

Qualitative analysis of a Self Administered Motivational Instrument (SAMI): promoting self-feedback, self-efficacy and self-regulated learning

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ABSTRACT

A Self-Administered Motivational Instrument (the SAMI) was designed to assist university entrants to reflect on their approaches to tertiary study and to consider how they could develop more effective approaches to learning and focus on the provision of self-feedback. The instrument was used in a controlled experiment with entrants to nursing programmes at the University of the West of Scotland. These pre-registration nurses completed the SAMI in their second week of study and again in Week 11. This provided the opportunity to assess the SAMI as a means of stimulating students towards self-regulation and form self-feedback mechanisms.

A measure of constructive friction, dissonance or ambivalence is created in the SAMI by asking students to consider how well they have been doing with their current study regime, how well they could potentially do if they tried their hardest, drawing students to consider aspects of how they learn and reflect on the organisation of their study routines. These measures within the SAMI provide the basis from which students complete questions structured by tutors and construct useful self-feedback. In the current paper, the aim is to confirm the outcomes of previous studies that have found a link between student completion of the SAMI and performance and to investigate whether this quantitative finding is accompanied by autonomous use of experiential feedback students had of themselves (self-feedback) to initiate, monitor and control changes of study approach. The results of a mixed-method approach indicate that students undertook self-regulated change and had the self-efficacy to understand they could succeed in making changes and in attaining their academic goals.

INTRODUCTION

The focus of this paper is on self-regulation within the context of feedback. This can be defined as ‘an active, constructive process’ in which a student’s *goals* and the *environment* in which he or she operates are both guides and constraints on cognition, motivation and behaviour (Pintrich, 2000: 453). A central goal of feedback should be to support ‘students in enabling them to be more self-regulated in their approach to accessing and using feedback’ (Evans and Waring, 2011: 171; see also Hattie and Timperley 2007; Pintrich 2000; Vermunt and Verloop, 1999). In the current paper, following Hattie and Timperley and Evans and Waring (2011: 172), feedback is defined as ‘information provided by an agent (e.g. teacher, peer, book, parent, self, experience) regarding aspects of one’s performance or understanding’.

Hattie and Timperley (2007) distinguished four types of feedback: *task-oriented*, aimed at being corrective or informative about the results of a student undertaking a learning task; *process-oriented* feedback on how a student did/could proceed with a learning task; *self-regulation*, focussing on students’ initiatives and strategies that they control and monitor; and *self-related* feedback, focussing on the student. The emphasis in the current research is on the first three forms of feedback utilising a self-administered instrument in the form of a booklet, eliminating feedback that is personal, such as ‘You are good’, and is not recognised as being helpful (Evans and Waring, 2011).

Hattie and Timperley (2007: 90) gave examples of self-regulation as having or acquiring ‘greater skill in self-evaluation or confidence to engage further on a task’, later (*ibid.*, 93) stating self-regulation:

addresses the way students monitor, direct and regulate actions toward the learning goal. It implies autonomy, self-control, self-direction and self discipline. Such regulation involves “self-generated thoughts, feelings and actions that are planned and cyclically adapted to the attainment of personal goals” (Zimmerman, 2000: 14).

In the current context, the SAMI provides a structured means for tutors to direct students towards self-control, self-direction and self-discipline in taking responsibility for their study regimes and forging robust means of self-regulation and feedback, taking into account personal and professional circumstances. The SAMI is designed for self-administration and its approach is firmly rooted in the theoretical framework of motivational interviewing. This framework is most frequently implemented via one-to-one interviews, usually lasting from 45 minutes to an hour. In a massified system of higher education, this is not practical. For example, the current paper is based on research among entrants to a nursing programme at the University of the West of Scotland (UWS), where commonly intakes exceed 350. For this group, one-to-one interviews would occupy somewhere between 260 and 350 hours of tutor involvement. The SAMI provides a means of stimulating self-regulation and self-feedback in large classes, but requiring only around one hour of academic involvement at a lecture.

The pre-registration nursing intake at UWS is highly diverse in terms of age, previous experiences of learning and employment, background, family circumstances and commitments. Given this heterogeneity, it is reasonable to assume that the goals of students vary depending on a wide range of factors.

The *goals* of traditional students and older entrants are likely to differ also. Among the mature students were those who wanted no more from their studies than to obtain the parchment that verified they had a degree, then return to the life of many competing demands that they previously had – but free of the demands of degree study (Duffy and Rimmer, 2008). For traditional entrants, the goal frequently was to balance social life, part-time work unrelated to nursing and the demands of study (ibid.) while they continued their education, were inducted into the nursing community of practice and established career possibilities.

This diversity of goals and environments meant there were different approaches and levels of commitment to study among nursing students at UWS. Responding to this, an instrument – called the SAMI, for Self-Administered Motivational Instrument – was designed. It provided an opportunity for self-feedback on the processes used to learn, addressing how, when and where students were learning and providing a tool for self-reflection. It is a self-regulating opportunity for students to re-consider their approaches to study and consider changes that could be made. As its name suggests, the SAMI is self-administered, requiring between 30 and 50 minutesⁱ of each student's time to complete and involves little input from academic staff or peer students.

THE AIMS OF THE STUDY

The key aim of the study is to underpin the improvement in student grades noted by Duffy and Rimmer (2009) with evidence of self-regulation, self-feedback and self-efficacy fostered in the group completing the SAMI. To do this, both qualitative and quantitative aspects of the SAMI will be employed. The objectives of the current study are to:

- seek insight into whether self-regulated change of study approach was undertaken over the course of the semester in which the SAMI was completed;
- obtain insight to the types of changes that were contemplated and evidence of self-efficacy; and
- reflect on the role and form of feedback.

To gather and analyse evidence on these objectives, we focus on 88 students who completed the SAMI in week 2 of their first semester in level 1 at university and who also responded to a shorter follow-up instrument in week 11 of the same semester. The paper is organised as follows. First, a review of the SAMI and relevant literature is given in the next section. Following this, the mixed method used to synthesise qualitative and quantitative information from the SAMI is set out. This includes changes in quantitative responses between weeks 2 and 11 and collating these with themes and groupings of SAMI responses, which were derived from NVivo and from correspondence and agreement among the authors on their independent groupings of student responses.

Prochaska and Di Clemente's (1982) stages of change are used to understand student responses to the SAMI. In the fourth section of the current paper, the groupings of responses are discussed, commentary provided on the objectives and the results set in the context of recent literature on self-regulation. Finally, conclusions and areas for further research are identified.

The SAMI promotes self-regulated learning within a structured yet flexible self-reflective/self-management process, providing the opportunity for student choice, self-control and self-responsibility as recommended by Schunk and Ertmer (2000). Moreover, the SAMI, in line with recommendations from Zimmerman (1995), encompasses self-efficacy, personal agency and the motivational and behavioural processes required to give effect to such self-beliefs. Further, the intention in designing the SAMI was to promote student reflection, monitoring and control of the learning and study processes. As such it is a contribution in the spirit of self-regulation as espoused by Pintrich (Duckworth, et al., 2009; Schunk, 2005) and which seeks 'to answer the question: "How do students become masters of their own learning processes?"' (Duckworth et al., 2009: 4).

Earlier, based on a controlled experiment, Duffy and Rimmer (2009) reported that students studying at level 1 who did the SAMI (the treatment group) were more likely to attain a grade of A (a mark of 70 or over) or a B grade (in the range 60 to 69) than were their peers who were not invited to complete the instrument (the control group). This finding emerged from a logistic regression, which employed quantitative data derived from the SAMI. However, qualitative responses to other parts of the SAMI make clear that not all treatment-group students changed their study approaches. In this regard, Vermunt and Verloop (1999: 273) have observed that self-regulation may not be:

suitable in situations where students' skill in regulation of learning is low, either in general or with respect to particular important learning activities.

BACKGROUND TO THE SAMI

The SAMI begins with sections intended to create dissonance or ambivalence in the minds of students concerning their performances to date and their approaches to study. This is, as is the entire SAMI, rooted in the approach of motivational interviewing to stimulate alcohol and drug users to consider changing their behaviour (Duffy, 2005). The genesis of the SAMI parallels that for self-regulation more broadly, which Schunk (2005) traces back to therapeutic approaches intended to alter dysfunctional behaviours. By creating dissonance or ambivalence about current study practices, the SAMI endeavours to direct students 'back to the task' and cause them 'to invest more effort or commitment to the task' (Hattie and Timperley, 2007: 95; see also Kluger and DeNisi, 1996). The dissonance or ambivalence of the SAMI potentially echoes the 'friction' that Vermunt and Verloop (1999: 274) consider 'often occurs when students enter a new type of education, for instance after the transition from secondary to higher education'.

Another feature of the SAMI reflects concerns in the self-regulation literature, namely that attention should be given to self-efficacy, as learners ‘need support in developing the belief that they **can** learn more effectively’ (Duckworth et al. 2009: vii, their emphasis). While the focus of Duckworth et al. was in general younger learners – children and adolescents – fostering self-efficacy is probably as important among university students whose contacts with education were some time ago. Also, as for a number of traditional entrants, academic performances at secondary school (or on some other route, such as an access course) were suitable for gaining admission, but they may not have taken and/or excelled in the highest school-level academic qualifications. Featherstone (2011: 6) makes the point, on the basis of recent research, that in general

students from more privileged backgrounds are more likely to be studying academic qualifications, such as A-levels ... and are more likely to attain higher grades in post-compulsory education.

THE SAMI (SELF ASSESSED MOTIVATIONAL INSTRUMENT)

The SAMI incorporates a variety of self-regulatory processes and specifically invites each student to reflect on and explore:

1. how well she or he is progressing with study currently and how well this would be if the student ‘tried his or her best’. Together, these are referred to as the *how-well questions*);
2. aspects of his or her study approach, using the RASI learning style inventory (see below; Duffy and Rimmer, 2008);
3. the advantages and disadvantages of changing study approach;
4. the main problem(s) or issue(s) with the current approach and generating possible solution(s); and
5. barriers or obstacles to achieving change.

In the first two sections of the SAMI, the aim is to introduce a key part of motivational interviewing – self review (Miller and Rollnick, 2002). Such an approach is supported in Pintrich’s model of self-regulation (Schunk, 2005). The how-well questions focus attention on the task in hand and suggest the prospect of investing more effort or raising commitment to study (Hattie and Timperley, 2007). The questions are:

On a score from 1 to 9, how well do you think you are doing with your study?

On a score from 1 to 9, how well do you think you could score if you really tried your best?

Students were told that a score of ‘1’ corresponded to ‘not very well’; while a score of ‘9’ meant ‘very well’.

The first how-well question was taken from the ASSIST questionnaire (Tait and Entwistle, 1996); while the second question was set in the same form as the first, with the intention of fostering ambivalence or dissonance – another key aspect of motivational interviewing (Miller and Rollnick, 2002) – about current study practice. This aspect of self-regulation is similar to ‘reflection and reaction’ and constructive friction noted by Pintrich (2000) and Schunk (2005). Further, dealing with ambivalence or dissonance is within the self-assessment/self-regulation emphasis on encouraging students to deal with feelings as well as thoughts, behaviours and actions (Zimmerman, 2000; 2008) and the emphasis in the approach associated with Pintrich on motivational interactions with cognitive, behavioural and contextual factors (Schunk, 2005).

In section 2, students respond to 20 items from the 30-item RASI learning style inventory (Entwistle, Tait and McCune, 2000; Duff 1997). Duffy and Rimmer (2008, 2009) discuss the validity and reliability of these items, the changes in inventory outcomes over the course of the current research and how the changes relate to academic grades. The RASI was used because it met all of the benchmarks of Coffield et al. (2004) in relation to reliability and validity. The 20 items of the RASI included in the SAMI consist of ten on each of deep and strategic learning, each of which is scored in the range one to five. Deep learning refers to four factors: looking for meaning, active interest/critical stance, relating ideas and use of evidence. Strategic learning refers to four factors as well: determination to excel, effort in studying, organised studying and time management (Duff, 1997). In completing the RASI, students report on how they go about studying and do the arithmetic addition to arrive at a total score. In addition, self review and the possibility of ambivalence are again engendered, as students are next told about typical total scores on the RASI and then asked to comment on what they like or dislike about the total score.

Students were next invited in Section 3 of the SAMI to consider decisional balance (listing and reflecting on the costs and benefits of change) in relation to: (i) continuing their current study practices; and (ii) alternatively amending study approaches. In this section, most students could and did make ‘self-motivational statements’ and embark on ‘change talk’ (Miller and Rollnick, 2002). Pintrich also advocated that ‘Motivational control and regulation processes include self-efficacy through positive self-talk (e.g., “I can do this”)’ (Schunk, 2005: 87). Given the emergence of self-motivational statements and/or change talk, this indicates the possibility of a student considering change and is seen as a further key aspect of motivational interviewing (*ibid.*), which ‘encourages respondents to make links between [their] situation, their behaviour and likely consequences’ (Duffy and Rimmer, 2009: 109). Within this component of the SAMI there is further reflection in the students’ own context of study, social, family and work life, consistent with the importance placed on these aspects by self-regulation researchers such as Pintrich and Schunk.

Section 4 of the SAMI introduces analytical problem solving, in which students identify the main problems they have with their study approaches (Whetten and Cameron, 2006). Brainstorming is then encouraged to compile possible solutions to the main problems. The SAMI provides scope for up to 10 potential solutions. Following this, students are invited to evaluate potential solutions, decide on which to implement and then set realistic and

achievable goals as study outcomes. This is in line with providing conditions for developing self-regulation where ‘people have an opportunity to pursue goals that they themselves find meaningful’ (Duckworth et al., 2009: iv). Further, this aspect promotes control, planning and activation as suggested in Pintrich’s model of self-regulation.

The final section of the SAMI invites students to consider barriers or obstacles to achieving goals and study outcomes. ‘The awareness of potential obstacles provides students with the opportunity to consider ways to either remove, avoid or get around obstacles, should they arise’ (Duffy and Rimmer, 2008: 35). Encouraging students to consider barriers to achievement also has elements of fostering dissonance or ambivalence about interruptions to effective change, the importance of being alert for barriers and being prepared to overcome them. Such ‘metacognition or cognition about cognition’ and awareness of potential obstacles is identified as a key requirement of expert self-regulators (Kuhl and Kraska, 1989, cited in Duckworth et al., 2009: 17). This is also a theme in the findings of Pintrich and colleagues (Schunk, 2005).

Motivational interviewers are well aware that interviewees may not be in the same state of readiness for change. This un-readiness may well be the situation for students in relation to their approaches to study and may be associated with internal or external influences. Practitioners and researchers in motivational interviewing (see for example, Duffy, 1994) draw on the work of Prochaska and Di Clemente (1982) to discuss the cycle of personal change in terms of the following stages.

- *Pre-contemplation*: At this stage a student may benefit most from the emergence of an awareness of having study difficulties. Such students may be dismissive of this or subsequent items in the SAMI (or any other form of counselling or assistance) aimed at planning for change. That is, pre-contemplative students may not even perceive the existence of problems, let alone the need to change.
- *Contemplation*: Students at the contemplation stage are likely to experience dissonance or be ambivalent about study issues and adhering to a planned programme of change. Such students are likely to respond positively to the decisional balance components of the SAMI, generating possible and realistic solutions to the issues causing ambivalence. Decisional balance, along with the first two sections of the SAMI, may serve therefore to ‘tip the balance’ towards a commitment to completing the instrument and attaining the desired goals.
- *Determination*: Students at the determination stage of the cycle developed by Prochaska and Di Clemente may identify the need for change via the decisional-balance components of the SAMI. They may be induced in subsequent sections to problem solve and devise changed approaches to study. However, they may lack the confidence or skills required for planning or carrying out planned change. Compare this possibility with the self-regulation concern for assuring self-efficacy and expertise in planning and implementing self-regulatory strategies. The lack of confidence, skills and/or self-efficacy may constrain student engagement with the sections of the SAMI following the decisional-balance components.

To revisit the previous stage, it is possible determination-stage students are already aware of the decisional-balance components, so pay scant attention to this in completing the SAMI; but, they may excel when equipped with problem-solving and planning skills in subsequent sections.

- *Action*: Some students who are at the action stage might benefit from doing the SAMI, revisiting ambivalence about aspects of study and the subsequent identification of issues and potential solutions. However, it is conceivable most students at the action stage see the SAMI as a frustration, in that they have moved beyond, for example, awareness raising and/or the need to be introduced to analytical problem solving. Consequently, the administration of the instrument to people at the action stage may produce at best sparse responses to many SAMI items.
- *Maintenance*: Students at this stage may be assisted by SAMI components relating to decisional balance to reinforce the motivation for planned change and reaching desired goals. Alternatively, such students may not see the need to re-visit problematic areas of their study regimes, because they are doing sufficiently well not to be worried or to have experienced ambivalence.
- *Relapse*: For students in this situation, the SAMI can serve to renew student commitment to change, reviving plans that lapsed and re-asserting goals that remain unattained. There are two aspects to consider. First, regarding obstacles to change, students completing the SAMI could identify problematic situations that lead to lapsing, relapse or collapse of their planned change. The second feature is that, having had a breakdown of plans, students may regress to one of the stages of change above. Some may regress and become stuck in pre-contemplation; while in contrast others may quickly recover from a stage such as contemplation to reach the action stage.

Students may go around the cycle from pre-contemplation to relapse one or more times, before changing their behaviour in line with the determinations they have made. They may stay in each stage for differing amounts of time and while in a particular stage, students may be assisted to change by different influences, depending on the stage (Duffy et al., 2010).

The Prochaska and Di Clemente approach suggests that the SAMI may not be as effective for some students as for others. On the other hand, the SAMI may assist students to move speedily from one stage to another. In the context of this investigation of qualitative responses to SAMI items, it should be remembered that whatever the intensity of ambivalence felt by an individual student, there may be other factors, such as position in the cycle of change, which will affect responses.

It should be noted that cyclical and dynamism permeate models of self-regulation and self-assessment. Duckworth et al., (2009) see self-regulation as a dynamic concept. Both Zimmerman and Pintrich posit models that are cyclical: 'Cyclical models of self-regulation, such as those developed by Pintrich and Zimmerman, emphasise the interdependence of the different aspects of self-regulation' (Duckworth et al. 2009: 6). Of the two approaches, as set out by Duckworth et al. (2009), the model of Pintrich has much

in common with the model supporting the construction of the SAMI. Pintrich's model of self-regulation is couched in terms of 'forethought', then 'planning activation', 'monitoring', 'control' and 'reaction, reflection'. Within the SAMI it is intended to induce forethought via responses to the how well questions and students' reflections on their RASI scores. This is followed by focussing on 'decision making' which again incorporates the key aspects of Pintrich's model via brainstorming and planning, activation, monitoring, control and review. Further, where Pintrich's approach considers interaction between cognition, motivation, behaviour and context, the SAMI is based on self-efficacy, cognitive dissonance, motives for change and whether change can be attained within each individual's particular context. These features of the SAMI are demonstrated in the next two sections, where the method of investigation is discussed and how use is made of quantitative data in extracting and confirming themes that emerge from qualitative information supplied by students.

METHOD

The focus in the current paper is to investigate qualitative SAMI responses provided by students on first level nursing programmes at the University of the West of Scotland (UWS). This study draws on data collected during the course of a PhD study by the first author. Standard university procedures for ethical approval were adhered to and formal approval was granted confirming arrangements for ensuring participant anonymity and secure storage of records.

The student respondents did not have any nursing qualifications and so are referred as *pre-registration*. Eighty eight respondents completed the SAMI in week 2 of their first semester studying at university. Participants' ages were from 17 to 51 and 91 per cent were female. The students again did the RASI component of the SAMI in week 11 of Semester 1, before the results of academic assessments were known.

Major concerns in coding the qualitative responses were to ensure reliability and validity (Golafshani, 2003). To ensure the latter, attempts were made to reconcile the qualitative themes with the quantitative data gathered via the RASI responses. This form of convergence with other data is reported in the next section. Moreover, as is explained below, checks on emerging themes were carried out by each of the researchers. This is one form of independent/multiple checking available to a team of authors (Ratcliff, 1995). Multiple coding of transcripts by the authors was also undertaken to facilitate reliability of the process (Golafshani, 2003; Morse et al., 2002).

Data derived from completion of the SAMI were transcribed and a thematic analysis carried out by one author using NVivo. The themes that emerged took in each area of the SAMI.

Next each of the three authors worked directly with some of the hardcopy SAMI items to code responses and then to cross-reference these to NVivo themes and the coding reports. Each coding was then reviewed by the other authors to confirm satisfactory levels of correspondence and agreement on constructs.

In a second phase, the themes from NVivo were re-visited, with the authors undertaking a second round of analysis to group themes – again guided by correspondence of authors' groupings. Four groups emerged. These are presented in the next section, drawing on the stages of change identified by Prochaska and Di Clemente to illuminate student responses.

RESULTS – THE GROUPED THEMES

From the NVivo encoding, 14 initial themes were identified. An indication of the range is the concern (in the very first section of the SAMI) that students' scores on the 'How well' questions differed, through to issues of identifying study related problems and planning solutions (in sections towards the end of the instrument). As indicated in the previous section, the efforts made by the authors to guarantee validity and reliability led to the collation of the fourteen themes into four groups, which are shown in Table 1. They were given the descriptive titles:

Group 1: Initial reflection and identification

Group 2: Benefits of action

Group 3: Identified issues

Group 4: Application

These descriptors serve as a convenience when presenting results and are useful when synthesizing the evidence in the following sections. In particular, there is no intention to suggest that these descriptions are generalizable across studies – we have no evidence for this – nor do they have the status of learning styles. In this connection it should be recalled that the SAMI used a learning style inventory based on Entwistle *et al.* (2000).

For each group, typical responses are shown in Tables 2 to 5, along with changes in deep and strategic scores from week 2 to week 11 of the semester. The annotations D+, D-, S+ and S- are used to indicate what changes in deep (indicated as D) and strategic scores (indicated S) occurred. Where there was no change, a D or S is not given. (Note that the RASI scores are reliable and valid. See Duffy and Rimmer, 2008; 2009.)

NVivo theme	Group 1	Group 2	Group 3	Group 4
'How well' scores differ	✓			
Deep and strategic scores were liked	✓			
Deep and strategic scores were disliked	✓			
Problems with study approach	✓			
Worried about difficulties of change			✓	
Drawbacks to change			✓	
Benefits of change		✓		
Obstacles to change			✓	
Reasons for change		✓		
Specific steps to be taken		✓		
First solution				✓
Action for first solution				✓
Concerns about plans			✓	

Table 1: Grouped themes among SAMI responses

Across Tables 2 to 5, the greatest magnitude changes in deep and strategic scores are increases of 10 and 14 respectively. More than 70 per cent of students changed their deep or strategic score by as much as +5 or –5 points between weeks 2 and 11.

Group 1: Initial reflection and identification	
	'How well' scores differ It doesn't bother me (D-6) I need to study more I am able to better juggle work and family (S+4) I am able to do better (S+14) I need to try harder (S+14)
	Problems with approach to study Juggling commitments Difficulty concentrating, getting started, distractions; (S+4) Finding time in a suitable environment (D+8) Time management (work, family, health, study, leisure) (D+9, S+14)
	Like deep and strategic scores It shows me there is room for improvement It's fair, what I expected It's higher than I expected I liked it was not too low I like that it was quite high - it boosts my confidence (D-2, S+1)
	Dislike deep and strategic scores Not bothered There is room for improvement (D-4, S+4) It could have been higher (D+8, S-3)

Table 2: Examples of responses in Group 1: Initial Reflection and Identification

It appears that if students expressed concern about differences in the two 'How well' scores (see the first box in Table 2), then there were likely to be changes of four or more

in strategic scores, provided the students were more specific than merely noting they ‘need to study more’. In the same section of Table 2, a decline of six in deep score accompanies one respondent’s claim that ‘It doesn’t bother me’. This student may be pre-contemplative or in a stage of maintenance in terms of Prochaska and Di Clemente’s taxonomy. However, the change of six in deep score with no change in strategic score, suggests changed study approach, but relapse may have occurred, perhaps to being pre-contemplative.

The theme of recognising problems with current study approaches (the second box of Table 2) is associated with no change in strategic score through to an increase of 14. Two responses mention time and are associated with increases in deep scores of eight or nine, although one involved no strategic change and the other +14, the maximum observed among these pre-registration nurses. Apparently, becoming deeper brings an awareness of needing to find time for study. The fact that one respondent did not experience an increase in strategic score could be associated with the high strategic score this student registered in week 2. There was a general tendency for strategic scores to be higher relative to deep scores in week 2.

Students who indicated that they were satisfied with or liked their deep and strategic scores, as in the third box of Table 2, appear to be characterised by either no change or slight changes in deep and strategic scores. The statements shown are consistent generally with these students being pleased with their initial approaches to learning and so being in the maintenance stage. However, the response about room for improvement, with no change in deep or strategic scores, may indicate pre-contemplation or a determination to change that could not be put into action.

In the final theme collected into Group 1 (the fourth box of Table 2), disliking deep and strategic scores is associated with no change over the semester (for someone who didn’t like the score, but claimed to be ‘not bothered’) through to a deep change of eight and a small reduction in strategic score for someone who felt ‘it could have been higher’. At the time of completing the SAMI, the first response may have been elicited from a student who was pre-contemplative or in a stage of maintenance; while the other examples were probably from students who were ready to contemplate change.

In Table 2 there are examples of similar responses to SAMI items being associated with similar quantitative changes in approaches to study, as measured by changes in deep or strategic scores. See for example the two statements in the first box of the table that are associated with changes of +14 in strategic score and no change in deep scores. Other examples of this in Table 2 are the statements in the third box for which there has been no change in learning-style scores.

On the other hand, the final statements in Table 2 are similar in that they indicate scores could be higher or improved. Yet, one statement is associated with a decrease in deep score and an increase in strategic score, while the changes are reversed for the other. Also, the deep changes differ considerably, bearing in mind that the greatest individual change in deep score was of magnitude 10. On the basis of this evidence, it would seem that students

could make similar responses to the SAMI but in practice undertake different changes to their study approaches. This of course may reflect the students having different study approaches initially.

Turn now to the second group of themes, shown in Table 3. The first response in each box includes the word ‘none’ and indicates being in the maintenance or pre-contemplative stages of the cycle of change. Further, on the evidence of changes in deep and strategic scores, the students concerned appear to have made few adjustments to their study regimes. Also, the fourth response in the third box of ‘Other priorities (family, work, leisure)’ probably came from someone who is pre-contemplative about study, as the rest of life is more important. This response was followed by a decline in strategic score.

However, other students whose deep and strategic scores did not change perceived benefits (such as higher grades and self worth), reasons (better grades and understanding) and specific steps to take (time management and concentration). In the first box of Table 3, examples are given of students who saw specific benefits of change and whose strategic scores increased over the nine weeks from week 2 to week 11 of the semester. Of the three examples in the first box, two also experienced increases in deep scores.

Group 2: Benefits of action	
	Benefits of change None, my current approach is fine (D-1) Higher grades, learn more Achieving what I am capable of Self worth, feel good Become a nurse, my chosen career (D+3, S+3) Less stress (D+4, S+5) Feel more in control (D-2, S+6)
	Reasons for change None, comfortable with current study approach (D-1) Better grades, marks Understand coursework better Really want to pass and be a nurse Increase self esteem, pride Better myself, make most of ability (D-3, S+6)
	Specific steps to be taken None Distractions, concentration Time management Other priorities (family, work, leisure) (S-2) Getting started and getting organised with study (D+6, S+10)

Table 3: Examples of responses in Group 2: Benefits of Action

Many responses in Table 3 are from students who were, or had become, determined to change when completing the SAMI. For example, consider the statements in the first box. These were elicited in response to the prompt ‘If I changed my approach to study the benefits would be’ and appear to be consistent with students having reached the

determination stage in the Prochaska and Di Clemente cycle when completing this part of the SAMI. The responses (other than the first) shown in the second box of the table are similarly suggestive of students who have reasons to underpin their determination to change; while the statements (with exception of the first and the fourth) shown in the third box are indicative of the action stage being reached.

The third group of themes (Table 4) is labelled 'Identified issues' to indicate that respondents were aware of factors that could hamper the attainment of goals and the realisation of planned actions. Note first that individual responses are arranged differently than in the previous two tables. That is, responses of the form 'None' are located at the bottom of boxes rather than at the top. This is because, in this group, such statements may correlate with having changes in mind, having already worked through issues, barriers and obstacles. In the other groups, a response of 'None' or 'Not bothered' was suggestive of taking no action or not being bothered.

Group 3: Identified issues	
	Obstacles to change Impact on work (S+14) Time management (S+14) Family (S+6); Family (S+2) Work (S+6); Work (S+2) Time/balance of study, family, work Social life My attitude, motivation None (D-6, S-5) None
	Drawbacks to change Impact on family and friends (D-4, S-2) Less time Reduce working hours Poor module, course result Let down self, others None (D+9, S+14)
	Worried about difficulties Impact on standards as student and mother (D-4, S-1) Not achieve goal, fall behind (D+5, S+5) Not study effectively (D+8, S+10) Poor marks, fail Leave study too late None
	Concerns about plans Fear of failure (module, course, career) (D+10, S+8) Upsetting family/friends (D+3, S+5) Performance, not achieving what is achievable Let self/others down Losing touch

Table 4: Examples of responses in Group 3: Identified Issues

Half of the 'None' responses in Table 4 are accompanied by changes in deep and strategic scores. One incidence of 'None' is associated with increases of 9 and 14 in deep and strategic scores respectively. As this occurs in the 'Drawbacks to change' box, it would seem this student was saying in week 2 'I can see no obstacles and I should get on with it'. The positive changes in deep and strategic scores are consistent with action being taken to implement a change plan over the nine weeks between instances of completing the RASI.

However, the combination 'None' with (D-6, S-5) in the first box is suggestive of no obstacles to change and so the student being in the stage of determination when completing the SAMI, but by week 11 of the semester, the student could have regressed. The other example of 'None' in the first box is accompanied by no change in scores. Another example of this occurs in the third box. It is possible that these responses are associated with students who moved from action- to maintenance stages over nine weeks.

Overall, as noted earlier, students are seen in Table 4 to make similar statements in the SAMI, but make different adjustments in study regimes. For example, see the responses 'Family' and 'Work' in the Obstacles box and the slightly different changes in strategic scores associated with each. More striking, there was no change in scores for a student who wrote 'Time/balance of study, family, work' and the change of S+14 for another student who wrote 'Time management'. Making changes that resulted in slight strategic changes may be consistent with the students being in the maintenance stage; experiencing a much larger strategic change may indicate moving from the determination stage to action. Thus, in terms of Prochaska and Di Clemente, students may make similar statements about items in the SAMI, but at the time they were in different stages of the cycle of change.

While, in Table 4, 'None' may indicate readiness to change; indicators of resistance to change lie in responses such as: 'Social life' and 'My attitude, motivation' in the first box; 'Impact on family and friends' and 'Less time' in the second; 'Leave study too late' in the third; and 'Losing touch' in the fourth box. As such the students making these statements may be pre-contemplative.

There are responses in Table 4 that indicate students have particular concerns about drawbacks to change. For example, the response 'Reduce working hours' may not be a realistic possibility because of the associated reduction in income, suggesting an economic reason for not changing. Consistent with this there were no differences in deep and strategic scores. Another statement reflecting influences from the rest of life is 'Impact on standards as student and mother'. The student writing this had slight declines in deep and strategic scores. It may be that this respondent was led to reflect on all of life's tapestry and realised that there were greater priorities elsewhere, thus falling into the pre-contemplative or maintenance stages or tending to relapse.

The occurrence of the sentiments 'My attitude, motivation' in the Obstacles box; 'Poor module, course result' and 'Let down self, others' in the Drawbacks box; all but the first two statements in the Worried box; and 'Fear of failure (module, course, career)' and 'Performance, not achieving what is achievable' in the Concerns box suggest that students frequently 'fear failure'. This phenomenon has been recognised in addiction research (McMahon and Jones, 1993).

Two statements in the Concerns box have not been considered so far. First the remark ‘Let self/others down’ may indicate fear of failure in regard to letting oneself down. It may indicate external considerations in letting others down. This student did not make changes that resulted in different deep and strategic scores. On the other hand, the respondent who wrote ‘Upsetting family/friends’ appears to have undertaken changes in study regime that resulted in slight increases in deep and strategic scores. In each case it seems the students preferred to ensure that people external to the learning situation were not upset or let down, one by making no change, the other by taking a more strategic approach (coupled with a deeper approach). Schuller and Bamford (2000) gave cases of initial family support for study that later dissipated. Houston, Knox and Rimmer (2007) saw this phenomenon as being an explanation for some student outcomes at the same university as the site of the current study (UWS).

The final group of themes and examples of student statements are shown in Table 5. As for similar statements in Tables 2 and 3, the response ‘None – I am doing fine’ is consistent with being in the maintenance or pre-contemplative stages. The next statement, ‘Plan time better’ suggests contemplation of change when completing the SAMI relative to other written responses in the first box of Table 5. That is, planning time better seems less specific (even if it is forward looking and constitutes change talk), compared with statements such as ‘Reduce working hours, give up work’, ‘Weekly timetable ...’, ‘Get help from ...’ a wide network of contacts and ‘Study somewhere else ...’. These remarks are indicative of being in, or reaching, the action stage.

Group 4: Application	
	Main solution identified None – I am doing fine Plan time better Reduce working hours, give up work Weekly timetable (balance study, work, family, leisure) (S+14) Get help from friends, family, neighbours, child minder (D+8, S+7) Study somewhere else (quieter, no distractions) (D-4, S+4)
	Action for first solution Employer Allocate personal free time Get baby sitter, child minder More contact with tutor, fellow students for support Change study environment (D-2, S-1) Allocate specific time to study, work, family (D+1, S+6) Discuss problem with family (D+5, S+5)

Table 5: Example of responses in Group 4: Application

Note again that specific actions are associated with different changes in approaches to study. For example, consider actions relating to time use. One case, ‘Weekly timetable (balance study, work, family, leisure)’, is associated with the maximum observed change in strategic score; yet the notion to ‘Reduce hours of work, give up work’ has no change in scores associated with it. In the former case, some re-balancing is required that may

involve being much more strategic about time management; in the latter case, the existing study regime might be preserved if erosions due to work are reduced or eliminated. Yet, another respondent intended to 'Allocate specific time to study, work, family'. This too carried a change of strategic score, which was outside the range of -5 to +5 experienced by 70 per cent of students, but was less than the maximum change.

Students were invited also to comment on their perception of the instrument and the influence it had on approaches to study. Two-thirds of students rated the SAMI as being helpful in improving their approaches. Further, there was a common view among students that the SAMI was helpful in attaining the goals they had set themselves. Examples are:

'My biggest problem is time management and trying to cope with running a house, working and looking after kids, husband and dog! However, I hope by writing down and thinking about my approach to study I have learned a few things.'

'I have tried to be as honest as possible. It has helped me to review my commitment to the course.'

'I didn't like doing it [the SAMI] – it made me face up to a few facts about my studying that I have chosen to ignore.'

'It made me address the issue of "study approach" that I didn't want to tackle.'

One student appreciated there were impediments to study change, but explicitly made the point in a lengthy response that change would not be undertaken:

'Problems I have with this course include lack of IT skills, along with family commitments and work commitments. ... I looked at the priorities such as not doing the housework, which was not possible, giving the family less time and support (again not possible) or not fulfilling my work commitments (again not possible) so I will just have to struggle on'.

In the next section we turn to a discussion of ways in which the SAMI aids self-regulation.

DISCUSSION

In the presentation of results above, evidence emerged of some students making self-regulatory change, while for others it appears they did not. However, those not changing make up no more than a third of the group of pre-registration nurses, because two-thirds said they found the SAMI helpful in improving their approaches to study. Thus, the first objective of the study has been attained, namely that self-regulated change has been observed across the sample.

To investigate the first objective, Prochaska and DiClemente's stages of change proved helpful. For among those who were not contemplating change, we identified students who were pre-contemplative and so dismissive of any assistance aimed at planning for

change. They might equally not perceive the existence of problems or not perceive the need to change.

Moreover, we identified cases where students could have been in the determination, action or maintenance stages defined by Prochaska and Di Clemente. As noted in the previous section, it is likely students in these categories were the sources of remarks such as 'I am doing fine' and 'my current approach is fine'. Such students had probably embarked early on an approach that was well planned, suitable and consistently applied. This suggests that after completion of the SAMI, the proportion practicing self-regulation exceeded two-thirds of the sample. It can therefore be contended that those who changed, plus some of those who did not, were experiencing many or all of the following hallmarks of self-regulated learning:

setting goals for learning, attending to and concentrating on instruction, using effective strategies to organise, code and rehearse information to be remembered, establishing a productive work environment, using resources effectively, monitoring performance, managing time effectively, seeking assistance when needed, holding positive beliefs about one's capabilities, the value of learning, the factors influencing learning and the anticipated outcomes of actions, and experiencing pride and satisfaction with one's efforts (Schunk and Ertmer, 2000: 631).

Further, Duffy and Rimmer (2009) established that there were positive effects on student grades in their controlled experimental application of the SAMI.

Among the completed SAMIs, there is evidence the Schunk and Ertmer hallmarks of self-regulation were emerging for students who undertook change. Examples of these from Tables 2 to 5 are given in the following list; there are numerous other examples in the SAMI transcripts.

- Setting goals for learning: 'Really want to pass and be a nurse'; 'I need to try harder'.
- Attending to and concentrating on instruction: 'Understand course work better'; frequent references to time; 'Fear of failure'
- Using effective strategies to organise, code and rehearse information: 'Weekly timetable (balance study, work, family, leisure)'; 'Allocate personal free time', 'Juggling commitments'.
- Establishing a productive work environment: 'Change study environment'; 'Study somewhere else (quieter, no distractions)'; 'Finding time in a suitable environment'.
- Using resources effectively: 'Allocate specific time to study, work, family'; 'Getting started and getting organized with study'.
- Monitoring performance: 'I need to try harder'; 'It shows me there is room for improvement'; 'I am able to do better'.

- Seeking assistance when needed: ‘Get help from friends, family, neighbours, child minder’; ‘More contact with tutor, fellow students for support’; ‘Discuss problem with family’.
- Holding positive beliefs about one’s capabilities: ‘I am able to do better’; ‘I liked that it (RASI score) was quite high – it boosts my confidence’; ‘I am able to better juggle work and family’.
- The value of learning: ‘Achieving what I am capable of’; ‘Become a nurse, my chosen career’; ‘learn more’.
- The factors influencing learning and the anticipated outcomes of actions: ‘Less stress’; ‘Feel more in control’; ‘Better grades, marks’.
- Experiencing pride and satisfaction with one’s efforts: ‘Self worth, feel good’; ‘Increase self esteem, pride’; ‘Achieving what I am capable of’.

In summary, it would seem that in attaining the first objective of the current research, that evidence has been obtained that the SAMI led to ‘autonomy, self-control, self-direction and self discipline’ (Hattie and Timperley, 2007: 90) for two-thirds of the sample, with other students already practicing these.

The two parts of the second objective of the current research have also been attained. First, consider types of change. Student reflection on change typically involved time and trade-offs between parts of their lives. In the quotes given in the previous section and in other responses in the transcripts, it is apparent that students were aware that changing approach to study would involve them reducing or eliminating other activities, typically social ones. Generally, reducing time with family or running a household was deemed to be unacceptable. Another common drawback to devoting more time to study was work. There were instances of respondents being prepared to negotiate with employers for some flexibility so as to accommodate both work and study. Additionally, a few students contemplated reducing work hours or giving work up entirely. However for many students, work, like family, was seen as a given around which study and social lives orbited.

The list of hallmarks with examples additionally provides evidence of fostering self-efficacy (the second part of the second objective). See, in particular, the hallmarks for ‘holding positive beliefs about one’s capabilities’, ‘the value of learning’, ‘the factors influencing learning and the anticipated outcomes of actions’ and ‘experiencing pride and satisfaction with one’s efforts’. One further example from the transcripts (not reported in the previous section) is:

‘I would reach my full potential, knowing I put my best into it’.

The notion of fear of failure (Table 4 above) was mentioned candidly in the responses of one student, encompassing the possibilities of failing a module, the programme of study and being a career failure. This was the response to being asked to say what concerned this student about his or her planned changes to study approach. It would appear that this suggests lack of self-efficacy. Yet, this student increased her or his scores on deep and strategic learning (10 and eight respectively) over the course of a semester. The change in

deep score was the largest that occurred in the sample; and the strategic score increased by more than half of the maximum observed change. That is, this student appeared to change substantially her or his approach to study.

It further appears that the incidence of fear of failure, at least while doing the SAMI, was rare, with only one explicit mention, although it was inferred that similar anxieties may underlie responses by a few students about letting others down. However, it is apparent in respondents' comments in the previous section that most were accepting of responsibility for change and were actively considering what changes to make. The evidence from the second completion of the RASI, when compared with the first, suggests that changes were made. That is, students must have had or attained confidence that they could successfully change approach.

The second objective was to consider feedback. From what has been presented so far, there is little doubt that most students in this current study were, in their thinking about study approaches, contemplating change and its implementation. They further embraced feedback, in particular *self*-feedback. This is consistent with the emphasis in the current research, in which feedback about performance can originate from self and experience, as well as teacher, peer, book and parent, but excluding reflections of a personal nature on students. There are examples of students indicating that they would seek advice from partners and other family members. Yet, there are relatively few references in SAMI transcripts to feedback from the academic community in the form of fellow students and academic staff.

Possibly, this reliance on self and on agents outside the university reflects an observation of Foster et al. (2002): the entire cohort of students to which the pre-registration nurses of the current study belonged, were not inclined to utilise university support systems, such as welfare services. If so, then there is a role for further work by the academic community. Another reason might be the self-administered nature of the SAMI and its concentration on thinking about deep learning, strategic learning and problem solving focused students on their broader lives and actions they could take themselves. In particular, recall that strategic learning is about determination to excel, study effort, organisation of study and time management.

By comparison, Evans and Waring (2011: 176-7) report an intervention in which tutors played a much bigger role, involving numerous interactions, including 'explicit face-to-face and online discussion of feedback as an integral element of the taught programme'; specific feedback in the form of 'handwritten notes on each manuscript', 'email communications with each student reinforcing feedback', 'track changes and comments on digital copies of each student's manuscript', 'individual and face-to-face tutorials and whole class discussions'; 'formal opportunities for all students to give feedback to each other ... both online and face to face', two opportunities for students to 'give short presentations of their papers' (one of these to a 'mixed ability group'); and the invitation to students to 'share their experiences of the feedback process, alone to the tutor, to their mixed ability group and to the whole cohort'.

Evans and Waring later note (ibid.: 184), ‘considerable amounts of time were allocated in order to support students in developing their feedback practice’ and it ‘took time for them [students] to feel totally comfortable’ with the intervention. Evans and Waring (op cit.) and the students took the view that the effort and time were valuable as a means of adopting a more self-regulatory approach. The approach in our current research has invoked *self*-feedback in that students complete an instrument (the SAMI), which aims to induce each student to decide to take action, which specific actions to take and then to monitor progress and outcomes. The difference between the approaches is twofold: (i) for Evans and Waring, the concentration was feedback on all four components of feedback (self, task, process and self-regulation) to enhance self-regulatory practice of learners, while for us the concentration was self-regulation of an individual’s somewhat more holistic involvement and commitment of time and resources to study and learning; and (ii) while the Evans and Waring intervention involved considerable effort and time, for us students undertook the SAMI in a single class, but in private, and continued their involvement with it in their own time. To these could be added the consideration that Evans and Waring were dealing with postgraduate students; we were dealing with undergraduates.

In the next section, consideration is given to the main aim of the study and to directions for further investigation.

CONCLUSION

In this research, the overarching aim has been attained. This was to investigate whether the improvement in grades noted in quantitative research by Duffy and Rimmer (2009) occurred in concert with change induced by the SAMI instrument. Students were led to confront (in the words of one respondent) ‘facts about my studying that I have chosen to ignore’. In addition to this, there is evidence that students were induced to take autonomous action (in the words of another) to ‘address the issue of “study approach” that I didn’t want to tackle’. Moreover, there is ample evidence that students were supported towards self-efficacy, exemplified by (the words of yet another student), ‘I could reach my full potential, knowing I put my best in to it’.

There are advantages to the SAMI approach. It is self-administered, taking less than an hour; it addresses study habits early in an undergraduate’s university experience; it can be administered to large groups of students; and it requires little follow-up by academic staff. The SAMI was observed to draw on self-feedback, taking on board little feedback from academic sources. Another recent UK intervention (Evans and Waring, 2011), centred on use of course feedback, was found to foster self-regulatory approaches among postgraduates. Notably, the feedback involved numerous, time-consuming interactions for each student with the tutor and fellow students.

Positive and encouraging outcomes are apparent in the recent study of Evan and Waring (2011), as they are in the current investigation. It would therefore appear that fostering self-regulation and openness to feedback from all sources are susceptible to a range of interventions. This suggests areas for further investigation. First, it might be that

integration of aspects of extant interventions is appropriate in the ongoing quest to prepare students for current learning and the ongoing demands of lifelong learning.

Second, it could be equally fruitful to investigate longitudinal interventions aimed at self-regulation and feedback, whereby aspects of each are addressed in stages as required in students' development as learners. For example, it may be most appropriate to direct students' attention to their study regimes early in undergraduate education, while positioning interventions aimed at sophisticated use of feedback on assessment tasks and the process of doing assessments later in the semester. In this way, students would be attuned to taking their own feedback about, for example, time spent on task, thus hopefully providing a background in which constructive use can be made quickly of feedback on assessments from within the academic community.

In analysing data from the SAMIs, use was made of Prochaska and Di Clemente's classification of stages of change to decide if respondents were pre-contemplative of change in study approach, were embarking on change as they proceeded with the SAMI or had earlier put in place effective, self-regulatory study regimes. Being pre-contemplative meant that a student was not aware of study difficulties or was aware, but was disinclined to make adjustments. Cases were reported above of students who were in the latter category. Such students operated in an environment where they were disinclined to introduce study change, as it would be at the expense of another important part of life, for example family.

This was a concern for many of the students in the sample studied in the current research. It further, provides another reason for why students may not embark on self-regulatory change. Vermunt and Verloop (1999: 273) have observed that self-regulation may not be:

suitable in situations where students' skill in regulation of learning is low, either in general or with respect to particular important learning activities.

Students who must juggle competing demands are not incapable of self-regulation; rather they are only too aware of the outcome of self-monitoring that assures them they are not proceeding smoothly with study in the current regime. The challenge is to devise ways of assisting such students, beyond concluding (in the words of one student) 'I will just have to struggle on' with study. Given that many students who were in this position were returning to education, they are lifelong learners. Devising ways of assisting them is of considerable importance.

However, the SAMI was found to be of value in fostering self-regulation, self-feedback and self-efficacy for two-thirds of respondents. Thus, overall, the impact of the SAMI on self-regulation and self-feedback was considerable. Moreover, many of the remaining one-third had already (in previous programmes of study) embarked on well planned, suitable and consistently applied approaches to study.

The SAMI focus was effort and the forms of effort put into study, as encapsulated in questions about how well students were doing, how well they could do if they tried harder and drawing attention to features of deep and strategic learning. The emphasis on effort in the SAMI and the reported outcomes are consistent with a point of Hattie and Timperley (2007: 95): ‘feedback that attributes performance to effort or ability increases engagement and performance on task’. In the case of the current research, this feedback is from the self and it has been found to be potent and widespread.

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ⁱ For the nursing students in the current study, it was observed that the SAMI was completed in about 30 minutes. However, Coy, Duffy and Rimmer (2011) found that students studying for awards in hospitality and tourism took about 50 minutes on average to complete the instrument. There appeared to be two reasons for this: (i) the site of the study was a college located in the German speaking part of Switzerland, where although the language of instruction was English, for many students English was not the first language; and (ii) students were inclined to reflect at some length on the items in the SAMI. The second reason was as apparent among those who were not as proficient in English as among those who were.