a paragraph and it was quite a short one because I didn't really have a lot to write about the subject I was talking about and I wasn't really sure whether I'd done enough, to like actually answer the question in it. And then I asked him and he said it was like an almost perfect paragraph and it made me really happy because I'm not very confident in History. And then it kind of gave me more confidence to go back and like start on all my other work and like really get on with it.*

Wiliam (2007; 2011) suggests that comments from teachers for action for improvement are only effective if the learner can decode and use them to affect future performance. This is a strikingly simple concept but it became of prime importance in feedback sessions because there were evident gaps between teachers' perceptions of doing this and its effectiveness on students' responses. To illustrate the subtle change from simply providing actions for improvement towards helping students decode these in order to move their learning forward, I have drawn on discussions around this point which arose in English:

Feedback 5:

> **English teacher:** I say at the end of every paragraph you should pause and you should check back.
>
> **I:** They should, but **do** they?
>
> **English teacher:** Well exactly, and no, I don't think they do.
>
> **I:** … It's whether the kids **utilise** what you've planned for and I think that's why it becomes about making explicit to them that, once they've done that, the **next** task **is** to go back to the assessment criteria and to mark with a pencil what they….

English teacher: But I do make that explicit, and I do this quite regularly, with all my classes, with lots of pieces of work and it's probably about 20% of a class who actually do that self-checking and assess properly even though I make it explicit and I give them time and say right stop.

I: I was thinking, it was more for those ones, as you say, the 80% that don't like doing it particularly, if it's more simplistic, they're more likely to apply it. They're not getting it as clearly as those few who will go for the higher levels but they're self-checking and they're getting a sense of their own self-regulation.

Feedback 6:

English teacher: I did try to do what we discussed in our last session which was to really encourage them to do this self-checking. So I think it worked, and actually today when I had the lesson with them I said to them, "Right for the first 10-15 minutes, what I want you to do is think back to what we did on Wednesday's lesson – reflect on what it was you knew you had to redraft and change and tweak, have a look at your planning sheets, any notes you might have given to yourself and spend some time tweaking and redrafting and what have you".

I: And what did they do?

English teacher: And they did get on and do that and some of them more significantly than others. And some of them said you know, "Could I have an extra 10 minutes next lesson, just to read through and check". So I was like, 'Yeah, definitely', so that was good. They're taking that on board. … . So I was sort of observing and keeping an eye and going around. Some of them restarted and I said, "No, you really don't need to do that." But one did because he wasn't pleased with what he'd done before anyway. So he was working quite hard on redrafting bits and copying it all out neatly towards the end. ….. I think because I was allowing them the time they needed to redraft and reflect it does show how much you actually need to give that time. And I think that in the past I have rushed them through and actually giving them that time, allowing them to change and discuss and reflect is definitely a worthwhile exercise.

I: The crucial thing of ownership is that point where you do actually say right, "It's in your hands". I think it can be quite difficult, from a teaching point of view, because it's almost like wasted time because you know, you're not doing anything.

English teacher: Yeah! I know that's it.

I: But all the 'doing' is happening with the student and I think it's really important because as soon as they've done that they are by default engaged in it.

English teacher: Yeah, exactly. And they can see as well, why they need that for the next stage and how they can fit that into their planning or adapt their original plan.

I: Do you think that you made that clearer this time round than you did maybe with previous groups?

English teacher: Yeah, definitely.

I: Do you think the kids have responded differently as a result?

English teacher: Yes I think so. I just think they seem more focussed on the assessment objectives, on what they need to be really honing in on because it's really small things that actually will make a huge difference in their grading.

Considering the effects of intervention on helping students gain a realistic grasp of their standard and improving through persevering and investing effort into skills acquisition.

Realistic understanding of standards is crucial to enable students to take ownership of their learning and self-regulate (Pintrich, 2003). But being honest with students is not always easy for some teachers as was the case for the Maths teacher of set 4. However, she changed her mind about this aspect over the course of the interventions and was then able to tackle more challenging questions with her group as a result but this is how we set up implementation in feedback session 1:

Feedback 1:

> **Maths set 4 teacher:** I didn't try this one yet. Okay. It's because you were talking about being genuine with them and not sort of faffing around and lying to them and I will be honest with you I struggle with that I struggle because I feel bad for them and I think they're going to feel bad if I say you're actually at a G at the moment. You know, and I will have to work on that.

I: …. being genuine helps them because if they know they're at an F and they say, "That's not good, I'd like a C." You can say to them, "I'm happy to negotiate if that's what you want to get. I can help you get there but you need to be willing and try to work hard for that." ……. And if you're doing the checklists of grades reached for each unit of work, you can do really focused stuff with them and they can get a much better picture of where they are overall and come and ask you for more stuff to be able to raise their standard.

This discussion links to students needing regular instrumental guidance on task performance and tools to plan, monitor and assess performance in order to build an honest view of strengths and weaknesses and formulate effective learning goals (Kicken et al, 2008). In student interviews there was evidence to support the notion that being honest and showing students where they are in their learning and how to access their progress results in increased motivation and higher attainment:

Maths set 1 student:

*MST1: I kind of like it when the teachers be harsh to you almost, they're like you know you're working at this level and you've got to do this to get **this** level. It kind of makes you realise how much you need to do. And you know for example in Maths, before I was getting like, I don't know, I could get 60% in a test which is like not good enough, I don't think. But my teacher's saying to me, you know you've got to revise more and working through, and with help, I eventually got to 100% on one of the tests. It's just being a bit more confident towards like, improving yourself almost.*

Having realistic understanding of standards is also important because effort is invested when students can judge whether or not it is worth persisting (Boekaerts, 2002) and the teacher can support this through clear directives to give them confidence that their invested effort is being utilised to best effect (Rosenshine & Meister, 1992). Perseverance can also be encouraged by using models and peer or expert support (Hidi & Renninger, 2006). Students in this study talked about their experiences with regard to this:

FST12: With Food tech, we had a presentation from someone from previous years whose done it and has got a high mark and so you

kind of see that, and you look at the template of that, and you kind of write similar to him.

FST2: Can I mention Food tech as well? I probably wouldn't bother, it sounds bad but I wouldn't put as much effort into my work if I didn't have the templates. Because like when you look at other people's work you kind of realise "Oh it's not as hard as I'm making it out to be" so then you just kind of get on with it and you put more effort into it.

History student:

FST9: Okay well we received a sheet with three short paragraphs in History and he said one of these is an A grade and the others are lower and we had to guess which one was which. And he's like, 'okay, now you know what standard an A is, you can go along and use that'. You can see the kind of language they used and the structure and where they use facts and sources to prove their points. The A grade was quite small like it had a lot of information but it was a small paragraph. And like I think everyone, before reading that, was under the impression we were writing like ten pages for each paragraph kind of thing. So then that helped us a lot. And going through that, because to find like which one was the A grade we had to evaluate it as if we were marking it, and then you kind of realise like – oh yeah, I need to put that in to make sure I get this mark. And like it made you realise all the little things that can get you more marks. So then when I started writing my controlled assessment, I was going back to that question being like, oh have I done this?

This exercise in History is also a good example of what Hijzen, Boekaerts, and Veder (2007) refer to as students being able to see value in increasing effort and self-regulate in order to attain their goals. Further value in investing effort and persisting was also generated as a result of the relationships built between teachers and students:

MST1: Yeah, it's nice, because when you talk to them, you sometimes think that you just can't do it. But they're always saying that you can do it, always encouraging you to do it, and they like know that you can get the grade that they've given you. And with talking to them it kind of determines you a bit more.

*FST2: A lot of teachers now like offer you their extra time as well which kind of makes you think that you **can** do it because then if they're okay with almost wasting their time to help you, you realise that it's for a good reason. It's like something good is going to come out of it.*

Chapter 6

<u>Concluding discussion of research findings</u>

This study has investigated key elements that may nurture *ownership* in students. The defining qualities of ownership that I have been particularly interested in nurturing through intervention have been those that support students in taking greater responsibility for the motivational drive to improve through proactively seeking support or utilising the support given through perceived control over the application of these tools on their learning.

In this study I have explored how interventions designed to increase motivation for taking ownership have played out within different classrooms within a secondary school context (research question 1). I have noted both the teachers' perceived changes in students' behaviour towards taking ownership for their learning as a consequence of implementing these interventions (research question 2) and how these interventions altered students' attitudes towards taking ownership for their learning (research question 3).

Based on the data provided by the questionnaires and interviews, the strongest contributors to perceived change in this study were:
- Those aspects of intervention 1a and b concerned with setting learning activities into the context of personal goals (A1: *subject importance for career aspirations*) and involving students in co-constructing the unit of work (A6: *opportunities to organise tasks with the teacher*) thereby helping establish a purpose for taking ownership of learning.

- Those aspects of intervention 2a and b concerned with the provision of structures to help students take responsibility for, and ownership of, self-regulation processes by *provision of choice in tasks* (B1), *opportunities for continuing or extending previous learning at the start of lessons* (B7), *provision of scaffolding for task completion* (B3) and *opportunities to use checklists for managing work* (B5).

- Those aspects of intervention 3a, 3b and 4a concerned with personal impact on achievement through *proactively seeking help* (C5), greater engagement in knowledge building through dialogue about skills as a means towards attaining success (D4: *feel encouraged to improve skills through effort investment*), promoting positive feedback through *recognising things done well* (D2), enabling students to self-regulate more accurately by communicating *realistic understanding of standard* (D3), and experience greater ownership by engaging in actions for improvement (D1: *understanding actions for improvement*).

These changes in perception highlight a shift towards students exercising greater control over their learning as a consequence of the interventions trialled.

However, in considering the data produced in this study it must be taken into account that simply participating in the study may have caused the increase in motivation exhibited by both teachers and students, contributing to the positive changes, and that the heightened observations by teachers may have communicated greater invested interest in the students. A further consideration is that attitudinal scales are not precise measures and can be difficult to interpret or provide unreliable data. Although, as noted by Kemp (2001), reliability can be established if correlations and general trends emerge in the data as they did within this study. Added to this, the data produced by Art and Maths set 1 students provide a comparison with the groups implementing interventions and some measure of normal fluctuations in attitude. The Art group provided another comparative function in setting a standard for good ownership perceptions (known group) with an initial average score for motivation for taking ownership over a standard deviation higher than all the other subjects. There are dangers in being too close to sample groups but in this case I wanted to use a control group that I could trust as evidence of high levels of ownership.

The qualitative analysis has played a more dominant role in this study drawing together both qualitative and quantitative findings and contextualising these within the theoretical framework of four thematic headings and a dual approach towards nurturing ownership by developing an *ownership mind-set* and *operationalizing ownership*. The quantitative data has provided a tool to steer interventions diagnostically, enabling teachers to see how students perceived their practice in direct relation to each question

and identify potential for change. It is worth noting that the simple presence of statistical measures effected a stronger sense of purpose and a degree of genuine participation. Additionally, the data were used to provide a comparison of pre and post intervention responses to the questionnaire to measure general impact through looking at overall change (aggregation across all questions), levels of significance of change within subgroups and to identify the strongest contributors to change in order to understand more about what affected increases in levels of ownership. It has been a deliberate choice to aggregate questions qualitatively rather than by using factor analysis because the data set was small and the qualitative focus within the themes of Personal significance, Self-determination, Mastery approaches to problems and Feedback for ownership, was to analyse changes to attitudes and behaviours towards taking ownership.

This study has taken into consideration the varied nature of teachers' work and that one size cannot fit all, by focussing more on an approach towards nurturing ownership than over-prescriptive actions. The manner in which teachers implemented the interventions within the different classrooms (research question 1) varied considerably as did the content through which the interventions were trialled. However, an area of interest in this study is the underlying similarities that emerged in how teachers responded to the challenges of implementing these interventions. They spoke of becoming more reflective about their teaching methods, heightening their perceptions of the need to relinquish some control over directing students' learning and provide more opportunities for students to take active responsibility for making decisions about their work. Implementing the interventions also had an effect on the way teachers thought in terms of the assumptions made about students' potential levels of achievement from a predominantly restrictive view on ability prior to intervention to a more malleable approach based on opportunities provided for greater effort investment (Dweck, 2000) as the intervention period developed. Accounts by teachers and students, and observations of classrooms when this approach was actively trialled, give some support to the idea that certain students were able to drive their progress beyond the restrictions of the targets set for them by the school. However, this was not universally the experience for all students in the study. Pivotal to this changed approach was the teacher's use of language to imply choice and to focus attention on resolving problems

through processes and solution plans. This claim to a change in attitude induced through language is of importance to this study because training students to believe they possess effective strategies improves their self-efficacy (Schunk, 2005) and underlies the initial stages of taking ownership through introjected or identified forms of self-regulation (Deci & Ryan, 1994).

This key element of language around process focused feedback has also proved to be pivotal in building students' confidence in taking ownership and engaging them in their own learning. This was most evident in situations where the emphasis was deliberately shifted away from the student or their ability and towards the processes they were engaged in, both in relation to praise and in dealing with failure (Dweck, 2000). Backing this claim for the impact of this approach has proved impossible to measure in this study as the students did not consciously register any changes in direct relation to language use. However, there were shifts in attitudes that students and teachers attributed directly as a response to changes experienced in classrooms over the intervention period. It could be argued that I may have registered what I wanted to hear in order to support my theory. But taken as a whole, the reported evidence was consistent enough to suggest confidence had grown in proactively getting involved in tasks, being more willing to solve problems openly, trial new approaches without being too scared about getting it wrong and accounting for outcomes more in terms of process than a measure of personal ability. They also emphasised stronger personal responsibility (ownership) for finding a way to deal with a problem rather than talking about whether they were capable of solving it.

Praise through the recognition of aspects done well and communicating a belief and expectation in the student to do better through dialogue about how to move the learning forward (Black & Wiliam, 2009) emerged as a catalyst for raising aspirations. Moving praise from personalised congratulation and confirmation, to genuine value of the work produced, had a positive effect on the students who had produced the work and on those around them because the focus shifted from a personal attribute (ability focus) to the processes used to achieve a particular standard (effort focus). There was also an increase in students that showed pride in their work and wanted recognition for the quality of what they had produced without help. This provides some indication that they had

begun to take greater ownership of their learning as their actions had moved from perceived relevance to intrinsic importance (Pintrich, 2003). The quality of their work had become more personally significant.

Getting students to engage critically with tasks in order to construct new understanding and involve them in more personally adaptive approaches (Boekaerts, 2002) and deeper learning activities (Kicken et al, 2008) relied on clarity in communicating expectations, effective use of questioning and specifically allocated time. The challenge experienced by teachers here was over relinquishing a level of control and realigning the focus on to supporting the learning (Lodwyk et al, 2009). Given that there was an initial increase in explicit communications to support autonomous learning it could be argued that the autonomy was more about task completion (criteria compliance) than learning (exploration) (Torrance, 2007). However, in this study it does not seem helpful to separate these distinctions as both have a place in building self-efficacy beliefs that are fundamental to taking ownership. Furthermore, the interventions used in this study, supported teachers in combining both aspects, shifting the focus from instructional dialogue of directing explicit actions for completion towards helping students decode criteria and thinking prompts in order to deepen their understanding and move their learning forward whilst completing the tasks. The teachers' feedback suggests that students' questioning to support task completion alone decreased, whilst questioning for conceptual understanding increased. This would suggest that students are being directed more towards critical autonomy (developing transformational coping strategies (mastery) for attaining life goals) rather than functional autonomy (extrinsically motivated towards self-interest and performance) (Ecclestone, 1999). But in this study the relationship between these two forms of autonomy was not set at opposite points on a continuum but rather complementary with the motivational influences on autonomy both functional (*operationalizing ownership*: concrete illustration) in managing tasks successfully and transformational (*ownership mind-set*: abstract instruction) in building skills in constructing new knowledge with peers, a sense of the continuity of learning over time and a sense of personal responsibility for their own learning.

Teachers perceived changes in students' behaviour towards taking ownership for their learning as a consequence of implementing interventions designed to increase

motivation for taking ownership (research question 2). They cited significant changes in individual students in all subject domains, increased levels of challenge being selected by students in tasks where choices were given, higher levels of achievement being attained than previously expected and reports of positive changes in whole class attitudes and learning behaviours. Observed changes in students' behaviour during the study revealed that some students remained in established patterns of behaviour throughout the five weeks but some responded to encouragement in changing their approach from expectations of teacher-regulated learning towards self-regulated learning (Flem, Moen & Gudmundsdottir, 2000). One of the crucial aspects towards achieving this transition appeared to be in exposing the students' need to increase knowledge in order to improve their perceived level of achievement. Students also reported that being given a realistic understanding of standard increased their sense of value in investing effort in order to attain their personal goals (Hijzen, Boekaerts & Veder, 2007). The overall effectiveness on students may have been limited by the fact that the teachers were also at different stages in the process of relinquishing strong teacher-regulated approaches to instruction during the study reducing the time students were actually exposed to the stronger ownership orientated, self-regulating approach to learning. However, there were important changes perceived after intervention with students calibrating their standards more against assessment criteria than their teacher's feedback alone. This provides evidence of a shift towards self-regulated approaches to learning that suggest greater ownership because the student is developing a direct relationship with the discipline rather than referring to the teacher for affirmation.

Throughout this thesis I have explored in detail how students' attitudes towards taking ownership for their learning has altered as a consequence of interventions designed to increase motivation for taking ownership (research question 3) and that the impact has been experienced regardless of gender, IQ or social background. Promoting a sense of purpose had a positive effect on helping students prioritise learning over the opinion of their peers and in some students influenced their socio-emotional goals (Boekaerts, 1993). Situational interest increased and in certain cases this was reported as influencing their personal interest because it was seen as an opportunity to sustain learning (Krapp, 2002) and increase understanding (Boekaerts, 2002). One key factor cited by students and teachers as improving levels of interest, readiness to learn and engagement with the

learning was active participation by students in the construction of new knowledge (Schunk & Zimmerman, 1994; Coyle, 2013). Additionally, joint planning and personal to-do lists created by the students increased a sense of the continuity of learning across lessons and supported greater ownership of learning by students who perceived it to be their responsibility to get on with things as they knew what needed to be done rather than waiting to be told what to do next by the teacher.

Over the intervention period students displayed more ownership in organising work, managing tasks and extending their knowledge through the increased opportunities to self-check their work (Rosenshine & Meister, 1992). The most effective self-checking and self-regulative tools that were introduced as part of these interventions were the checklists on planning forward steps in greater detail. These tended to be used more as personalised thinking prompts that emerged in the form of pooled resource material created through joint problem solving, responses to scaffolding developed with the teacher and as a set of self-help actions towards tackling problems. The major drawback to using these tools lay in the quality of instruction on how to use them and the degree of personalisation invested into constructing them as poor instruction resulted in a lack of detail or applicability and served little purpose to the students. For some students the notion of task completion was their measure of learning (Torrance, 2007) although the intervention focus was designed to steer students away from this approach. The effect on students when using these learning tools appropriately, from reports in interviews with students and teachers and through observations, was an increase in self-determined learning behaviours and greater understanding exhibited through significantly less questioning and more active involvement in tasks. This behavioural change was relayed by teachers in their final feedback sessions and I have selected examples from Geography and Maths to illustrate this change:

> **Geography teacher:**   And I've not got seventeen - twenty people with their hand up all the time which has been really good. Because clearly, rather than coming straight to me with a problem, they're starting to deal with it. So in that respect it made my job easier. It meant I could spend time with people who find it a bit more difficult to take ownership.

> **Maths set 4 teacher:**   I think **in** the lesson, we will get to a point where they won't need me that much anymore because as you saw,

right at the very first one you were there, I was just running around, I was not standing still for one moment. Whereas now it seems they seem to look, because I say to them, "the first thing, when you get stuck look in your book", and they will get there.

A peculiarity of this intervention has been its particularly positive impact on those taking part. There were ample opportunities for teachers and students to relay negative feedback in the sessions and when these did occur they were focussed around particular students whose behaviour interrupted the implementation of the interventions and on difficulties encountered by teachers related to their self-efficacy beliefs or their aptitude for changing set patterns of behaviour in line with the intervention focuses. The following examples highlight a few of these:

> **History teacher:** One of the most difficult things was having my own perceptions on how the class saw me and understood my intentions and methods. To find they were completely skewed from the reality. And just, yeah, coming to terms with that was actually quite difficult. I always felt that I was quiet self-aware when it came to relationships and how encouraging I was and so this has opened my eyes which performance management and other formative observations haven't, this much more targeted focus on the learning of the students has, yeah, thrown things up which in 7 years of teaching haven't been thrown up before. …. Dealing with it involved an awful lot of conscious thought actually, to try and address those things, because again after 7 years, I've settled into my own persona and character within the classroom and trying to change that now has been difficult.

> **English teacher:** Obviously to improve you have to look at yourself and see where you're going wrong and it's not always nice. And it's not always easy and it's interesting when you get the student feedback, what you **think** you're doing and what **they** think you're doing can be very different. … But it's not massive things that you're changing and once you do get past that and you do implement the different things you think – Oh, Yeah. And I think sometimes, I have **intentions** in my mind but I'm not actually **delivering** in the classroom.

> **Geography teacher:** I had to think about the language thing, it took me a while to, well not a while but I did have to catch myself.

But it's not been difficult to implement these things and it's not been onerous at all.

Maths set 4 teacher: I think it's been difficult for me, I'll be honest with you, to always place emphasis on the process and getting them involved in it. I mean I try to do it, but because they sometimes, and probably me as well, don't have the patience to wait for others to get on board.

These show the personal nature of teaching and the importance of having interventions that do not dictate what to do but provided space for professional and personal creativity. It would be counter intuitive to this study to encourage ownership to drive learning in students without providing a forum for teachers to take ownership of their teaching particularly as the success of the project was in large part dependent on the teachers investing their time into steering the changes.

This study has recorded experiences and attitudinal changes that have occurred in response to interventions designed to nurture ownership in the context of secondary school classrooms. I accept that in social research there is no conclusive argument and that the positive changes in attitude towards ownership in this study were not experienced by all participants with examples cited by teachers tending to centre on selected students in each group suggesting that the interventions had varied impact. The responses were also affected by the students' willingness to engage with the interventions within the five weeks of the study. The average changes in attitude discussed were quite small, possibly due to the short term nature of the study, but this time scale has allowed some clarity of focus on which interventions initiate changes in attitudes rather than on how these could be sustained. A question for a future project would be to ascertain whether these interventions hold potential for greater effectiveness in all domains if sustained over a longer period of time. The data for Art suggest that this may be the case.

Taking into account the short-comings of this study, the more general changes in learning experiences relayed by both teachers and students and acknowledging the selected cases of particular success, there is some evidence to support the claim that as a consequence of the interventions implemented there was a positive trend towards

students taking greater active possession (ownership) of their learning and experiencing a better quality of learning in the classroom. There is also a good argument for the importance of a dual approach towards promoting greater ownership in students through nurturing an *'ownership mind-set'*, and providing experiences that require a level of control and responsibility (ownership) for driving their own learning: '*operationalizing ownership'* in that the mind-set primes the students to respond to the provision of cognitive resources and in combination, increases the possibilities of the interventions having their intended effect.

The importance for me of undertaking this study stems from my belief that fundamental to education is empowering students and activating their personal volition. This study has shown that teaching and learning in the classroom needs to take into account the whole person in context (Boekaerts, 2002) and the dynamic between both intrinsic and extrinsic goals that play a part in establishing a reason for taking ownership (Vansteenkiste, Lens & Deci, 2006). I have drawn on research to show that the pedagogical benefits to students experiencing some ownership lie in increased self-efficacy beliefs (confidence) which are fundamental in determining attainment (Zimmerman, 2000), a shift of responsibility towards the student to drive their own learning which increases personal significance (domain importance for self-selected goals: Vansteenkiste, Lens & Deci, 2006) and an interest for that domain which makes the effort invested seem less arduous and more worthwhile (maintained individual interest: Hidi & Harackiewicz, 2000). Autonomy through taking ownership has involved attitudinal changes through choice (in tasks and use of strategies), emotional changes through building confidence and increasing self-efficacy (by nurturing mastery approaches to failure and success, recognising strengths, encouraging effort investment and trialling solutions with an emphasis on process rather than ability) and functional skills to build strategies to self-regulate (communicating realistic standards and actions for improvement, scaffolding, time planning, management of tasks through personal checklists and proactive help-seeking) (Noom, De Kovic & Meeus, 2001). Additionally, the longer term benefit of increasing a student's ownership of learning is that potentially this empowers them to redefine themselves.

I believe this study makes a theoretical contribution to knowledge on nurturing ownership. Its strength lies in its theory-driven nature along with its practical applicability to the messy reality of secondary school classroom teaching. I would argue that this is an exploratory piece of research within "Pasteur's quadrant" in that it bridges the gap between basic and applied research and is use-inspired knowledge which focuses on knowledge production within the profession (Tierney & Holley, 2008). Within the research discussed in this thesis many of the theories and research findings tend to jump past the initial stage of activating ownership and focus on self-regulation and autonomy or they identify why students are not actively driving their learning but do not provide a way to overcome this. I believe this study bridges this gap and looks at the roots of ownership, the point where students are not autonomous, nor fully understand how to be, and sets out a way to ignite a change. This study has presented a case for implementing a set of interventions that are not overly prescriptive and that potentially raise achievement through engendering a perspective change towards ability as malleable through effort (reported by both teachers and students). It has highlighted the personal nature of teaching and the importance of providing space for professional and personal creativity for teachers to take ownership of their teaching and steer the contextual aspects of the interventions. The subtle changes in language used to imply choice and focus attention on resolving problems through processes and solution plans (both in relation to praise and in dealing with failure) helped to train students to improve their self-efficacy and develop more *introjected* or *identified* forms of self-regulation (Deci & Ryan, 1994). The shift in presenting feedback from an ability focus (personal attribute) to an effort focus (processes used to achieve a particular standard) helped students develop a more direct relationship with the discipline and engage in calibrating their standards more against assessment criteria than their teacher's feedback alone. This change in the students' relationship to their work was more strongly associated to ownership when examples were cited of reduced questioning to support task completion and increased questioning for conceptual understanding along with greater personal interest, or pride in the quality of work they produced (personally significant). Another key feature of this study was increases in students reporting their responsibility to get on with work rather than wait to be told what to do as a direct response to interventions used to encourage greater active participation in learning and a sense of continuity of learning across lessons through expectations of involvement in co-constructing new

knowledge, joint planning, constructing personal to-do lists and opportunities to continue or extend tasks at the start of lessons. In looking at the nature of the key features as outlined above there is some evidence to support the presence of a dual approach towards increasing motivations in taking ownership through changing attitudes and beliefs related to learning (developing an *ownership mind-set)* and through changing learning behaviours (*operationalizing ownership)* as in combination these have appeared to promote greater ownership.

It is because I stand in the practitioners' camp that I have chosen not to interpret my data through a single theoretical perspective or approach. Additionally I do not presume to know the details of what specifics need to be done with each cohort but recognise the importance of liberating the professionalism and creativity of teachers to steer the learning in their classrooms through utilising the interventions diagnostically to improve student ownership. In fact this study has shown that it is robust enough to have impact on students in a range of domains, implemented by teachers with a wide range of skills, experience and personalities. I therefore believe that there are potential benefits of this study for teachers in providing practical interventions that increase student engagement in learning through a sense of ownership.

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<u>Appendices</u>

Appendix A

Generating the overarching themes for the Theoretical Framework

Generating the overarching themes for the Theoretical Framework

I created a series of tables that linked the literature to intervention possibilities and to how I believed I could establish evidence for these in my study. I used aspects that could be evidenced as the focus for defining the parameters of the themes because there were many interconnected aspects and I wanted to refine my selection into categories for data collection. In order to provide a small insight into how this process led me to the conclusions that I made, I have set out below snap shots of the evidence related aspects from three of the tables used and a summary of why I selected the particular overarching themes to pursue within my theoretical framework.

1. This is a list taken from the 6th filtering process

After filtering all the literature gradually into tables of aspects that were similarly themed and thinking about what this could relate to in classroom practice I concluded that there were three overarching themes to explore concerning ownership.

1. Ownership is intrinsic in nature based on personal interest or personal significance (in life goals, ability beliefs and self-esteem) which drive effort investment

Personal significance: (life-goals and goal orientation) **Developed through purpose, value and interest**
> **Establish evidence for:**
> Learning goal orientations / life goals (related to domain)
> Understanding purpose for tasks in relation to personal goals
> Interest in task
> Reasonable challenge in task
> Value learning enough to persevere with task

Self-efficacy beliefs : Developed through beliefs in ability and self-esteem
> **Establish evidence for:**
> Feedback focussed on processes, strategies and solution plans
> Perceived feelings of progress
> Perceived genuine praise for achievements
> Think aloud problem solving
> Talking through solutions with peers
> Willingness to take risks
> Willingness to make mistakes as part of learning
> Positive feedback in attempting responses
> Recognition of developing competence
> Accurate self-concept of ability through honest feedback
> Gaging how well they are doing against peers

Effort beliefs
> **Establish evidence for:**
> Clarity in understanding the expectations of the task
> Failure seen as task difficulty or the need for more strategies
> Raised standards of outcome directly related to their invested effort
> The desire to do well motivating persistence
> Judgements on effort investment into solution plans: persist or give up
> Time to engage in problem solving
> Proactive help-seeking strategies

2. Ownership assumes active possession and therefore requires opportunities for self-determined choice in managing learning tasks and tools to understand learning strategies

Self-determined choice
> **Establish evidence for:**
> Language of possibility being used
> Awareness of constraints on choice within tasks
> Awareness of choices within task
> Opportunities for experimenting with problem solving
> Choice in strategies to tackle task
> Awareness of task structure (what to do and how to do it)
> Access to support for task completion
> Reflective evaluation of learning against assessment criteria

Feedback

Establish evidence for:
Teachers diagnoses of where students are in their learning
Assess effectiveness of instructional activities against desired outcomes.
Pre-tests to identify prerequisite knowledge and clear up misconceptions

Establish evidence that feedback is :
Calibrated to student's ability
Clear and understandable
Moves the learning forward
Honest, critical and about the task and learning processes
Specific, detailed, focussed on the task and could be acted upon
Identifies strengths and weaknesses and appropriate learning goals
Proactive attitudes towards asking for help
Regulating and adjusting strategies (supported by outside information)

Structured tools for developing ownership of learning: Scaffolds

Establish evidence for:
Sequential breakdown of tasks
Precise actions that can be taken
Understanding the requirements of the tasks
Understand how the task should be tackled
Checklists to prompt thinking and task organisation
Planning work with the teacher
Think aloud problem solving (breaking the problem into parts)
Understanding of links between previous learning and new learning
Time management planning tasks both in and out of the lesson
Do they understand their work ethic and how to use available time well

3. Ownership flourishes in teaching environments that convey a sense of relatedness, provide challenge and emotional support through interactive dialogue, and encourage acknowledgement of difficulties and proactive help-seeking.

Interactive relational influences on ownership practices

Establish evidence for:
Teacher likes them
Easy to ask for help
Want to work harder for them
The teacher is enthusiastic about the subject
The teacher tries to make the work interesting
The teacher engages with the students' learning need
Ability to concentrate in the classroom

2. This is a list taken from the 9th filtering process

For the next stages of filtering, the evidence for all the sections above was re-organised into tables and a new set of themed sections emerged:

1. The intrinsic nature of *ownership* based on personal significance related to interest, goals associated to vocational aspirations, achievement and relatedness and how these affect effort investment.

Personal significance related to *life goals*

Establish evidence for:
Perceived significance of domain for life goals
Perceived value in the task relative to personal goals (have to or want to)

Personal significance related to *interest*

Establish evidence for:
Interest level in task / domain
Level of active involvement in task
The teacher is enthusiastic about the subject
The teacher tries to make the work interesting
The teacher engages with the students' learning need
Reasonable challenge in task
Valuing learning enough to persevere with task

2. The role of teachers and contextual approaches to learning that provide incentives to pursue *ownership* by building incremental effort beliefs and malleable ability beliefs through interactive dialogue, acknowledgement of difficulties, mastery approaches to failure and proactive help-seeking.

Building confidence in *ability* and nurturing a belief that *effort* is worth investing

Establish evidence for:
Clarity in understanding the expectations of the task
Value for persevering with task
Perceived feelings of progress due to effort invested
Raised standards of outcome directly related to their invested effort
The desire to do well motivating persistence
Think aloud problem solving
Talking through solutions with peers
Willingness to take risks
Trust peers or teacher not to put them down
Positive feedback when attempting responses
Feedback focussed on processes, strategies and solution plans

Incentives to pursue *ownership* through acknowledgement of difficulties, mastery approaches to *failure* and *proactive help-seeking*

Establish evidence for:
Willingness to make mistakes as part of learning
Failure seen as task difficulty or the need for more strategies
Perceived genuine praise for achievements
Informed on ability through regular feedback - perceived as honest
Resources for gaging standards and pace
Proactive help-seeking
Easy to ask for help
Time to engage in problem solving
Ability to concentrate in the classroom

3. Ownership, as the active possession of learning, requires opportunities for self-determined choice in managing learning tasks and tools to understand learning strategies.

Establish evidence for:
Awareness of task structure (what to do and how to do it)
Opportunities for experimenting with problem solving
Choice in strategies to tackle task
Reflective evaluation of learning against assessment criteria
Access to support for task completion
Language of possibility being used
Awareness of constraints on choice within tasks
Awareness of choices within task
Task explained clearly and understood

Developing *feedback* that supports *ownership* of learning

Establish evidence for:
Calibrated to student's ability(not too challenging or too easy)
Clear and understandable
Perceived as helping learning progress
Honest, critical and about the task and learning processes
Specific, detailed, focussed on the task and could be acted upon
Identifies strengths and weaknesses perceived as appropriate learning goals
Teacher' diagnoses of where students are in their learning
Assess effectiveness of instructional activities against desired outcomes.
Pre-tests to identify prerequisite knowledge and clear up misconceptions
Proactive attitudes towards asking for help
Regulating and adjusting strategies (supported by outside information)

Structured scaffolds that support *ownership* of learning
Sequential breakdown of tasks
Precise actions that can be taken
Understanding the requirements of the tasks
Understand how the task should be tackled
Checklists to prompt thinking and task organisation
Planning work with the teacher
Think aloud problem solving (breaking the problem into parts)
Understanding of links between previous learning and new learning
Time management planning tasks both in and out of the lesson
Do they understand their work ethic and how to use available time well.

3. This is a list taken from the 11th filtering process

The next stages of the filtering process were focussed on how to take all the above and consider how they could translate into intervention opportunities.

1. Intervention to set learning activities into the context of students' personal goals, helping them establish why it is worth taking ownership for their learning. (personal significance)

Establish evidence for:
Significance of domain for life goals
Understanding why doing the task is beneficial for their learning or attaining their life goals.
Personal interest in domain
Teacher relayed interest in the domain
Interest in task
Level of active involvement in task
Planning work with the teacher
Level of challenge in task
Understanding of links between their own knowledge and new learning
Teachers' diagnoses of where students are in their learning using pre-tests to identify prerequisite knowledge and clear up misconceptions

2. Intervention to develop task structures that provide support for students to take responsibility for management of tasks and ownership of self-regulation processes.

Establish evidence for:
Awareness of task structure (what to do and how to do it)
Aware of the sequential breakdown of tasks
Awareness of constraints on choices within tasks
Awareness of choices within task
Choice in strategies to tackle task
Access to support for task completion
Time management, planning tasks both in and ut of the lesson
Checklists to prompt thinking and task organisation
Perceived teacher expectations: to be responsible to continue work // to wait for instruction

3. Intervention to support ownership practices in classrooms by encouraging greater proactive engagement in knowledge building through learning processes.

Establish evidence for:
Willingness to take risks by trialling solutions
Trust peers / teacher not to put them down
Positive feedback received when attempting responses
Feedback focussed on processes, strategies and solution plans
Failure seen as task difficulty or the need for more strategies
Easy to ask for help
Proactive help-seeking
Ability to concentrate in the classroom
Think aloud problem solving
Talking through solutions with peers
Time to engage in problem solving
Language of possibility being used by teachers (observed)

4. Intervention to promote positive feedback that enables students to self-regulate more accurately and experience greater ownership, and personal impact, on achievement.

Feedback that is:
Clear and understandable
Perceived as helping learning progress
Helps identify weaknesses and strengths
Specific, detailed and can be acted upon
Focussed on task or process not effort investment
Calibrated to student's ability (not too challenging or too easy)
Perceived genuine praise for achievements
Perceived feelings of progress / achievement due to effort invested
Resources for gaging standards and pace
Teachers assess effectiveness of instructional activities against desired outcomes then regulating and adjust strategies (supported by outside information)

Summary

Finally, after filtering the above a few more times I arrived at the interventions that I chose to pursue in this study. However, looking at the various stages and thematic selections made over this process I discovered that there was an underlying core ownership value within each intervention:

Intervention 1 has been developed from a focus around the intrinsic nature of ownership and the aspects of learning that hold meaning because they bare significance to the individual in some way and therefore provide an underlying motivational drive to learn more in that domain. Therefore I chose to select **'Personal Significance' as the core ownership value underlying intervention 1.**

Intervention 2 has been developed from a view that self-initiation supports personal determination which is a fundamental aspect of enacting ownership rights and can be stirred into action through the provision of choice and expectation of active involvement in managing tasks supported by learning tools. Therefore I chose to select **'Self-determination' as the core ownership value underlying intervention 2.**

Intervention 3 has focused on the underlying attributes of ownership specifically those related to self-confidence and beliefs in self-efficacy and has taken the view that attitudes to failure and problem solving play a significant role in defining these attributes in students. Therefore I have chosen to select **'Mastery approaches to problem solving' as the core ownership value underlying intervention 3** with a particular focus on the language used to give feedback: highlighting processes or solution plans and suggesting attainment can be raised through appropriate effort investment.

Intervention 4 is similar to intervention 2 in terms of looking at fundamental aspects of enacting ownership rights but focusses more on engaging students in driving their own progress through effective self-regulation that is supported by access to the required knowledge and accurate information about their ability and progress. Therefore I chose to select '**Feedback for Ownership' as the core ownership value underlying intervention 4**.

Appendix B

The actual outline of interventions given to teachers for use in the study (4 sheets), showing how interventions related to questions on the questionnaire and what evidence was being looked for

(The sections 1-4 are noted as A-D in the thesis with questions coded by their section and number)

The actual outline of interventions given to teachers for use in the study (4 sheets), showing how interventions related to questions on the questionnaire and what evidence was being looked for (The sections 1-4 are noted as A-D in the thesis with questions coded by their section and number)

The **function of the questionnaire** is to **identify evidence for** particular **attitudes, beliefs** and **practices** that **directly promote or hinder** students from taking **ownership of their learning.** The data produced from the questionnaire by the class as a whole provides an overview of areas that are strong in supporting ownership and those that need intervention to enhance students' ownership.

Section 1 investigates the reason or purpose for learning in a domain

Q1-3 establish the **motivational perspectives** that students relate to the domain (why they invest effort)	1. I have to do well in Domain because I need it for my future career. 2. I want to do well in Domain because it interests me as a subject. 3. What my classmates think of me is more important than doing well in Domain.	**Intervention 1a:** To establish a reasoned rationale for tasks, communicating this clearly to students to enable them to see how the unit of work or tasks fit into the bigger picture of their life goals and doing well (GCSE). *Prompts for consideration:* - *What real life metaphors can be matched to the task? (authenticity)* - *Why do the students need this unit of work? (objectives related to assessment)* - *Focus on the importance of skills acquisition and breadth of strategies as the primary way to access higher achievement not simply more effort investment (try this.., not try harder).* - *Draw out enthusiasm by displaying enthusiasm for the Domain.*
Q4-8 establish the level of **personal significance** experienced in domain specific lessons - The *purpose or reasons* for tasks are made personally significant - Significance is created through generation of *interest* - Personal significance is made explicit through *involvement in planning* learning activity - Personal significance is drawn out through calibrated *challenge that motivates effort investment* - Learning made personally significant through expectations of *active involvement*	4. I understand why the tasks we do in Domain are important. 5. The work we do in class is interesting. 6. We organise how we are going to do tasks with the teacher. 7. How challenging is the work you *usually* do in Domain lesson? **Too difficult - Too easy** 8. How involved do you get in lesson tasks? **Fully involved - Not involved**	**Intervention 1b:** To build on or ignite interest and involve students in co-constructing the unit of work through initial activities that help to diagnose whether students have the necessary prerequisite knowledge or hold any misconceptions that will affect learning in the new unit of work or task. (*Diagnosis here could be done through verbal or written processes, either formally or informally. The desired result is to establish <u>with</u> students their need for new knowledge and its links to their prior knowledge and to gain better calibration of challenge in subsequent tasks*) *Prompts for consideration:* - *Draw out interest by displaying personal interest or value for the task* - *Trial innovative task organization* - *Involve students through questioning about process not affirmation of understanding* - *Exemplars to work from - used as identification of quality or inadequacy* - *Use students to support their peers towards successful task completion* - *Make explicit the organisation or planning of lesson tasks <u>with</u> students at the start of the lesson (on board, rough paper, in planner, exercise book) and refer to it during the lesson.*

Section 2 investigates the provision for managing and self-regulating tasks in order to complete them successfully

Q1-2 identify the presence of two crucial aspects related to **self-determination** essential for taking ownership: - *Choice within tasks* - *Choice in strategy* – encouragement to utilise their own knowledge to tackle new problems	1. I can choose from different task based activities in Domain lessons. 2. The teacher encourages me to try working out the answer myself.	**Intervention 2a:** To make explicit choices or constraints on choice within tasks, ensuring clarity of instruction for processing tasks that includes sequential steps or sub goals that extend across lessons and time frames to allow students more opportunities for personal management of tasks. **Intervention 2b:** To make explicit expectation of readiness to continue with set tasks on arrival reinforcing the classroom as a place for building on learning rather than a place to wait for instruction.
Q3-5 identify the presence of **tools that enable** ownership through **self-regulation:** - *Scaffolding* (step by step break down of tasks) - *Time planning* (explicit direction of workload organisation) - *Checklists* (clarity on what to do in order to complete successfully against assessment criteria)	3. The tasks are explained in small steps to help me do them. 4. The teacher helps us plan our time so that we can complete tasks by the deadline. 5. We make checklists to help us organise and manage our work.	*Prompts for consideration:* - *Provision of self-checking opportunities through checklists to prompt critical thinking or task organisation* - *Openly planning sequential steps to manage tasks in lessons* - *Openly planning the layout of a week or two weeks of learning to show overlap from one lesson to the next* - *Provide small tasks that run over into other lessons and that can be 'got on with' on arrival into the next lesson* - *Make explicit the expectations for the start of lessons (learning behaviours not just attitudes so that readiness to learn is a practical activity that they DO on arrival)*
Q6 establishes the level of **clarity in understanding** instructions related to successful task completion	6. How well do you understand what you are expected to do in Domain? **Very clear instructions - Instructions are confusing**	
Q7 identifies **expected learning behaviours** in lessons as predominantly teacher-directed or student-driven	7. When I get to my Domain lesson I am *usually* expected to: **Be ready to continue with my work - Wait to be told what to do**	

Section 3 investigates ability beliefs and awareness of personal agency relative to practising ownership

Q1-2 establish whether students perceive ability as fixed or malleable (self-efficacy beliefs)	1. When I get stuck I think it is because I do not have the ability to do the task. 2. When I get stuck I think it is because I need to try harder to find the solution.	**Intervention 3a:** To encourage students to view failure as the signal to look for more strategies by focussing instruction on learning processes that lead to quality outcomes, providing opportunities for think aloud problem solving and encouraging proactive help-seeking. *(Establishing a class environment that positively promotes trial and error as part of the learning process).*
Q3-4 identify the use of **open 'speech'** and collaboration to teach **problem solving strategies**	3. Sometimes we work out how to do tasks 'out loud' with the teacher. 4. Sometimes we work out how to do tasks by talking to each other in groups.	
Q5 identifies expectations of **proactive help-seeking**	5. My teacher wants me to ask for help when I need it.	*Prompts for consideration:* - *Getting students engaged in resolving mistakes and determining resolutions made in a modelled answers* - *Focus responses to mistakes on the process alone not the student who made them to realign attitudes towards the need to gain more knowledge and away from feelings of incompetence (their lack of ability)*
Q6 identifies students' **sense of value and support when making mistakes**	6. In Domain making mistakes makes me feel silly in front of my classmates and the teacher.	- *Positive recognition for trial and error by recognising effort and praising solution plans rather than focussing on getting it wrong or right.*
Q7-8 establish the **balance of mastery** or **performance attitudes** towards the demonstration of success.	7. In Domain lessons, success is seen as improving your understanding or skills. 8. In Domain lessons, success is seen as getting higher scores or grades.	- *Make explicit the expectation for students to resource their need for help through any resources that are at their disposal (peers, books, teacher, internet etc.)*
The use of autonomy supportive language is not evidenced through the questionnaire, but forms part of the intervention process. It is used to support the **students' perceived control of learning processes.** (Verbally negotiating ownership)	Observation only: *Looking for occasions where the **language of possibility and implied choice** is used.*	**Intervention 3b:** To communicate instruction for tasks and learning activities through language that implies choice and responsibility on the part of the learner to engage in the learning rather than demand compliance. *Prompts for consideration:* - *Suggestive language such as 'you can / could' / 'have you tried.....?' .....* - *Positive negotiating language that relates their desired achievement goals with their present achievement in class coupled with suggested changes to their approach to help them **direct their improvement** more effectively **themselves.***

Section 4 investigates feedback through written comments and verbal advice that build confidence in driving ownership of effort investment

Q1 identifies feedback that **can be acted upon** to gain improvement	1. The teacher helps me see what I can do to improve my work.	**Intervention 4a:** To encourage students to persevere by conveying genuine information about developing competence, recognising effort invested and pushing skills acquisition so that the high quality outcome ignites further interest. Feedback needs to be honest, critical, process orientated and specific so that students understand what they have to <u>do</u> to complete the task successfully.
Q2 identifies competence valuation (**building** the student's **confidence** in their own ability to achieve)	2. The teacher helps me see the things I have done well.	
Q3 establishes whether students believe that they have a **realistic grasp on** their **standard**	3. The teacher helps me to get a realistic understanding of the standard I am working at.	
Q4 establishes the provision of **encouragement to attain more through** invested **effort into skills acquisition**	4. My teacher encourages me to try and achieve more by improving my skills in Domain.	
Q5 identifies the breadth of **resources** available **for self-regulation** of pace and standard	5. What do you do to check how well you are doing in Domain : o I don't check how well I am doing. o I compare my work to my classmates o I compare my work to examples of high quality work o I check my work against the examples in the textbook o I check or mark my own work (using assessment criteria or answer sheets) o I ask the teacher to check my work. o Other (please explain)........................... .	**Intervention 4b:** To encourage students to self-check on pace and standard through the provision and identification of alternative resources.
Examining feedback from staff on **intervention implementation, restrictions** and perceived **effectiveness.**	In discussion / observation: *Intervention made domain and teaching style specific - examining effectiveness and implementation issues / successes.*	*Prompts for consideration:* - *Assess effectiveness of instructional activities against desired outcomes* - *Assess adjustments to strategies for domain / cohort needs* - *Reflect on student behaviour / attitudes in response to interventions to improve 'ownership'*

<u>Appendix C</u>

Questions used in teacher interviews

Questioned used at the last feedback session with teachers

Questions used in student interviews

Questions used in teacher interviews

Intervention 1a:

Can you talk about how you:
- have communicated the value and significance of **'why'** the task is important to do?
- have adapted tasks to help them **understand or engage** with the new knowledge?

Intervention 1b:

Can you talk about how you:
- **establish with students their need** for new knowledge / skills?
- include them in **co-constructing** the new knowledge / skills acquisition?

Intervention 2a:

Can you talk about how you help students determine aspects of their learning through:
- **choices** within tasks or use of strategy?
- **self-checking prompt** for critical thinking or task organisation (checklists)?
- **open planning** *with* students of **sequential steps,** and **time frames** to help them manage tasks in and across lessons?

How did the cohort respond? *(behaviour / attitudes)*

Intervention 2b:

What expectations have you **made explicit** to the students regarding learning behaviours for the start of lessons (expect them to **do** on arrival)?

How have they responded to these expectations? *(behaviour / attitudes)*

Intervention 3a:

Can you talk about :
- what you did to **focus learning more on process and strategy** rather than solution?
- what you did to encourage **collaborative trial and error** through **'think aloud'** problem solving?
- how you are shifting the emphasis of **praise** from achievement to recognition of **effort and good use of strategy (solution plans)?**
- what you do to promote *proactive* help-seeking?

How did the cohort respond? *(behaviour / attitudes)*

Intervention 3b:

Have you noticed any changes in your use of language? (language of possibility / negotiating ownership)

How did the cohort respond? *(behaviour / attitudes)*

Intervention 4a:

Can you share any examples of when you have **encouraged** a student **to persevere** by providing **specific actions for improvement** to help them **drive their own ability level higher** in your subject?

(honest / critical/ specific feedback that infers ability is malleable through incremental effort investment)

How did the student respond? *(behaviour / attitudes)*

Intervention 4b:

What sort of resources are you using to encourage students to self-check their pace and standard?

How well are they using these?

Is there anything else you are trialling regarding the interventions to enhance ownership practices?

What will you do differently or trial in the next lesson?

Questioned used at the last feedback session with teachers

1. Could you talk through your experience of being part of this study in terms of why you volunteered to take part?

2. What impact has it had on your own professional practice?

3. What have been the most difficult aspects to deal with and how have you sought to deal with them?

4. In your knowledge of the students prior to intervention have you noticed any changes that evidence greater ownership practices or not?   (Could you cite examples to evidence your observations please.)

5. Is there anything different in your whole class dynamic?

6. Have you found that the interventions have resulted in more work for you or less work for you, inside or outside the classroom?

Thank you for taking part in this study.

Questions used in student interviews

Intervention 1

1. Has your understanding of why you are doing the tasks set changed?
2. Have you experienced any changes to your own involvement in the learning activities?

Intervention 2

1. Have you seen any differences in the expectations of your involvement in lessons over this last half term?
2. Have you been able to continue with your work without lots of the teachers help?
   (scaffolding smaller steps within tasks in order to successfully complete them)
3. Have you changed in the way you managed tasks over the past few weeks? Has there been more planning? Have you been involved with more of that at all?
4. What differences have you noticed in your learning environments or changes in the teacher's expectations?

Intervention 3

1. Have you had any opportunities to openly solve problems in lessons?
2. How useful has this been and do you like learning in this way?
3. How confident are you to try to solve a problem with the class?
4. Have you noticed any differences in the way the class reacts to people trying to help solve a problem openly in class?

Intervention 4

1. Has the feedback that you have been given spoken or written helped you feel more confident in what you can achieve and why? Or has it not?
2. Has the feedback you have received over the past few weeks helped you understand the standard you are working at or aiming towards any better than previously?
3. Have you done more or less self-checking by using resources provided?

Final open question

Thinking about the way things were before half term and the way things have been over this last half term, what changes have you observed, either in the way people in the class have behaved or the way the teachers behaved, or just anything at all where you think, 'that's different actually to the way it was before?'

Appendix D

The questionnaire used in the study
(Actual size used: A4)

QN_____

Questionnaire

Please read the questions carefully and answer them as honestly as you can.

There are 4 sections to complete. Your answers will remain anonymous.

_____

1.   This section looks at your learning in Domain.

Please Tick ONE answer for each statement:	Strongly agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly disagree
1	I have to do well in Domain because I need it for my future career.						
2	I want to do well in Domain because it interests me as a subject.						
3	What my classmates think of me is more important than doing well in Domain.						
4	I understand why the tasks we do in Domain are important.						
5	The work we do in class is interesting.						
6	We organise how we are going to do tasks with the teacher.						

7   How challenging is the work you *usually* do in Domain lessons?
(Tick one number)

Too difficult | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | Too easy

8   How involved do you get in lesson tasks?
(Tick one number)

Fully involved | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | Not involved

2.   This section looks at how you manage tasks in your Domain Lessons.

Please Tick ONE answer for each statement:	Strongly agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly disagree
1	I can choose from different task based activities in Domain lessons.						
2	The teacher encourages me to try working out the answer myself.						
3	The tasks are explained in small steps to help me do them.						
4	The teacher helps us plan our time so that we can complete tasks by the deadline.						
5	We make checklists to help us organise and manage our work.						

6   How well do you understand what you are expected to do in Domain?
(Tick one number)

Very clear instructions | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | Instructions are confusing

7   When I get to my Domain lesson I am *usually* expected to:
(Tick one number)

Be ready to | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | Wait to be
continue working   told what to do

3. This section looks at how you deal with mistakes and problems in Domain.

Please Tick ONE answer for each statement:	Strongly agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly disagree
1	When I get stuck I think it is because I do not have the ability to do the task.						
2	When I get stuck I think it is because I need to try harder to find another solution.						
3	Sometimes we work out how to do tasks 'out loud' with the teacher.						
4	Sometimes we work out how to do tasks by talking to each other in groups.						
5	My teacher wants me to ask for help when I need it.						
6	In Domain making mistakes makes me feel silly in front of my classmates and teacher.						
7	In Domain lessons, success is seen as improving your understanding or skills.						
8	In Domain lessons, success is seen as getting higher scores or grades.						

4.   This section looks at feedback (advice, comments and other resources) that helps you improve your learning in Domain.

Please Tick ONE answer for each statement:	Strongly agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly disagree
1	The teacher helps me see what I can do to improve my work.						
2	The teacher helps me see the things I have done well.						
3	The teacher helps me to get a realistic understanding of the standard I am working at.						
4	My teacher encourages me to try and achieve more by improving my skills in Domain.						

5   What do you do to check how well you are doing in Domain :
(Only tick the ones you actually use in Domain)

○ I don't check how well I am doing

○ I compare my work to my classmates

○ I compare my work to examples of high quality work

○ I check my work against the examples in the text book

○ I check or mark my own work (using assessment criteria or answer sheets)

○ I ask the teacher to check my work.

○ Other (please explain)……………………………………………………………………

You have now completed the questionnaire

Thank you

Appendix E

Adjustments made to coding questions for analysis

Adjustments made to coding questions for analysis

A. Personal significance	Very strong motivation for taking ownership	Strong motivation for taking ownership	Moderate motivation for taking ownership	Some motivation for taking ownership	Low motivation for taking ownership	Very low motivation for taking ownership
A1. I have to do well in Domain because I need it for my future career.	6	5	4	3	2	1
A2. I want to do well in Domain because it interests me as a subject.	6	5	4	3	2	1
A3. What my classmates think of me is more important than doing well in Domain.	1	2	3	4	5	6
A4. I understand why the tasks we do in Domain are important.	6	5	4	3	2	1
A5. The work we do in class is interesting.	6	5	4	3	2	1
A6. We organise how we are going to do tasks with the teacher.	6	5	4	3	2	1
B. Self-determination						
B1. I can choose from different task based activities in Domain lessons.	6	5	4	3	2	1
B2. The teacher encourages me to try working out the answer myself.	6	5	4	3	2	1
B3. The tasks are explained in small steps to help me do them.	6	5	4	3	2	1
B4. The teacher helps us plan our time so that we can complete tasks by the deadline.	6	5	4	3	2	1
B5. We make checklists to help us organise and manage our work.	6	5	4	3	2	1
C. Mastery approach						
C1. When I get stuck I think it is because I do not have the ability to do the task.	1	2	3	4	5	6
C2. When I get stuck I think it is because I need to try harder to find another solution.	6	5	4	3	2	1
C3. Sometimes we work out how to do tasks 'out loud' with the teacher.	6	5	4	3	2	1
C4. Sometimes we work out how to do tasks by talking to each other in groups.	6	5	4	3	2	1
C5. My teacher wants me to ask for help when I need it.	6	5	4	3	2	1
C6. In Domain making mistakes makes me feel silly in front of my classmates and teacher	1	2	3	4	5	6
D. Feedback for ownership						
D1. The teacher helps me see **what I can <u>do</u>** to improve my work.	6	5	4	3	2	1
D2. The teacher helps me see the things I have done well.	6	5	4	3	2	1
D3. The teacher helps me to get a realistic understanding of the standard I am working at.	6	5	4	3	2	1
D4. My teacher encourages me to try and achieve more by improving my skills in Domain.	6	5	4	3	2	1

(C) Balance between Performance : Mastery	Very strong orientation	Strong orientation	Moderate orientation	Some orientation	Low orientation	Very low orientation
C7. In Domain lessons, success is seen as improving your understanding or skills. (MASTERY)	6	5	4	3	2	1
C8. In Domain lessons, success is seen as getting higher scores or grades. (PERFORMANCE)	6	5	4	3	2	1

A. Personal significance	Very **high levels of challenge** require a lot of support and negate ownership **(10-12)**			Ownership requires **reasonable challenge** to engage learning **(5-9)**.				Very **low challenge** reduces interest and engagement **(1-4)**			
A7. How challenging is the work you *usually* do in Domain lesson?	1	2	3	4	5	6	6	5	4	3	2	1

B. Self-determination	High involvement suggests genuine opportunities for taking ownership **(9-12)**				**Moderate involvement** suggests some opportunities for taking ownership **(5-8)**				**Low involvement** suggests little provision of opportunities for taking any ownership **(1-4)**			
A8. How involved do you get in lesson tasks?	6	6	5	5	4	4	3	3	2	2	1	1

B. Self-determination	**Clear instructions** enable self-determined work and opportunities to take ownership **(9-12)**				**Moderate clarity** enables some self-determined work but limits extent of ownership **(5-8)**.				**Lack of clarity** (confusion) reduces opportunities for self-determined work and requires more teacher support to drive learning forward **(1-4)**			
B6. How well do you understand what you are expected to do in Domain?	6	6	5	5	4	4	3	3	2	2	1	1

	Expectations of readiness to continue work imply **student ownership** of the learning and more of a **facilitative role from the teacher (9-12)**				Expectations of readiness to continue work imply **some student ownership** of the learning although the teacher's role is **more about control than facilitator (5-8)**				Expectations of students to wait to be told what to do **imply teacher control** of the learning and **passive lack of ownership** from the student **(1-4)**			
B7. When I get to my Domain lesson I am *usually* expected to:	6	6	5	5	4	4	3	3	2	2	1	1

Appendix F

Observed help seeking activities for each domain:
observations undertaken in the first and third week of the study

Observed help seeking activities for each domain: observations undertaken in the first and third week of the study.

Observed evidence of:	English	Food tech	Geography	History	Maths 1	Maths 4	Physics
Help seeking activities: **T – teacher being asked for help** **P- peer being asked for help** **R- resources being used as help**	T-clarification of task T-help with the task P-help with the task	T- to help **do** the work P- for clarity of instructions on written task. *LSA – help with work*	T- clarification of task T- help with resources T- confirmation that the work was on track R- books and support booklets used to aid work	T- clarification of task T- using teacher as facilitator T- Confirmation that the work was on track P- peer support to extend work R- support booklets and personally developed resources used to aid work – internet and booklets	T- students went up to the teacher to gain support for diagnosing where they had gone wrong. P- checking work against peers.	T- clarification of task T- seeking re-clarification without thinking it through for themselves.	T- to clarify task T- seeking re-clarification without thinking it through for themselves. T-Help with the task P- checking work against peers. P-help with the task
	T- clarification through proposed example T- confirmation that the work was on track P - clarification through proposed example R- resources used to aid work	T-hands raised for the teacher for help - no work done until teacher came to them. (1 student got up and found her teacher to resolve her problem).	T- confirmation that the work was on track R- books and support booklets used to aid work	T- proactive help-seeking behaviour (students got up and stood near the teacher in the room away from distracting other students while they waited for help. R- using resources (teacher had started the lesson making explicit the process of using resources before asking for help)	P- stronger students helped their peers along their row (seating organised by ability) (Students seemed used to having to give an explanation. Teacher had a set process of questioning to help them self-check)	T- for help to move their work forward (Students were engaged in thinking through answers before seeking help) R- use of their own worked examples to support when stuck.	T- to confirm approach to writing / information was correct. R- actively using their drawn diagrams of the experiment to support their work. *Technician: to help set up their apparatus.*

Appendix G

Extracts from teachers' reflections in their final feedback sessions

Extracts from teachers' reflections in their final feedback sessions

Motivations for volunteering to be part of the study

English teacher: Well I want to improve as a teacher basically. And I was quite interested in the whole idea of taking ownership of learning, it links into a lot that we've been doing at school with developing independent thinkers and I thought particularly in my subject, where it's very sort of creative and very open, it's nice to allow the students to have that.

Food technology teacher: I think because of how last year, I struggled with my year 11's I wanted to not slip down the same path. I wanted to turn it round with the year 10's.

Geography teacher: Because I was doing this controlled assessment with year 10s: when we did the practice one, I sometimes found myself running around the class trying to help everyone at once and I know there were students in there who are under confident and just lazy and I wanted them to take part more really, to take ownership.

History teacher: I had come in with a new job and new responsibilities and actually the primary reason for coming into teaching was no longer my primary concern and so this was a good opportunity just to readdress what I felt should be the main focus. Also knowing that it was with year 10, therefore a very important year group too, improving results is inevitably the nature of the game and just seeing what we do and seeing whether it is effective and it's been **hugely** valuable in terms of that.

Maths set 1 teacher: It was a chance to see something different. But then I got swamped down because I took over year 7 (left the study after 2 weeks).

Maths set 4 teacher: For a long time, I felt that my teaching in that particular class was lacking in comparison to my teaching in the other classes. I felt that I had almost, given up on them because they can be challenging. So I took part because I wanted to have someone give me interventions to put in place and guide me through it, to make my teaching better for that specific class. I think even though they are a bottom set, they should have the best chance possible to reach their targets or even more.

Physics teacher: I had this class which I didn't know what to do with. They'd given up on Physics and if I'm honest I'd given up on them. … But even those that perhaps would have worked were happier to join in with the ones that didn't. So I was despairing and I had nothing to lose.

Perceptions of the impact this study has had on their professional practice.

English teacher: Well I think it's definitely made me more aware of myself in the classroom and how I am with the kids and it's helped me really reflect on what I'm doing. Because, obviously we have lesson observations and I've been really pleased with my lesson observations this year I've been consistently getting outstanding, but I want to be constantly thinking well "Where can I still improve? What can I tweak?"

Food technology teacher: I feel more confident, and when it goes wrong like it did last week, I think **why** did that go wrong? And I'm thinking about it as I'm doing every single lesson. It's a lot better…. I've enjoyed it. Because I feel it's all positive. I do feel much more confident.

Geography teacher: The impact has been on lots of **little** things like my language is changing to put the emphasis more on the skill rather than the person. Stuff that, I was kind of starting to do, like I would occasionally refer to their target grades, but now I use that much more as a tool to try and persuade them to do something, which is really helpful.

History teacher: Hugely valuable in influencing my own practice but then as Head of department, I'm able to feed to the rest of the department and they're able to benefit too. So it's changed a lot of the ways that we write the controlled assessment across the department…… Developing those learning tools is something which I wouldn't have done without this study at all because there are inevitably time constraints in terms of the work load with teachers. And planning **a** lesson which delivers content and takes them there, takes enough time to do and then to actually stop and think about all the different aspects of it is a bit of a luxury.

Maths set 1 teacher: I think, I did, I actually did learn stuff. Although I didn't use it with the year 10's because I never had them in a full class. I actually transferred. So I know it was meant to be aimed at the year 10's but it was, there were some good ideas and it sort of trickled down to my other groups as well….. The most difficult aspect was changing my ways. You know, it's just a **conscious effort** because I've been teaching thirty years and because I know I'm successful, most things are second nature.

Maths set 4 teacher: It was very **specific** to what I was going to do, you know right from the very start of the lesson: how I talk to them at the beginning, how I talk to them in the middle, how I talk to them at the end, how I explain things, what I put emphasis on. All those things it impacted, and I do think about those things more now as well as I teach my other classes. I think it forced me in a way to really **reflect** on what I've been doing with them and look at how **exactly** I can make it better. So professionally, I think in my planning of lessons specifically, breaking tasks down a little bit more, giving them more structure in the lesson so that they know what's coming. That's made a big difference for me professionally.

Physics teacher: I don't think I've had anything that was difficult it's all been positive because things were so bad that anything was an improvement and to actually try things and find that they made a difference. It's wonderful. ….. I've probably been on various courses in school, out of school, where this sort of thing has been mentioned and the different ways of doing things but I've never actually had anybody sit down in the lesson and say, "Try this" and then gone off and tried it. It's always been something to do in the future when you've got time. And the changes I've made they've not really been enormous changes.

Perceptions of the effect on workload of implementing the interventions

English teacher: No actually, I think because planning my lessons and everything, using this as criteria, meant that the responsibility is put onto the kids and actually it was less work in the long run for me. So the work they were actually doing was more beneficial and it was much better.

Food technology teacher: Less in the classroom. I've learnt to use the resources that are there and adapt them properly. I think I over planned before. I think I always wanted it in boxes just sorted, and ticked, and done. Whereas now, I've given them more leeway, so yeah they are taking responsibility.

Geography teacher: No extra work. It's just tweaking stuff that I would be doing anyway. The thing that I wouldn't have done was give out the post-its but that literally took like three or four minutes at the end of a lesson and I already had post-its. So that wasn't any extra work. And I've not got seventeen - twenty people with their hand up all the time which has been really good. Because clearly, rather than coming straight to me with a problem, they're starting to deal with it. So in that respect it made my job easier which is good. It meant I could spend time with people who find it a bit more difficult to take ownership.

History teacher: Through the initial work and thinking about it and thinking about skills and thinking about processes, the end job in the classroom becomes an awful lot easier in fact.

Maths set 1 teacher: And it was more work for me because when I was preparing the work, I was having to consciously think how am I going to get them to do this? So yes, it was significantly more work.

Maths set 4 teacher: So I think my planning took a bit more time but that's right because that's how much planning I put into my other lessons. So it's just right. I think **in** the lesson, we will get to a point where they won't need me that much anymore because as you saw, right at the very first one you were there, I was just running around, I was not standing still for one moment. Whereas now it seems they seem to look, because I say to them, "the first thing, when you get stuck look in your book", and they will get there.

Physics teacher: More work out of the classroom because I was planning things…. It depends what you mean by work in the classroom. I was more engaged with what they were doing in the classroom as opposed to trying to control their behaviour. So me being occupied in the classroom has gone from a pretty dire experience to something which is positive and why I actually want to stay in teaching. It's to help them do better not keep them under control.