Examining the impact of positive feedback on student motivation

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Contents

Examining the impact of praise on student motivation

Abstract

A significant body of educational research identifies intrinsic motivation as a significant factor in education with the capacity to improve outcomes for students. Motivation not only appears significant but also pliable. The use of praise has been explored to augment intrinsic motivation and a number of investigations suggest promise for process, outcome and effort praise. Many of these investigations, however, focus on short-term interventions and few aim to elicit the cognitive processes that underpin motivation and behavioural change. This work gives a full account of current motivational and praise literature, and seeks to investigate the implementation of praise types above within a long-term, classroom-based action research project. Praise interventions had a duration of one term and were administered to two year-9 classes (English and science) in an independent secondary school in the UK. A mixed method constructivist methodology is adopted comprising of the Motivated Student Learning Questionnaire (MSLQ) and a mixture of semi-structured and unstructured interviews. MSLQ responses failed to demonstrate significant change in motivation across any of the praise types. Interview discussions, however, highlight that students appear to have the capacity to be metacognitive regarding motivation and perceive significant value for process praise. The value attributed to process praise appears contingent on the perception of improved outcomes or progress.

Literature review

Introduction and justification

The power of motivation is uniformly appreciated across society and across contexts (Forgas *et al.*, 2005; Liu *et al., 2012*). From a psychological perspective, motivation describes one's direction to action or the reason underpinning behaviour (Elliot & Covington, 2001). Motivation is thus a powerful construct with the capacity to alter desire, behaviour and persistence; each of which are innately measureable traits. Perhaps for this reason, more than any other psychological principle, an appreciation of motivation has become ingrained within society.

In education, motivation is no less discussed. With the capacity to alter behaviour, motivation has become a key part of dialog in staffrooms. As far back as 1987, Ames describes teachers' perceptions of motivation as among the fore factors in education (Ames, 1987). Over the past half-century motivation has continued to be the focus of a bulk of educational research (Hodgeman, 2015; Henderlong & Lepper, 2002; Coe *et al.,* 2014; Gutman & Schoon, 2013), which has increasingly directed and focused the debate as to how to improve motivation in students . Indeed, the value of improved motivation has been clearly underlined by research that suggests that it can improve students' outcomes (Benware & Deci, 1984). Principally, this is achieved through improved task choice and persistence as well as improved acquisition and transfer of knowledge and skills (Dweck, 1986; Heyman & Dweck, 1992; Ryan & Deci, 2000a; Farrell, 1985; Eccles & Wigfield,

2002; Pintrich & Schrauben 1992). Further, there is evidence linking improved motivation to improved mental health in students (Taylor & Brown, 1988; Ryan & Deci, 2000a; Accordino et al., 2000; Matsumoto & Sanders 1988). With such findings, motivation is now fully embedded within the dialogue of teacher practice.

Debate in education is one thing, however, teaching practice regarding motivation continues to be far removed from practice advocated by research. In line with Ames (1987), teachers still consider motivation paramount in education, yet understanding of motivation appears lacking and practice to augment motivation often seems unsupported by the literature (Hattie, 2009; Strang, 2016; Haydon and Musti-Rao, 2011). Teachers are found to base their practice on beliefs about motivation born from personal experience and societal beliefs, often citing individual reasons for their actions. In the case of praise, it was found that teachers often consider its use important for developing motivation, but it is perceived as a behaviour management tool with comments and extrinsic rewards used to encourage 'good' behaviour in a Pavlovian manner (Bear *et al.,* 2016). Indeed, this is a view shared by policy makers with little consideration given to its wider impacts on motivation (Department for Education, 2014). As with motivation more generally, praise practice is often poorly supported by the literature. For this reason Strang (2016) and Haydon and Musti-Rao (2011) concluded that teachers are innately aware of the powers of motivation, yet strong understanding of the mechanisms and best practice remain poorly established within the professional body. The likelihood is that practice in this

area is limited because academic models of motivation are too complex and convoluted, and societal models too well ingrained.

Personal and professional experience equally resonates with the literature. Having attended a grammar school as a pupil I had exposure to perhaps some of the most highly achieving and highly motivated students. It seemed apparent to me that the two were not mutually exclusive but rather a distinct correlation existed. Moving into teaching, I was therefore predisposed to try and nurture motivation in students. Like much of the professional body, my early attempts to do so during my PGCE were fixed in societal understanding of motivation and the notion that praise is an effective mediator of motivation via mechanisms of operant conditioning (Rescorla & Solomon, 1967). Reflecting on my practice at the time highlighted the ineffectiveness of such practice as I felt students did not make motivational progress. Moving into my NQT school once again highlighted the importance of motivation. In a reflective exercise, shortly after starting, I was invited to discuss my initial thoughts about the school with the Headteacher. Particularly striking to me at the time was the apparent culture of apathy within the student body. Such observations echoed the Headteacher's concerns and a whole school initiative to which had identified a culture of poor resilience and motivation as a core issue within the school. Culture is, however, a difficult thing to influence and often change occurs as a result of numerous incentives. My focus became improving motivation in the classroom. A focus on praise as a tool to do so was born out of previous experience during my PGCE in which I felt that my practice was particularly poor. With repeated acknowledgement from fellow professionals regarding the importance of motivation, and the frequency of

use/misuse of praise, the aim of the present investigation therefore became to improve personal practice for the augmentation of student motivation. In doing so and through sharing results with staff and research collaborators it is also intended that the research also have an impact on improving student work culture across the school. Indeed, motivating students lies at the core of the educational philosophy of the school and so the present research was deemed to be valuable at a personal and context specific level.

"Academic motivation goes right to the heart of the educational enterprise. The tradition known as 'liberal learning' puts the emphasis on academic curiosity as of fundamental importance, without which learning doesn't really take place - only a utilitarian exercise in collecting qualifications. At school X, we have seen that developing a love of learning for its own sake has resulted in much higher standards by these measures: the paradox of putting our priorities in the right place!" – Headteacher of research school

Definitions of motivation

Motivation is an internal process that describes one's direction to action (Elliot & Covington, 2001, Ryan & Deci, 2000b). An incredibly broad definition, this fails to specify much of the complexity of motivation. For instance, by this definition alone, it is difficult to conceive a method to measure motivation beyond measuring the outcome or action. However, this does not account for the fact that one can be motivated by an outcome, yet not seek to engage in the action (Touré-Tillery & Fishbatch, 2014). Such a simple definition equally fails to quantify the

size, orientation and agents that impact motivation. Perhaps a better definition can be found in the field of neuroscience. Motivational salience equally describes one's direction to action, but adds greater emphasis on the cognitive processes involved (Puglisi-Allegra & Ventura, June 2011). Here there is acknowledgment of the factors that influence motivation. Within motivational salience, the intensity and orientation of cognitive inputs that determine motivation are considered. Importantly, this raises the point that motivation is not inherently good. Marsh *et al.,* (1978), describes individuals as being motivated to create an identity or forge a 'moral career'. An individual's motivation to forge a moral career may conflict with the motivational intentions desired by an authority such as a teacher. Thus, motivation has the potential to be a negative force in education. Accordingly, one should not necessarily aim to produce more motivated students, but rather, to produce encourage students to be motivated in ways that align with adaptive behaviours desired by the authority.. In addition to factors that influence motivation, the neuroscientific definition of motivation also highlights the role of cognitive processing. While detailed description of the cognitive processes far exceed the scope of this study and remain in the field of neuroscience, appreciation of cognition is paramount for complete understanding of behaviour. Thus in this study internal cognition is considered with inferences made through explicit discussion of cognitive inputs and processing.

Before considering models of motivation in more detail, it is important to make the distinction between intrinsic and extrinsic motivation. While the two are not necessarily mutually exclusive, extrinsic motivation applies when individuals engage in an activity for a detached outcome or contingent reward, while

intrinsically motivated individuals engage in an activity for its own sake and usually a sense of enjoyment, satisfaction or interest (Ryan & Deci, 2000b; Benabou & Tirole, 2003; Sansone & Harackiewicz, 2000). The distinction becomes important in the light of research findings that suggest that the two result in significantly different motivational outcomes.

Extrinsic rewards appear to adhere tightly to the deeply held societal beliefs of Pavolvian conditioning and are frequently used within educational contexts (Strang 2016; Rescorla & Solomon, 1967, Haydon and Musti-Rao, 2011). Examples of this might be sweets for good behaviour or a monetary reward for good grades. Despite its prevalence, experimental evidence of extrinsic rewards highlight that they are only a weak moderator of motivation in the short-term and are detrimental in the long-term. In a review of studies in the field of economics, Benabou & Tirole (2003) argue that external incentives have the capacity to warp an agent's self-knowledge such that they are likely to take on tasks for which they would normally be unconfident of success. Gneezy and Rustichini (2000) also demonstrate empirically that IQ question response scores were lowered when extrinsic rewards were offered, unless the reward was substantial. Benabou & Tirole (2003) further warn that extrinsic rewards frequently reduce long-term motivation by further undermining confidence for success or the value of the task itself. Such findings are replicated in educational research. Deci (1971, 1975) and Lepper *et al.,* (1973), first raised concerns about extrinsic motivation in empirical studies that demonstrated detrimental affects on intrinsic motivation. Investigating 48 undergraduates, Deci demonstrated that task persistence was reduced when monetary rewards were presented. In laboratory-based

experiments looking at younger age groups, Harackiewicz (secondary students, n=93) and Lepper *et al.,* (primary, n=51) showed similar decreases in task persistence and also that performance contingent rewards reduced retention of non-performance related material (Lepper *et al.,* 1973; Harackiewicz, 1979). Since these early findings, extrinsic rewards have been extensively studied as a mechanism for augmenting motivation. In a meta-analysis examining 128 of such studies, it was concluded that external rewards and threats almost uniformly undermine intrinsic motivation (Deci, Koestner & Ryan, 1999). In a later review Ryan and Deci (2000) attribute these findings to a loss of autonomy, a factor considered important for intrinsic motivation. With the introduction of an external incentive, there is a perceived loss of control of causality. Further, extrinsic rewards undermine intrinsic motivation as individuals become contingent on them such that once removed, task value and activity is reduced.

By contrast, intrinsic motivation is readily associated with positive outcomes. Raised intrinsic motivation commonly results in improved outcomes (results/grades), self-efficacy and persistence; products that align with those desired by an educator (Deci et al., 1991; Henderlong & Lepper, 2002; Dweck, 1986). For this reason, much of the recent literature has focused on intrinsic motivation. In this research, intrinsic motivation is measured either using self-report constructs (e.g. Harackiewicz, 1979) or a free-choice measure (e.g. Deci, 1971). In the latter, subjects complete a task for a given time after which they are told they can stop. Subjects are then left with the experiment task and other distractors and their activity observed. An assumption is made that because any additional time spent on the task receives no reward, subjects must be

intrinsically motivated to do so. Free-choice methodologies work to investigate the impacts of interventions, and so much of recent research has focused on interventions that might influence intrinsic motivation. Among such factors is the influence of praise/feedback and autonomy, however, to understand and appreciate their impact, one must first explore the existing models of motivation.

Models of motivation

Early models ignited the study of motivation but were understandably simplistic in nature. In 1943, Hull proposed his 'Drive' theory. In this he described an individual's drive for a behaviour that is single to that individual. Hull suggested that drive might be dependent on the state of the individual but believed that to a large extent it was a fixed attribute. While too simplistic and vastly underestimating the importance of external influences, Hull's work was influential in establishing free-choice experiments as a method to measure motivation. Other early models derive from a behaviourist perspective and Pavlovian theory (Rescorla & Solomon, 1967). Under this model, individuals undergo classical conditioning as a result of extrinsic contingent rewards. As discussed above, such theories of motivation are now discredited given evidence that extrinsic rewards act to the detriment of intrinsic motivation. Nevertheless, notions of classical conditioning are well established in society and remain prevalent in many areas, including education and parenting (Dweck, 2007).

More recent models of motivation seek to determine in more detail many of the aspects of intrinsic motivation. Important among these is, why engage in a task? A

number of theories have been proposed but for simplicity, they can be considered either as factors inherent to the task, expectancy factors, or factors dependent on predetermined goals. Inherent factors will be discussed first.

One proposed intrinsic motivational factor inherent to the task is flow theory. Flow theory describes an immediate subjective experience attained when engaging in an action (Csikszentmihalyi & Csikszentmihalyi, 1988). Csikszentmihalyi differentiates flow into component parts. These include feelings of immersion, action, awareness, narrowed focus, control and confidence. Given that confidence is a significant component, Massimini & Carli (1988) highlight that flow may only be achieved when skill levels are high. Equally, because of the immersive criteria, it stands that flow is best achieved when task demand and skill are well matched. Flow is a conceptually simple construct grounded in subjective experience and is an attractive model on account of its tangible components and relatability. All readers of this work will have experienced some or all f the criteria of flow theory when engaging in an activity. Indeed, flow theory regained research prominence at the turn of the millennium but under the term situational interest (Alexander et al. 1994; Hidi & Harackiewicz 2001; Schiefele 1999). Research demonstrated that when interest in an activity is high, learning from text is improved (Schiefele, 1999). For any given individual, however, it is clear that flow theory is insufficient to explain the majority of intrinsically motivated task involvement, as the characteristics of flow are narrow.

Self-determination theory is another proposed intrinsic motivational factor inherent to the task. Rather than a desire for immediate subjective experience,

self-determination theory is born out of the proposition that individuals have an innate desire for competence (Ryan & Deci, 1985). By contrast to the immediate motives of flow theory, motivation for competence is an ultimate factor believed to be an innate survival instinct. Self-determination theory joins two pre-existing motivational concepts. First is the idea that individuals seek to preserve optimal levels of stimulation (Hebb, 1955). This suggests that intrinsically motivated students should seek tasks of optimal challenge as this will best satisfy their desire for competence. Later work by Dweck and others (examined in more detail later) focuses on task choice, suggesting that this trait of intrinsically motivated students facilitates improved outcomes (Dweck, 1985, 1986; Pintrich & Schrauben, 1992). The second component of self-determination theory is that individuals desire competence and seek to achieve this through self-determination (White, 1959; deCharms, 2013). Self-determination describes the degree of autonomy one has over one's success or failure and in doing so draws upon earlier theories of locus of control (Crandall et al. 1965; Rotter 1966). Self-determination and locus of control theories predicts that intrinsic motivation will be reduced when individuals perceive that outcome autonomy has been lost. Indeed, frequency of praise tends to be positively correlated with self-perceptions of ability among elementary school children (Blumenfeld *et al.*, 1982). Such theories have thus been used to explain the detrimental outcomes of extrinsic motivation (Lepper *et al.,* 1973; Harackiewicz, 1979; Ryan & Deci, 2000a). Ryan & Deci (2000a), propose that extrinsic rewards introduce external pressure and so detach the control of causality from oneself, reducing intrinsic motivation (Deci & Ryan, 1985; Deci et al. 1999). In a later addition to the self-determination theory Ryan and Deci (2000a) blur the distinction between extrinsic and intrinsic

motivation by postulating that not all extrinsic motives result in a detachment of autonomy. Ryan and Deci propose that internalisation of extrinsic rewards can lead to individuals being self-determined in the pursuit of these goals. Such processes of internalisation may be responsible for the sporadic experiments, which suggest positive outcomes on intrinsic motivation from extrinsic rewards (Patall *et al.,* 2008). Regardless, self-determination theory highlights the importance of outcome autonomy in developing intrinsic motivation and the concept remains prevalent in modern research (Ryan, Deci & Vansteenkiste, 2016; Chang, Chen & Chi, 2016; Van Yperen, Wörtler & De Jonge, 2016).

Outcome expectancies are another branch of factors that influence task motivation. It is easy, for example, to imagine that one would be less motivated for a task for which they perceive themselves to have only a small chance of success. Such programmed behaviour fits with aspects of self-determination theory that describes an innate desire for competence (Ryan & Deci, 1985). Bandura (1997), advanced this principle to produce the social cognitive model of motivation. Central to this model is the concept of self-efficacy. Bandura describes self-efficacy as dynamic and dependent on individual and context. Beyond the intuitive statement that higher expectation of success is likely to result in increased motivation, Bandura defines two separate expectation beliefs, outcome expectancies and efficacy expectancies. Outcome expectancies refer to beliefs that given actions will result in desired outcomes while efficacy expectations describe beliefs that one has the ability to perform such actions. Within the social cognitive model of motivation Bandura proposes that efficacy expectations are particularly important for determining motivation. Schunk (1981), found that 25% of maths

test results could be accounted for by self-efficacy, even when prior attainment had been controlled. Similarly, a longitudinal study mapping career aspirations of 272 secondary school students concluded that academic self-efficacy, rather than academic outcomes was a greater predictor of occupational self-efficacy and occupational choice (Bandura *et al.,* 2001). In a cyclical nature Bandura proposes that those individuals who are able to set themselves challenging goals suited to their outcome and efficacy expectations are rewarded with enhanced self-efficacy (Bandura, 1997). This cyclical model is evidenced by a number of studies that establish self-efficacy as a malleable entity (Bandura & Schunk, 1981; Schunk, 1982, 1983; Schunk & Hanson, 1985).

Predetermined goals also appear to play a significant role in determining levels of intrinsic motivation and have been the focus of numerous studies since the early 90s. Goals are, however, multifaceted and dynamic, dependent on both context and task. Goals individuals set will be determined by their self-efficacy, social dynamics, expectations, autonomy and others. Researchers have thus investigated goals across a number of goal-axes. Researchers, Ford & Nichols (1987), demonstrate this aptly with their investigation examining 24 different goal orientations. The result of their study however concluded that individuals typically only perceive a much smaller subset. Ego-involved goals prioritise convincing others of perceived competence while task-involved goals prioritise competence itself. Such goal axes have been developed upon in a number of studies but prevalent among these are the works of Ames (1992) and Dweck (1999). In each case exact terminology for the goals is altered but to a large extent, the meaning is conserved. Ames and Dweck both postulate that task-

involved goals (termed performance goals by Dweck and mastery-goals by Ames) predict adaptive motivational patterns (mastery) whereby students remain intrinsically motivated and select tasks appropriately. As seen in Bandura's (1997) social cognitive theory, appropriate task selection can produce a virtuous circle incorporating improved self-efficacy.

A major development in the field of motivational research has been that of attribution theories. Attribution theories differ in that they make inferences about what individuals attribute as the cause of outcome, rather than the absolute outcome itself. According to attribution theories, the perceived cause of success or failure in a task is more important in determining motivational outcome. Until this point, models of motivation have been considered which focus on reasons to engage in a task independent of the task result, however, now task outcome is significant.

Perhaps the first attribution model of note is achievement motivation theory (Atkinson, 1964). Atkinson's model of motivation appears influenced by drive theory (Hull, 1943), acknowledging a significant and inflexible predisposition to intrinsic motivation. Achievement motivation theory, however, goes on to suggest that it is how students perceive the relevance of their success or failure as important. Atkinson thus introduces the dichotomous notions of success motivation and fear of failure motivation. Where success motivation dominates Atkinson predicts that individuals will choose tasks of intermediate difficultly appropriate to their self-efficacy. Such a pattern of behaviour is deemed educationally adaptive in line with the social cognitive model of motivation

(Bandura, 1997). Where fear of failure dominates, students adopt a maladaptive pattern of behaviour with erratic and poorly justified task choice. Adaptive patterns are not only beneficial through the virtuous circle of self-efficacy (Bandura, 1997), but also adhere to Vygotskian theory in that students mediate their own learning and select tasks that occupy the zone of proximal development (Vygotsky, 1980).

Atkinson's attribution model opened the door to a number of subsequent attribution theories. Support for Atkinson's model itself was, however, weakened by consequent studies that failed to evidence erratic task selection among maladaptive individuals (Weiner 1985, 1992). Weiner, a student of Atkinson, thus produced his own attribution model, which has become one of the foremost theories in motivational research. Rather than the relevance of the success or failure, Weiner proposes that it is the perceived cause of success or failure that is important. Among the chief attributions identified by Weiner (1992) were ability, effort, luck and task difficulty. Narrowing these, Weiner highlights the importance of autonomy and stability and in his works established each as able to influence behaviour patterns.

The work of Dweck, which has gained a place of particular prominence in educational discourse, develops particularly on the concept of cause stability proposed by Weiner. Galloway *et al.,* (2004) points out that those individuals who perceive the cause of their success or failure as stable are more likely to expect similar results in the future. Dweck refers to individuals having either a fixed or incremental perception of ability (Dweck, 1985) and characterises likely

consequent motivational traits. Those individuals with incremental perceptions of ability (growth mindset) are likely to have high intrinsic motivation, regardless of levels of academic self-efficacy. By contrast, fixed minded (fixed mindset) individuals only demonstrate high intrinsic motivation where academic self-efficacy is already high. As a result of these cognitions, Dweck further characterises two discrete motivational behaviour patterns; mastery orientation and learned helplessness.

Mastery orientated individuals perceive effort as the primary cause of outcome and so increasing effort is the logical response to perceived 'failure'. Such students tend to hold an incremental view of ability and show improved interest, effort and resilience when met with failure. By contrast learned helplessness individuals often hold a fixed view of ability and attribute ability as the cause of success or perceived failure. This is not detrimental when successful, however, where failure is encountered, individuals respond with poor engagement and effort as in their cognition there is no perceived route to improvement. (Diener & Dweck, 1978, 1980; Dweck & Legget, 1988; Dweck, 1999)

Given the popularity and interest in Dweck *et al.,* work on mindsets, there is a wealth of work analyzing the theory. In a review paper Ames (1992) concludes that individuals with mastery orientation demonstrate higher levels of satisfaction following achievement. Similarly, a number of works demonstrate the characteristics of increased effort and resilience that Dweck *et al.,* proposes are associated with a growth mindset (Meece & Holt 1993, Pokay & Blumenfeld 1990). Importantly for educators, mindset also appears to be malleable. A number

of short-term interventions claim to promote a growth mindset and a mastery orientation (Dweck, 2007; Cohen *et al.,* 2006; Blackwell, Trzeniewski & Dweck, 2007). Blackwell *et al.,* (2007) exposed 91 twelve-year-old students to an 8-week intervention. During weekly intervention sessions students were taught that intelligence was plastic while a control group were taught unrelated skills. Results showed that intervention improved acceptance of a growth mindset compared to the control group. A more recent investigation by Castella & Byrne (2015) similarly evidences the malleability of mindset but suggests that rather than acceptance that intelligence can change generally, researchers should consider whether individuals perceive themselves the capacity to improve their own intelligence.

Perhaps most significant factor for explaining the popularity of Dweck's work is evidence that adoption of a growth mindset (and associated mastery orientation) appears to be linked by causal evidence to improved outcomes. Following on from Blackwell *et al.,* (2007) work above, the intervention group also demonstrated improved outcomes relative to the control group. While both groups had declining math's grades prior to intervention, post-intervention showed improvement only for the treatment group. In a similar, but longer-term study lasting one year (n=138, 12-13yo), Good *et al.,* (2003) demonstrated that regular tuition focusing on mindset improved outcomes on a standardized Mathematics and English test compared to the control group even when socioeconomic status was accounted for. By contrast, in a study of 643 adolescents (15-19) concluded that a fixed mindset was predictive of poor engagement and poor academic self-report in line with learned helplessness (De Castella & Byrne 2015).

Self-worth theory is perhaps the last prominent pure attribution theory (Covington, 1992, 1998). Here it is argued that significance should not be placed on the perceived cause of success or failure (ability or effort), or indeed perceptions of these causes in turn (fixed or incremental), but rather significance lies with how outcomes' influence self-worth. For one to understand motivational outcomes, one must first appreciate what influences self-worth. Among adolescence, significant educational mediators of self-worth are perceptions of self by family and peers. Perceptions held by teachers appear secondary to these and to a large extent are depended on the strength of student teacher relationships. Covington considers competition in the classroom as a means to improve self-worth but concedes that such practice is likely to damage self-worth overall (there can only be one winner) and can damage effort. Linking more directly back to concepts of ability and effort, Covington highlights that effort is a poorer currency in terms of academic self-worth amongst peers. Whilst Covington's work highlights academic factors likely to impact self-worth, adolescence do not value these factors as highly as perceptions of self regarding social skills and physical appearance (Harter, 1990).

The final theory discussed is expectancy-value theory. Expectancy-value theory builds on many of the concepts described in the models above and amalgamates them into one unified theory (Eccles *et al.*, 1994; Eccles & Wigfield, 2002). Expectancy-value theory openly draws upon theoretical framework of achievement motivation theory and perceived task value (Atkinson, 1964). In addition, expectancy-value theory also incorporates expectancy-values akin to

Bandura's (1997) social cognitive model. As such expectancy-value theory assumes choices and behaviour are determined by expectations of success and perceived task value. Task value and success expectations are, in turn, considered to be influenced by the same factors as originally proposed by Bandura and Atkinson. Beyond the original models of Atkinson and Bandura, Eccles and others classifies four constituents of task-value: attainment value, intrinsic value, utility value and cost (Eccles & Wigfield, 2002). Attainment value refers to the value of perceived success to the individual. Intrinsic value describes the gratification of task involvement (see flow theory and self-determination theory) Utility describes the perceived relevance of the task for future use. Finally, cost describes the opportunity cost of task involvement. There is much evidence supporting the expectancy-value model of motivation. Even when prior attainment is controlled, combined expectancy of success and task-value is the most significant predictor of future performance (Eccles & Wigfield, 2002). Likewise, but in a larger scale study (n=416: 12-13yo) Cohen *et al.,* (2009) divided students into a treatment group that completed 5 writing tasks over a year focused on values of perceived importance, and a control group that completed similar writing tasks but on an irrelevant topic. After two years results demonstrated raised attainment among the treatment group compared to the control. Importantly for educators, motivation is malleable by this model. Hulleman and Harackiewicz (2009) showed that the utility component of task value could be influenced by intervention. They demonstrated that students who were required to connect academic work with everyday utility tasks were more likely to pursue that subject into further education and had higher attainment.

Summary of motivation

It is clear from this review that motivation is highly complex and mediated by significant number of factors. The sheer number of motivational models prevalent in the literature alone (and this review to some extent ignores modern cognition theories on account of their scale; see Beswick, 2017) is perhaps evidence of this. Consideration of each model is however important as no one model has been universally accepted in any domain of research. That said, Dweck's models of orientation and mindset (based in attribution theory), Eccles expectancy-value theory, and Ryan & Deci's self-determination theory currently predominate motivational discourse in education. According to these theories intrinsic motivation is influenced by: autonomy, task-value, self-efficacy and task expectations, perceptions of intelligence, attributions of success or failure along the effort-ability axis, goal orientation (mastery versus outcome) and impacts on self-worth. Understanding of such mediating factors of motivation becomes important when considering the motivational outcomes of any intervention. (Dweck, 1985, 1986 & 1999; Eccles *et al.,* 1983; Eccles & Wigfield, 2002, Ryan & Deci, 1985; Covington, 1992)

Praise as a moderator of motivation

Motivational research has consistently implicated motivation as a significant educational factor capable of improving student outcomes through moderation of behavioral patterns (Benware & Deci, 1984; Dweck, 1986; Heyman & Dweck, 1992; Ryan & Deci, 2000a; Farrell, 1985; Eccles & Wigfield, 2002; Pintrich &

Schrauben 1992). Importantly, research findings have also demonstrated that many of the components of current motivational models are malleable and can be altered through effective intervention. Thus in education, there has been a recent shift in emphasis to investigate effective and practical ways to improve motivation. Given the diverse range of factors proposed to affect motivation the scope of these studies is significant, but particular attention has been given to the role of praise and feedback (Henderlong & Lepper, 2002; Hodgeman, 2015). Theoretical models of motivation remain relevant to explain the motivational outcomes of praise interventions and in most cases explanations revolve around the key factors described above. As a teacher-researcher, this is an important step as research is not simply an academic enterprise, rather, attention is also being given to generating reproducible and measureable educational benefits for students.

Praise and feedback are some of the most frequently used tools implemented by teachers and have been demonstrated to be highly effective for improving outcomes and behaviour (Hattie & Timperley, 2007; Hattie, 2009). Hattie defines feedback as, 'information provided by an agent regarding aspects of one's performance or understanding'. Praise is a distinct form of feedback and goes beyond statements of neutrality such as confirmation of outcome (Henderlong & Lepper (2002). Given the frequency of use and bestowed value of praise by teachers, a significant volume of research has been conducted and in the past 20 years, much of this has been on its impact on motivation.

There is a deep-set cognition that praise is important for the development of intrinsic motivation (Cameron & Pierce, 1994). Indeed, Dweck (2007) claims that 80% of parents feel that it is necessary to praise children to facilitate motivational development. Early praise research appeared to align with this societal view. Blumfield *et al.,* (1982) produced data that suggested a positive correlation between praise frequency and motivation. Using a free-choice experimental methodology, Sarafino (1982) showed that forth-grade students given strong praise demonstrated greater task persistence during proceeding free-choice periods. Employing a similar methodology Anderson *et al.,* (1976) showed similar results among pre-school children (n=72). Early research equally showed consistency across age groups. Shanab *et al.,* (1981) exposed 60 college students to either positive, negative, or no feedback and completed factorial analysis including factors of feedback and sex. Factorial analysis revealed significance only for feedback and this was consistent regardless of feedback orientation and sex. Meta-analyses further supported a positive correlation between praise and intrinsic motivation (Deci et al., 1999; Cameron and Pierce, 1994).

Despite this, discrepancies were commonplace among the early literature and a number of papers disputed the positive impacts of praise. Sampling across adolescent and adult age groups (n=476) Meyer *et al.,* (1979) investigated the impact of praise on perceptions of intelligence. In a role-play scenario, participants were asked to consider two fictional students who achieved identical results. One student was given neutral feedback, while the second was prescribed either praise for success or criticism for failure. It was found that praise following success and neutral feedback following failure resulted in decreased perceived

ability. The converse of these results was also supported. Similarly praise following completion of simple tasks also conveys perceptions of low intelligence (Graham, 1991; Meyer et al., 1979). In accordance with attribution theory (Weiner, 1985), this is likely to result in diminished motivation, particularly if their perception of intelligence is fixed (Diener & Dweck, 1978, 1980). Linking to motivation directly, Rowe (1974) conducted an observational study in which praise frequency correlated significantly with reduced task persistence. Beyond correlational studies, there is also experimental evidence for the detrimental effects of praise. Applying a free-choice methodology and investigating students (3rd, 5th & 8th grade), Kast & Connor (1988) concluded that slightly controlling praise resulted in decreased task persistence.

Early research into impacts of praise were thus a minefield of contradictions. In part inconsistent methodological approaches are to blame for this (Henderlong & Lepper, 2002). Nevertheless, a review by Henderlong & Lepper (2002) proposes mechanisms for the distinct impacts of praise. They argue that praise may augment motivation through the enhancement of student self-efficacy and perception of ability among peers. Such mechanisms are in line with Bandura's (1997) social cognitive model of motivation. Henderlong & Lepper (2002), also propose that praise, through improved self-efficacy, can increase one's success autonomy. Assuming that one perceives that they have the ability to achieve success, it is logical that one believes that they have more autonomy over that success. Through this mechanism it is proposed that praise improves intrinsic motivation in line with self-determination theory (Ryan & Deci, 1985). Finally

Henderlong and Lepper (2002) suggest that praise may be beneficial through the socially accepted principle of operant conditioning.

Henderlong and Lepper (2002) also consider mechanisms by which praise may be detrimental. Individuals may consider their participation in an action simply derives from an agent's desire for them to do so, and not from their own intrinsic motivation. This may reduce perceptions of autonomy. Further, in accordance with attribution theory (Weiner, 1992), praise for simple tasks may lead students to attribute themselves with low intelligence. This may be particularly damaging where this perception of intelligence is conveyed to others given perceptions of intelligence are important to one's self-worth (Covington, 1992).

Although early praise research was highly variable, improved consistency was achieved when the concept of praise was simplified. Above, praise is considered with comparably little consideration given the subtlety of its practice. Factors such as what attributes are praised were largely overlooked. Attribution theories (Weiner, Atkinson, Dweck, Covington, Eccles), however, highlight the importance of what students perceive as the cause of their success or failure in determining their intrinsic motivation and behavioral patterns. Recent research suggests that what is praised appears significant in determining motivational outcome by influencing the attributions individuals make for their success or failure.

Of some research interest, has been praise along the axis of effort-ability. Dweck's (Muller & Dweck 1998; Miller *et al.,* 1975; Schunk, 1983) concepts of mindset and motivational orientations predicts that students encouraged to adopt an

incremental view of ability or a heightened value for effort, are more likely to have high intrinsic motivation and exhibit mastery behaviours. Thus Mueller & Dweck (1998) predict that effort praise promotes mastery orientation, while ability praise promotes ego/performance-related goals. Although a number of studies previously indicate the contrary and implicate ability praise for improving intrinsic motivation (Miller *et al.*, 1975; Schunk, 1983), Dweck *et al.,* argue that such studies do not examine responses to feedback following failure. They offer that following success attributions of ability can be powerful motivators through improved self-worth and self-efficacy but only while success is maintained (Miller *et al.*, 1975; Schunk, 1983).

Dweck *et al.,* have produced a number of studies to evidence their prediction (Blackwell *et al.,* 2007). Mueller & Dweck (1998) examined 128 5th grade students who carried out six investigations centered on self-reports and a free-choice experimental design measures. From these they concluded that students praised for ability aligned themselves more with performance goal orientations than those praised for effort. As such students demonstrated behavioral traits associated with a learned helpless approach. Task persistence and enjoyment were reduced, and students attributed themselves with low ability and considered this metric fixed.

A second important axis of praise is that of person versus process praise (Kamins & Dweck, 1999). Person praise describes trait-related feedback while process praise conveys information about the resources used during a task. In introducing this axis of praise, Kamins & Dweck suggest that person praise will negatively

impact intrinsic motivation as it conveys ideas of global evaluation, which are confusing and difficult to change. Therefore upon failure, individuals will be more likely to adopt a learned helpless approach. By contrast, Kamins & Dweck hypothesize that process praise will encourage a mastery approach by making students interact with their effort and task strategy, and placing value on these. This particular axis of praise is much studied and largely supportive of Kamins' & Dweck's hypothesis.

In their own paper Kamins and Dweck (1999) examined primary school students (n=131) using a role-play model involving either success or failure. Following the role-play and either person or process praise, students attempted a task involving setback. Persistence and self-report scores after setback were significantly lower among the person praise group. Kamins & Dweck concluded that responses could be labeled as learned helpless. In a very similar study examining primary and pre-school students Henderlong-Corpus and Lepper (2007) found that for primary students process praise enhanced intrinsic motivation while person praise was detrimental. For pre-school students it was found all praise was beneficial relative to no praise. Again using a comparable methodology, Haimovitz and Henderlong-Corpus (2011) produced similar results among college students. Cimpian *et al.,* (2007) demonstrates that findings are conserved even when subtle person and process praise is given. Finally Harks *et al.,* (2014) shows findings are conserved when written feedback is given in response to a test.

There is indeed a lot of evidence to support the division of praise along the person-process axis. Nevertheless support is not universal and a number of

papers have raised concerns. Notably, Skipper & Douglas (2012) suggest that rather than process praise being beneficial; person praise is just particularly detrimental. Although previous studies contain control groups, Skipper & Douglas suggest that they are insufficient and propose that praise interventions should be compared with no praise at all. Evaluating the outcomes of person, process and no praise among 145 secondary students aged 9-11 and 113 undergraduate students; significance was only found between person praise and other groups. Process praise was indistinguishable from no praise. In response to their findings, Skipper and Douglas propose that objective feedback may be sufficient to encourage a mastery orientation. Aligned with these findings is the work of Morris & Zental (2014) who demonstrate that ambiguous praise is sufficient to improve intrinsic motivation among students.

Very recently the quandary of praise impacts on motivation have been considered neuroscientifically (DePasque & Tricomi, 2015). Studies involve using fMRI techniques to examine brain action before and after feedback. Results form these early studies suggest that feedback and motivational change stimulate processing in areas of the brain associatied with learning and memory (DePasque & Tricomi, 2015; Tricomi & DePasque, 2016).

Summary of praise impacts

Taken together, these results underline the power of praise in the classroom. Praise clearly has an impact on shaping student motivation; yet, the literature provides a warning that this influence is by no means uniformly positive. Praise

appears not to be a blunt tool that can be expected to produce desired results without skilled practice and understanding of important motivational factors. Perhaps alarmingly for educators, research suggests that use of praise that aligns with societal norms appears detrimental for improving motivation and thus student outcomes (Henderlong & Lepper, 2002; Hodgeman, 2015). Praise of effort and process are advocated, while praise for outcome or person are discouraged. The implications for practice are thus significant and clear.

Rationale for action research

It is clear from the literature that student motivation is a significant factor in education, with the potential to improve outcomes, enjoyment of education and health (Dweck, 1986; Heyman & Dweck, 1992; Ryan & Deci, 2000a; Farrell, 1985; Eccles & Wigfield, 2002; Pintrich & Schrauben 1992; Taylor & Brown, 1988; Ryan & Deci, 2000a; Accordino et al., 2000; Matsumoto & Sanders 1988). It is also clear that praise also has a role to play and can be a significant moderator of motivation. My own personal and professional interests in this field of study are laid out at the beginning of this work and demonstrate that problems of improving motivation are relevant at an academic, personal and context specific level.

Although research has frequently demonstrated the power of praise, the vast majority of studies are experimental, short-term, measure behavioural outcomes and detached from the classroom environment. By contrast there are very few

long-term case study investigations of praise and even fewer attempt to elicit the mechanisms by which praise is processed by students. Action research is a particularly powerful tool in educational research as it helps to lessen the divorce between academic discourse and practical implementation of theory. Action research not only adds to the body of academic evidence, but also provides ideas for it's effective implementation. Participation in action research also offers the opportunity to be a highly reflective practitioner and to analyse the effective use of praise holistically within complex demands of educational practice.

This project sets out to investigate a small number of fundamental research questions and appropriate methodologies chosen and applied to best answer these questions.

1. Do students receive praise?
2. Do students value praise?
3. Did students perceive praise changes during intervention?
4. Were changes in praise valued and why?
5. Is praise effective at altering motivation?

Action Research Method

Intervention

Interventions were administered to evaluate the effectiveness for improving motivation of three modes of praise. The three interventions used were process praise, effort praise and outcome praise. Interventions involved the emphasis of a single method of praise for the duration of one term. For example, if the focus of the term were process praise, then the teacher would consciously make the effort to ensure that process praise was the most prominent type of praise administered in both verbal and written communication with students. A change in emphasis was validated by observations conducted pre and during intervention noting frequency of praise types.

Emphasis and prominence were expected as apposed to complete isolation of a method of praise in order to best maintain the natural environment established by the classroom teacher. It doing this, any change in motivation detected as a result of the intervention is more likely to be as a result of the change in praise emphasis, as apposed to a reaction to what might otherwise be disjointed or uncomfortable lessons. Similarly, radical changes from conventional teaching during interventions have a greater risk of damaging academic a personal development of students, and so there is a deep ethical consideration to be made when planning interventions.

The simplicity of intervention was also advantageous for a number of reasons. Pragmatically it helped to manage the additional planning demand expected of the collaborating researcher, an important factor given that two full terms of intervention

were planned. Simplicity equally allowed for flexibility. Throughout the duration of interventions regular consultations (roughly every three weeks) were held with the collaborating researcher. In these meetings, views and concerns regarding the intervention were shared with the objective of improving the implementation of praise intervention for the development of student motivation. Comments during these consultations were validated by observation of one another's lessons and the programme of intervention was advanced with consideration to teacher comments and understanding derived from the literature. Thus the initial simplicity of intervention gave 'wiggle room' for the growth and development of the intervention. An example of this in action would be during my implementation of process praise in science. It was identified that there was insufficient opportunity to administer process praise in lessons. As a result of consultation, a decision was made to include processes among the lesson objectives and thus praise students for achieving these process-based outcomes. In doing this, the frequency of process praise given in lessons improved.

For the first term of intervention (Jan – April) my collaborating teacher and I emphasised process praise. For the second term of intervention (April – July), my collaborator emphasised effort praise while I emphasised outcome praise. Half of the total intervention time was given to assessing process praise as it is most strongly supported by the literature and educational theory (Kamins & Dweck, 1999; Henderlong-Corpus & Lepper, 2007). Effort praise was also investigated given that consistent positive effects on motivation are also expected. Finally, outcome praise is considered only for the top set intervention group (Mueller & Dweck, 1998). Although (Mueller & Dweck, 1998) highlight the potential danger of such praise when students encounter failure, they accept that outcome praise can be a powerful motivator when

students are successful and tend to have high academic self-efficacy. By only implementing this mode of praise with top set, it is hoped that the benefits of the praise are maximised, as the frequency of success and efficacy expectations will be higher.

Data collection

Research followed a constructivist mixed methods approach. A central tenant of constructivist research is to gain understanding of participant perception of the world and their experiences as a result of research interventions (Cohen *et al.*, 2013). As such, it is essential to develop dialog between participants and researcher in which meaning can be interpreted and negotiated. In line with the vast majority of constructivist research, interviews characterise the primary method of data collection and are used to develop such dialog (Denscombe, 2014; Creswell, 2003). In addition to data rich qualitative interviews, lesson observations and quantitatively assessed questionnaires are used to validate findings and to limit damage caused to the data by the limitations of any one data collection method (Johnson & Onwuegbuzie, 2004; Denscombe, 2014; Mackenzie & Knipe 2006). A mixed methods constructivist approach seems appropriate for an investigation of student motivation given that motivational outcomes and changes are dependent on student perception of interactions and outcomes as apposed to nature of the outcomes and interactions themselves (Atkinson, 1964; Weiner, 1992; Dweck, 1985; Covington, 1992; Eccles, 1993).

Although the methodological approach for the elicitation of perception regarding motivation remained consistent throughout, the present investigation was a dynamic action research project as the nature of intervention varied. Each intervention lasted

one term and, in this time, the nature of the intervention was reflected upon and optimised in a way that was thought to be beneficial for student motivation and in line with students' best interests. Reflection was an active process took the form of research conversations between teacher researchers.

Further detail regarding each of the methods used in this mixed methods approach are specified below.

Research Setting

All of the data for the present action research was collected from a single secondary school setting in the academic year 2016/17. The school, based in Oxfordshire in the UK, is a small, non-selective, coeducational independent boarding school.

Prior to data collection the nature of research was disclosed to both the headmaster and the universities central research ethics committee (CUREC). In both cases approval for research was granted and all data was collected in accordance with the Ethical Guidelines for Educational Research (BERA, 2011).

Specifically, research focused on two Year 9 classes, a top set in science taught by myself (n=19) and a middle set in English taught by a research collaborator (n=17). This was thought appropriate for a number of reasons. Year 9 students remain a significant distance from external examinations, which may to help avoid the tension that simultaneously conducting research and preparing for such exams would cause. Similarly, such exams are likely to have significant affects on student motivation,

perhaps reducing the ability of research to detect meaningful changes in motivation as a result of the interventions administered. Focusing on two different core subjects also has significant advantages. Core subjects are given a greater timetable weighting at three and half hours class time per week for both science and English. Additional class time gives students more exposure to interventions implemented and thus makes it more likely that the potential impacts of such interventions will be measurably observed. Working between two core subjects also allows for comparisons to be made about the effectiveness and suitability of interventions between both subjects. Such comparisons improve the robustness and applicability of implications discussed as result of the findings presented.

Research collaborator

The research focused on two classes, a top set science class taught by myself and a middle set English class taught by a research collaborator. The research collaborator was selected from a group of teachers who had volunteered to be part of the project following an explanation of its aims at a whole staff meeting. As well as meeting the criteria of teaching a year 9 set of a different core subject, the collaborator was also suited to the role as he teaches comprehensively across most secondary year groups and is experienced in his role as an English teacher.

In the first instance, the collaborating teacher made it clear that he saw great personal value in his participation in the project stating that he would value the opportunity to reengage in critical thinking about his professional practice and highlighting the difficulty to regularly do this alongside a full timetable and wider boarding

commitments. The nature of the research also struck a cord with his experience of teaching at the school, recognising that the school has an issue with student motivation and resilience, describing students as ‘apathetic’. Improving his understanding of any underlying issues he felt was key to improving students in class but also a culture of apathy across the school.

The research collaborator’s role within the research project is that of a fully integrated researcher, with roles of implementing interventions and providing the feedback and insight that shapes the development of action research cycles.

Student interviews

In total seven interviews were conducted. These included a group of students from each of the intervention classes (English and science) at the beginning of intervention one early in February, at the end of intervention one (process praise) in early April, at the end of intervention two (outcome praise in science, effort praise in English) in late June as well as an additional interview following a class project that occurred in science during intervention two.

All interviews were conducted by myself and for logistical reasons were organised such that they took place in my classroom during break times immediately following intervention lessons. In these lessons a description of the rationale and programme of interviews was conveyed and an assurance of anonymity and confidentiality given. In all cases students stated that they were willing to participate. Four or five students were then selected at random to participate and in all cases this produced a mixed gender

group for interview. To increase accuracy and researcher engagement doing interview, interviews were audio-reduced and later transcribed.

Student interviews employed a semi-structured methodology and typically were based on 5-7 predetermined questions (Britten, 1999; Gill *et al.,* 2008). These questions were largely consistent across both intervention groups for a given stage in the action research cycle, e.g. the interviews conducted at the end of intervention one. Questions were, however, not consistent across the action research cycle as questions chosen reflected findings from other data collection methods, professional opinion from teaching during the term and from research consultations.

Semi-structured interviews were an appropriate tool for the present investigation. Following a constructivist approach it is integral that researchers are able to establish dialog with participants in order to explore participant perception of research intervention as well as negotiate the meaning of comments. Unlike, questionnaires and surveys, interviews facilitate the collection of such data by allowing the researcher to respond to the information given by the participant during interview. Conducted correctly, interviews can therefore provide richer data capable of indicating student meaning as well develop understanding of complex entities such as social interactions and causality (Goldman and McDonald, 1987).

Specifically semi-structured interviews were employed as a core set of pre-determined questions help ensure that interviews remain focused on specific points highlighted by the literature while allowing the flexibility for elaboration, the negotiation of meaning

and the raising of new points perhaps not previously encountered in the literature (Mojtahed *et al.,* 2014).

Though apt for the present investigation, certain considerations must be made regarding the use of semi-structured group interviews. Perhaps the single largest consideration is that of social conformity, especially given that participants are adolescents (Ritchie *et al.,* 2013). The disposition to conform to social convention may weaken data by hindering students from airing views that they hold to be true. Social anxiety may be influenced by fellow participants, the interviewer, the content of the interview and the context of the interview. Steps were therefore taken to reduce the anxiety of participants.

Interviews were all conducted in my lab, an area familiar to nearly all of the students. Similarly, as a researching interviewer, I was conscious of the anxiety my presence as a teacher could cause and so effort was made to produce a warm and friendly environment. Greenbaum, (1988) highlights that group interviews go some way to alleviating this particular anxiety as there is opportunity within the interview to interact with peers as apposed to the interviewer/teacher. Despite this, group interviews introduce anxiety caused by peers particularly when groups are selected from within pre-existing social groups, as done here. Students selected from pre-existing social groups are thought less likely to air socially controversial views as they are more exposed to long-term censure from their peers (Bloor et al., 2001; Finch and Lewis, 2003). For this reason Webb (1995) suggests that interviews with individuals would further empower participants towards expressions of non-conformity, however, in this case such interviews would take significantly longer to administer and would remove

the power to observe social interaction and areas of conflict which can lead to deeper understanding (Robson, 1990). Thus interview group sizes of 4 or 5 were deemed appropriate given that group sizes of three or more are considered sufficient to produce meaningful discussion among participants (Bloor et al., 2001; Stewart & Shamdasani, 1990). In addition, maintaining smaller group sizes ensures that participants are each given sufficient time to participate while keeping interviews short enough to conduct during break times.

While significant steps were taken to maximize the effectiveness of semi-structured interviews and to reduce participant anxiety, there are a number of factors that may yet diminish the quality of data collected. Although interviews took place in a familiar context for most, not all will have positive associations with the laboratory environment, heightening anxiety for some. Similarly, although effort was made to produce a warm environment during interview, due to the regular professional nature of student teacher relationships, it is likely that students will have been inhibited form expressing true feelings during interview. Rather, students may have been more likely to share rhetoric of what they expect the teacher would like to hear. The risk for this would be higher when interviewing students from the English class, as I would not have been present in all lessons to validate their statements. Lastly, the immediate proximity of interviews to intervention lessons may result in students focusing unduly on the preceding lesson, even when questions require students to consider the whole term.

Collaborator interviews

A number of desired outcomes were intended from collaborator interviews. Intentions included; to evaluate the current status of intervention, to evaluate the professional perception regarding the value of intervention, gather examples of how students are responding to intervention and to discuss how the intervention may be improved within the action research cycle.

Given that research adhered to a constructivist approach in which it is vital that meaning of comments can be negotiated, it was apparent that interviews were an appropriate method to elicit opinion across the broad objectives above. Specifically unstructured interviews were chosen. Against such varied aims unstructured interviews, as opposed to semi-structured or structured interviews, have a number of advantages.

Defined by Minichiello *et al.*, (1990) unstructured interviews are 'interviews in which neither the question nor the answer categories are predetermined. Instead, they rely on social interaction between the researcher and the informant'. By this definition unstructured interviews fundamentally adhere to the principles of a constructivist approach. Unstructured interviews allow the researcher to explore the interviewee's own perception of reality using their own language and through a social lens of their own choosing (Denzin, 1989; Robertson & Boyle, 1984). Unstructured interviews also have the advantage of flexibility. As questions are not predetermined, the scope and depth of the interview conversation is not limited allowing the researcher to gain a holistic understanding appropriate against main aims (Patton, 2002). As a result,

unstructured interviews have the capacity to challenge the researcher with new, or previously unencountered, ideas, which can be used to develop better understanding of the topic or the participant's social reality (Zhang & Wildemuth, 2016).

As its name suggests a potential weakness of unstructured interviews is maintaining focus on topics of interest. The impact of this methodological weakness is however dependent on the skill of the interviewer and their ability to generate appropriate questions during the interview to probe and deepen discussion on meaningful areas. Here, time was taken before conducting the interview to familiarise myself with some of the key issues so that they could be brought up smoothly within the flow of conversation (Minichiello et al., 1990; Briggs, 2000; McCann & Clark, 2005). As with the student interviews above, issues of social conformity remain a threat when conducting any interview. Here, however, it was considered a much less significant threat as the interviewee was of the same professional standing as the interviewer and so there was no significant power differential.

Logistically, unstructured interviews all took place roughly every three weeks during intervention in the collaborator's classroom, either during communal breaks or during shared non-contact time. To ensure full engagement and depth of data collection, interviews were audio recorded and later transcribed. On two occasions, the collaborating teacher brought notes of observations he had made during intervention to share in interview. These were collected and the points noted.

Motivation questionnaire

The Motivated Student Learning Questionnaire (MSLQ) was used to quantitatively assess the impact of praise implementations on student motivation. Since it's publishing by Pintrich *et al.,* in 1993 it has become a widely used instrument translated and used in over 20 languages (Duncan & McKeachie, 2005). Duncan & McKeachie highlight that among its major uses is the investigation of motivational impacts of teaching interventions. The MSLQ is a self-report questionnaire based on a seven point Linkert Scale. The original version of the MSLQ consisted of 81-items and was designed to measure college students' motivation and their use of various learning strategies using 15 subscales. The questionnaire was developed within a social cognitive framework of motivation, suggesting that motivation correlates with a student's ability to self-regulate their learning activity, i.e. students are, 'metacongitively, motivationally, and behaviourally active in their own learning processes and in achieving one's own goals' (Eccles & Wigfield, 2002). Given that these are dynamic metrics, the MSLQ is administered with reference to a specific subject (in this case English and science).

Given that the original MSLQ was designed to assess motivation and learning strategies of students of college age, a shorted and more manageable version was developed for secondary school students and is used here (Pintrich & De Groot, 1990). This version is of the same structure and is based within the same social cognitive framework; however, it consists of 44-items and 5 subscales.

Both versions of MSLQ have been used extensively and as a result the instrument has been the focus of much academic scrutiny. Using confirmatory factor analysis and Cronbach's alpha scores numerous researchers have established the instruments factor validity and internal consistency (Pintrich *et al.,* 1993; Gable & Wolfe, 2012; Artino Jr. 2005). Similarly, an assessment of the psychometric properties of the 44-item high school version of MSLQ validated the instrument using multigroup confirmatory factor analysis (Liu *et al.,* 2012). Gable & Wolfe (1993) however question the internal reliability within some subscales highlighting that internal reliability decreases as the number of questions in the subscale decreases. To negate this problem the truncated 44-item version of the MSLQ has a reduced number of subscales. Rather than 15 narrow subscales, the high school version of the MSLQ assesses only five. Three subscales are designed to evaluate motivational beliefs. These include, self-efficacy (8-items), intrinsic value (9-items) and test anxiety (4-items). The remaining two subscales assess student cognitive strategy-use (13-items) and self-regulation (9-items). Although many of the subscales are of sufficient item length to be confident of internal consistency, Chronbach's alpha scores were calculated for each subscale each time the questionnaire was administered.

Questionnaires were administered to students' pre and post each intervention. In the case of the of moving from the first intervention to the second intervention, the data taken at the end of intervention 1 was taken to be 'pre' data for intervention 2 given that there will have been no teaching time between the two. Questionnaires were administered to students on a voluntary basis using an online platform that recorded student responses anonymously. For logistical reasons questionnaires were administered during science lessons but in each case it was made clear to students

which subjects they should be considering when responding. Although students completed the questionnaire several times, there was sufficient time between each to be confident that previous completion would not influence the results of subsequent questionnaires.

Once administered, responses were tabulated and scored in accordance with the guidance given by Pintrich (1991). Each answer was thus converted into an interval score between 1 & 7. There is a concern with this practise that participants to not perceive the difference in responses as equidistant, however, a number of researchers advocate the conversion to interval scores and further state parametric tests are appropriate for evaluating such data (Carifio & Perla, 2008; Sullivan & Artino, 2013). Thus, to assess the significance of motivational change as a result of intervention, means were calculated for each subscale pre and post intervention and Student's t-tests applied. To assess sample variance within subscales, standard deviation (SD) was calculated. In accordance with the central limit theorem, normality was assumed given a large sample size for each subscale (Smith & Wells, 2006).

Although standard error of the mean (SEM) and confidence intervals (CI) are more robust descriptors of confidence in the mean, they are insensitive to intra-group correlations and so are only valid when means are independent of one another (Cumming *et al.,* 2007). Further, change in SD following an intervention, compared to a control, is an indicator of individuals responses to the intervention. Variance of SEM would only indicate individual response when sample sizes are consistent, which is not always the case here (Hopkins, accessed August 2017).

Of course, for any self-report instrument, the validity of its findings may be influenced by social desirability bias of its participants. Nevertheless, data collected during the construction of the MSLQ found that social desirability bias did not account for any significant variation, a fact confirmed in subsequent evaluations of the MSLQ (Pintrich *et al.,* 1991; Duncan & McKeachie, 2005). Despite this, actual observations of behaviour provide better validity than self-report questionnaires and so in the present study, MSLQ data is used to supplement findings from student interviews and lesson observations.

Lesson observations

Lessons were observed in order to validate the quality of interventions and to help provide context to interpret comments made during interview. The aim of intervention for each term was to promote a specific type of praise and this was validated quantitatively during observation. Prior to any intervention occurring, the other participating teacher-researcher observed one of their counterpart's lessons. Here teachers conducted normal (no change to planning and routine) lessons and a tally of the number of each types of praise used was collected. Praise types were categorised as follows; process praise, person/ability praise, outcome praise, effort praise, non-verbal praise and other praise. Simple categorisation of praise and tallies were employed to ensure that observers were able to keep pace with the often-frequent use of praise in lessons. This was particularly the case for the collaborating researcher less familiar with the literature. In addition to tallying frequency of praise, observers were tasked with noting down any examples of praise used. Following observations, tallies were converted to a frequency of observed praise type use. In addition

Pre-intervention lesson observations were then considered baseline data, indicating the teacher's normal pattern and frequency of praise use. Further lesson observations were conducted during intervention periods using the same method and frequency of praise type use was calculated. Comparison to the baseline lesson observation data was used to evidence an emphasis of the single praise type intended at a given point during the research.

Intra-intervention lesson observations usually took place two-weeks after starting each intervention. The delay of two weeks was given to allow the participating teacher to become accustomed to administering the intervention. Normally, only one observation was conducted as these demonstrated sufficiently increased frequency, and thus emphasis, of the required praise type. On the one occasion where this was not the case, a conversation was held between researching teachers discussing how to improve the quality of intervention. As a result a subsequent observation shortly after demonstrated sufficient praise type emphasis.

MSLQ Data

In this section only MSLQ data is presented objectively. The MSLQ made up only part of a mixed methods constructivist approach, however, as interviews aimed to elicit individuals' perception of reality, it does not make sense to report such objectively here without context and careful consideration of meaning. Consequently, interview data is presented in the discussion section. By contrast, the MSLQ methodology does not make explicit aims to elicit perception through discussed meaning and so requires less carful considered interpretation. Thus self-report data alone is described here with only a short discussion of its significance.

Although the MSLQ is not constructivist and is a weak instrument for eliciting student perception of intervention, MSLQ data is important for indicating and quantifying the reality of the motivational outcome of each intervention. Here there may be a divorce between the perceived impacts of intervention and impacts themselves. MSLQ data is thus valuable for contextualising the responses given during the more data rich student interviews and is essential for answering research question 5; is praise effective at altering motivation.

Baseline scores

Baseline scores reflect the responses for the MSLQ conducted during the week commencing the 23rd January immediately prior to intervention one (process praise). As such it is taken that responses represent a baseline state of student motivation.

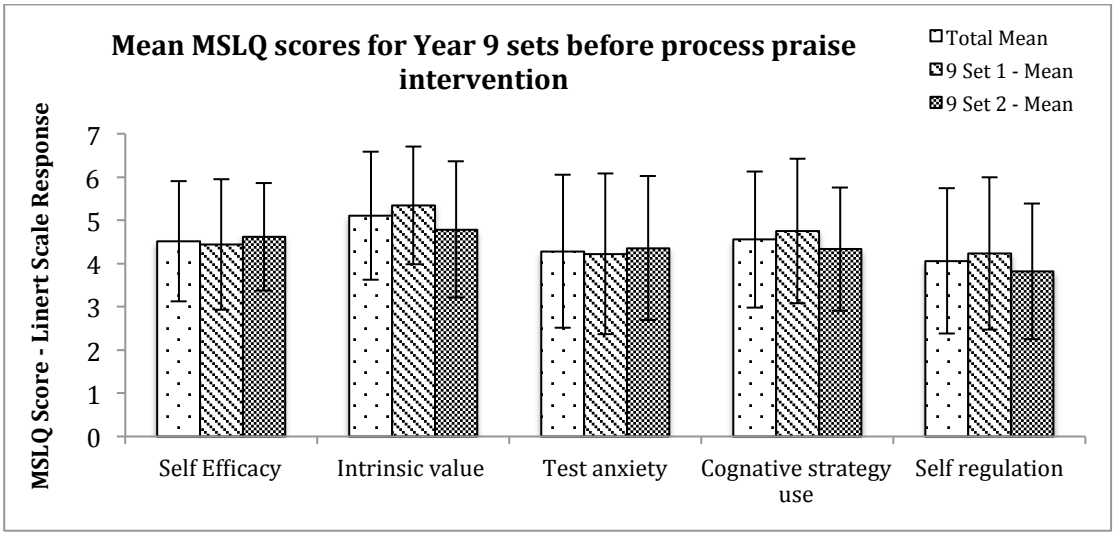


Figure 1: Mean MLSQ responses for all participants and each intervention-teaching group. MSLQ responses were categorised and scored according to the guidance set out by Pintrich (1991). Error bars represent ±1SD. *p<0.05, if statistical significance is detected using t-test 2-tail. Internal consistency of subcategories confirmed with Cronbach's Alpha, $\alpha < 0.7$ (Tavakol & Dennick 2011).

There is little variation evident across teaching sets within each subcategory. Certainly variation is not significant. Although some variation exists between subsets, again significant variation is far from evident. Indeed, significance at any level seems unlikely given the variance about the mean in all cases. Variance shown here thus evidences the individual nature of motivation, even when individuals within each set experience a broadly similar educational context. While no significance or observable difference between groups is no bad thing, it was not necessarily expected given groups are of different academic setting and the MSLQ assesses student self-efficacy and agency; traits one might expect to diminish with lower setting (Pajares, 1996).

Authors of the MSLQ, however, caution against excessive comparison between groups, highlighting that responses to the MSLQ are context dependent (Pintrich *et al.,*1993). Thus standardisations of 'good' or 'bad' scores across any of the sub-categories do not exist. Rather, the primary use of pre-intervention data is to

provide a baseline to evaluate the impact of interventions by noting changes to the mean scores for each teaching set within a given subcategory as a result of intervention. As noted by Pintrich *et al.,* comparison of mean scores alone is inadequate and some consideration of context must also be made.

It is also worth acknowledging that MSLQ analysis is conducted by the comparison of mean scores. As such it is impossible to track changes of individuals. Thus, comparison to baseline data highlights changes to mean responses and so it must be accepted that there is likely to be individual variation of response within this. Indeed, significant individual variance is indicated by large variance about the mean throughout. While it would have been advantageous to track individual responses and to map individual 'progress', the methodology required to do this would have put the anonymity of student responses at risk. This would have been a breach of ethical considerations and so not carried forward.

Post intervention one: Process Praise

Post MSLQ scores reflect responses for the MSLQ conducted during the week commencing 27th Match during the last week of intervention (process praise). Data for this MSLQ is matched against baseline data conducted prior the intervention and a comparison of mean scores in each subset made (figure 2).

For each teaching set and across all subscales no significant difference was detected between pre and post intervention MSLQs (t-test; 2-tail, *p = 0.05).

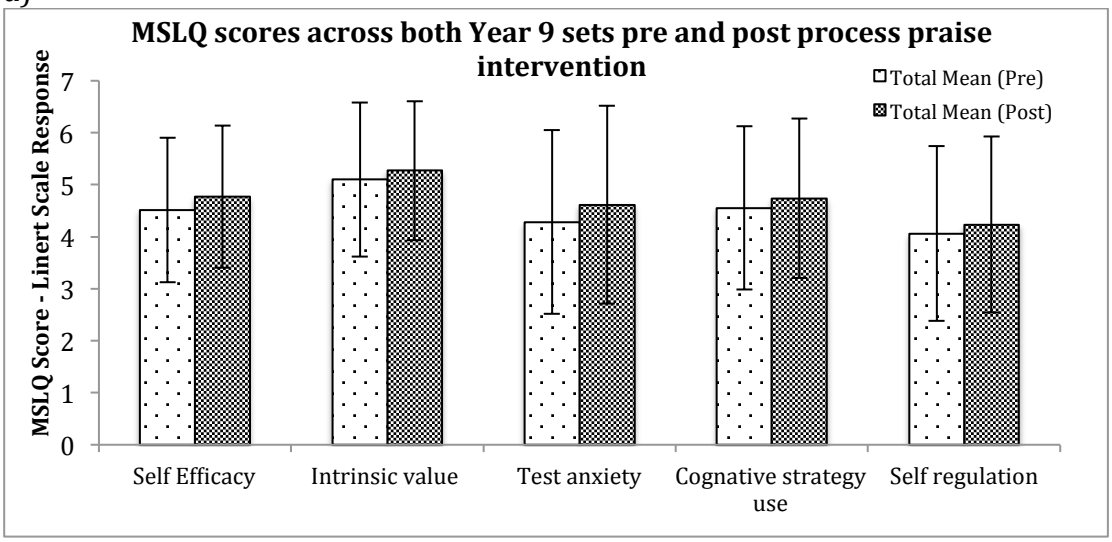
Once again, significant seems unlikely due to large degree of variance about the mean in all cases. Using the MSLQ as a metric alone it must therefore be stated that emphasis of process praise had no observable positive or negative affects on student motivation, student self-regulated learning strategies or any of the measured sub-categories. Standard deviation also remains consistently broad indicating that there has not been a uniform response to the intervention.

It is also important to consider the context of the MSLQ. The course of intervention term one (January term) for year 9 students is without events of importance. The bulk of the term is given over to teaching new content with only periodic testing of low significance. Given this is similar to students experience during the pre-intervention term (September term) it was deemed that context was not a significant factor in analysing the results of intervention term one.

Although the MSLQ suggests that the intervention had no impact on any of the above sub-scales, the picture may yet be more complicated. The MSLQ is a good tool for measuring outcome, but cannot justify its own result. There is no assessment of the mechanism by which the result is achieved. An overall result of no measureable mean difference could be the product of a number of intervention outcomes. It is possible that any of the following be true. One, the intervention was perceived but emphasis of process praise had no measureable affect on motivation. Two, the intervention was perceived but its affects were varied, resulting in no mean change. Three, students did not perceive the intervention and so it had no measureable affect. Four, the intervention was effective at improving motivation, but the time scale of intervention was too short to produce

measureable results. Thus, without discussion with students it is hard suggest which of these outcomes is more likely. Consequently, the likelihood of each outcome is explored further in the discussion section with reference to interview data.

a)



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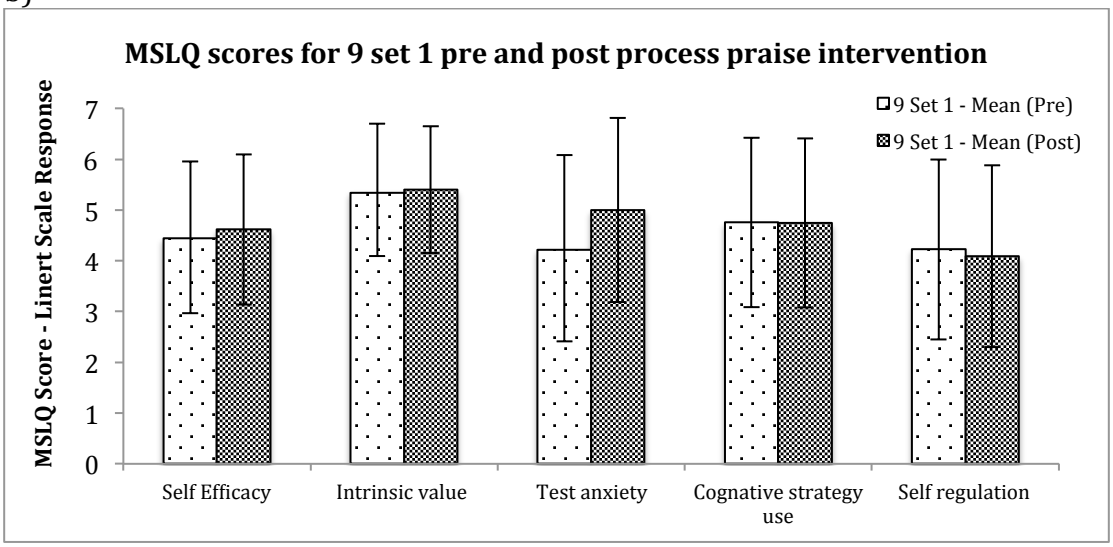

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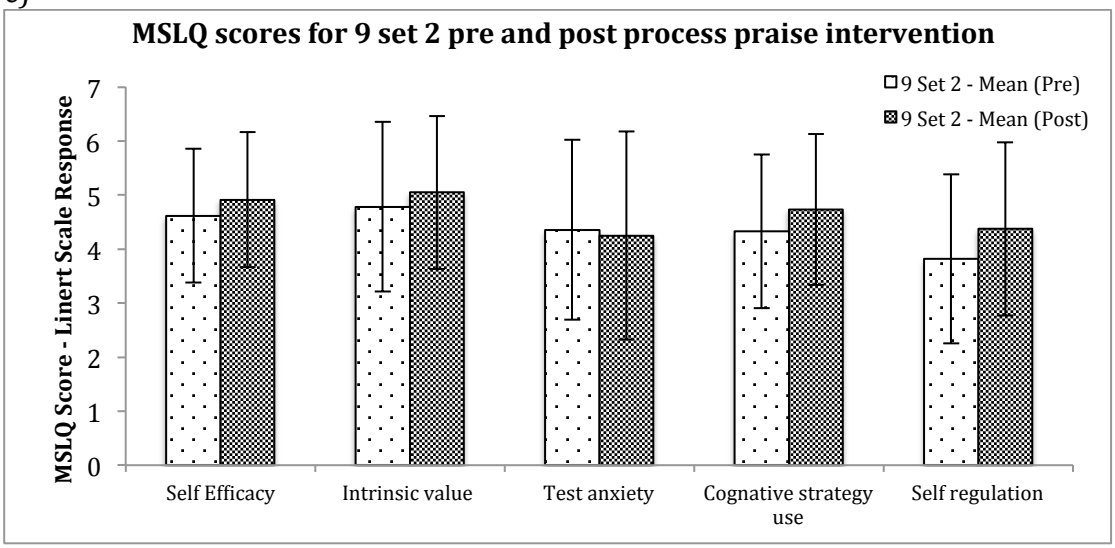
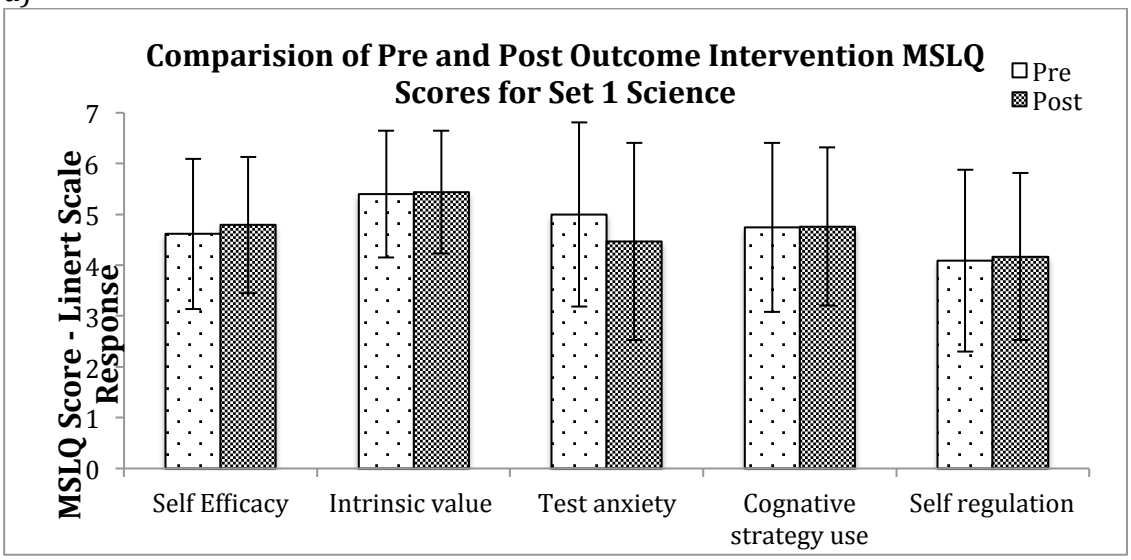


Figure 2: Mean MLSQ responses for all participants (a) and each intervention-teaching group (b&c). MSLQ responses were categorised and scored according to the guidance set out by Pintrich (1991). Error bars represent ±1SD. *p<0.05, if statistical significance is detected using t-test 2-tail. Internal consistency of subcategories confirmed with Cronbach's Alpha, $\alpha < 0.7$ (Tavakol & Dennick 2011).

Post intervention two: Outcome Praise (science), Effort Praise (English)

MSLQ scores reflect responses for the MSLQ conducted during the week commencing 19th June during the last week of intervention. Data for this MSLQ is matched against MSLQ responses conducted prior to intervention two (week commencing 27th March, at the end of intervention one) and a comparison of mean scores in each subset made (figure 3). In this case data is presented for each intervention set but no combined scores. This is because for intervention two classes were exposed to different interventions.

a)



b)

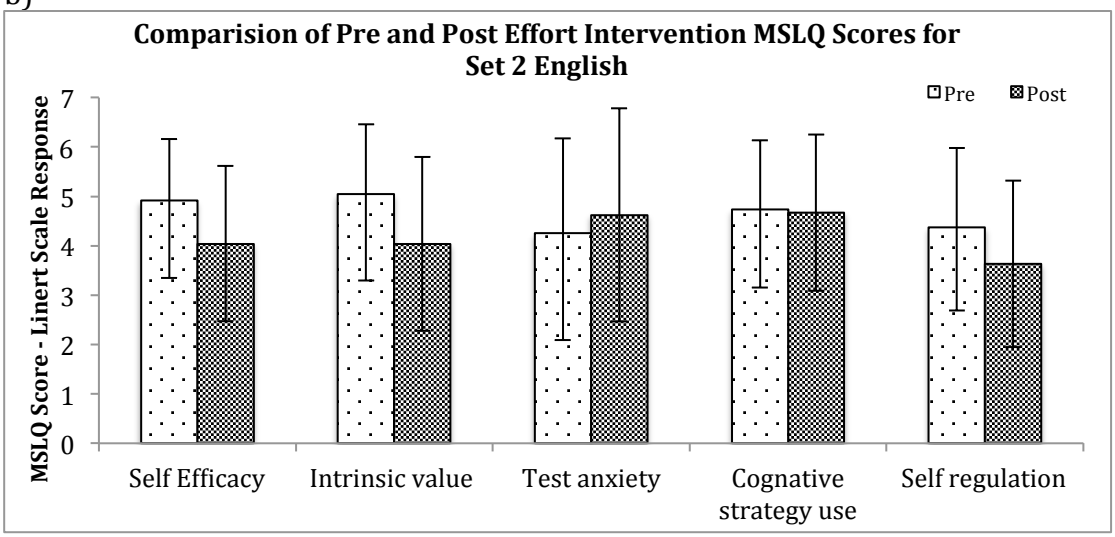


Figure 3: Mean MLSQ responses for all participants (a) and each intervention-teaching group (b&c). MSLQ responses were categorised and scored according to the guidance set out by Pintrich (1991). Error bars represent ±1SD. *p<0.05, if statistical significance is detected using t-test 2-tail. Internal consistency of subcategories confirmed with Cronbach's Alpha, $\alpha < 0.7$ (Tavakol & Dennick 2011).

As with intervention one, there is no significant variation of mean scores detected across any of the measured subscales. There remains the problem, however, that the MSLQ offers no mechanism by which to independently explain its own results. Statistical significance is not detected, yet, as discussed above, this result can be the consequence of a number of different interventional outcomes. Of particular importance among these is assessing whether students were able to perceive the

intervention at either a conscious or subconscious level, a matter discussed further during interview.

Context must also be considered carefully. While intervention term one broadly mirrored preceding practise, intervention term two (May term) contained events of significance and as a result, classroom practise was altered. During the summer term year 9 students revise for and complete internal exams. While not as significant as external exams, internal exams are used to assess progress, compile end of year reports, and importantly for setting students for the remainder of their GCSE syllabus. On top of this, students also place considerable personal value on the outcome of internal examinations, in particular, because of the influence results can have on the way individual students are perceived by their teachers, peers and parents (Covington, 1992, 1998). Beyond the exams themselves, revision lessons typically require different skills, which some students may be more or less suited to. Similarly, top set science undertook and completed a research project during this intervention term. The project was in part to increase the amount of outcome praise that was given but also challenged the students with increased demands on teamwork, research and independent study. Such changes to student's regular experience of the classroom will doubtless impact on students' comfort in lessons, self-efficacy and likely change the way students perceive themselves against each MSLQ item.

One final contextual consideration to be made is that students completed their final MSLQ after having received their end of year exam results. Although the MSLQ asks that students answer questions with consideration of the whole

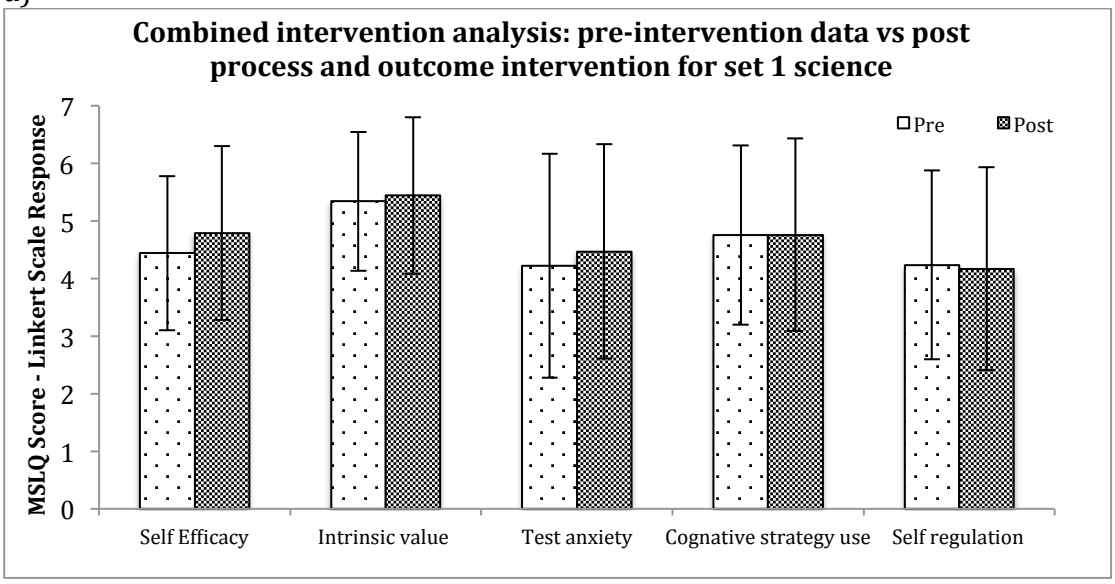
intervention term, it is highly lightly that pupil responses will be unduly influenced by their emotional response to end of year exams results given their perceived importance.

Context is an important factor in determining MSLQ responses and context is decidedly different during intervention term two. For this reason, any conclusions drawn from comparisons of MSLQ data involving intervention two will be less reliable. Once again, it becomes the requirement of qualitative, data rich interviews to discuss and negotiate the likely multidimensional factors underpinning the observed MSLQ scores.

Post interventions one and two

MSLQ scores reflect responses for the MSLQ conducted during the week commencing 19th June during the last week of intervention. Data for this MSLQ is matched against baseline data conducted prior to interventions and a comparison of mean scores in each subset made (figure 4). Again, in this case data is presented for each intervention set but no combined scores. This is because for intervention two, each class experienced a different intervention.

a)



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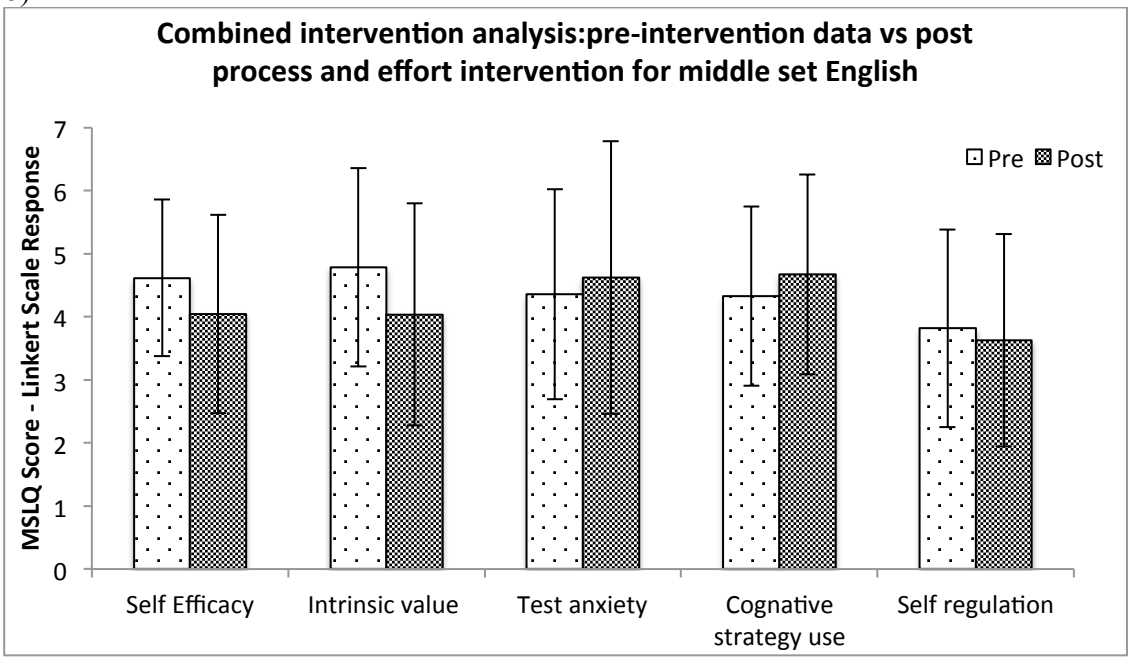

Figure 4: Mean MLSQ responses for all participants (a) and each intervention-teaching group (b&c). MSLQ responses were categorised and scored according to the guidance set out by Pintrich (1991). Error bars represent ±1SD. *p<0.05, if statistical significance is detected using t-test 2-tail. Internal consistency of subcategories confirmed with Cronbach's Alpha, $\alpha < 0.7$ (Tavakol & Dennick 2011).

Figure 4 gives an indication of the impacts of both interventions when combined. Once again significant change as a result of interventions is not detected and variation about the mean is high. Broadly speaking, the analysis matches that above. Principally, a result of no significant mean change may yet be caused by a number of different mechanisms and without further discussion with students it

is impossible to state which. Comparison here also contains data from intervention two in which the context was markedly different. For the reasons stated above, one must be even more cautious in interpreting such results and consider the likely implications contextual change.

MSLQ data summary

Analysis of mean scores demonstrated no significant change for all interventions, teaching sets and all sub-scales and confirms that praise interventions were ineffective in altering student motivation. Standard deviation remains broad throughout, indicating that pupils' response to intervention was not uniform and that the motivational state of students in each class was highly varied. Context plays an important part in interpreting MSLQ data and in the case of intervention two, substantial contextual change was noted.

Although no significant change is found, the MSLQ itself cannot establish the mechanism by which this result was achieved. A number of scenarios are laid out which could produce the MSLQ results observed, however, it is impossible to determine which without discussion with participants eliciting the cognitive processing of praise. Taken forward, MSLQ data is therefore a useful tool to contextualise responses of students during interviews.

Interview results and discussion

Interviews comprise the majority of the mixed methods constructivist approach. Interview data is presented in conjunction with discussion of meaning, as comments made during interview are highly contextual and require careful interpretation. The present study set out to investigate a number of central research questions, and for simplicity each of the following research questions are considered in turn. Research question five has been removed as it was best answered by MSLQ data.

1. Do students receive praise?
2. Do students value praise?
3. Did students perceive praise changes during intervention?
4. Were changes in praise valued and why?

1. Do students receive praise?

Student responses unanimously confirm the receipt of praise from teachers. Students, however, identify discrepancies between teachers in terms of the frequency of praise.

> *That really depends on the teacher. Some people give you what you did good and what you did bad, other teachers don't say much.* **– Girl: Set 2**

Not only do students perceive inconsistencies in frequency of praise, but also in delivery of praise.

> *It's mostly when your just handing back the books and* they *will say like well done.* **Boy: Set 1**

> *They praise us with like… via like comments in our book. They don't praise us like… they don't usually praise us like… verbally*. – **Boy: Set 1**
>
> *I think verbal is probably the most*. **Girl: Set 1**

Given that these particular responses were collected prior to any intervention, responses reflect experiences of school more generally, as opposed to praise within the intervention class. This may account for the apparent contradictions in the perceptions of praise delivery as students may have reflected upon different teachers. Nevertheless, it is suggestive of inconsistent praise practice between teachers.

Notably, the subject of praise was rarely considered. While students in each interview group raised points about methods of praise delivery, on only two occasions did students consider what was praised.

> *They give me feedback on what I need to do more and what I do good so I think that I do get positive feedback a lot of the time.* **Boy: Set 2**

These responses suggest that students do not readily perceive the subject of praise as much as its method of delivery. Interestingly, however, in both the cases that students allude to the subject of praise, it is with reference to process praise. This is perhaps suggestive that process praise is the most common or most perceivable subject of praise prior to intervention.

2. Do students value praise?

Again, responses considered here were collected from interview discussions prior to any intervention. Thus this demonstrates the 'natural' state of value that students attribute to praise. Considerations of the perceived value of specific intervention praises are considered in more detail in subsequent sections of the interview discussion.

Interview questions assessing the perceived value of praise yielded a broad range of responses and underlined that the outcomes of praise are highly context depended. When specific contexts are considered, however, the majority of student responses align with and support current motivational constructs.

A particularly powerful theme that arose was that praise is valued as a result of its perceived potential to improve outcomes.

> **Girl: Set 2** –*… for example at the beginning of this year I was on a C- I think and then I just like asked for extra feedback on what I could do like in my like PEE paragraphs and like over like this term and a half I have gone up to a B+ just because he has like explained it and said what I have done good and what I have done badly.*
>
> **Interviewer –** *So you feel that that feedback has allowed you to achieve higher and therefore you have become motivated?*
>
> **Girl: Set 2 –** *Yeah*
>
> **Interviewer –** *So is it that achievement that makes you motivated or what he is saying?*
>
> **Girl: Set 2 –** *He… its like being… its like when your getting something and you do it well and then you feel really good. Especially he will give you a B or something and he will be happy that you have done that.*

Again, there is evidence here that process praise is being implemented prior to intervention. Experimental studies have frequently demonstrated that process praise has the capacity to improve student outcomes and teachers' views align with this (Kamins & Dweck, 1999; Henderlong-Corpus & Lepper, 2007; Ames, 1990; Strang 2016). Here there is evidence that students also perceive a mechanism by which praise process may be responsible for improved outcomes. This mechanism mirrors academic research as improved outcomes appear to be achieved by improving areas that were subject to process praise. Thus improved outcomes are directly attributed to the specific process praise received. Despite this, rather than praise being valued directly, the value attributed to praise appears conditional on improved outcomes. There is also clear evidence that the student has adopted many aspects of a mastery-orientation. Although it is very difficult to attribute this to the praise received, process praise is implicated to promote mastery-orientation (Kamins and Dweck, 1999).

From this example, it is also clear that the student values the praise received because of a desire to please the teacher. Indeed, there is significant further evidence from interview responses that students felt that they had strong student teacher relationships.

> *But he is* interesting, *you always listen to him because he is always got that energy in the class and he is always like with it and he never like has an off day where he is not quite 100%, he is always 100%, he like never… You never switch off in his class because like the energy is always there.* **– Girl: Set 2**

Interviewing trainee teachers and students, Yunus *et al.,* (2011) showed that teachers and students perceive the strength of student-teacher relationships as an

important determinant of motivation. In a Sutton Trust report, classroom environment and the quality of student teacher relationships are implicated to improve student self-efficacy, self-worth and motivational goals (Coe *et al.,* 2014). Self-determination theory also suggests that a supportive environment and strong student-teacher relationships are conducive to motivation by improving the autonomy one has over one's success or failure and student efficacy expectations (Ryan & Deci, 1985, Bandura, 1997).

There is also evidence that students intrinsically value process praise because it is inherently more personalised and specific.

> **Girl: Set 1 -** *Because sometimes they used to write like well done and I think, oh right, it's obviously not as well as I could have done and it's not that personalised. Its not that specific and it doesn't say what was good.*
>
> **Interviewer -** *Ok, so that's when its not good and you don't feel as motivated but that other time when you say that you are motivated, what does that look like?*
>
> **Girl: Set 1 -** *Well they say like well done because this bit of it was good and this makes it more personalised and special.*

Process praise, more than other subjects of praise, demands that comments be specific, as it must be focused on a specific skill. Indeed specific and personalised praise appears to be important to students as students equally value praise that is delivered in a personal manner.

> *Yeah, but I fell like verbal feedback tends to mean more because its… urr… your speaking personally with a person and making that connection with them* **– Boy: Set 1**

As well providing some evidence that students, prior to intervention, appear to value process praise, interviews also revealed aspects of praise that students value less. Among these concerns was the frequency of praise. When praise is too frequent, there is evidence that it becomes detrimental to motivation.

> *Well I fell like not… well if he praises us too much then we will get used to it and we will feel like dogs but if he does it too little then we will feel belittled and not want to do the work so he really needs to find like a balance.* **- Girl: Set 2**

Henderlong & Lepper (2002) argue that frequent praise, reduces motivation by reducing student autonomy. Rather than feeling intrinsically motivated, individuals feel that their participation derives from a teachers desire for them to do so. There is also striking imagery in this quote of Pavlovian conditioning (Rescorla & Solomon, 1967). The frequency of praise may cause students interest to become conditional on such feedback and thus be detrimental via a similar mechanism to extrinsic rewards (Deci, 1971,1975; Lepper, 1973). There may also simply be praise fatigue, whereby praise is devalued by its frequency.

> *I... I mean… I feel that it does not really affect my performance particularly just because I … urr … I quite often get positive feedback so it becomes less… umm…* **- Boy: Set 1**

Finally, students also appear to value praise less when it accompanies low-demand tasks.

> *If there is a topic that I find easy then like… being praise for that doesn't really have as much of an impact on me so urr…* **- Boy: Set 1**

In line with the literature, praise for simple tasks may be non impactful or perhaps even detrimental because it conveys lower ability (Mayer *et al.,* 1979).

More dangerously, praise for easy tasks may cause students to attribute themselves with low intelligence (Weiner, 1992). Where students also perceive intelligence to be fixed, this may result in a learned helplessness approach (Diener & Dweck, 1978, 1980). If any of the above occurs, it is also likely to be damaging for a student's self-worth (Covington, 1992).

Students thus appear to be acutely aware of the potential benefits and costs of praise. Strikingly, students seem to value praise ways that compliments academic models of motivation highly. Given responses precede intervention, students seem to inherently perceive and value a mechanism by which process praise improves outcomes in a way analogous to the findings of Kamins & Dweck (1998). By contrast, but also akin to the literature, students also appear to value praise that is personal and warn against praise that is overly frequent and for low-demand tasks. This is perhaps not surprising given motivational models are meant to predict factors that affect motivation, yet the degree to which students perceive these factors is notable.

3. Did students perceive changes in praise implementation?

Three methods of praise (process, effort & outcome) were implemented during interventions in the present action research project. In each case, MSLQ data suggested that they did not have a measureable impact on motivation. In discussing MSLQ results it was hypothesised that this may have been because students did not perceive the intervention. Perceptions of implementation of each of the praise types are considered in turn.

Process praise

Student interviews conducted during the process praise intervention cycle provided evidence that intervention was perceived only for the English intervention class (set 2).

> Interviewer - *And what is it he is praising? We have said that its mostly in the books and a bit at the start of lessons but what is he praising? Is he praising your work, your effort… your personality or what is he praising.*
>
> Girl: Set 2 - *He gives us little targets that we should do for our next piece of work and if he thinks that we like did that then he will give us a praise or if we use like certain words that he taught us in class like academic words then he will also give us of praise.*
>
> Boy: Set 2 - *It is not necessarily whether you have… its like … if you have got a better grade but you have also done everything that he has written last time to improve on and you have invested in your umm newer work then he will give you praise because it shows that…*

Further, there is again evidence that, where process praise is perceived, students attribute it a cause of improved outcomes.

> *I just wanted to say that when I do take comments into account, some… most of the time my work will improve slightly because I started the year with like Cs and now I have moved onto like mostly B's in English. Which I mean, its not the best but I am happy with that and its improvement, which is good.* – Boy: Set 2

The science intervention class (set 1) on the other hand provided no evidence of having perceived the process praise intervention. All the interviewees stated that effort praise was the most prevalent subject of praise during the intervention period. To some extent these responses may have been a result of issues of social conformity as students often hold the conception that teachers value effort above other factors (Ritchie *et al.,* 2013; Strang, 2016). Lack of perception may also have

been due to the fact that the intervention for this set took some time to evolve during this action research cycle. Two weeks into the intervention, concerns regarding the frequency of opportunities to implement process praise in science were raised at a collaborator meeting and were discussed with a research supervisor. Given that lessons covered short topics and comprised of short tasks, it was difficult to praise students' processes without falling into the trap of praising trivial low-demand tasks and skills (Henderlong & Lepper, 2002). By contrast in English, students were examining Shakespeare, and thus continually returning to a core set of skills and processes that were subject to process praise.

Following consultation with a research collaborator and supervisor, processes were integrated into lesson objectives so that students could routinely receive process praise for meeting these objectives. An example of a process based learning objective may be, 'Using concepts of the "Lock and Key" mechanism, explain why multiple digestive enzymes are needed to digest a roast dinner?'. Although it was felt that this greatly improved the frequency and effectiveness of process praise, the delay in initiating this may have reduced student's ability to perceive the praise.

Effort praise

Effort praise was only conducted for the English intervention class (set 2) during the summer term and students were able to perceive the praise intervention.

Interviewer - *Have you noticed, is he praising some things more than others? So is that praise for your outcome, your grade, or is it praise for you doing something in particular or what is it for?*

Boy: Set 2 - *Doing something particular.*

Girl: Set 2 - *I would say it's something else… also something to do with like your effort and your contribution because he… I think sometimes it's some of the same people who contribute each time so maybe is someone who does not contribute too much contributes a bit more in one lesson he will praise you for that.*

Interviewer - OK *so you notice that he is praising you for your effort as well?*

All – *yeah.*

In addition to effort praise, students still felt that process praise was still prevalent. Perhaps this was a result of having completed the process praise intervention previously or because of the apparent prominence of process praise perception prior to the investigation.

Outcome praise

Outcome praise was only conducted for the science intervention class (set 1). Before being triggered to consider grades and outcome praise directly, students described the receipt of process praise. It is proposed that this is likely to be for the same reasons as discussed for effort praise above. Even once the conversation was directed towards outcome praise, students perceived that they had not received much during the intervention term.

Because it was more exam based this term and studying for it we didn't really receive as much grades as we have in the past two term but we received grades for like our project and stuff. **– Boy: Set 1**

One difficultly in implementing this intervention was producing enough opportunity to give outcome praise. As its name suggests, it is difficult to give outcome praise before a task has been completed. The challenge is therefore to produce enough meaningful tasks to give outcome praise frequently. It was for this reason that the summer term was chosen and a project was undertaken. Preparing for exams in this term meant that students could regularly receive revision tasks, which could then be subject to outcome praise. Upon reflection, it is likely that students felt that the outcome praise of the revision tasks was overshadowed by the outcome praise for end of year exam itself. As far as reporting on students goes, this is a correct assumption. The fact that only the class project was mentioned is possibly evidence of this as this was likely to be the only other grade mentioned in the end of term report sent home to parents. This would certainly be supportive of Covington's (1992) self-worth theory. Final end of year exams convey intelligence and are also broadcast to significant stakeholders in one's self-worth. Given the potential significant risks to self-worth, it is likely that students become disproportionately motivated to achieve on these specific tasks, reducing their perception of praise for other subsidiary tasks.

It is also proposed here that perception of the outcome praise intervention may have been lowered because of an understandable shift to a goal orientation. Although many works champion the benefits of a growth mind-set and mastery orientation (Kamins and Dweck, 1999; Ryan & Deci, 2000b; Galloway *et al.,* 2004), Dweck acknowledges that goal orientations are important at points, especially within an examination based educational system. Being focused on a goal may

have reduced a student's openness to receive and perceive feedback, even when it is positive. In support of this, stress appears to reduce neural responsiveness to feedback (Tredway *et al.,* 2013). Overall, however, despite efforts to increase the frequency of outcome praise, students failed to perceive its implementation. It is therefore likely that null MSLQ result for outcome praise is due to this lack of perception.

4. Were changes in praise during intervention valued?

Responses discussed here derive from post intervention interviews and, given questions to determine perception of intervention had already been discussed, the nature of intervention was often disclosed to students. This facilitated an in-depth discussion in which students were able to vocalise modes by which they processed the praise received. Previous studies have typically measured motivation by behavioural outcome (i.e. task persistence or choice), however, through interview students provide insight into the cognitive processing of praise that underpins observable behaviour. This is important as it demonstrates that students are metacognitive in their motivation and processing of praise and precludes methodological shortcomings of measuring behaviour alone (Touré-Tillery & Fishbatch, 2014). Behavioural measurements alone exclude motivational considerations that do not result in a measurable behavioural response. As with the previous section, the praise used in each intervention is discussed in turn.

Process Praise

Both teachers-researchers involved in implementing the intervention perceived a number of benefits. Significantly, teachers-researchers perceived that the intervention improved academic output as students engaged specifically with areas of work subject to process praise.

> *Yeah as in they are a good class but outside of that, even the weaker students have made progress and have been receptive to the mind-set of particular things that they need to improve up and to the end product.* – **Teacher-researcher (English)**

Teachers also noted that students became more proactive in their response to praise and more critical of their work where praise was given. There was also the perception that process praise was encouraging students to adopt mastery, task-involved goals.

> *Yeah and I think it's sometimes difficult to separate a good class and a positive group with a new skill but I think just the slight nuances in my teaching, seeing how they respond has been very positive. As in specifically going, "What, when I do this?" so they're starting to come back to me saying, "Is this done well?" and 'How can I improve that?" rather than "Why do I keep getting a C or a B?", or, "Is this good or is this bad?". It's now, "Is my analysis good?"*– **Teacher-researcher (English)**

Evidence that process praise promotes mastery-orientations supports experimental findings (Kamins & Dweck, 1999). Research also suggests that increased adoption of mastery-goals may underpin the perceived improvement in academic output (Blackwell *et al.,* 2007; Good *et al.,* 2003). In additions, mastery-orientation is considered a common constituent of a growth mind-set, and so although not discussed directly, students are also likely to demonstrate greater

satisfaction following success and greater resilience following failure (Diener & Dweck, 1978, 1980; Dweck & Legget, 1988; Dweck, 1999; Ames, 1992).

Teacher-researchers perceptions of improved outcomes and the adoption of mastery-orientation are evidence that students valued the process praise intervention.

> *To be thinking about it shows in a sense that they are motivated by those outcomes and that the praise that you are giving, they want it repeated because they are now asking for that. So for me that's quite good evidence that they value that sort of feedback.* – **Teacher-researcher (science)**

Although teacher-researchers perceived only positive outcomes from having run the intervention, student perceptions of process praise did not consistently align with these views.

Supportive of teacher-researcher perceptions, students appeared to value process praise for its informational value and acknowledged that this provided a mechanism by which process praise my improve outcomes.

> *It's also know where need to actually work on … in … in your work. You know that's right and it gives you some time to figure out what you need to work on.* **– Boy: Set 2**

> *I just wanted to say that when I do take comments into account, some… most of the time my work will improve slightly because I started the year with like C's and now I have moved onto like mostly B's in English. Which I mean, it's not the best but I am happy with that and its improvement, which is good.* – Boy: Set 2

These comments are also in line with perceptions of process praise held prior to the intervention. As before, the value attributed to process praise appears

contingent on improved outcomes. Where students did not perceive improved outcomes, they also attribute less value to process praise.

> *Sometimes I do feel like it does slow down… like it… like the err… like he will give us something to improve on, but then* there *is kind of always something else and you will stay at the same grade if that makes sense.* – **Boy: Set 2**

This comment opened up discussion to explore scenarios that students perceived process praise as damaging to motivation. In particular, students highlighted times where they felt that they had followed up on the informational aspect of process praise, but this had not resulted in the noticeable academic improvement. This scenario further demonstrates that the value attributed to process praise is contingent upon improved outcomes.

> *It's made no motivation as he does give us praise and then he also gives us something to work on but he doesn't do that very well it just seems like he is trying to just break us down even more.* **– Girl: Set 2**

These perceptions of praise are, again, supported by motivational literature. Self-determination theory predicts that the autonomy one has over one's success or failure is a significant determinant of motivation (Ryan & Deci, 1985). Here, students perceived an increase in output (effort), but did not perceive an improvement in outcome (grades). Students therefore conclude that they have less autonomy over their success or failure and are therefore less motivated. This is also explained by Bandura's (1997) social cognitive model. Students who have increased effort and but not seen improvement are likely to have decreased efficacy expectations and so are likely to demonstrate decreased motivation.

Beyond damaging motivation in the short term, it is also suggested here that there may be long-term negative effects where this scenario occurs consistently. Effort may become devalued, as they increasingly perceive it to have little impact on outcome or progress. Devaluing effort in turn is more likely to invoke a sense of learned helplessness (Dweck, 1985). Dangerously, such pupils are characterised by poor engagement and low academic resilience (Diener & Dweck, 1978, 1980; Dweck & Legget, 1988; Dweck, 1999).

This scenario may also damage student-teacher relationships. Where responses to process praise do not improve outcome, students may become increasingly frustrated and question the value of teacher comments. Where teacher competence is questioned and student-teacher relationships are damaged, this can have detrimental effects on student motivation and course involvement (Gorham & Christophel, 1992; Treven, 2007; Finn *et al.,* 2009; Yunus *et al.,* 2011; Coe *et al.,* 2014). The value of student teacher relationships is highlighted at points throughout the student interviews.

> *I find that if the teacher can like have fun and take a joke then like I find it much easier and it motivates me to do me and like prove myself.* **–Boy: Set 1**
>
> *Because when he puts the effort in you feel like you want to give it back to him because he like has helped you* **– Boy: Set 2**
> *Ok so knowing that he has invested in you, you almost want to invest back into him?* **– Teacher-researcher**
> *Yes* **– Boy: Set 2**

Self-worth must also be considered. Intelligence, as opposed to effort has high self-worth value. As such, Covington (1992, 1998) suggests that of academic

considerations, high effort and poor attainment are particularly damaging to self-worth as they conveys perceptions of low intelligence among peers.

Potentially key to effective process praise appears to be the specificity and detail of points made. This adheres to students' perceptions of perceived value; in that more specific and detailed praise is most likely to yield the improved outcomes that value is contingent upon. Further, students indicate that the inherently perceive value where praise is specific and individual. To some extent this is because students like know that effort on work is reciprocated by the teacher in marking. Again, this may stem back to notions of teacher investment, involvement and relationships, which appear to be significant in determining student motivation and academic outcome.

> *He has a lot of good things that he says but he doesn't say anything very specific to each student. He just says generally you could improve on this but he doesn't say specifically like within that how to improve.* **– Girl: Set 1**
> *When is the praise better then?* **– Teacher-researcher (science)**
> *Well they say like well done because this bit of it was good and this makes it more personalised and special.* **– Girl: Set 1**
>
> *So the teacher might have read your work and picked up that… they say that you have done this really well but does that make a difference?* **– Teacher-researcher (science)**
> *Yeah* – **All: Set 1**
> *Yeah if you have put the effort into it.* **– Boy: Set 1**
> *So the teacher has put the effort in?* **- Teacher-researcher (science)**
> Yes (by positive gesture) – **Boy: Set 1**

Specific praise would also enhance its effectiveness by limiting the amount of informational processing required by the student. Simple specific praise may be particularly important for low ability students.

> *I like… I do find that attitude has changed. That some things he would tell me I need to add, I need to analysis it and that or close like… in the context. But he would say that to me and then like I wouldn't… I didn't really get what he means to do by that and then I sort of lose like umm lose what I'm doing and then I sort of go off work and then he has to get me back on track* **– Boy: Set 2**

Further specific process praise should be focused on skills that students perceive themselves to have high agency. Bandura's (1997) social cognitive model describes efficacy expectations as important in determining motivation for a task. Where students are directed to focus on tasks where they perceive themselves to have low efficacy expectations, they are likely to become demotivated. This is very similar to the effects of lowered autonomy in self-determination theory. Although not directly linked to process praise, the following quote highlights the importance of this point.

> *Well right now he's just not like giving me the structure of work, its mostly spelling but I can't really help that… umm because I have been tested for dyslexia on the American side its not really counted here so its hard for me so I wish he wouldn't mark the spelling as much as the other things like structure.* **– Girl: set 2**

Finally, students highlight that process praise can be a double-edged sword. While process praise focuses on positive processes used, by focusing, students can be left with the conception that the rest of their work was not so positive.

> *There are lots of things that he says that can make you motivated to do work and some things he says like… when your marking stuff like makes you happy but … it's not the most motivating thing because sometimes you have done more things wrong than you have done right.* **– Boy: set 2**

Responses from students indicate that most students have adept perceptions of the praise that they receive. In some cases, or at least when prompted to do so, responses demonstrate that students have the capacity to be metacognitive in

their approach to motivation and praise processing. Similar to teachers, students inherently value process praise beyond the 'feel good' factor of receiving it, as they perceive a mechanism by which is can contribute towards improved outcomes. Students responses also highlight that process praise is most effective when specific, detailed and focused on areas that students have high agency.

With both students and teachers valuing process praise, it is somewhat surprising that MSLQ data failed to demonstrate any meaningful improvement in motivation. Sample size and variance are somewhat implicated for this, however, responses from students during interview also suggest ideas for the improved implementation of intervention.

Effort praise

Teacher-researchers had mixed conceptions of the effort praise implementation. Given effort praise intervention followed process praise for the collaborating researcher, comparisons were made between the two. While implementation was easier, the teacher-researcher felt that effort praise failed to convey meaningful information to students and can even be damaging where it encourages just more work.

> *It's a great way to get people smiling and positive and a good environment and to get people buzzing around and its quick and its easy.* **– Teacher-researcher (English)**
>
> *I got the impression that they are quite a motivated class and we got through the process and actually because everyone had made*

progress clearly they were working hard and they were putting the effort in and being told they were putting the effort in was almost just like… **– Teacher-researcher (English)**

Comments further imply that students did not value effort praise as much as the preceding process praise.

Yeah, and they almost go 'ok yeah, I understand your praising me because I'm better in effort and my effort is going well but how…', the questions kept coming back like 'what about this and how can I make that better? And it's back to the process. **– Teacher-researcher (English)**

As in, effort was fine but I find myself like, it was almost like they had had the process, they seemed to respond to the process and they were improving, I saw great improvement. Whereas this term, it was almost saw through the effort a little bit. **– Teacher-researcher (English)**

Students comments suggest some motivational benefits from having received effort praise, however, they are perhaps equally as dismissive as the teacher researcher. As with each of the praise types administered students recognise a good feeling factor upon receiving praise. Students confirm that in the short term effort praise encourages them to put more effort in.

So in terms of receiving praise for effort so if he says well done you tried really hard or you put a lot of effort into doing that, does that motivate you to do more or less? **– Teacher-researcher**
Sometimes **– Boy: Set 2**
To make some more effort **– Girl: Set 2**
It makes me want to do more **– Girl: Set 2**

In the long run however, students appear to fatigue of effort praise quickly. Students note that there is not significant variety in the effort praise they can receive. They have either put in good effort, or they have not.

> *… like when I do more it feels the same like when he gives feedback it feels like I just did the same.* – **Girl: Set 2**
> *So even if you put more effort in, you feel like you are getting very similar feedback?* **– Interviewer**
> *Yeah* **– Girl: Set 2**
> *Sometimes we do get a lot of similar feedback…* **- Boy: Set 2**

Although students are likely to have significant agency over their effort, and effort has been suggested to promote mastery-orientation (Miller *et al.*, 1975; Schunk, 1983; Mueller & Dweck, 1998), these findings suggest a potentially detrimental effect of effort praise. Where students apply more effort as a result of praise and this does not result in improved outcomes, students may conclude that effort has little significance. Rather than mastery-orientation, this is more indicative of a learned-helplessness response.

Striking in interviews about effort praise was also the number of comparisons to process praise. It was clear from these comparisons that students valued process praise more and in particular for its informational value and mechanism to improved outcomes.

> *You don't want to not put any effort in and not be praised for it when you do but at the same time you want to feedback to make your work better.* **– Girl: Set 2**
>
> *Well I would say that getting the feedback on what you need to improve on is more… it's very… important because if you are not getting your praise on your effort then you are not going to know what to improve on next time.* **– Girl: Set 2**

Given these responses, it is perhaps not surprising that MSLQ responses did not demonstrate any significant motivational change as a result of the effort praise intervention.

Outcome praise

In discussing the motivational value of outcome praise, it is difficult to tease apart the value of the outcome from the value of the outcome praise. To some extent, receipt of outcomes such as grades are so common that students assume association between at particular outcome and a particular outcome praise. For example a student will know that when they receive an A-grade, they are likely to get a comment such as, 'Well done, very good result!'. This distinction is perhaps too subtle to discuss in student interviews, and so the distinction is somewhat overlooked in this discussion. This is may indeed be beneficial as recent research suggests that neutral, objective outcome feedback alone may be sufficient to motivate students.

Comments from students confirm that outcome is a significant motivator. In earlier discussion, perception of improved outcome and progress appear to underpin the value attributed to process and effort praise. It is therefore understandable that students are also motivated by the outcome itself.

> *Do you feel that the grade… so in terms of the project and in terms of your exams, did the prospect of a grade motivate you?*
> *All - yes.*
> *Me - So the opportunity or potential to get a high grade motivated you to work hard.*
> *All - yes*

Motivational and praise literature is, however, divided about the impacts of outcome praise. Numerous early studies demonstrate positive motivational impacts of outcome praise and results are mirrored here.

> *I would say that I am as well because I was not sure that I would get a good grade from it but I spent quite a long time trying to finalise it and get it right so when I did see the end result it was really satisfying and it just made me want to work harder at everything else as well.* **– Girl: Set 1**

Muller & Dweck (1998), however, argues that such results are only applicable following success; i.e. when outcomes are good She goes on to suggest that such students will demonstrate poor resilience should they encounter failure. Findings here are more supporting of the earlier research. All students were motivated by their outcome, even those who encountered what they themselves perceive as failure (provided the failure was not extreme).

> *So because you actually did worse than you were hoping, that has motivated you?* **- Interviewer**
> *Yes* **– Boy: Set 1**
> *Is that the same for everybody.* – **Interviewer**
> *Yes* – **All bar one**
> *I actually quite like my grade and it meant that I think that I have made the right decision for GCSEs.* **– Girl: Set 1**

The only outcomes that appeared to have little motivational impact were outcomes that matched students' own predicted outcomes for themselves.

Although these findings appear contradictory to Dweck's studies of outcome praise, it is proposed here that negative outcomes are less significant where students have high efficacy expectations (Bandura, 1997). The outcome praise intervention was only administered to top set students, and as such, students are likely to believe they have the capacity to improve results with increased effort.

By contrast, Dweck's assumption is that students will assume they have low ability and therefore adopt a learned helplessness approach. This may indeed be the case for a lower ability set and is the reason that this particular intervention was not administered to such. The proposal here is supported by student comments demonstrating that grades indicated more about effort than ability.

> *I would say it tells you what grade you got and how much effort… if you put a lot of effort in you usually end up with a better grade. It just reflects on how much you put into the project or what work you did.* **– Boy: Set 1**

Conclusion

Among motivational and praise literature, process, outcome and effort praise have all been implicated to improve intrinsic motivation. The vast majority of studies, however, are focused on the impacts of short duration interventions. Few have examined the long-term effects of praise interventions or explored their applicability to the classroom. Similarly, few studies have aimed to examine the cognitive processing of praise that underlies motivation and behavioural change.

Across all interventions and measured subgroups, MSLQ data failed to demonstrate measureable or significant mean change in motivation. The most likely supposition is that praise interventions were ineffective for augmenting motivation, however, as mean scores were compared there is a small possibility that interventions may have been effective, but their effects random. High sample variance and contextual change across action research cycles also weakened the resolution of the MSLQ methodology to detect change due to praise interventions.

Although MSLQ responses failed to detect significant motivational change, interview discussions raised a number of pertinent themes. Meetings with the collaborating teacher-researcher across the action research cycles confirmed a high perceive value for process praise. In line with academic literature, teachers noted that students demonstrated improved outcomes and that their behaviour changed to closely matched that of a characterised mastery-orientated individual. Praise for effort was less valued by teacher-researchers. Although implementation was easy, teachers felt that it failed to convey meaningful information to students. Outcome praise was to some extent supported by this research; however, teacher-researchers felt that positive findings may only be applicable where students have existing high perceptions of intelligence and therefore high efficacy expectations.

To a large extent, students' perceptions of the value of praise interventions corresponded with teacher-researchers perceptions. Most notably, prior to intervention, students demonstrated a pre-existing appreciation of process praise. This value was based on the information and specificity that process praise provides and also because students perceive a mechanism by which process praise information may result in improved outcomes. The reasons for valuing process praise are therefore also appear consistent across teachers and students. More obvious in students, however, is that the value attributed to process praise appears to be to a large extent contingent on improved outcomes or progress. Student responses suggest that where process praise is administered, but perceived outcomes do not improve, students become frustrated and may devalue effort. Such responses are damaging as they encourage a learned helplessness

approach and may damage student-teacher relationships. Students' comments also suggest that process praise is most effective when specific, personal, detailed and focused on areas that students perceive themselves to have high agency.

Following similar reasoning, students did not appear to value praise for effort as highly. Although it can be motivating, students felt that praise was generic, and impersonal. Above this, student considered effort praise to have little informational value and so was unlikely to facilitate improved outcomes. Again, this is evidence that motivational outcomes appear highly conditional on perceived progress.

Outcome praise was perceived to improve motivation, regardless of the outcome. Even where students perceived failure, motivational responses were positive. High perceptions of intelligence and high efficacy expectations are thought to explain these findings.

Implications for future research

The findings of this study are potentially significant for dictating the direction of future research and point to the continued focus on process praise. Findings confirm the behavioural outcome expected of process praise by the literature but go beyond the majority of existing research by suggesting that students are, or can be, metacognatively aware of its benefits and actions. Although MSLQ data is discouraging of process praise, weaknesses in methodology are noted and student

interview responses suggest improvements for future interventions. Primarily, it would be interesting to explore interventions, which provide increased structure for giving specific and detailed process praise. Concepts such as including processes and skills in learning objectives present opportunities for this.

It is also suggested here that an interesting course of study would be implementing an intervention of process praise following an explanation of its proposed benefits. Given evidence that some students are already metacognatively active in their processing of praise, explanation of its proposed benefits could further encourage metacognitive processing and make more explicit the perceived value that students attribute to process praise.

Perceptions of progress appear central to the motivational outcomes of process praise. To confirm this and to quantify its impacts, it may be an interesting endeavour to conduct an intervention in which process praise is administered, but the outcomes of students are withheld. From data presented here, it would be predicted that where students were less able to perceive their progress and outcome, progress praise would be less motivationally effective.

Finally, given the apparent discourse between MSLQ findings and student interview responses, there may be value in conducting a smaller case study investigation focused on a number of individual students. This would allow comments from interview discussion to be compared to that individuals MSLQ responses, rather than mean responses. Indeed, MSLQ questions could be used to stimulate specific discussion and the effects of praise.

Implications for practice & context

The findings of the present action research study have implications for teaching practice and context. Interview discussion with students and collaborating teacher-researchers highlight the positive impacts of process praise on motivation. Fundamentally, the implementation of process praise is advocated above effort and outcome praise where students perceive progress. The findings of this study are surprisingly simplistic and potentially easy to implement, which lends itself well to sharing findings during inset sessions. Importantly, teachers should be made aware of what students perceive good process praise practice to be (i.e. focused on processes which students perceive themselves to have high efficacy expectations, specific and personalised). Management within the school should also ensure that they have a rigorous reporting system, which is transparent in allowing students to perceive their own progress.

Significantly, where this is achieved, it is hard to conceive a scenario where focusing on process praise may be detrimental to other teaching practices and aims. Together, these make applicability across subjects high and while specific here to an educational context, these findings are also considered valid across a number of other contexts including within corporate structures and sport.

At the level of the individual teacher, findings are certainly compelling.

> *I think that process praise is like invaluable, completely invaluable, and I think when we teach we obviously do a mixture of all three to an extent but that process is a great way to build up report with*

> *students, have feedback that's not just your generic rubbish, good bad or whatever, but also your able to say to people in class… Whereas if I'm saying to a student , 'I like the way you did that' but have a think about that', I know 100% that they have heard what I have said. They may not put it into place that time, but they have heard it and there is a chance that will help, rather than just relying on a mark your book and having a look at that.* **– Collaborating teacher-reserecher**

At a context specific level, a culture of apathy and poor resilience are highlighted as problematic. Process praise offers a potentially important tool to counter these contextual issues. Importantly, findings suggest that process praise has the capacity to facilitate the development of mastery-orientation. Characteristic of this orientation is heightened perceived value for effort and increased resilience and task persistence when failure is encountered. Process praise alone is perhaps not enough to correct school-wide cultural issues but should certainly be part of any action plan considered.

For my own practice, findings here highlight that praise is a double-edged sword that has the capacity to damage motivation where progress is not perceived or where students have low efficacy expectations. Findings therefore direct me to consider the subject of my praise even more carefully and encourage me to be open in sharing progress with students. Unquestionably, my own (and that of my collaborator) understanding of motivation and praise has developed significantly as a result of participating in this action research project and it has encouraged me to be increasingly reflective of my own practice. The project has demonstrated value in research and in particular that action research *in situ* is a powerful tool for exploring practice and findings solutions to contextual issues.

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