

Supplemental Instruction National Centre

Empowerment for tomorrow



Nelson Mandela
Metropolitan
University

for tomorrow

Port Elizabeth & George - South Africa

Towards an understanding of SI as a student academic development community of practice

Liesl Smith

What is SI?

- Supplemental Instruction
- Supplemental to the instruction
- Space to clarify, discuss, engage and practice
- Cannot replace lectures
- Cannot do extra to what has been covered in lecture (no extra work)
- Not part of assessment credit for the course
- Peer facilitated fixed/scheduled weekly sessions

Origins of SI

- As a result of the shift from private institution to public institution in 1963 (University of Missouri –Kansas City)
- Challenges with current support (Dumping ground, remedial, expensive)
- Wanted a programme that would:
 - not lower standards
 - prompt independent learning
 - not add a lot to faculty workload
 - non-remedial
- Pilot in Dentistry in 1973
- 9 year later in 1981 certification by US Department Education as Exemplary Educational Programme

SI Today and International

- 43 Years at UMKC - International Centre
- More than 800 institutions internationally
- UMKC (Copyright, Intellectual Property Rights)
- National Centres MoU's – promote pure model, quality assurance, flagship programmes, train-the-trainer concept)
- 6 National Centres - USA, UK(2), SA(2), Sweden(2), Australia(2), Canada(2)
- UK and Australia called PASS (UK Certified Trainer MBE in 2016; UK Universities and Australia Universities and Schools)
- SA (Universities, Colleges, School pilot in 2017)
- Sweden (University and School)
- Canada (University)

NMMU SI History

- SI started at the University of Port Elizabeth (UPE) in 1993
- Reasons – Vehicle for transformation; Non-remedial approach to retention; Cost effective)
- UPE merged with Port Elizabeth Technikon and Vista University Port Elizabeth to form Nelson Mandela Metropolitan University
- Neither of the other institutions had SI programmes at the time of the merger, but had small peer learning programmes.
- SI was adopted as the programme of choice and had to shift from institution with approximately 7 500 students to approximately 20 000 students with less staff.
- NMMU has a 23 year history of running pure model SI and hosting the SI National Centre for Southern Africa
- 147 SI Leaders, 154 Courses, 5 Campuses, 2 Staff

SI Features

- Student Academic Development Programme
- Focus on high-risk courses not high-risk students (non-remedial)
- Student driven
- Voluntary Attendance
- Comprehensive, detailed, structured model
- Peer collaborative learning
- Integrates what with how (content and strategies)
- Module (course) specific
- Endorsed by institution and departments
- Trained facilitators
- Cost effective

What's in a name...

- 10 model requirements to be called ***Supplemental Instruction***
 1. Peer facilitated sessions
 2. SI Leader serves as role model
 3. Sessions Integrate content and learning skills
 4. SI Leader attends targeted class lectures
 5. SI Leader receives SI Training
 6. Programme is supervised
 7. Departments support the programme
 8. Regularly scheduled sessions
 9. Programme evaluation
 10. SI targets courses and never students

Student perceptions of SI benefits

- Improves academic performance
- Helps to understand content
- Test/exam preparation and feedback
- Develops confidence in English
- Increases interest in the course
- Helps to adapt to large classes
- Develops self confidence
- A forum to meet new friends
- Helps adjust to university life
- Creates a sense of belonging

Challenges

- Adhering to model under pressure
- Lecturers may not know who attends SI (non-remedial, compulsory, punitive tool)
- SI expected to be panacea to solve all “ills”
- Programme was not designed for severely at risk students – cannot address low numeracy or literacy scores
- Compulsory SI, but non-compulsory lectures
- One strategy rather than the sole strategy towards success
- Student facilitator expected to address what some lecturers cannot address – outcome SI not successful
- SI expected to step in gap when faculty budgets for support are less – focus on funding rather than programme aims

2015 NMMU SI Contact Data

- 1 Contact = 1 hour of SI Attendance

Year	SI Attendance Contacts
2006	8 914
2007	9 394
2008	12 218
2009	15 582
2010	22 841
2011	25 147
2012	29 300
2013	33 401
2014	43 365
2015	50 502

2015 NMMU SI Module Pass Rate Data

- In 81 of the 110 modules (73, 6 %) the pass rate increased from 2014 to 2015

Pass rate increase %	Number of modules
0 – 4.99%	22
5 – 9.99%	17
10 – 14.99%	10
15 – 19.99%	10
20 – 24.99%	9
25 – 29.99%	3
30 – 34.99%	7
35 – 39.99%	0
40 – 44.99%	2
45 – 49.99%	1

2015 NMMU New SI Module Pass Rates

- In 12 of the 14 new modules (85,7 %) the pass rate increased from 2014 to 2015.

Pass rate increase %	Number of modules
0 – 4.99%	0
5 – 9.99%	3
10 – 14.99%	1
15 – 19.99%	1
20 – 24.99%	2
25 – 29.99%	0
30 – 34.99%	3
35 – 39.99%	0
40 – 44.99%	1
45 – 49.99%	1

Using SI Data

- Comparison of SI Attendees vs Non-attendees
- SI attendance and individual academic performance
- Target group attendance analysis
- Financial viability
- Trojan horse – Is SI the right strategy for the course?
- Challenge – profiling students (predictor of academic performance)

Impact beyond academic results

- Qualitative research
- Student benefits
- SI Leader benefits
- Institutional benefits

SI Theoretical Principles

Theory	Theorists	Theoretical Principles
Social Interdependence Theory	Geertz Vygotsky Bakhtin Doyle Erickson	<ul style="list-style-type: none"> ◆ Social interaction causes conflict that stimulates cognitive development ◆ Knowledge is actively built by learners, working together cooperatively and interdependently ◆ Knowledge is produced rather than distributed ◆ Knowledge and understanding are not constructed individually but in dialogue with others, and facts are “true” in that social context ◆ What learners do in collaboration today, they will be able to do independently tomorrow
Interpretive / Critical Theory	Freire Apple Kozol Marx	<ul style="list-style-type: none"> ◆ Good pedagogy empowers learners to take control of their own learning experience ◆ Education is a political process in that it involves issues related to power and control ◆ Learning should have as its goal liberation rather than domination ◆ Educational practices should seek to overcome the learner’s “culture of silence”

SI Theoretical Principles

Theory	Theorists	Theoretical Principles
Behavioural Learning Theory	Watson Skinner Bandura Ausubel Herbart	<ul style="list-style-type: none">◆ Behaviour is based on positive reinforcement for desirable behaviour◆ Break down complex tasks into their components◆ Emphasis is on cause and effect relationships (process to product)◆ Modeling is important
Cognitive Development Theory	Brunner Piaget Flower & Hayes	<ul style="list-style-type: none">◆ Mental Structures develop gradually as learning is constructed through organisation and integration of new information and experiences◆ As learners assimilate knowledge, they think differently about a concept◆ Learners use prior knowledge when learning new knowledge

Methodology

- Questionnaire - to assess initial awareness of SI leaders regarding the concept of self-efficacy and their role in building self-efficacy during SI sessions. (Pre-workshop)
- SI Leader questionnaire – that focused on a practical application of Bandura’s four areas and a clear understanding of the concept of self-efficacy. (Beginning of workshop)
- Attendee questionnaire - completed during SI sessions in order to gain the students’ perceptions regarding the SI leaders’ effectiveness in building self-efficacy during the session. (Pre-workshop)
- Workshop - introducing SI leaders to the concept and development of self-efficacy during their SI sessions
- Post-workshop questionnaire on awareness of self-efficacy
- Mixed method

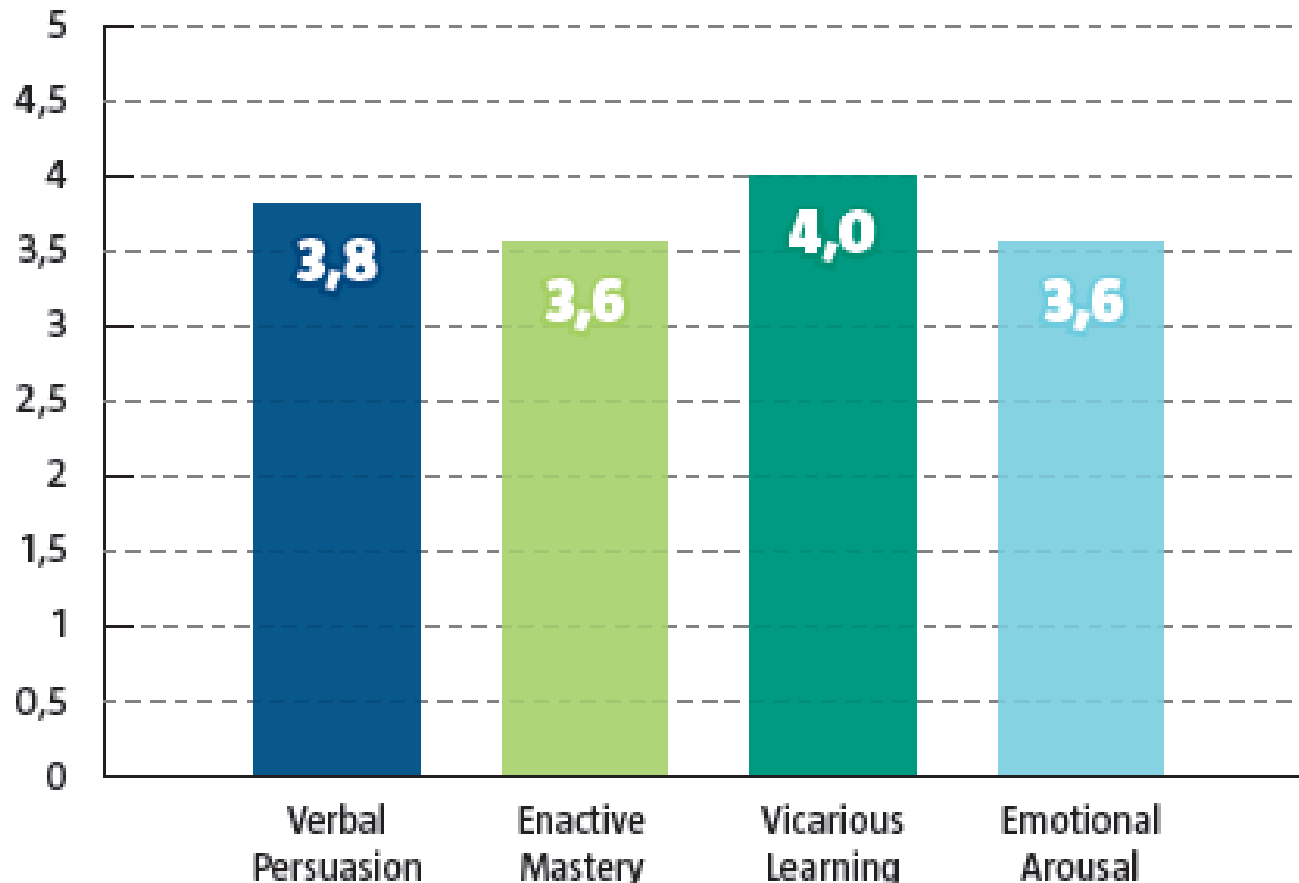
Bandura's theory



- **Verbal Persuasion** – Suggesting, encouraging and convincing someone that they possess the skills to become successful. Positive feedback, acknowledgement
- **Enactive Mastery** – Gaining relevant experience with the task or job. Believe they can do it again once successful. Breaking task into smaller sections, etc.
- **Vicarious experience** – Modelling. When you see someone else equal to you succeed in the task
- **Emotional Arousal** – Energised state (“psyched up”) to get to a place of relaxation and better performance

Results

- The pre-workshop questionnaire average of responses from SI leaders (using the following scale: 5 = strongly agree; 4 = agree; 3 = neutral; 2 = disagree; 1 = strongly disagree)



Results

- The results indicate that they do believe in varying degrees in developing attendees' self-efficacy during sessions using Bandura's four areas.
- However the pre-workshop questionnaire results of their understanding of the concept of self-efficacy and their application thereof indicated a limited understanding

	BEFORE WORKSHOP
I have a clear understanding of the construct of self-efficacy	2.7/5
I have a clear understanding of how to develop a strong sense of self-efficacy in attendees during my SI sessions	2.5/5

Results

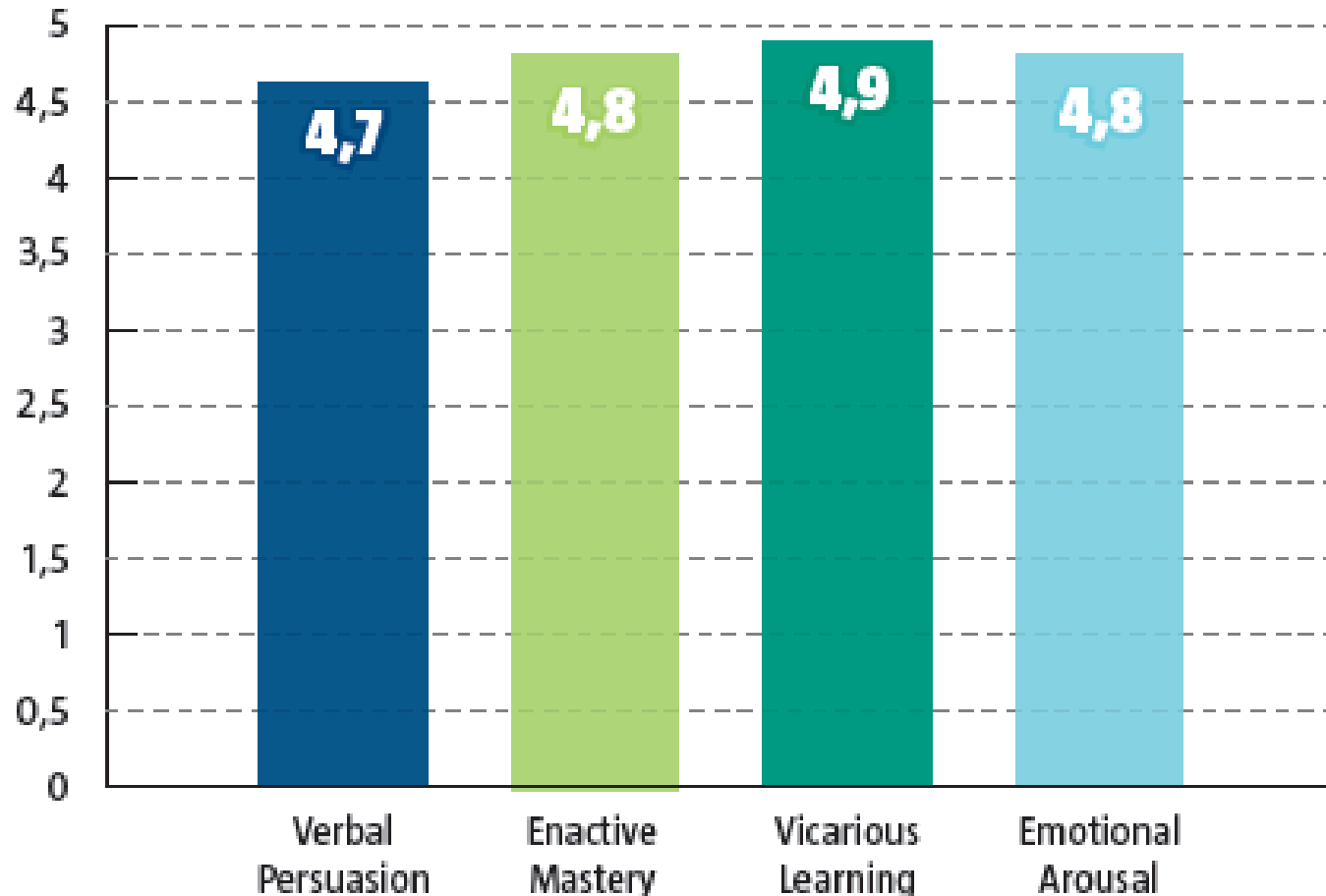
- Post-workshop SI Leader questionnaire results

	BEFORE WORKSHOP	AFTER WORKSHOP
I have a clear understanding of the construct of self-efficacy	2.7/5	4.8/5
I have a clear understanding of how to develop a strong sense of self-efficacy in attendees during my SI sessions	2.5/5	4.8/5

- Pre-workshop the SI leaders had a limited understanding of the construct self-efficacy and how to develop it during their SI sessions. As indicated above, their understanding and development of self-efficacy improved sufficiently after the workshop.

Results

- The average response of SI attendees (using the following scale: 5 = strongly agree; 4 = agree; 3 = neutral; 2 = disagree; 1 = strongly disagree)



Conclusion

- Questionnaire results indicated that SI leaders contribute to the development of self-efficacy of attendees during their SI sessions
- This is accounted for by the response of SI attendees who indicated that the SI leaders are actively contributing to the development of their self-efficacy during SI sessions.
- However SI leaders' initial awareness of student self-efficacy development was covert, indirect and unaware as seen in the results obtained pre-workshop on their understanding of self-efficacy
- A workshop training session introducing the SI leaders to self-efficacy theory and its application increased their awareness of what self-efficacy entails and provided guidance in using techniques to develop it during SI sessions.

Conclusion

- The pure model of SI indeed enables self-efficacy development of SI attendees as intended by the original design even without purposefully training the theory.
- The study confirmed that at least one of the theoretical principles that informed the design of SI 43 years ago still underpins how SI functions today even in a different educational system and country.

Resources

- UMKC SI International Journal
- Australasian Journal for Peer Learning

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