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Barbara de la Harpe
Curtin University of Technology

Alex Radloff
Curtin University of Technology

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Helping future teachers to be effective learners: providing in-context learning support for first year Teacher Education students

Barbara de la Harpe and Alex Radloff

Curtin University of Technology

ABSTRACT

Future teachers need to be effective learners and also effective teachers of learning. However, many Teacher Education students are underprepared for university study and, as a consequence, may, not be effective learners. Thus, they need help to develop the cognitive, metacognitive, motivational and affective strategies which are needed for quality learning and their future teaching. Current theory and research suggests that such help is best provided by the discipline instructor in the context of regular teaching. In this paper we outline how students can be helped to be effective learners, describe how we provided such help to a group of first year Teacher Education students through a learning support program; report on the outcomes of the program from the perspective of the students and the instructor, using quantitative and qualitative data; and discuss implications for teaching and learning and Teacher Education programs.

THE CASE FOR HELPING FUTURE TEACHERS TO BE EFFECTIVE LEARNERS

Universities have identified the critical importance of the development of lifelong learning as an outcome of a university education

(Crebert, 1994). One of the major characteristics of lifelong learners is that they have and use a repertoire of learning strategies (Candy, Crebert & O'Leary, 1994). Such learning strategies are especially important for future teachers as educators of the next generation since, as Jones, Slate and Kyle (1992) point out,

... teachers who do not have... [learning skills] lack both the ability to function as lifelong learners and to develop the academic skills of their own students. Insuring that prospective teachers have adequate academic skills must become an accepted goal of teacher education programs (p. 14)

University students who are undertaking study in Teacher Education and will become teachers themselves, need a well developed capacity for effective learning. They need to be effective learners in order to be successful students as well as to be able themselves, as teachers, to help their students to be effective learners. Improving, students' study skills and learning strategies is an essential part of any teacher's professional role (Jones, Bell & Saddler, 1991), In order for teachers to prepare students adequately for lifelong learning or even for everyday living, beyond school, they should model and teach strategies that promote deep

learning and, in particular, should foster metacognition as an important educational goal (Biggs & Moore, 1993). Furthermore, Angelo (1991) suggests that, in order for students to become lifelong, independent learners, they need to "...learn to be self-reflective, to understand why they believe, think, and act as they do - and to value self-reflection" (p. 19).

Thus, as Biggs and Moore point out, "if teachers are to help students become more metacognitive about their learning, they should themselves be metacognitive about their teaching" (p. 456). Being metacognitive about teaching means that teachers need to have a thorough understanding of the factors that facilitate student learning and to be aware of the effect that specific learning strategies might have on learning- (Boulton-Lewis, 1994; Pressley, Woloshyn, Lysvnchuk, Martin, Wood & Willoughby, 1990; Wilson, 1988). They also need to be flexible and reflective lifelong learners in order to keep up with the rapidly expanding knowledge base in their complex and ever changing work environments (McCombs, 1991; Vermunt, 1996).

In light of the above, it is important that prospective teachers possess appropriate knowledge about and use of learning strategies. Jones, Slate and Kyle (1992) report, however, that as recently as 1992, there were no published studies identifying the extent to which Teacher Education students employed effective note-taking, studying, and test-taking behaviours - all important learning strategies. What evidence

there is of approaches to learning by pre-service Teacher Education students and teachers undertaking further study (Boulton-Lewis, 1994; Boulton-Lewis, Wilss & Mutch, 1996) shows predominantly quantitative views of learning and rehearsal as the most frequently used learning strategy.

WHAT IT TAKES TO BE AN EFFECTIVE LEARNER

Teacher Education students, like many other students, may be underprepared for university study (Alderman, Klein, Seeley & Sanders, 1993; Boulton-Lewis, 1994; Jones, et al., 1992). Research in Australia (Clements, 1992; McInnis, James & McNaught, 1995), New Zealand (Educational Research Advisory Unit, 1990) and the USA (Knapp & Karabenick, 1988) has found that students across the disciplines often experience difficulties with their studies and their attitudes towards learning and may use inappropriate approaches to learning. A recent report (Higher Education Council & Glassick, 1997) on students entering university in Australia emphasised that first year students, because of their previous educational experiences, had a variety of characteristics and needs which affected their learning. The report found that school leavers beginning university study, in contrast to when studying at school, often experienced amongst other things, "...a comparatively impersonal environment in which they are expected to be fully responsible for their own behaviour and development" and "...difficulty in maintaining motivation to learn without the

structures imposed in the secondary system..." (p.9).

Students may be underprepared for university study because of earlier learning contexts which did not foster the use of appropriate attitudes and learning behaviours (Andennan & Maehr, 1994; Martin, Bowden & Ramsden, 1990). In addition, the strategies students use to get into university may have an unfavourable impact on the strategies they use at university (Ramsden, Martin & Bowden, 1989). As a result, students may develop negative attitudes to learning and to themselves as learners, lack motivation to learn, and perform poorly in their studies.

In order to be effective learners and perform well academically, all students need to have an organised knowledge base; possess a well developed set of learning strategies- accurately assess learning tasks and match their strategies to the task; be metacognitive about their learning by effectively planning and monitoring their learning and skill use, and evaluating and adapting their learning, as needed; know what motivates them and know how, when, where, and why they learn best; have positive attitudes towards their learning; be aware of what constitutes good learning outcomes in a range of situations, and ultimately have knowledge and control of their own learning processes (Angelo, 1991; Beckwith, 1991; Biggs & Moore, 1993; Boulton-Lewis, et al., 1996; Garner, 1990; Janssen, 1996; McCombs, 1991; Meece, 1994; Sherman, 1985; Wang & Palincsar, 1989; Weinstein, 1987). Thus, not only cognitive but metacognitive, motivational

and affective variables are recognised as playing an important part in effective learning. Students must, therefore, possess both skill and will if they are to be effective learners (McCombs & Marzano, 1990; Paris & Winograd, 1990; Pintrich, 1988; Pintrich & De Groot, 1990).

HELPING STUDENTS TO BE EFFECTIVE LEARNERS

Students need help to develop their cognitive, metacognitive, motivational and affective strategies. The evidence overwhelmingly favours the conclusion that these strategies can be taught to students (Borkowski, Carr, Rellinger & Pressley 1990; Chalmers & Fuller, 1996; Fuller, Chalmers & Kirkpatrick, 1995; Kirkpatrick, Fuller & Chalmers, 1993; McKeachie, Pintrich, Lin & Smith, 1986). Janssen (1996) believes that most students, with some advice or support from their instructors, can become the deep learners demanded by university study and that by encouraging and developing students' metacognitive strategies specifically, they will not only learn and understand the subject more effectively, but will also develop a greater understanding of themselves as learners.

Moreover, research suggests that such support is more effective when provided in the context of students' subject learning by the discipline instructor (Hadwin & Winne, 1996; Hattie, Biggs & Purdie, 1996). For example, Tait and Entwistle (1996) suggest that for study advice to have maximum impact, it needs to be provided as an essential part of the course and offered as soon as

the need becomes apparent. Weinstein (1987) refers to providing learning support in-context as implementing a metacurriculum which involves the teaching of learning strategies while teaching the content area of the discipline. Contrary to many instructors' opinions, she believes that they have many opportunities to teach learning competencies while simultaneously teaching, the knowledge, skills, and attitudes of a subject. Biggs (1987) believes that effective strategy instruction requires instructors to teach metacognitively, that is to provide students with appropriate information on when, where and why they should learn and use the strategies being taught. Learning support programs should, therefore, be designed to assist learners to be effective and realistic managers of their own learning.

In line with current research findings, programs aimed at assisting students to learn must address contextual factors and make students more aware of their own learning, processes within particular subject areas. They should also teach good study habits and include strategies that are context specific and therefore relevant to students' needs (Meece, 1994; Westman & Lewandowski, 1991).

The importance of such programs for Teacher Education students has been highlighted by studies by Jones, Slate and Kyle (1992), Alderman, Klein, Seeley and Sanders (1993) and Fuller, Chalmers and Kirkpatrick (1995) all of which conclude that Teacher Education students need learning, support. As Alderman et al. say, "Basic instruction in the processes of learning,, along with assistance in developing metacognitive

awareness is as important as [students'] need for content instruction" (p. 50). Further, they conclude that the Teacher Education students in their study could not be left to discover effective strategies on their own and that most students, including successful ones, could benefit from strategy instruction.

WHAT WE DID TO HELP TEACHER EDUCATION STUDENTS TO BE EFFECTIVE LEARNERS

Motivated by our commitment to helping our Teacher Education students be successful learners and, as future teachers, successful learning, strategy instructors, and, based on the evidence from the literature and our experiences of teaching preservice Teacher Education students, we developed, implemented and evaluated an in-context learning, support program for our students. In the next sections, we describe the rationale for the pro-ram, how it was implemented and its outcomes for both students and the instructor. We discuss the implications of our findings for teaching, and learning, and for Teacher Education programs.

The program aimed to assist first year students enrolled in a pre-service Teacher Education program in a Western Australian university to be effective learners. It was presented in context in two consecutive core Educational Psychology courses by the discipline teacher. Each course involved three hours of contact time per week - a one hour lecture and a two hour tutorial. Tutorial classes consisted of approximately 20 - 25

students whose ages ranging in age from 17 to 46 years with approximately 80% being less than 21. Almost 90% were female and approximately 80% were school leavers.

At the beginning of each semester, students signed up for a tutorial group, selecting a class which suited their timetable. Permission was obtained to include learning support in two tutorial classes in each semester (n=47 in the first semester and n=49 in the second semester) which were taught by the first author as part of her normal teaching responsibilities. Students could choose to participate in the program or change to another tutorial class, although none did. The remaining classes were taught by other staff in the conventional way, that is, no explicit learning support was provided.

The learning support program was based on an integrated cognitive, behavioural and social learning approach. Underlying both the approach adopted and the strategies selected was the view that learners are active participants in learning and that learning involves a change in the way learners think, feel and behave. The learning support program was implemented over two semesters. In the first semester, the program focused on the role of goals for learning, cognitive learning strategies (rehearsal, elaboration, organisation), metacognitive learning strategies (planning, monitoring, evaluating and reflecting), resource-management, and writing practice with feedback. In the second semester, the program was expanded and further developed based on the outcomes from the first semester, including more

focus on specifically developing students' elaboration strategies.

The approach adopted to teach the learning strategies used modelling, practice with feedback, group work, class discussion, personal reflection and self-reinforcement. When implementing the first semester program, the instructor adopted a more directive approach, regularly monitoring student use of learning and study strategies and setting specific out-of-class tasks. In the second semester, the instructor focused more on learning for understanding and encouraged students to take greater responsibility for their own learning. Throughout the implementation of the program, the instructor endeavoured to ensure that students were informed and active participants in their own learning, and was sensitive and responsive to their feedback.

HOW THE LEARNING SUPPORT WAS PROVIDED

In each tutorial session, time was allowed for students to set individual *learning goals*, record, monitor and evaluate their goals, and to reward themselves when they met their goals. Students were specifically instructed on the value of setting learning-oriented goals that focused on mastery and understanding of new concepts, as opposed to extrinsic ego-oriented goals which generally focus on performance based on achievement and competition. Mastery goals were specifically focussed on because research has shown that they facilitate students' use of learning strategies and adaptive motivational patterns (Ames, 1992).

Further, students were encouraged to set specific, proximal and challenging goals since these types of goals are effective in influencing students' self-regulatory behaviours. Specific attention was paid to ensuring that students had control over the goals they were setting and that they rewarded their goal achievement privately.

A focus on the use of cognitive learning strategies was also included in the program. Students discussed the value of using different learning strategies, and talked about and used rehearsal, elaboration and organisational strategies. Rehearsal strategies included underlining and highlighting, creating mnemonics, and reciting information to be learned; elaboration strategies included paraphrasing, actively relating information to what is known, and summarising weekly readings; and organisation strategies included concept mapping and creating hierarchical outlines of weekly readings.

With regard to developing students' *metacognitive strategies*, students were encouraged to talk about and reflect on their own learning and plan, monitor and adapt their learning strategy use. Time was set aside in class for students to discuss the strategies they used when studying for the tests and also to modify these where necessary. At the end of each tutorial, students were encouraged to reflect on what they had learnt and were specifically asked by the instructor "What did you learn today?". Students were invited or volunteered to share their learning outcomes with the class.

Support also included a focus on the use of *resource-management strategies*. At the beginning of the semester, students were given a calendar and completed it during class, noting due dates for all their assignments and other learning activities. Students were encouraged to refer to the calendar regularly and to plan their study and completion of assignments taking into consideration all demands on their time. After the mid-semester break, students revised their calendars and completed a 'tasks to be completed' list in class. They were encouraged to reward themselves when they had completed tasks on their list. During the first semester, the instructor reminded students on a weekly basis of work to be completed and modelled good time management strategies. In the second semester, however, the instructor left students to monitor their own time management.

In terms of developing students' *writing skills*, students were asked to submit a draft of the essay section of their project reports in both semesters. Students were scaffolded by having the assessment criteria clearly outlined, the allocation of marks made clear, reference books placed in the library on Closed Reserve (in the first semester only), being taught how to complete the task, and given class time to work on their draft. Drafts were marked and detailed feedback was given, using a feedback sheet. The feedback sheet was generated from the essay requirements as well as from an initial reading of the drafts which revealed commonly recurring, errors. Marked drafts were returned to students within a week.

The feedback method was explained to students and they were encouraged to use the feedback to revise their drafts.

HOW THE LEARNING SUPPORT WAS EVALUATED

Students' reactions to the learning support program were monitored and evaluated. A variety of methods, both quantitative and qualitative, were used to obtain feedback on students' learning strategy use, motivational orientations, affective reactions, and perceptions of the instructional strategies used, and the learning context. For comparative purposes, the same methods were used to gather data from students in the same first year group who did not participate in the learning support program. The instructor's views on providing learning support were obtained using a Reflective Diary.

At the beginning and end of the first semester (N=152) and again at the end of the second semester (N=138), all first year students completed the Motivated Strategies for Learning Questionnaire (MSLQ), an 81 item self-report questionnaire designed to assess university students' motivational orientations and their use of different learning strategies (Pintrich, Smith, Garcia & McKeachie, 1991; Pintrich, Smith, Garcia & McKeachie, 1993), and the State-Trait Anxiety Inventory (STAI), a standardised 40 item self-report instrument measuring students' state and trait anxiety (Spielberger, 1983).

The MSLQ has formally been under development since 1986 (Pintrich et al., 1993). The final

version reflects 10 years of work, with data being subjected to the usual statistical and psychometric analyses including internal reliability coefficient computation, factor analyses, and correlations with academic performance measures. Results of the statistical analyses suggest that the MSLQ has relatively good reliability in terms of internal consistency and has given good results in confirmatory factor analyses, and the general theoretical framework and the scales that measure it appear to be valid. Thus the scales represent a coherent, conceptual and empirically validated, framework for assessing student motivation and use of learning strategies in the college classroom. The STAI has been used in more than 2000 studies, including studies in education. Results of statistical analyses indicate that the scales are reliable with high internal consistency (Cronbach alphas uniformly above .90 for college students) and provide valid measures of state and trait anxiety (Spielberger, 1983).

MSLQ and STAI scores were used to calculate effect sizes following Carver (1996) who believes that standard errors and effect sizes should be used in place of tests of statistical significance. Effect sizes greater than 0.20 were deemed educationally significant.

Students' levels of confidence, worry and discomfort when attending lectures and tutorials, working on assignments, reading the textbook, and when studying, were measured at the end of each semester using an instructor developed self-report survey, *Perceptions of Being a First Year Student (Perceptions)*. Students' views about

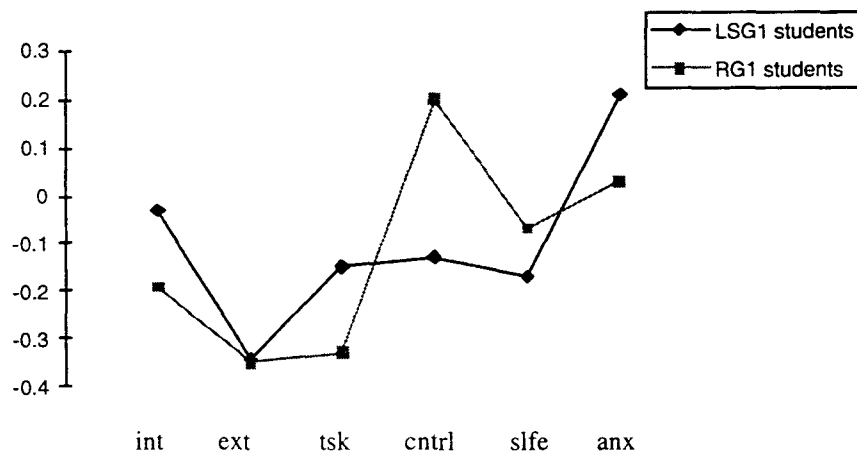
the specific strategies used in the learning support programs were obtained by administering an instructor developed survey, the Student Appraisal of Teaching and Learning Strategies Survey (SATL) at the end of each semester. In addition, a sample of students from both the learning support and conventionally taught groups, was interviewed at the end of each semester about their perceptions of the learning context including the instructor's role, their beliefs and feelings about learning, and their learning strategy use.

FINDINGS

Participating in the learning support program was associated with a number of changes in students' motivational orientations and learning strategy use

(as measured by the MSLQ) and levels of anxiety (as measured by the STAI), and confidence, discomfort and worry (as measured by the Perceptions survey). In terms of motivational orientations at the end of the first semester as shown in Figure 1, effect sizes, specifically for intrinsic and extrinsic goals for learning and perceptions of the learning task as important, interesting and useful, were more positive for the students who participated in the learning support program than those who had not, while effect sizes for control of learning beliefs and self-efficacy for learning and performance were more positive for the conventionally taught students.

Figure 1 MSLQ "Pre -Post" effect sizes for Motivational Orientations of Learning Support Group (LSG1) and Conventionally Taught Group (RG1).



Note.

int = intrinsic goal orientation, ext = extrinsic goal orientation, tsk = task value, cntrl = control of learning beliefs, slfe = self-efficacy for learning and performance, and anx = test anxiety. Positive values indicate higher post than pre values except for test anxiety where a positive value indicates a lower post than pre value (as the treatment reduced the learning pathology, namely test anxiety, it was considered to have had a positive effect).

In terms of students' learning, strategy use at the end of the first semester as shown in Figure 3, effect sizes, specifically for cognitive (rehearsal,

elaboration, organisation), metacognitive (self-regulation) and resource management (managing time and study environment, effort

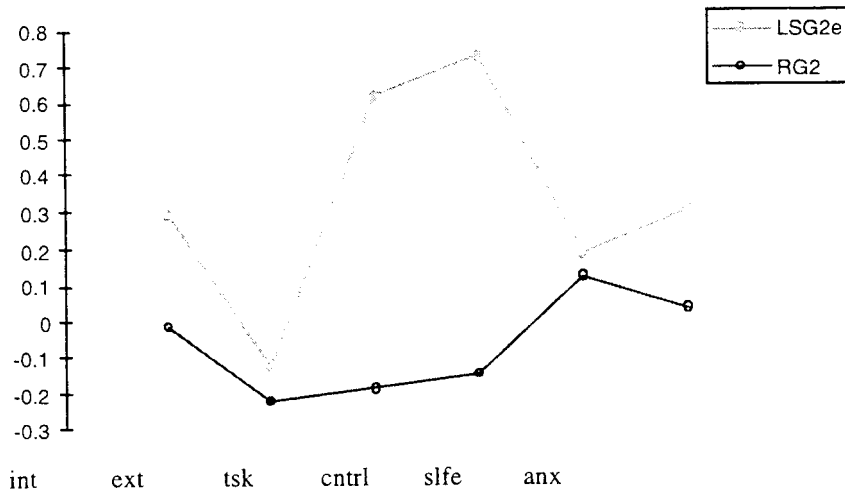
regulation, peer learning, help-seeking) strategies were more positive for the students who participated in the learning support program. Exceptionally large differences for students' use of organisation, self-regulation and effort regulation.

At the end of the second semester as shown in Figure 4, effect sizes for cognitive (rehearsal, elaboration, critical thinking) and resource management (managing time and study environment, peer learning) strategies were

However, at the end of the second semester as shown in Figure 2, effect sizes for these motivational orientations were uniformly more positive for students who participated in the (expanded) learning support program than those who did not.

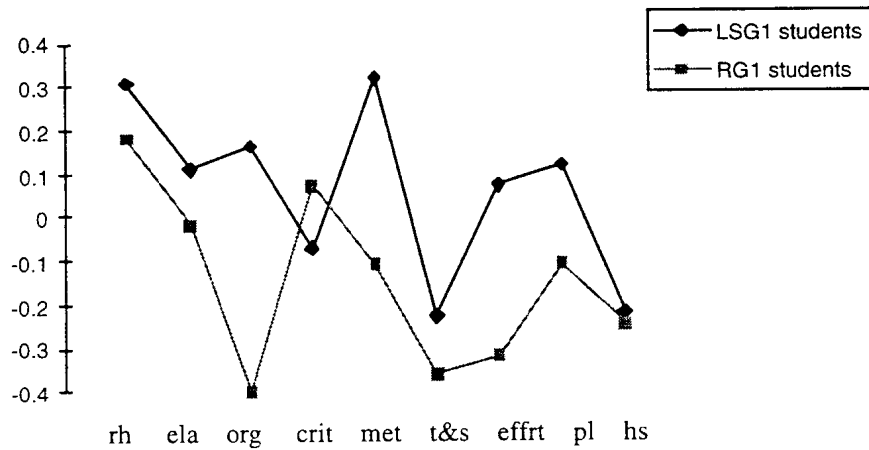
again more positive. Large differences were found for students' use of critical thinking and managing time and study environment strategies.

Figure 2 MSLQ "Pre - Post" effect sizes for Motivational Orientations of Learning Support Group (LSG2e) and Conventionally Taught Group (RG2).



were found.

Figure 3 MSLQ “Pre – Post” effect sizes for learning strategy use by Learning Support Group (LSG1) and Conventionally Taught Group (RG1).



Note.

rh = rehearsal, ela = elaboration, org = organisation, crit = critical thinking, met = metacognitive self-regulation, t&s = time and study environment, effrt = effort regulation, pl = peer learning, and hs = help seeking. Positive values indicate higher post than pre values.

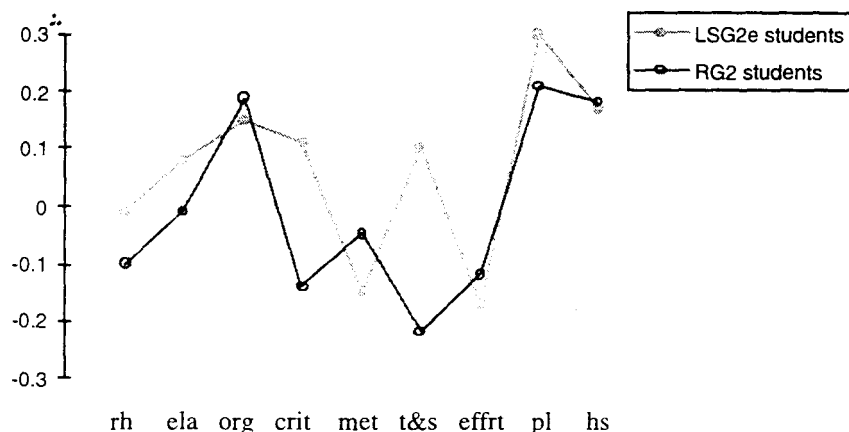
TABLE 1

First Semester top five instructional strategies measured by SATL expressed as percentage

Learning support strategy	SA*
Submitting a first draft helped me improve my essay writing	95
The numbered feedback sheet was a good way to give me feedback	95
Having to write summaries for homework before the tests helped me learn	88
Working in small groups in the tutorials was a good way for me to learn	84
Outlining the chapters helped me learn	82

Note. *SA = Strongly Agree representing 1 and 2 on a 7 point Likert scale.

Figure 4 MSLQ “Pre – Post” effect sizes for learning strategy use by Learning Support Group (LSG2e) and Conventionally Taught Group (RG2).



Analysis of student responses to the interview questions relating to the strategies used when learning for the tests and for the examination, supported these findings.

In terms of anxiety, at the end of the first and second semesters, effect sizes for a reduction in test anxiety (see Figures 1 and 2 above) were more positive for students who participated in the learning support program. Students in the learning support group also reported less discomfort when working on their writing assignment ($F(1, 115) = 7.50, p = .0072$) and when attending lectures ($F(1, 115) = 4.23, p = .0420$).

In addition, at the end of the second semester, effect sizes for a reduction in state anxiety (LSG2e $g = 0.25$) were also positive for these students. In contrast, students in the conventionally taught group reported a small increase in state anxiety (RG2 $g = -0.22$). Moreover, students in the learning support group reported less discomfort ($F(3, 91) = 4.06, p = 0.0094$) when attending lectures and tutorials.

Students' feedback about the instructional strategies used in the learning support classes in the first semester (see Table 1) showed that the five most highly rated strategies were submitting a draft, obtaining feedback using a feedback sheet, writing summaries for homework before the tests, working in small groups, and outlining the text book chapters.

In the second semester (see Table 2), the five most highly rated strategies were submitting a draft, being given a 'summary outline' to complete, making a summary each week, having tutorial activities that relied on students doing the summary, and completing the calendar at the beginning of the semester.

TABLE2

Second Semester top five instructional strategies measured by SATL expressed as percentage

Learning support strategy	SA*
Submitting a first draft helped me improve my essay writing	91
1 found being given a "summary outline" to complete was a good way to help me make a summary	82

I think that making the summary helped me understand the Ed 102 content better 82

Having tutorial activities that relied on me doing the summary helped me learn 77

Completing the calendar at the beginning, of the semester helped me plan my work 77

Note. *SA Strongly Agree representing 1 and 2 on a 7 point Likert scale.

Further, students who participated in the learning support programs were more likely than those who did not, to mention specifically the positive role of the instructor in helping them to learn, as illustrated in the following student comment:

You don't experience it [instructor focusing on assisting students to learn] with any other teacher so [you] definitely, definitely notice it and it's worthwhile. [At university] you do feel overwhelmed and it sort of makes you more relaxed, not so anxious when you're sitting there. I think it's very good. [S 102]

Correlations between learning and academic achievement at the end of the second semester, suggested a positive relationship between students' use of selected cognitive strategies, namely, elaboration ($r = .24$, $p = .016$), managing time and study environment ($r = .44$, $p = .000$), and effort regulation ($r = .37$, p

$=.000$); selected motivational orientations, namely perceptions of the task as important, interesting and useful ($r = .27$, $p = .006$) and beliefs that learning, efforts would make a difference to learning outcomes ($r = .42$, $p = .000$); and selected affective reactions, namely confidence ($r = .50$, $p = .000$), anxiety ($r = -.34$, $p = .001$), worry ($r = -.28$, $p = .005$) and discomfort when attending tutorials ($r = -.26$, $p = .009$), and their overall grades.

The instructor's perceptions based on an analysis of the Reflective Diary, revealed both positive and negative reactions. Positive instructor reactions were associated with students' positive attitudes and reactions to the learning support provided, while negative reactions were mainly associated with students' negative responses to the learning support provided and the difficulty students experienced with turning their strategic knowledge into action.

In summary, the present study showed that when learning support was provided, students' use of learning strategies increased and their motivational orientations and affective reactions showed positive changes, and that some of these correlated positively with academic achievement. It also showed that students were positive about the experience and valued instructional strategies that encouraged active learning. Finally, for the instructor, while providing learning support which focused on both content and the process of learning was at times difficult and psychologically demanding and challenging, in the end, it was both uplifting and rewarding. The findings support the current theoretical view of the value of providing learning support which is in-context, is offered by the discipline instructor, is 'just-in-time', focuses on cognitive, metacognitive, motivational and affective strategies, and is relevant and responsive to student needs.

IMPLICATIONS OF THE FINDINGS

The findings of our study have implications for university teaching and learning, especially in the context of supporting first year students and for developing lifelong learning skills as an outcome of a university education. Helping students to use appropriate cognitive and resource management strategies, to become metacognitive about

their learning, to be motivated and to feel positive about their learning is especially critical for Teacher Education students who themselves will have to be models and supports for the next generation of learners. Based on our findings, we discuss the implications for teaching and learning and make some suggestions for Teacher Education programs.

First, effective teaching should focus on process as well as content that is, the 'how' as well as the 'what', of any discipline. Learning support should, therefore, be provided in context as an integral part of the curriculum and have time allocated to it.

Second, learning support, even if this is at times challenging, is best provided by discipline instructors since they are familiar with the knowledge structure of the subject and best understand its intellectual demands. Therefore, as the following student comment illustrates, they are best placed to help their own students:

... but I think it [learning support] was better [provided by the discipline instructor] because they know our needs individually, whereas if you have someone who has come from the outside they don't know your class, they're just talking to a bunch of people who are Group A and that is, I'm not saying that it's their fault, but they just don't know us on a personal level,

like learning to know our needs, whereas with your lecturer you know them, you feel more confident about telling them your problems so therefore they can concentrate on the points that you are finding difficult. [S 2 121]

Third, strategies included in any support program should be selected carefully. There should be a clear match between students' prior learning experiences, course objectives, material presented and assessment tasks, and support provided. Tasks that require students to use a range of learning strategies should be included. In addition, out-of-class structured learning tasks should be set and prompts provided, in order to scaffold students, especially early in their learning since many find it difficult to be self-directed if the environment lacks structure. Moreover, student feedback about the strategies included should be sought regularly and used to inform future practice. It is essential that students' perceptions are considered because how students perceive and interpret the support provided will ultimately influence whether they will accept and use it.

While it is true that including learning support in a course will result in some class time being diverted from teaching content, teaching learning strategies will in the longer term improve students' abilities to manage the content. This view is

supported by our findings that despite students in the learning support groups spending less instructional time on course content, they reported greater use of learning strategies, as well as improved motivational orientations and affective reactions. Moreover, their performance in Educational Psychology, as measured by final grades, was not affected. Further, providing students with a good start in learning will pay dividends as they progress through their courses (Weinstein, 1982). The following student comment suggests that students themselves agree that such support is needed:

I suppose [instructors could help students with] studying. I suppose how to study effectively, because most of us don't have any study program at all [S₁18]

In addition, current theory and research suggests that attention should be paid to the learning context. In order for learners to benefit maximally from learning support, courses should include optimal cognitive challenge as well as psychological support, and ensure that assessment is aligned with learning objectives and instructional methods and learning tasks.

In terms of cognitive challenge, learning tasks should require students to use effective learning and metacognitive strategies, since optimal levels of challenge are associated with more

strategic learning (Garner, 1990; Thomas & Rohwer, 1993). McInnis, James and McNaught (1995) point to "the need to provide students with a challenging academic environment in which the foundations for lifelong, learning are established [since] ... most students need, enjoy, and indeed expect, university to provide them with intellectual challenges" (p. 111). And in terms of psychological support, since students are sensitive to the affective climate, instructors should acknowledge students' feelings and assist them to manage these. As suggested by the following student comment, a certain level of anxiety is necessary in a learning environment:

I've learnt not to stress out too much as I do not work at all well under pressure. This is not to say that I don't stress at all though! A little bit of worry can be productive as it shows you care. So, a test situation contains some stress if you want the outcome to be good! [S₂L₂, P61]

The learning environment should be demanding, with high but realistic expectations, but not destructive of student confidence. As McInnis, James and McNaught (1995) note, although universities should encourage a "step towards intellectual independence in the first year by setting high expectations of performance ... the notion of throwing the students in the deep end may simply be

inappropriate across the whole higher education system" (p. 66).

In terms of assessment, a close alignment is needed between course objectives, learning activities and assessment tasks. Biggs (1995, p. 11) suggests that this alignment is needed;

... so that the objectives, appropriately high level, are clear; that our teaching methods elicit from students those learning activities that are likely to achieve those objectives; and our assessment confirms that the students are in fact learning what our objectives say they should learn.

Although alignment may be difficult to achieve and requires great skill and expertise by the instructor, if close attention is not paid to the type of assessment used, and if the assessment items are not carefully designed, sequenced and marked, they may undermine effective learning (Ramsden, 1992).

For Teacher Education programs specifically, the program should include a focus on how to teach effective learning, so that Teacher Education students become knowledgeable about learning and thinking and learn how to teach strategies to foster effective learning and thinking. Such an approach should encourage students to be reflective about their

teaching since, as Nickerson (1988) points out, if teachers are not able to "think critically, reflectively and effectively they are not likely to be able to teach others to do so". Moreover, the teaching practicum should focus on student teachers teaching their students learning strategies and practicum assessment should include evaluation of the student teacher's role in promoting their students' learning.

Most importantly, instructors teaching Teacher Education students should be exemplary teachers themselves who model effective teaching and learning strategies, respect students, regularly seek, reflect, and act on, feedback about their teaching and their students' learning, and above all, have a positive attitude to teaching, as illustrated by the following student comments:

Students should be able to - I mean the lecturers are here judging us and giving us grades and saying okay you pass or you fail -well the student should have the same powers. They should be able to say, you're not doing your job properly, do something about it please. There should be some facility for the

students to say something like that. [S₂08]

They are trying to teach us what is in the syllabus, so they should be able to do that well enough so that we can learn. I mean if they're just standing up and

regurgitating a textbook they're not teaching us anything and if they are putting notes iii closed reserves [they should] make sure they set in there. [S₂08]

If their attitude is a bit more enthusiastic and cheerful it might help instead of coming in late rather not being on time and unwilling to be there. So it helps if like, if they enjoy being there and then we enjoy being there. [S₂15]

In conclusion, in line with the findings of our study and current theory and research, Teacher Education students need learning support in order to be effective learners and effective future teachers. This support should be provided as an integral part of all courses and be at the heart of all Teacher Education programs which aspire to provide quality learning outcomes.

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