

# THE DEVELOPMENT OF SUPPLEMENTAL INSTRUCTION AT THE CENTRAL UNIVERSITY OF TECHNOLOGY, FREE STATE (CUT)

HL ESTERHUIZEN, KJ DE BEER AND N BAIRD

## ABSTRACT

The former Technikon Free State, now the CUT, was concerned about the academic achievements of students and decided to introduce a programme to enhance the outcomes of student learning. The then Technikon initially identified weak performers and advised/compelled them to attend special classes. This programme proved to be unsuccessful due to the potential stigma associated with attending special classes. The Technikon commenced with its first research initiatives to implement supplemental instruction (SI) in 1993. The founders of SI, Profs Diana Martin and Robert Blanc of the University of Kansas City in Missouri, USA, presented demonstrations at joint workshops and also invited attendees to attend SI workshops in the USA. Soon permission was granted to implement SI at this institution in 1993. A new dimension to the concept of SI, namely to record SI lectures for discussion afterwards was added.

**Key words:** Supplemental Instructions, academic support, academic development.

## 1. INTRODUCTION

The aim of this paper is to inform new lecturers and academics at our institution about the history of SI and the subsequent advantages of this programme. The research problem, is that we still do not have all the answers for overcoming the many problems confronting learners every day in our lecture rooms. However, by admitting that we do experience learning and teaching problems, we can evaluate SI as a teaching and learning support system that remains in place at this institution. This article deals with the ever evolving nature of the SI programme.

The mission statement of the former Technikon Free State reads in part:

"...Technikon Free State endeavours to fulfil its mission of teaching, character-building, community service and research with excellence and practice-orientation..."

Ever since our university continued to "unlock the community's potential to benefit from teaching, applied research and consultancy services..."(Prospectus, 2006/7).

In a document titled *Involvement in Learning: Realizing the Potential of American Higher Education*, compiled under chairmanship of Kenneth T. Mortimer in 1984 for the American government, the following was already identified as a goal:

"The United States must become a nation of educated people. Its citizens should be knowledgeable, creative and open to ideas. Above all, they should learn how to learn (I underline) so they can pursue knowledge throughout their lives and assist their children in the same quest" (Mortimer, 1984:2).

The identified goal above should also be applicable in South Africa, because a nation of educated and schooled citizens who are creative and knowledgeable and have an open mind when it comes to other people's ideas, is an ideal to be pursued by all developing as well as developed countries.

In recent times more people have voiced their opinion that less-strict admission requirements should be applied at tertiary institutions so as to afford more prospective students the opportunity to receive a tertiary education. This could imply – as we have already experienced - an influx of inadequately prepared ("under-prepared") students into tertiary institutions. This expected influx, as well as the potentially greater erosion of enrolled student numbers, should be taken into account in the compilation of regulations, standards and curricula. The aim, however, should still be to provide as many as possible educable and trainable people with the opportunity to qualify as useful citizens of South Africa.

To ensure the success of such "under-prepared" learners, all possible, relevant, realistic and affordable means should be employed. The institution of a programme for SI is one method according to which this problem can be solved proactively.

## **2. CONCEPTUALISATION**

### **2.1 Guardian/Tutor programme**

The general perception of such a programme – still being implemented today at our university in some courses – is that it is a type of academic support programme that can be viewed as an outcome of the (weak/unsatisfactory) achievements of students during evaluation. It is therefore viewed as a reactive programme that is also remedial. The student in risk courses is therefore the main actor and the (often evaluating) lecturer is the tutor.

#### **2.2.1 Academic support programme**

This is a programme aimed at assisting students – especially those who are academically less well-grounded, or possibly to a varying degree deprived in terms of proper and acceptable schooling – to be academically successful.

### 2.2.1 Supplemental instruction

This is a type of academic support programme that differs from the "traditional" support programme in that:

- Students are not evaluated before being invited to join this programme, but can join it from the start, viz. before their work/capabilities have been evaluated;
- Problem courses are identified, and not problem learners at risk;
- The programme is "open" to all learners, i.e. for the potentially stronger achievers, as well as the potentially weaker achievers;
- The programme is proactive and not reactive;
- The lecture is not repeated in itself – rather the appropriate course material is discussed, uncertainties are elucidated, notes are compared, and possible test and examination questions are identified;
- The student is actively involved in his or her own learning process and accepts co-responsibility for his/own learning and progress;
- Independent learning is promoted;

This programme is not remedial, but rather enriching.

### 3. THE SUPPLEMENTAL INSTRUCTIONAL FACILITATOR

This is a person who is educated in the "risk" course concerned, who is well-versed in the course, and who is responsible for SI sessions ("workshops"). This can be a staff member, a senior student, or an expert from outside. The lecturer or person responsible for the evaluation of the student should preferably not be the SI leader/facilitator.

The facilitator does not evaluate the students' progress;

*"Students generally hesitate to be candid about academic concerns to course instructors for fear of demeaning themselves. They will, however, openly acknowledge their problems to the.... person whose duty it is to assist in such matters, and whose responsibility does not include assessment of students' performance"*  
(Blanc, De Buhr & Martin, 1983:88).

#### **4. AIM OF SI**

The aim of SI as academic support programme can be summarised in a single sentence as follows:

*It is a programme offered to students in risk courses (as historically proven) in order to maximise their achievements in the subject(-s) concerned and combat erosion (also a historical fact).*

The programme must help students to realise their academic (intellectual) ability by allowing them to be *actively involved in their own instruction and training*, which will be developed and strengthened - because they are made cognisant of their inherent potential to think, reason, and create and solve problems, and are given the opportunity to develop this potential.

The programme must also be aimed at directing students towards effective study skills, which, *inter alia*, include efficient study habits, a sound ability to communicate, good reading abilities, and the effective handling of notes.

#### **5. PREREQUISITES**

An important prerequisite for the implementation of such a programme is that it should enjoy the support and cooperation of not only the authorities (the rectorate), but also every faculty and every individual lecturer.

Lecturers, especially those involved in the so-called "risk courses", should be made aware of the inherent and potential value of the SI programme and should support it. Securing the wholehearted and unconditional cooperation of the lecturing personnel would facilitate this programme and make it more successful. The "concept" would also enjoy wider appeal among students.

#### **6. WHO IS THE SI CANDIDATE?**

In contrast to the "traditional" academic support programme instituted for the so-called "learners at risk", the SI programme is *open to all learners*. Owing to the exceptional nature of SI programmes, they are not considered remedial, and the potential accompanying stigma attached to it is lacking. The traditional programme was often specifically directed at the marginal (black) learner, and this sometimes resulted in the politicising of the programme. (Compare the many allegations that the supposed deprivation is a result of the dispensation of apartheid instituted by the former white governments.)

*"Supplemental instruction is not viewed by learners as a remedial programme. In fact, the first students to volunteer are usually those who tend to be better prepared academically. The willingness of this group to participate works to encourage participation from less able students who often find it difficult to admit that they need assistance."*  
(Blanc *et al.*, 1983:88)

This is also the experience at the CUT.

All students in the identified "risk course" are invited during the first contact session to make use of this facility *voluntarily*. During this first session the entire concept of SI is explained and the potential value thereof for *all learners* is accentuated. As SI is offered on a parallel basis to ordinary lectures from the beginning, learners may end up viewing it as a "normal" component of a specific course.

It should be accentuated that attendance is voluntary, although a record will be kept of participants' attendance of these sessions.

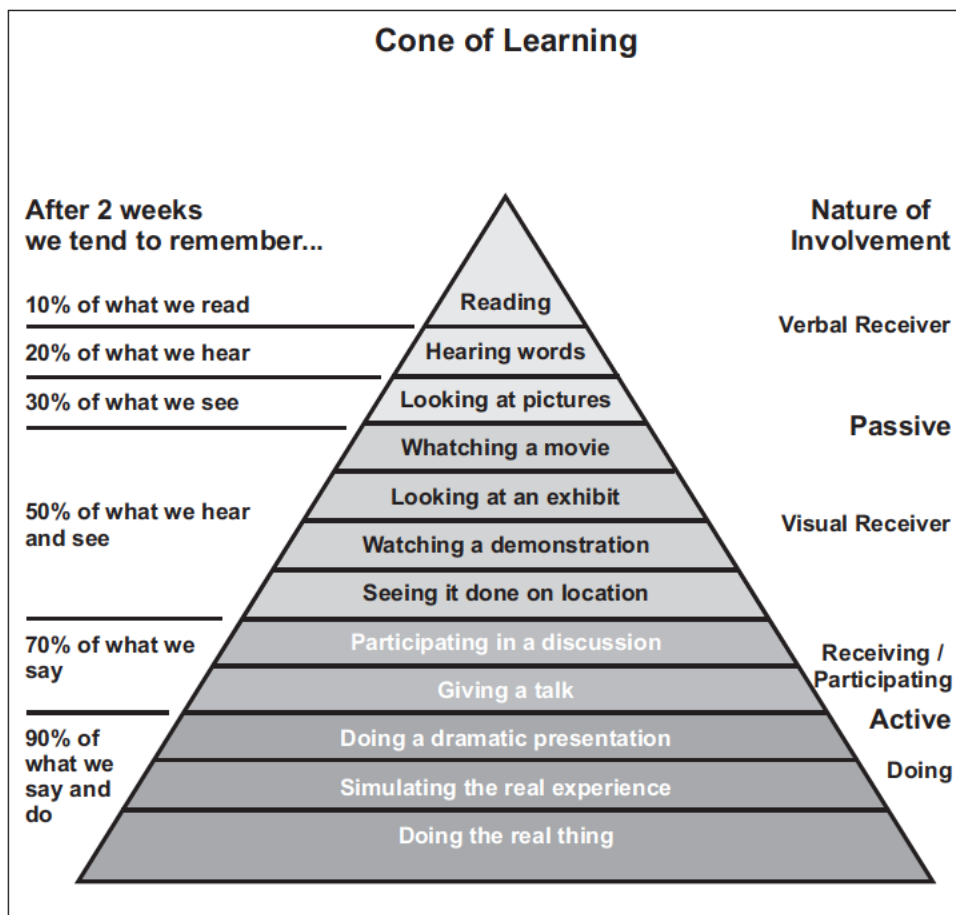
What supplemental instruction is not

As already mentioned in the previous paragraph, SI is not an imaginative substitute for traditional support sessions. It has not been developed merely as "revision lectures" to answer questions and to improve confused thinking patterns. Although "standard revision" should form part of SI, it entails much more than mere revision. It is also designed to develop and establish academic skills, e.g. efficient reading and note-taking, good study methods, reasoning ability, examination-writing skills, etc. The development of skills should be the main concern. Students attending these sessions discuss and find the answers to their questions *themselves*. The answers are not merely given to them by the facilitator – he/she merely facilitates or guides the process.

SI is essential if a lecturer requires more than mere parrot-like memorisation from his/her students (Peters, 1990:61). SI should be viewed as an enriching programme and not a remedial programme.

SI is not merely a vehicle for affirmative action, as some people might see it. Affirmative action does, however, form part of the total concept.

An informal register is kept by the facilitator to assist the him/her and the lecturer concerned with the monitoring of the students' (improved) progress or achievements.



(Transparency used by Martin during seminar on supplemental instruction at the UOFS, Aug. 1992)

SI has to do with changing the way many students are inclined to study, e.g. from simply reading the course material, which results in a retention level of 10% (according to the cone), to more comprehensive methods that ensure 90% retention of the course material (i.e. the simulation of the real task).

## 7. LANGUAGE (IN)ABILITY

We refer not only to the (potential) lack of language ability amongst most students, but also especially amongst marginal students. It is of the essence that students should master the "language" of the specific course. They must know the meaning of the central concepts, how questions might be asked during evaluation, and how to answer these questions. Not only must the efficient and accurate comprehension of the meaning of terms be accentuated, but they must also know how to express themselves in these terms. They must be made aware of the fact that simple, natural, clear and unambiguous language usage is crucial. Hunter (1989:72) quotes H. Buthelezi, who studied the language abilities of learners:

*"She identified the various linguistic skills needed for competent following of lectures, speaking in lectures and tutorials, working with texts, responding to tests and examinations and essay writing. She concluded from her research that most of the students concerned struggled to communicate effectively in their studies".*

That the development of communicative skills should occupy a central position in any support programme is obvious.

The value of effective reading cannot be overemphasised. The reading ability of the average student is unsatisfactory. A reading improvement component should form part of any support programme. The ideal would be to subject the total student population to such a reading programme. In *all* the support programmes on the various campuses investigated for the purposes of preparing this submission, the necessity of effective reading and a dedicated reading programme was accentuated repeatedly. The assistance of guidance counsellors of student support services could be employed effectively in such cases, as well as in the development of effective study skills/study strategies. If a student cannot read and comprehend properly, he/she may not be able to read and comprehend tertiary reading matter. It was found in a study by Dannhauser (2004) that most tertiary students do not have a tertiary reading capability – some even showed a primary school functional reading level!

Tertiary study implies more reading work than was previously the case in an individual's life stages. If a student is experiencing problems reading, it is logical that he/she would also have difficulty learning. Not only does tertiary study involve a large amount of reading material, but reading should also be done in the *correct manner*. Reading promotion should fit into any support programme and should be preventive as well as remedial in nature.

The *how* to learn is accordingly integrated with the *what* to learn.

## 8. SUPPLEMENTAL INSTRUCTIONAL SESSIONS

The duration of an SI session is approximately 50 minutes to one hour in comparison with ordinary lectures of 40 minutes. As already mentioned, such a session consists of various components and should not be concluded before all the participants have a satisfactory comprehension of the formal lecture concerned.

Faculties provide suitable venues for this purpose.

Sessions are offered twice or more times per week at set times so that interested parties can arrange their programmes accordingly. Tuesdays and Thursdays are SI days during which the sessions take place for full-time students, while the sessions of part-time students are scheduled for the same days from 21:00 to 22:00. These days fall more or less in the middle of the lecturing week and prevent long delays between the formal lecture and the SI session.

After the SI session every student should:

- \* have a good, complete set of notes/source references;
- \* have gone through the work at least once;
- \* have discussed the work with others;
- \* have made sure that he/she understands the work;
- \* have an idea of potential questions to be asked on a specific part of the work.

The lecturer does not always know what learners *do not know!* The student must *understand* what he/she *knows*.

The term "workshop/work session" is probably "safer" than extra class, due to the possible stigmatisation of even this concept.



## 9. THE USE OF VIDEO RECORDINGS

Formal lectures could also be recorded on video cassette and discussed during SI sessions. Although it may be viewed as unnatural and inhibiting - especially by those (lecturers) who experience a type of "stage fright" – this method is extremely helpful. Such cassettes can also be held in safekeeping in the resource centre for future possible self-study (Baird, 2006).

The use of video also play a role with regard to the cost-effectiveness (see later) of SI in that it implies that the facilitator need not necessarily be present during sessions. Students can meet in groups on their own and master the course material in this manner. The fact that an empty cassette (to be purchased) must be available for every formal lecture should not be considered an insurmountable economic burden. The dawn of the I-pod age has opened new horizons. It is easier to use by lecturing staff and students, and could be made available quicker – even before a specific lecture.

Learning could be enhanced tremendously in this way. The student can/should now come to class better prepared and lectures could become discussions. Just think how SI has become enhanced!

Recordings (or even tape recordings) of lectures in English can now be translated into Afrikaans or other specific language in the risk courses - especially in view of the growing number of marginal/underprepared candidates.

Students are often required to do practical work as part of their courses. Usually it is necessary for lectures to stop during this period. Students are placed all over the country and at times all over the world. Using podcasting as a method of content distribution, students can either receive the content before leaving for their practical training or if they have access to an internet connection receive the lectures while on location. Free time is utilised more productively by reviewing lectures or listening to other course content.

*“Supplemental Instruction now has a new and more effective medium for delivery. Not only can more students gain access to it but it can be accessed repeatedly. At times identifying students as candidates to receive supplemental instruction and informing them of this fact can do more harm than good. Making the resources available for all students to access and work through will make it a less embarrassing experience for students who are in need of a little extra. By also adding supplemental resources that are at an advanced level you are also assisting the more advanced students to gain more knowledge and not get bored.”*

## **10. THE SI LEADER/FACILITATOR**

The profile of an SI leader/facilitator is someone:

- whose training is relevant;
- who is prepared to attend *all* lectures in a specific risk course together with students;
- who is prepared to assist students;
- who displays empathy towards the students;
- who is sensitive in his/her dealings with students;
- who can act informal, but who can exert discipline in her/his communication with students;
- who is enthusiastic;
- who is prepared to hold sessions at uncomfortable/ inconvenient times;
- who is prepared to act as a "learner";
- who is prepared to execute the lecturers' instructions together with students;
- who is cognisant of the contents of the syllabus;
- who inspires confidence;
- who is an "interpreter";
- who is able to converse in an African language if possible;
- who can cooperate as part of a team.

## **11. AVAILABILITY OF POTENTIAL FACILITATOR**

If the CUT is unable to recruit qualified candidates, the possibility of using relevantly trained senior students from other institutions should not be ignored.

It is almost impossible for the available full-time personnel (not the specific lecturer) to carry the additional load of accepting responsibility for SI sessions. Knowledgeable housewives or skilled unemployed persons, for instance relevantly trained unemployed teachers or employees from commerce and industry, are also approached to participate. Knowledgeable, relevantly trained and capable people are also appointed for the position of facilitator (Cf Workforce Skills Development, 2006). Such persons act as ideal role models for our students.

The appointment of facilitators is approached carefully. The group must be a winning team, for the progress of the SI sessions will be in the spotlight.

The facilitator must enjoy a certain position of status within the faculty. If her/his status is not sufficiently high, she/he may not have credibility in the students' eyes (Agar, 1992:98), which might cast doubt on the value and status of the SI programme. The integration of this person and her/his actions into the faculty can prevent this potential problem.

As soon as risk courses are identified and the concept of SI has been accepted, the university can advertise for facilitators so that appointments can be made and the group can be trained properly before classes commence for the year.

## **12. TRAINING OF FACILITATORS**

Before lectures can commence at the beginning of the year, two (2) to three (3) days should be set aside for the training and preparation of the appointed Facilitator. The following modules should be addressed in this training programme:

- Study methods/skills
- Reading skills
- Taxonomy
- Mnemonics
- Self-activity
- Questioning techniques
- Reasoning techniques
- Critical reasoning
- How to integrate course contents with study skills
- How to plan a session
- Efficient time management
- The completion of a register
- The comparison of students' test and examination achievements in view of the evaluation of the success of SI.

## **13. COST ASPECTS OF SI**

The cost-effectiveness of the programme is considered in terms of two separate factors, namely the *cost* of the programme and the *effectiveness* of the programme. Although these factors are intertwined, they can also be evaluated separately. The cost attached to such a programme, as well as the effectiveness of the programme, can be either high or low. When the two are combined, the result can vary dramatically: low programme cost can lead to high programme effectiveness and *vice versa*. We should strive towards realising the first-mentioned combination.

SI can be an expensive venture, but with efficient planning and management and by utilising existing personnel and structures, the costs can be kept within reasonable limits. However, SI should be provided free of charge to students.

#### **14. COMPENSATION OF FACILITATORS**

The least costly alternative for the facilitator is to be a full-time staff member of the university – without prejudice to the afore-mentioned requirement that such a person should not be involved in evaluation – as no additional compensation would be necessary.

If the facilitator is not a full-time staff member, he/she does not receive the same compensation as a “normal academic” temporary/part-time staff member. The reason behind this argument is that fewer responsibilities – both academic and administrative - rest upon the shoulders of the facilitator. Difference with regard to compensation will be the logical consequence of such a decision. Two categories can be identified:

- A knowledgeable person who has completed her/his studies in the appropriate field.
- A knowledgeable person who has not completed his/her studies.

The Deputy Vice-Chancellor: Academic, via the Coordinator/Supervisor (see below), could budget the funds for the compensation of facilitators.

Faculties budget separately for equipment such as video cassettes and stationery (see argument regarding the utilisation of video equipment, I-pods, etc.).

As soon as the SI programme is underway and is showing positive results, it becomes easier to generate funds from the private sector.

## **15. THE SIZE OF GROUPS**

A smallish group - maximum 25 - is the ideal, but as SI is open to all students in a specific risk course who are all invited to participate in SI sessions, the groups can become quite large. It is preferable to restrict groups to a maximum of 50 per facilitator, since larger groups might minimise the value of SI. Although this could result in the appointment of more than one facilitator for a specific course, the consequential increase in cost should not be a deciding factor. The success achieved by students in their instructional programmes should be the main consideration. Further research is required with regard to these aspects.

## **16. INCENTIVES FOR STUDENTS**

The mere attendance of SI sessions should not have credit value (although some advocators of support programmes recommend this). If a student shows good progress as a result of her/his attendance of SI sessions, she/he can be rewarded in some way or other. The following are possibilities to be considered:

- Additional "marks" in an evaluation for bursary awards;
- Additional "marks" in an evaluation for loan awards;
- A specific percentage of remission regarding tuition fees;
- A certificate.

## **17. INSTRUCTIONAL LEVELS**

In 1993 it was recommended that SI should initially only be offered to first-year students at the former Technikon Free State (now the CUT). As this group advanced through the hierarchy of training, the SI programme was developed accordingly until it was being offered at the more advanced instructional levels.

## **18. RESOURCE CENTRE**

The utilisation of a resource centre previously played a central role in the total SI programme at the former Technikon Free State. Today, however, students are constantly encouraged to find relevant additional information independently in the Library and Information Centre (LIC).

The LIC could possibly facilitate this by means of the following:

- Extending the set loan period for books;
- Additional concessions regarding the rules determining the number of books to be taken out simultaneously;
- An increase in the number of editions of the same source.

The following quote by CE Weinstein from the first writings on SI remains relevant today:

*"Effective learners are active information processors – we who assume much of the responsibility of their own learning" (Martin, 1992). (1 underline)*

## **19. NON-ACADEMIC NEEDS**

Facilitators should always be aware of potential non-academic problems experienced by learners.

The following problems are identified in this regard:

- financial problems;
- residential and adjustment problems;
- social problems;
- personal problems;
- relationship problems.

As soon as such problems are identified, the specific student is referred to counsellors who can act in an advisory capacity and possibly help to solve their problems.

Learner Outcomes Supplemental instruction results in:

- Improved note-taking, reading, test-taking, and time-management skills;
- Sophisticated questioning and reasoning skills;
- Improved understanding of lecturer's expectations and frame of reference; and
- Increased levels of success in high-risk courses.

Institutional Outcomes Supplemental instruction results in:

- Improved retention and revenue savings;
- Improved teaching support for faculty;
- More cost-effective learning assistance services; and
- Opportunities for core rigorous programme evaluation.

## **20. THE SI SUPERVISOR/COORDINATOR**

The SI facilitators are combined in a team with similar goals. The members of the team is initially held responsible for reporting to a supervisor/ coordinator. The latter person could be from any faculty, but should be someone for whom SI is a priority, who is enthusiastic about SI, and who is capable of handling the management thereof. This person reports to the Deputy Vice-Chancellor: Academic, as well as on a quarterly basis to the Deans of the faculties regarding the progress of learners in the various faculties.

The Supervisor is also responsible for the training of SI leaders. As the administration and supervision of the total SI programme is time-consuming, such a person should have fewer lecturing hours than the ordinary lecturer if he/she is an academic member of staff.

## 21. CONCLUSION

The above is a summary of what SI entails and how it was installed at the former Technikon Free State, starting in 1993. It is believed that it is a concept worth its while. At the beginning of the document it is stated that admission requirements can be made more flexible. SI was considered as an alternative, however, in that it would ensure that qualifying standards would not have to be made more flexible to accommodate individual students. Today, in 2009, in a new higher education dispensation of open access, SI still seems to be of relevance. When we compare the authors of the previous decade, we find that what they had to say about SI then, still remains relevant to the situation at the CUT:

*"Properly handled academic support avoids deficit perception of students, liberates them to contribute to the transformation of their own education, that of our universities and that of our society"*(Hunter, 1989:77).

The deliberate involvement of the student - whether weak or talented - is the core around which SI (and the proven success thereof!) revolves.

*"Tell me, and I forget. Show me, and I remember. Involve me, and I understand."* Ancient Chinese proverb

## 22. REFERENCES

AGAR, D. 1992. Evaluating academic support programmes: What have we learned in the last six years? *SA Journal of Education*, 12(2): 93-100.

BAIRD, N. 2006. Unpublished presentation on instructional design at the Central University of Technology, Free State.

BLANC, RA; DE BUHR, LE & MARTIN, DC. 1983. Breaking the attrition cycle. *Journal of Higher Education*, 54(1): 80-90.

BRIMER, A. 1989. On adjusting our academic practice to South African contexts. *Bulletin for Academic Staff*. Durban: University of Durban Westville, pp 61-68.

ESTERHUIZEN, HL. 2006. Unpublished handouts on supplemental instruction. Central University of Technology, Free State.

GREYLING, JJC. 1989. Opening address at the Academic Support for Students: Possibilities for UDW Symposium, University of Durban-Westville. *Bulletin for Academic Staff*. Durban: University of Durban-Westville, pp 5-7.

HUNTER, P. 1989. The transforming of learning: The evolution of an academic support programme. *South African Journal of Higher Education*, 3(2): 68-77.

MARTIN, DC; BLANC, RA & DE BUHR, LE. 1983. *Supplemental instruction: A model for student academic support*. Kansas City: University of Missouri.

MARTIN, DC. 1992. *Supplemental instruction*. Letter of information to Prof. AH Strydom, BAS, UOFS.

MORTIMER, KP. 1984. *Involvement in learning: Realizing the potential of American higher education*. Report presented to the Secretary of Education and the Director of the National Institute of Education of the USA.

PROSPECTUS 2006/7. Central University of Technology, Free State.

PETERS, CB. 1990. Rescue the perishing: A new approach to supplemental instruction. *New Directions for Teaching and Learning*, 42: 59-68.

SCOTT, J. 1984. ASP selection and the issue of compulsion. *Aspects*, 5: 13-14.

SHEPHERD, NW. 1989. Academic support in the Faculty of Education. *Bulletin for Academic Staff*. Durban: University of Durban-Westville, pp 61-68.



WOLFE, RT. 1987. The supplemental instruction program: Developing learning and thinking skills. *Journal of Reading*, 5: 223-232.

**CONTEMPORARY ELECTRONIC REFERENCES:**

Adri Beyleveldt [gndkaab.md@mail.uovs.ac.za](mailto:gndkaab.md@mail.uovs.ac.za)

<http://www.insidehighered.com/news/2005/06/16/cc>

<http://www.centralfloridafuture.com/media/paper174/news/2006/01/19/News/Pod-People-1477191.shtml?norewrite200603161013&sourcedomain=www.centralfloridafuture.com>

<http://www.library.ohiou.edu/newstudents/blog/?p=3>

David Miller is joined by Supplemental Instruction leader Joshua Fairchild, ...  
[http://podcastalley.com/podcast\\_details.php?pod\\_id=14131](http://podcastalley.com/podcast_details.php?pod_id=14131)

About Supplemental Instruction (SI) · Miller's Evaluations of Student ...  
<http://web.uconn.edu/millerd/iCube.html>

Students can also use podcasts to find supplemental instruction for their ...  
<http://www.ucfnews.com/home/news/2006/01/19/News/Pod-People-1477191.shtml>

(The Ask the Techies video podcast was recently recognized by the New Media Consortium, ... Supplemental Instruction: Spring Schedule and Staff Changes ...  
[http://www.ohiou.edu/aac/AAC\\_QUARTERLY\\_WI06.HTM](http://www.ohiou.edu/aac/AAC_QUARTERLY_WI06.HTM)