

## **A review of the positive impact of a Self Administered Motivational Instrument (*SAMI*) on Deep and Strategic approaches to study and on academic attainment**

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### **ABSTRACT**

This research concerns the wider context of behaviour change and approaches to study among students in higher education. Drawing on the counselling approach known as motivational interviewing, a Self Administered Motivational Instrument (*SAMI*) has been designed in which students take decisions about changing their approaches to study. Motivational interviewing has been demonstrated to positively influence a range of behaviours, including alcohol- and drug misuse and weight loss. The *SAMI* is paper-based and as the name suggests is self-administered.

Within the *SAMI*, students are asked to rate their academic performances if they continue to study as they are and if they change their study approaches. These questions were designed to stimulate ambivalence, if warranted, over current study approach. This is also engendered by asking students to complete the reliable, valid and relatively brief deep and strategic components of a shortened version of the *RASI* learning-style instrument (Duff, 1997). This shortened *RASI* is known as the *DRASI*.

The *SAMI* has been tested in a controlled study with 328 first, second and third year university students in Scotland, UK. In this paper the design of the *SAMI* and the controlled study are reported. The main conclusions are:

- When the *SAMI* is applied, approaches to study change. In particular, there was an on-average increase in strategic approaches to learning. Further, greater strategic scores among those who completed the *SAMI*, were associated with a greater likelihood of attaining the top two grades of A or B1. Thus, in line with applications of brief motivational interventions in other areas, there is evidence of effectiveness.
- A small to moderate effect size of 0.32 was noted for strategic scores within the intervention group. Teachers, students and policy makers might regard this as a reasonable return for a low cost, easily administered intervention.

Further research is required to assess if similar outcomes occur when the *SAMI* is applied in different academic environments, with or without support from academic staff, over longer periods and using different media, such as electronic delivery.

**Key words:** Approaches to study; student motivation; brief intervention

## INTRODUCTION

The student population in UK higher education (HE) has changed in recent years. Previously, typical university students would study full-time, be aged 17-21, be single and have few responsibilities beyond their studies. Many students like this still attend universities in the United Kingdom. In addition to such students, another group has emerged, whose participation is encouraged by policy commitments and funding for lifelong learning and wider access to HE. People who take up these possibilities may be older than students who traditionally have entered HE. Moreover, they are more likely to be in full-time employment, married with children and have other responsibilities, such as care of their own parents.

In 2003, the Learning and Skills Development Agency (LSDA, 2003, p. 3) noted that “We know relatively little about what really motivates people to learn”. The Learning and Skills Research Centre (LSRC, 2004, p. 1) stated:

‘Definitions of motivation are very rarely discussed in the literature, and the term is often invoked loosely, without definition, to explain why some learners progress while others do not’.

It is likely that what motivates an 18-year-old, full-time student will differ from what motivates a part-time student who is 40. Further, it is possible that their learning approaches will differ. Younger, full-time students may have only recently left secondary school and as a result may have an established approach to study. As their course is full-time, they may also be able to dedicate themselves more fully to their studies. Older part-time students may not have studied for many years and may have to juggle study time with family responsibilities and employment.

Universities have a role in assisting entrants to become effective learners. Inevitably, such support requires additional resources to meet the needs of the changing student population. Therefore, a low-cost method of motivating and assisting full- and part-time students to improve their approaches to study is likely to be of interest to many higher education institutions, which is exactly the focus of this research.

The emphasis in this paper is twofold: (1) the design of a self-help booklet addressed to students, and (2) a controlled experiment conducted to assess the impact of this intervention on diverse students’ approaches to study and their academic achievements. At the university where the controlled experiment was conducted, many young students enrolled full-time at first level and many older part-time students enrolled initially in Levels 2 or 3. The self-help booklet, known as the *SAMI*, was developed in line with theory currently applied to assist other types of behaviour change.

In the next section, a summary of the theoretical background relating to behaviour change and motivation is provided, followed by an overview of the development of the *SAMI*. Next, the controlled study is discussed and the impacts of the *SAMI* intervention on deep and strategic learning and academic attainment are evaluated.

## THEORETICAL BACKGROUND

There is growing evidence that people change their behaviour with little or no professional intervention. What is also clear from research is that many people change and require only a little assistance from the helping professions, as opposed to longer-term treatment interventions. Studies in different countries identify changes in a wide range of behaviours as a result of brief interventions. Miller and Rollnick (2002, p. 5) report “The fascinating point is that so much change occurs after so little counseling”.

Many types of brief or minimal interventions have been used in helping people make changes in their lives. In his review of brief interventions and their role in relation to more intensive treatment of alcohol problems, Duffy (1994, p. 1) outlined the nature of minimal interventions: “Many studies describe “brief” as being only one interview, others a series of interviews, others still offering a self-help manual with little or even no personal contact.”

Motivational interviewing is a particular way of promoting behaviour change. Miller and Rollnick (2002, p. 25) note that: “Motivational interviewing is a client-centred, directive method for enhancing intrinsic motivation to change by exploring and resolving ambivalence.” Ambivalence or dissonance is

“a discrepancy between the present state of affairs and how one wants it to be... Discrepancy may be triggered by an awareness of and discontent with the costs of one’s present course of behaviour and by perceived advantages of behaviour change. When a behaviour is seen as conflicting with important personal goals (such as one’s health, success, family happiness, or positive image), change is more likely to occur” (ibid., p. 38).

Further, they observe that motivational interviewing is more focussed and goal directed than non-directive counselling, with the counsellor being ‘intentionally directive’ in resolving ambivalence (op cit).

Rollnick and Miller (1995) identified seven characteristics of motivational interviewing:

1. Motivation is elicited from the individual as opposed to being externally imposed by the counsellor. Coercion and confrontation are avoided and instead the intention is to mobilise an individual’s internal values and aims to stimulate behaviour change.
2. In motivational interviewing the intention is to elicit the individual’s ambivalence about change and then help them resolve this ambivalence to generate an acceptable change in their behaviour.
3. In motivational interviewing the counsellor aims to minimise resistance to change and in doing so avoid direct persuasion towards a specific outcome.
4. This approach is not aggressive and confrontational but rather is quiet and eliciting.
5. Counsellors using motivational interviewing aim to “elicit, clarify and resolve ambivalence in a client-centred and respectful counselling atmosphere” (ibid., p. 328).
6. An individual’s readiness to change is not seen as an internal trait, but rather is explained as a “fluctuating product of interpersonal interaction” (ibid., p. 329).
7. The counselling relationship is one of partnership or companionship in which the client’s wishes to change or not change their behaviour are respected.

In 2002, Miller and Rollnick (pp. 65-76) put forward five important techniques that can be applied while working within the ‘spirit of motivational interviewing’:

I. **Open ended questions**, which are designed to “create the impetus for change” and allow the individual to explore change (ibid., p. 65).

II. **Affirmation** of an individual’s strengths and abilities aimed at reinforcing confidence and commitment to change.

III. **Reflective listening**, enabling individuals to build on past successes and their expectations of the future.

IV. **Summaries**, which bring to the fore the key issues of the discussion before moving the focus of the debate.

V. **Elicit self-motivational statements or change talk** to indicate the individual is considering change. In motivational interviewing the interviewer encourages the interviewee to present reasons for change.

For Rollnick and Miller (1995) many interventions are based on the spirit of motivational interviewing, but most are combined with other forms of counselling intervention, such as problem solving, decision making and goal setting skills (Whetten and Cameron, 2002). Within the controlled study outlined later in this paper, a six-stage approach to problem solving is used (Adair, 1997):

A. **Orientate yourself**: before starting this process, stand back and be objective. Try to be detached from the problem, possibly by imagining the problem is not your problem but that of a friend or colleague.

B. **Clearly define the problem**: be specific. Whetten and Cameron (2002, p. 162), writing about problem solving within a management context, note that “Managers often propose a solution before an adequate definition of a problem has been given. This may lead to solving the ‘wrong’ problem. The definition step in problem solving therefore is extremely important”.

C. **Brainstorm for solutions**: generate a large number of potential solutions, as the quality of the solutions can be significantly enhanced by considering multiple alternatives.

D. **Decide on the best options(s)**: weigh up the advantages and disadvantages of options bearing in mind the precise definition of the problem.

E. **Set realistic, achievable goals**: goals should be clear, specific, relevant, realistic, achievable, measurable and feasible within an agreed timeframe.

F. **Review the implementation**: goals should be reviewed within an appropriate timeframe. Where goals have not been met, they should be reviewed and revised accordingly.

The *SAMI* used in this study is a combination of motivational interviewing and problem solving and consequently would be recognised by Miller and Rollnick as an *AMI*, that is an Adaptation of Motivational Interviewing.

## **DESIGN OF THE SAMI**

Following a review of literature (outlined in the previous section) relating to motivational interviewing and problem solving, the *SAMI* has been designed. It consists of the following components:

1. An exploration of ambivalence
2. Consideration of decisional balance
3. The resolution of the decisional imbalance

Each of these are now considered in more detail.

### **The exploration of ambivalence**

In the *SAMI*, students first rated their actual and then their potential performance on a scale of 1-10, where one denotes ‘not very well’ and 10 denotes ‘very well’. The questions were:

‘On a score from one to 10, how well do you think you are doing with your study?’

‘On a score from one to 10, how well do think you could score if you really tried your best?’

The first of these, referred to as the *How well* question, is derived from Tait and Entwistle (1996), who found that responses to it were good predictors of academic achievement. The second question, referred to as the *Potential* question, was designed specifically for use within the *SAMI*. Students were next asked if the difference between *How well* and *Potential* responses was a source of concern. Note that reflecting on the difference in scores is intended to induce ambivalence and encourage awareness of any concerns students may have about their current approaches to study, early in the process of completing the *SAMI*.

Next, another attempt is made to engender ambivalence. To do this, students first complete the deep and strategic components of a shortened version of the *RASI* instrument (Duff, 1997), whose development originated with Entwistle and colleagues. The shortened version of the *RASI* used in the *SAMI* is referred to as the *DRASI*. It was found to be reliable, valid and took little time to complete (Duffy, 2005). After completing the *DRASI*, students reflect on their total scores.

### **Consideration of the decisional balance**

The intention in this part of the *SAMI* is to elicit ‘self-motivational statements’ or ‘change talk’ after students have been given the chance to become aware of ambivalence in the first part outlined above. Miller and Rollnick (2002) see this as an important aspect of

motivational interviewing, as it indicates that an individual is thinking about the possibility of change. Students were encouraged to consider (and write down their responses) to a series of questions about:

- problems they have with studying (for example, students might cite lack of time or a quiet place to study);
- what worries them about such difficulties (for example, students may be concerned that they are not able to resolve these concerns and consequently may not perform as well as they want to);
- the benefits of maintaining the current approach to study (students may for example identify that making no change to their study approach would ensure they can meet their other commitments);
- the drawbacks of the current approach (students may believe they might fail their module because they have not studied enough).

These items in the *SAMI* flow from considering first ‘problems’, followed by ‘worries’, ‘benefits’ and ‘drawbacks’. This reflects key features of motivational interviewing: do not simply draw respondents to list advantages and disadvantages of the status quo, but also ask them to consider why they see them in this way, and encourage respondents to make links between the situation, their behaviour and likely consequences.

Students next explore the benefits of and concerns with changing approaches to study, the main reason they have for changing approach and the main impediment to change. Note that the focus at this point is on students identifying issues relevant to *them*.

### **The resolution of decisional balance**

In this section of the *SAMI* questions and statements are aimed at leading each student to apply a version of analytical problem solving or decision making to the issue of changing their study approach (Adair, 1997; Whetten & Cameron, 2002). Students use a brainstorming approach to generate a range of alternative solutions to the main problem they had identified.

Students then evaluate the list of alternatives they generated and make decisions about the way forward (Duffy & Rimmer, 2008). First, they are asked to delete what are for them unrealistic or poor options. Second, they prioritise what they think are the most appropriate and relevant solutions. Following this, students set themselves goals, make a plan and set about its implementation.

Further, students are encouraged to consider what obstacles might get in the way of them achieving their plans and how they would deal with them. Finally, students identify when they would review their plans to consider if they have been successful. Depending on their goals, some students might, for example, aim to review (and if necessary revise) their plans within a few days, others in a few weeks and some in more than a month.

The above is a brief summary of the components of the *SAMI*; a detailed description can be found in Duffy and Rimmer (2008).

## CONTROLLED STUDY

A controlled study was designed to assess the impact of the *SAMI* on deep and strategic approaches to study and on academic attainment. A deep approach can be linked with a conception of learning that is seen as transforming involving a search for understanding and indicates an implicit interest in learning on the part of the learner whereas a strategic approach can be identified as one where the learner seeks to do what is necessary to achieve success in a particular activity and is seen as including aspects of metacognition and self-regulation (Tait, Entwistle & McCune, 1998). The following sections describe this controlled study, the participants involved, the methodology employed and the results observed.

### Participants

The experiment had two groups – control and intervention groups – and involved two points of contact with students. At the initial point of contact, 328 students took part in the experiment. Nearly forty nine per cent (or 160) of these students were first-level entrants. That is, they were new to university study and were commencing on the first semester of three levels of full-time, professional nursing training. Slightly more than half of the total 328 participants were studying modules in later levels. They had previously engaged in tertiary study. These part-time students were typically qualified nurses, some with many years of nursing experience, who were in the process of updating their original qualifications to gain a BSc in Health Studies or BSc in Nursing Studies. Within the control and intervention groups, more than 90 per cent of participants were female. Most students were aged between 18 and 50, with the largest group being 31 to 40 (approximately 37 per cent). As expected, first-level entrants were generally younger than those commencing study at either Levels 2 or 3. The age distributions of the intervention and control groups were similar.

### Methods

The *SAMI* was administered to an intervention group at the initial point of contact. This was Week 2 of an academic semester, referred to as Time 1 below. At the same time, a control group did the *DRASI* to assess their approaches to study. The intervention group completed the *DRASI*, the *How well* and the *Potential* questions as part of the *SAMI*.

The second point of contact occurred nine weeks later, referred to as Time 2 below. At this time, 76% of the original group completed the *DRASI* again.

### Results

Table 1 shows the mean scores of the control and intervention groups for Time 1. The *DRASI* totals for the control and intervention groups are very similar. The difference, 1.27, is shown in the final column of row 1. This difference is not significant at conventional levels. Similarly, the deep and strategic main-scales differ little on average between the control and intervention groups. The differences are not significant (see the t-values shown in brackets in the final column). This would be expected of the two groups before the

intervention is made, if the samples are randomly drawn. It is apparent, therefore, that the control and intervention groups were similar on the *DRASI* main scales at the time the study began.

Time 1		Mean <sup>1</sup>	Standard	Mean difference
		Control (C)	deviation	(t)
		Intervention (I)		
DRASI	Main-scale total	69.94	9.16	-1.27
		71.21	9.44	(-1.07)
Deep	Main-scale total	32.28	3.934	-0.29
		33.57	4.10	(-0.57)
Strategic	Main-scale total	37.66	6.50	-0.98
		38.64	6.46	(-1.19)

<sup>1</sup> At Time 2 116 control-group respondents and 134 intervention-group respondents participated.

**Table 1:** Mean *DRASI* scores at Time 1 for respondents available at both times 1 & 2

### *Impact on deep and strategic approaches to study*

Mean scores at Times 1 and 2 were compared for the control and intervention groups (Table 2). Both the control and intervention group significantly improved their total *DRASI* scores. The extent of change was greater for the intervention group, whose members had completed the *SAMI* at Time 1.

The difference between the changes in *DRASI* scores is accounted for by the intervention group becoming more strategic on average. While the groups' deep scores improve by the same amount on average (0.44), the improvements are not significantly different to zero for the control group but are for the intervention group at 10% or better. However, an effect size of only 0.08 emerged.

Significant improvements emerged for strategic scores for both the control and the intervention groups at better than 1%. The effect for the intervention group was 0.32 (small to medium).

DRASI	Control group			Intervention group		
	Mean at time 1	Mean difference <sup>1</sup> (T2-T1)	Standard deviation	Mean at time 1 (T2-T1)	Mean difference <sup>1</sup>	Standard deviation
DRASI total	69.94	1.22 (2.13)**	6.15	71.24	2.20 (3.89)***	6.63
Deep total	32.23	0.44 (1.35)	3.51	32.57	0.44 (1.64)*	3.12
Strategic total	37.66	0.72 (1.86)*	4.29	38.64	1.76 (4.41)***	4.62

<sup>1</sup> The first number in each cell denotes the difference in means; and the second number (in parentheses) denotes the value of the test statistic. \*, \*\* and \*\*\* denote significance at 10 per cent, 5 per cent and one per cent or better respectively on a paired t-test for mean scores.

**Table 2:** Evaluation of study approach: control and intervention groups

### *Impact on academic attainment*

Stepwise logistic regression, performed following the process set out in Hosmer and Lemeshow (2000), was conducted on the data for those students available for both Time 1 and Time 2 of the controlled experiment. (The details of these estimations are available from the authors.) The objectives were to assess the forms and strength of association between academic attainment, learning styles and context. Four contextual factors emerged as having roles: age, level of study, participation in the *SAMI* and students' own perception of how well they were doing as measured by the *How well* question.

The measures of academic attainment used as dependent variables in the regressions were constructed as follows. First, the average mark over all modules attempted by each student was calculated. Then the resulting averages were converted to one of the grades A (an average of 70 or above) or not A (the average range 0 to 69). Regressions were performed to obtain estimates of the probabilities of a student gaining a grade of A, first using only *DRASI* deep and strategic scores. After this the estimations were repeated using *DRASI* scores (measured at Time 2) and contextual factors, employed separately and in interactions with learning styles. The first conclusion to be drawn from the estimations involving only the *DRASI* scores is that they add little to the explanation of grade, even though strategic score had a significant and positive influence on attaining an A, at better than 10%.

On their own, the contextual factors (this is, being aged 31 to 40, being in the intervention group (i.e. completing the *SAMI*) and studying at Level 1), all had significant positive influences on attaining an A grade. In addition, members of the intervention group who were confident in answering the question 'How well do you think you are doing with your study?' were significantly more likely to attain a grade of A.

The interactions between *DRASI* scores and being in the intervention or control group contained a surprise. Higher strategic scores on the *DRASI* among members of the intervention group were associated with a greater likelihood of attaining an A; while members of the intervention group whose deep scores were higher were less likely to attain an A. A subsidiary regression revealed that students who attained a grade of B1 – an

average in the range 60 to 69 – and were in the intervention group similarly had a higher probability of attaining that grade if their strategic scores were higher, but there was no effect of greater deep scores on attaining a B1. Overall, while the intervention had a positive effect on the likelihood of the highest academic grade, the role of deep learning in that outcome was diminished, while the influence of a more strategic approach was enhanced. It would be tempting to ascribe the diminished role of deep learning to an unsuspected influence of the intervention. However, when the estimations were repeated using DRASI scores at Time 1 – before the intervention – higher deep scores were again associated with a negative effect on academic attainment.

Thus, learning approach is estimated to affect outcomes differently in the intervention group relative to the effects of learning approach in the control group. However, an open question is why adopting a deeper approach, whether initially or after the intervention, has a negative effect. One possible explanation is that the structure of programmes of study and module assessments is that they foster strategic approaches relative to deeper learning. If so, is this because the modern emphasis on coursework and continuous learning along with the intensity and forms of it at the study site, left little opportunity for those of a deep perspective to shine? On the other hand, the explanation may not so starkly favour one form of learning over another, because students do have positive scores on each of the main scales in the *SAMI* and in general they are relatively high. For example, it may be that threshold levels of each approach are needed, with honing of them to suit past and current educational environments. The quantitative approach sketched here to assessing the role of learning approach can be extended to shed light on this open question, which will be taken up in future research.

## **ADVANTAGES AND DISADVANTAGES OF THE *SAMI***

From a student's perspective, there are a number of advantages to using the *SAMI*. Firstly, it is a very student-centred approach. Students have control over the responses they make, the concerns they raise, the definitions of their problems and the solutions to their problems. This is quite a different approach from that adopted in many universities of advising and guiding students towards recommended activities. Secondly, students can benefit from the use of the *SAMI* without having to attend a specialist remedial session and be labelled as a 'problem student'. Thirdly, it does not take much time on the students' part and can be used at a time and place convenient to them. They retain the master copy of the *SAMI* and can reflect on it again at any time.

There are also advantages for academic staff and personal tutors as they can implement this support system with little training. They do not need, for example, to attend specialist training courses on how to conduct motivational interviewing. Large numbers of students can be encouraged to use this approach, thereby reducing staff time and resources. Academic institutions may find this a cost-effective approach to assist students in reviewing their approaches to study and potentially improve their academic grades.

There are also some disadvantages to this approach. Not all students will wish to engage in this process and consequently other (more standard) support systems for students will also

continue to be required within academic institutions. In addition, some students may require assistance in completing the *SAMI*. For example, one area identified where some students may require additional support is in relation to the generation of alternatives when considering ways to resolve decisional imbalance. In the study outlined above, some students generated only a small number of potential alternatives, whereas the theory on the application of this approach would advise the generation of a higher volume of alternatives. Some students therefore may not benefit from the use of the *SAMI* on their own, but may require some additional support from lecturers or personal tutors.

## CONCLUSION

The theories and techniques used in motivational interviewing, problem solving and decision making have been used to develop the *SAMI*. This motivational instrument has been developed for use with students in higher education. It has been demonstrated to assist them in improving their approaches to study (as measured by their deep and strategic scores) and to assist them to improve their attainment as measured by academic grade.

Future studies will evaluate the *SAMI* with students from different academic disciplines, academic settings and different cultures. To date the *SAMI* has been tested as a brief intervention with little assistance from academic staff. Further studies will also assess the impact of the *SAMI* when it is supported by academic staff on a one-to-one basis or with groups within a classroom setting. An online version is also being developed and this will be evaluated once available.

The results of this first trial of the *SAMI* are positive. Such a brief intervention with such tantalising results is likely to be attractive to lecturing staff within academic institutions. This cost-effective, brief intervention is also likely to be of interest to senior managers within further and higher education settings as they strive to improve student motivation and academic results within limited budgets.

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