REDRESS FOR ACADEMIC SUCCESS: POSSIBLE ‘LESSONS’ FOR UNIVERSITY SUPPORT PROGRAMMES FROM A HIGH SCHOOL LITERACY AND LEARNING INTERVENTION

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ABSTRACT
This article aims to contribute to ongoing research and debate in the area of underpreparedness of university students, with particular reference to the literacy skills and cognitive strategies needed to cope with the demands of academic studies. After a review of the literature in the field, the authors present the findings from a case study of a cognitive learning and academic literacy support programme offered to secondary school learners. They argue that this programme could also be of value
to underprepared university students. The programme, called Harcombe’s (2001) Integrated Approach to Literacy Instruction (IATLI), was used with a purposively selected group of learners who were struggling with their studies. The authors argue further that a mediated learning support programme offered to secondary school learners that addresses both literacy and cognitive learning strategies, could be of value to underprepared university students.

Keywords: cognitive learning strategies, disadvantaged, literacy skills, mediation, scaffolding, underprepared students, socioeconomic, integrated, comprehension

INTRODUCTION

This article reports and reflects on an intervention to support the literacy and learning skills development of a group of underprepared Grade 8 learners in a suburban co-educational high school.

This intervention was seen as necessary to counter the high drop-out rate and underachievement of high school learners who are at a disadvantage in their learning environment as a result of cognitive barriers to learning. Regardless of the systemic causes of these barriers, be they as a result of socio-economic factors, emotional issues or internal cognitive factors, all learners in South Africa, at all levels, have a right to access quality education.

Harcombe’s (2001) Integrated Approach to Literacy Instruction (IATLI) programme was introduced into an already developed school education system. The eight learners who participated voluntarily in the course were selected because evidence suggested that they were at risk of dropping out of the schooling system. Evidence from teachers’ academic records, psycho-educational testing and parents’ concerns all indicated that these children had both cognitive barriers to learning and underdeveloped literacy skills. Each learner was provided with one hour of one-on-one learning support each week for a six-month period where the methodology and learning tools of the IATLI programme were implemented.

In this article, we argue that this intervention could be replicated in other settings. Before turning to an account of a case study of the intervention, we firstly describe the background of the IATLI programme and then we review studies relevant to the argument that we make.

AN ACCOUNT OF THE HISTORICAL BACKGROUND OF THE IATLI PROGRAMME

The IATLI is an established programme that has been utilised in the Learning Support Clinic at the University of the Witwatersrand to assist with the remediation of literacy related barriers to learning identified in children and teenagers who had been referred to the clinic for academic support. The learning support specialists
(LSSs) functioned as part of an interdisciplinary team of specialists to assist, where necessary, with providing relevant academic support to learners who attended the clinic. The IATLI programme, also known as the Cognitive Approach to Literacy Instruction (CATLI), has its roots in the Constructivist theories of Vygotsky, and when mediated by the LSS, was designed to simultaneously develop the learners’ literacy skills and cognitive learning strategies through an interest-based, scaffolding process where the mediator developed a ‘goodness of fit’ relationship with the learner. The current study examined the effect of taking the IATLI programme out of the clinical settings and using it in a school setting with purposively selected, underprepared high school learners.

BARRIERS TO SUCCESS

It is concerning that the percentage of first-year students in South Africa who do not eventually graduate from their chosen degree courses is alarmingly high. Of relevance to the article is the finding from an investigative study on a cohort of university students in South Africa that the greatest attrition rate occurred at the end of the first year of study (29% of first-time entering students). Also, only 30 per cent of the total first-time student intake had graduated after a five-year period (Scott, Yeld and Hendry 2007). This situation persists today and represents a crisis for higher education and ultimately the skills base of the country. There is still much to be learned about the literacy skills of underprepared post-secondary school students. Perin’s (2013) review of studies published between 2000 and 2012 was conducted in order to describe the literacy skills of underprepared post-secondary students and to identify teaching approaches designed to develop their ‘skills’ to the required university level. The studies pinpointed numerous weak areas in students’ skills, but Perin (2013) found that certain reading and writing processes had been overlooked in the research reviewed. This finding makes studies of the type described here all the more important, as finding effective means to provide solutions to the reading and writing barriers associated with underprepared students is what is needed.

An aspect that cannot be ignored in the South African higher education sector is that a large percentage of students enrolled in degree and diploma courses come from extremely disadvantaged backgrounds. This situation also needs to be considered when assessing the nature of underpreparedness amongst university students. Bradbury and Miller (2011) conducted a comparative study between failing university students from disadvantaged backgrounds (DS) and failing students from advantaged circumstances (AS). Their study illustrated how these two categories of students are failing for different reasons and that they are distinguished by a particular kind of inappropriate engagement with the questioning process that underpins university tasks.

Bradbury and Miller (2011) found that both AS and DS categories of students fail because of totally inappropriate methods of engagement with relational-type
questions and conceptual types of questions related to tasks. Both groups fare better with the easier factual types of questions. Of particular interest was that AS failing students fared better on both relational and conceptual types of questions than even underprivileged passing students. They suggested that most AS students who were failing were doing so as a result of a lack of focus on their studies. What became evident from their study was that failing students are not failing as a result of a lack of aptitude, but rather as a result of a systemic failure of the education system to equip learners with the implicit rules of enquiry and knowledge construction. This situation is exacerbated amongst students who come from disadvantaged circumstances.

The task of educational interventions is, therefore, to bridge this disjuncture between the aptitude of the DS and their lack of relevant learning and literacy skills. Effective mediation of the specific demands of academic literacy must not only take cognisance of students’ failure to engage appropriately with typical higher order questions associated with university curricula, but must also address the requisite cognitive functions that are needed for successful task engagement (Bradbury and Miller 2011).

Another relevant study, conducted by Zulu (2011), investigated a collaborative empowerment programme focused on mediating basic research skills to first-year university students from under-resourced (historically disadvantaged) black, rural schools. This collaborative and inclusive programme focused on a ‘learning by doing’ approach which empowered students in various literacy skills, including information literacy, reading, language skills, critical thinking, reasoning, technical skills (such as writing a problem statement), literature review development, writing a report, listening and communication skills and formulating research questions. Zulu (2011) found that this programme equipped DS with valuable cognitive, affective and literary skills which they otherwise would not have acquired.

The mediation of literacy development intervention programmes similar to, and including the IATLI, that are supported by the subsequent mediation of cognitive learning strategies to students, needs to be taken seriously. Such programmes should be considered as possible integrated interventions to address the problem of inappropriate engagement with the tasks presented at university courses. The reality is that many current students who are failing their courses, as well as those coming into higher education in the foreseeable future, will present with cognitive and socioeconomic barriers to learning and will require appropriate, inclusive support to equip them with the rules of enquiry and knowledge construction if they are to graduate eventually.

LEARNING SUPPORT INTERVENTIONS

Students entering tertiary studies, who are in need of developmental coursework in reading, basic arithmetic or a combination of subjects, are at a significantly high risk of not achieving their academic goals (Wilmer 2008). Internationally and in the South
African context, pre-tertiary and tertiary integrated intervention programmes which target learning strategy and literacy skill development in underperforming students have proven to be effective. The reversal of a drop-out trend in underprepared university students after a summer school mediated intervention programme (Kallison and Stader 2012); the positive outcome of an ‘engaged learning strategy’ scaffolding intervention on students’ ability to learn (Brussow and Wilkinson 2010); the success of problem solving courses integrated into a university curriculum (Loji 2012); and the success of a reading strategies and comprehension skills development programme to underprepared students (Dryer and Nel 2003) all support this.

The ability to express ideas in writing appears to be one of the most pervasive barriers for students with learning difficulties (Abreu-Ellis, Ellis and Hayes 2009). In addition, the main challenge in a university teaching context is to manage the gap between conceptual knowledge and contextually specific meanings, and through careful academic planning to introduce students to new content and the implicit and explicit ways of ordering and structuring knowledge (Craig 1989; 1996; 2001).

Of relevance to the article is that barriers to learning identified for underprepared university students are the primary focus for remediation in Feuerstein’s (1980) Mediated Learning Experience (MLE). Concepts of the MLE, including the relationship between the mediator and the learner and the learner’s internalisation of cognitive learning strategies, subsequently support and underpin the IATLI programme mediated to high school learners to improve their learning strategies and literacy skills, the results of which are described here.

A failure to provide students with appropriate learning support at the time of identifying a problem can promote potentially destructive development of learned helplessness and passivity (being passive, submissive or inactive). It takes significant time, energy and effort for students to internalise the techniques and learning strategies related to their learning difficulty. The task is compounded when they have to face the daunting demands of a university curriculum as well as support interventions. It would make far greater sense for at-risk students to have already learned the necessary skill-set prior to them taking on the demands of a university course. Abreu-Ellis and others (2009) argue that identifying and responding to high school learners’ learning difficulties will allow for sufficient time to address these difficulties before these learners enter universities.

Higher education institutions (HEIs) are faced with the formidable challenge of preparing students for highly challenging working environments, which make the need for developing higher order thinking skills more important than ever before (Swartz 2000). We argue that the mediation of learning skills associated with the MLE, through the implementation of the IATLI programme, can provide students with the necessary skills for lifelong learning. Our argument is supported in the literature describing Feuerstein’s theories of cognitive modifiability which suggest that any person’s cognitive structures are infinitely modifiable regardless
of their age (Feuerstein and Feuerstein 1994). Research into the implementation of Feuerstein’s MLE has shown that structured interventions which address cognitive learning skill development significantly improve and enhance a learner’s ability to achieve academically. One of the key premises of the mediation and subsequent internalisation of learning strategies and learning methods tailored to a student’s personal cognitive learning style is that the skills learned are transferable into other domains. Feuerstein’s Cognitive Modifiability Theory describes how a person’s thinking and learning ability are not fixed entities so that a mediated learning experience can significantly improve his/her metacognitive function.

The time necessary for an effective mediation process to happen and the subsequent learning skills to be acquired also need consideration. It is not sufficient if the intervention is only an ‘add-on’ or a short course. Effective learning strategy and literacy skill internalisation by a person takes significant time and needs to be integral and relevant to his/her learning process (Nell et al. 2006). The current study was a six-month intervention, and continued for some learners into their following academic year. The findings suggest that the issues related to students’ preparedness for higher education must begin in school if the pipeline from school to university is to be strengthened.

But what do we do for students who are already enrolled in the first year of their tertiary studies? Many students are arriving at university to begin their studies underprepared by their high school education. Although it can be daunting for university students to contemplate an intensive support programme in addition to their heavy course loads, research has shown that learner-support programmes running concurrently or integrally with university programmes have been successful (Abreu-Ellis et al. 2009). Zawazia and Gerber (1993) in their research into the effects of explicit, effective instruction as part of a learning support programme on schema training, word-count and problem solving strategies, showed positive results of improved overall performance and grade attainment for university students at an institution in the United States (US). Similarly, Massengill’s (2003) study in the US found that a mediated, guided reading programme, as an instructional framework that applies similar techniques to those used in the IATLI intervention, was successful in improving adults’ reading proficiency.

The mediated support could be initiated either as a part of a bridging programme for university students, or as an integral support structure for students at the beginning of their undergraduate studies. Another study with high school teenagers in special education by Presseisien and Kozulin (1992) found that when learners are exposed to mediated learning situations, their non-verbal measures of intelligence and performance in language-based tests improve. Recognising the importance of mediated learning could cause the lecturer’s role to shift from provider of knowledge to that of ‘learning facilitator’ to assist with the student becoming self-regulated, independent and creative (Presseisien and Kozulin 1992).
According to Feuerstein and Feuerstein (1994), there is no cut-off age where mediation of learning skills becomes less effective in providing students with the necessary tools to cope with educational challenges. In South Africa and internationally, literacy-based learning support programmes at universities have been shown to be necessary and successful. The data indicates retention and graduation rates improve when underprepared or at-risk students are equipped with research and literacy skills (Salisbury and Sheridan 2011) and learning skills (Hlalele 2010) and when they engage in problem-based learning (Burch et al. 2007). These studies suggest that the mediated IATLI programme described in the article could be reproduced with older students after they have completed their school education.

THE IATLI PROGRAMME APPLIED TO STUDENTS FROM DISADVANTAGED COMMUNITIES WITH ASSOCIATED BARRIERS TO LEARNING

As the educational benefits of applying the IATLI programme to students in order to facilitate the process of literacy skill acquisition have not been fully researched, it is important to document and evaluate the impacts of such interventions. A study by McMahon-Panther (2008) into the effectiveness of applying the CATLI (the alternative name for the IATLI) in improving literacy learning in a South African university setting is worth noting. In McMahon-Panther’s study the IATLI programme was mediated to mostly disadvantaged students at a South African university’s learning support clinic by trainee LSSs. The majority of the trainee LSSs reported that the mediation of the IATLI learning support techniques resulted in a directly observable development of literacy skills in the students who participated.

Another study by Reggie (2006) found that the application of the CATLI to five deaf learners from low to middle income backgrounds, in a school catering for deaf children in South Africa, showed great promise as a literacy instructional method for learners with special educational needs in classroom settings. The findings from the two studies discussed here indicate that the IATLI programme has proven to be an effective literacy instructional tool for both disadvantaged students and those with significant barriers to learning associated with cognitive processing. Both students from disadvantaged communities and those with significant barriers to learning are enrolled in local universities and require the necessary support to provide them with the best possible opportunity to succeed with their studies.

THE MEDIATED LEARNING EXPERIENCE AS AN INTEGRAL PART OF THE IATLI PROGRAMME

Feuerstein’s (1980) MLE provides a set of cognitive learning tools that are intended to be mediated to the student in one-on-one sessions between the learner and the
mediator. According to Skuy (1996), Feuerstein’s cognitive learning tools include the following: intentionality and reciprocity, meaning, transcendence, competence, sharing, individuation, goal-setting, challenge and self-change.

Many studies have investigated the MLE. Ben-Hur (2006) demonstrated, through his research with students in Canada, that the students showed one year’s advancement across a range of learning areas and cognitive learning skills seven months after being exposed to Feuerstein’s MLE and Instrumental Enrichment (IE). Engelbrecht, Kriegler and Booysen (1996) refer to a cross-section of studies worldwide that have illustrated the positive effect of Feuerstein’s programmes: in the US with learning disabled youth (Messerer et al. 1988); in Britain with students who have special educational needs (Shayer and Beasley 1987); and in South Africa with gifted adolescents and pre-service teachers (Skuy et al. 1993). The MLE provides a theoretical framework for the meaning-driven aspect of the IATLI programme. A study by Skuy et al. (1993) is of particular significance as the research clearly showed that the mediation of the MLE learning strategies significantly improved the academic ability of trainee teachers in a university.

Another study conducted by Osman et al. (2000) assessed the effectiveness of Feuerstein’s IE and Edward de Bono’s Cognitive Research Trust (CoRT) thinking skill programmes in enhancing the creative thinking ability and attitudes of pre-service teachers in a disadvantaged South African community. Their findings indicated that after intervention the experimental groups were all more open to autonomy and divergence with their pupils than the control group who were not exposed to the support programmes. Of significance is that the students who were exposed to Feuerstein’s IE programme improved consistently on their tasks after the mediation on the measures of creative attitudes. This illustrates that the mediation of cognitive learning strategies can be effective in modifying the learning skills of the tertiary students and promoting the students to internalise the desired outcomes of a teaching training curriculum.

Authentic literacy instruction programmes, applied in the classroom, aim to replicate and reflect literacy activities that occur in people’s lives, outside of school and in other contexts (Nell et al.2006). Israel, Maynard and Williamson (2013) found that the promotion and implementation of literacy-embedded, authentic instruction in science, technology, engineering and mathematics courses for students with learning difficulties resulted in success for these students. The research conducted with the IATLI programme was implemented in a real, authentic setting and directly addressed the urgent need of finding solutions to literacy and learning difficulties of learners who were underachieving.

RESEARCH DESIGN

The research reported on was a case study of the IATLI intervention. McMillan and Schumacher (2010) describe a case study as a bounded system, or a case in which
the data from multiple sources is gathered over a period of time in a single setting – in the case under study it was a suburban high school. This case study investigated the effect of mediating the IATLI programme to a selected group of underprepared learners within the school structures in order to determine the programme’s impact on their ability to become effective and successful learners.

**METHOD**

A sequential mixed method approach to data collection was used on a purposively selected sample and the data was analysed using a triangulation process to increase the validity of the findings (Cohen and Manion 1989). As the research project was a formative and summative intervention evaluation into the effectiveness of a programme’s implementation over a period of time, it was seen as necessary to collect pre- and post-intervention data, as well as forms of data that documented the process of the programme’s implementation and that represented opinions from relevant stakeholders.

Standardised pre-testing using appropriate educational tests took place with the participants in order to provide baseline scores of literacy ability. At the conclusion of the intervention process the tests were re-administered to provide quantitative data for use in evaluating improvements in various categories of literacy skill and cognitive processing.

The standardised educational tests used for the pre- and post-IATLI programme evaluation were the Stanford Diagnostic Reading Tests (SDRT). The primary purpose of the testing process was to identify learners’ cognitive literacy strengths and weaknesses. Sub-test one, the ‘Auditory Vocabulary Test’, provided information about each learner’s language competence and vocabulary without requiring them to read sentences. The ‘Phonetic Analysis Test’, which measured their ability to interpret and recognise common and variant sounds in written words, is concerned with the relationships between sounds and letters. The third test, the ‘Reading Comprehension Test’, evaluated the learners’ ability to read and interpret both literal and inferential comprehension measured by short paragraphs.

At the conclusion of the research project, the 12 teachers who were directly involved in the academic programme with the eight learners participated voluntarily in a semi-structured interview process that investigated their considerations of the programme’s effectiveness in developing literacy skills and cognitive learning strategies. Some of the questions the teachers were asked included open-ended questions regarding observable changes in the learners in the following areas: learner confidence specifically related to academic demands, their ability to cope with academic tasks, evidence of use of cognitive learning tools, evidence of improved literacy ability and changes in their interactions with their peers in group work contexts.
RESULTS

The main question investigated in the study was whether the mediated IATLI programme could improve the literacy ability of the participating learners. The data presented and discussed comes from two of the sources in the study: the analysis of pre- and post-testing scores and the qualitative evidence from the thematic analysis of the semi-structured teacher interviews.

SDRT pre- and post-test score analysis for the three sub-tests applied for comparison

Phonetic Analysis Test

The SDRT interpretation manual (1986) indicates that below grade-level achievement in the Phonetic Analysis Test means the learner has not internalised word decoding skills and would subsequently have vocabulary difficulties with verbal concepts, poor understanding of idiomatic expressions, multiple-meaning words and word parts. The scores achieved by the eight learners in the study on the pre-test and post-test are presented in Table 1.

<table>
<thead>
<tr>
<th>No.</th>
<th>Participant</th>
<th>Phonetic analysis pre-test scores</th>
<th>Phonetic analysis post-test scores</th>
<th>Pre-test grade level</th>
<th>Post-test grade level</th>
<th>Difference between pre- and post-test scores</th>
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<tr>
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<td>1</td>
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Any significant positive change in the comparative scores between the pre- and post-test of the Phonetic Analysis Test indicated that most learners’ ability to successively break down the graphemes, phonemes and morphemes of words correctly had improved. Pre-test scores of the SDRT were used more for diagnostic purposes to help focus the uniquely tailored IATLI sessions, while the post-testing processes were more for summative comparative purposes.

The data displayed in Table 1 indicates that four of the learners improved their scores between the pre- and post-tests. Two learners’ scores remained constant and for two their post-test scores were weaker. Although these post-test scores indicate mixed results, and are therefore not conclusive in reflecting overall success, half of the cohort showed a marked improvement and were functioning at, or above the grade level at the conclusion of the intervention process. Improvement in phonetic ability can be difficult to develop in some learners as their barriers to learning could be associated with an auditory processing concern or with a hearing ability.

Reading Comprehension Test

Improvement in a learner’s reading comprehension ability, that also includes practical learning skills (such as mind mapping), tracking, deducing and summation techniques, would assist the learner to succeed with the increased reading, writing, summarising and comprehension demands commonly associated with secondary school academic programmes. The development of a learner’s ability to interpret, summarise and reflect on literal and inferential comprehension questions is essential to academic progress.

Table 2 shows the pre- and post-test scores of the Reading Comprehension Test for the purposively selected participants. With the exceptions of P3 and P8 all the learners achieved a positive improvement in their scores between the pre- and the post-tests. The results of P1 and P2 reflected a particularly impressive positive improvement in their post-test scores. All the learners were operating at or above their grade level after the post-test was administered.
Table 2: Reading Comprehension Test score analysis

<table>
<thead>
<tr>
<th>No.</th>
<th>Participant</th>
<th>Reading comprehension pre-test scores</th>
<th>Reading comprehension post-test scores</th>
<th>Pre-test grade level</th>
<th>Post-test grade level</th>
<th>Difference between pre- and post-test scores</th>
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Competence in reading comprehension requires an integrated set of literacy skills that includes a developed and internalised sight-word pool; the ability to interpret meaning from text; self-regulation; effective tracking ability; transcendence and bridging of unknown concepts with known concepts in the mental schema; spontaneous summative ability; elaboration of cognitive categories; and the ability to use inferential-hypothetical thinking (Skuy 1996). These integrated sets of cognitive literacy skills are fundamental to academic success at a school level and similarly vital for effective functioning at a university level, as mastery of comprehension skills is required in order to be effective at working with higher order questions that require inferential, reflective and critical thinking skills.

Auditory Vocabulary Test

Learners with auditory vocabulary processing difficulties find it extremely difficult to achieve their potential in most mainstream secondary school environments, particularly once they reach the senior grades. A possible reason for this is that in most formal lessons the format of teaching relies heavily on verbally presented vocabulary, and many of the content-based subjects rely on proficiency in understanding auditory cues and in communicating orally by presenting speeches and answering questions.
This also holds true for university courses. Poor auditory vocabulary ability also has a direct link to a low sight-word pool and a limited understanding of verbal concepts.

Many learners with a history of cognitive learning barriers develop a negative attitude to reading as a result of negative environmental stimuli or intrapersonal factors including self-doubt and low self-esteem. This is likely to contribute to their auditory vocabulary ability being below their age and grade level. Poor auditory processing ability can be attributed to many internal and external factors, including: an undiagnosed hearing difficulty; English as a second language; a lack of a stimulating environment during the formative years where language development is critical; or cognitive processing difficulties that include weaknesses in the cognitive learning strategies of effective learners as described by Feuerstein (1980). The scores of learners in the pre- and post-tests of the Auditory Vocabulary Test are presented in Table 3.

**Table 3: Auditory Vocabulary Test score analysis**

<table>
<thead>
<tr>
<th>No.</th>
<th>Participant</th>
<th>Auditory vocabulary pre-test scores</th>
<th>Auditory vocabulary post-test scores</th>
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<td>P 7</td>
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These tabulated results indicate that six of the eight learners were functioning at or above Grade 8 level in the post-test analysis and all but one of the learners improved in their post-test scores. P5 was the only exception, having a negative difference between his results from the pre-test to the post-test. Five of the learners (P1, P3, P4, P6 and P7) improved their grade level by one year or more after a six-month period, which is a remarkable result.
Semi-structured teacher interviews with the researcher

The teachers were asked during the semi-structured interviews about their observations regarding literacy skills and applicable knowledge improvements displayed by the learners. They were asked at the inception of the project to observe the participants’ class tests, creative writing exercises, speech writing, reading, prepared and unprepared speaking, written content in projects and use of language when speaking and writing. Comments by the teachers on the improvements, or lack thereof, in these defined, concrete areas associated with use of literacy knowledge and skills have been used as part of the evaluation of the literacy development of the learner participants.

Theme 1: The mediated IATLI’s effectiveness in bridging literacy skills from the learning support sessions into the classroom

Teacher 1: ‘I definitely have. I mean, again I use (P7), I don’t know why he sticks in my mind, he’s not coping like Einstein, but he’s coping, we’ve seen that progression. We’ve seen it. I mean I don’t think, if it hadn’t been for you, he would ever have been able to stay here.’

Teacher 5: ‘He has moved from being a kind of mid-30s to 40%-type of kid, to somebody who is now getting in the 50s to 60s quite regularly and on one or two occasions has got into the 70s. The big difference in his work is the comprehension value that he is now pulling out of it rather than straight regurgitation.’

Teacher 7: ‘I can give you P4 in grade eight. His work, from someone who would barely answer and was giving me small amounts in Grade 7, that skill now is at a point where he is comfortable with what he has to write in his cycle tests.’

Teachers’ comments relating to the direct application of observed literacy skills and subsequent improvements in academic results:

Teacher 6: ‘For me it’s difficult to monitor the reading, but with the writing which is one of the outcomes, I have seen an improvement (in P1).’

Teacher 8: ‘Yes I can, the one child (P1) started the year off getting in the 20s (%) for his tests and has upped it by about 20%. He is getting in the 40s (%) now and he is much more confident and I do think it is directly related to the programme.’

These selected excerpts illustrate that the teachers’ observed improvements in these learners’ acquisition of literacy skills and their subsequent ability to transfer these learned skills into academic success were a result of their participation in the mediated IATLI programme. The specific, noted improvements in writing and comprehension ability are fundamental to the learners’ future success with tertiary studies. Improvements in the learners’ test results (as mentioned) indicate that some
learners’ tracking skills, sight-word pool, effective use of language conventions, comprehension ability and ability to express ideas had improved.

**Theme 2: Evidence of the acquisition of Feuerstein’s cognitive learning strategies**

The literature reported in the article indicates that learners who display effective application of cognitive learning strategies in formal and informal learning environments have the ability to be active learners who can be effective, lifelong learners who gain from educational experiences (Presseisen and Kozulin 1992).

The following selected excerpts from the teacher interviews suggest that learning strategies acquired in the mediated support sessions were transferred into the classroom setting:

Teacher 2: ‘I would say that I think the biggest thing from your programme that does help is helping them to be more organised.’

Teacher 3: ‘Yes, I have. I think it’s very effective. Like (P7). He’s becoming a lot more organised which is helping him.’

Teacher 6: ‘I think (P5) is more aware of what his issues are and maybe he is a little bit more mature in terms of how he copes with his issues, but he is a little bit more aware of his own ... that he’s got to be involved in his own learning.’

Teacher 6: ‘I have. I mean I’ve seen that they’ve taken stuff that they have had to learn or work with and they have specific ways in which they have obviously been shown how to do things, so I have seen an improvement. Maybe in approach and obviously it’s a long-term process, but I have definitely seen an improvement, yes.’

Teacher 7: ‘(P4) ... I think he’s getting better and better at understanding the importance of organization. I think that that is attributed to your feeding into him and making him understand what’s required.’

Teacher 9: ‘I think it’s more specifically the ability to look at the question, formalise an answer within the time constraints, whereas before, one or two of them just totally bombed out and didn’t do the last question because they haven’t managed their time. So there I have seen an improvement.’

Teacher 9: ‘Yes, in the case of, like I come back to my main point of them being able to read and get it done in time. Whereas, before, they would go right through, so they’re also processing being aware of their deadlines.’ This extract indicates internalization of the learning strategies of ‘self-regulation’ and ‘self-change’.
Teacher 11: ‘Yes, it has worked well especially with studying for the test when they do the mind maps which I haven’t showed them but every time they’ve done the mind map, they show it to me, they come and show it to me and their marks are different. They improve and every time they haven’t used that, they tend to get lower marks or fail.’ This observation indicates a development of the learning strategies of ‘competence’ and ‘self-regulation’.

Teacher 7: ‘I can give you (P4), his work, from someone who would barely answer and was giving me small amounts (of effort and work). That skill in now at a point where he is comfortable with what he has to write in cycle tests.’ This response indicates an improvement in confidence in the classroom setting.

Teacher 7: ‘Yes I have seen in (P4). I think he is getting better and better at understanding the importance of organisation.’ This extract suggests evidence of Feuerstein’s (1980) learning strategy of goal-planning.

The evidence presented here suggests that the IATLI intervention managed to mediate the application of various significant cognitive learning tools to most of the learners over the six-month period. In the view of these teachers there was internalisation to varying degrees of ‘self-regulation’, ‘goal-planning’, ‘competence’, ‘transcendence’, ‘self-change’, ‘meaning’, and ‘intentionality and reciprocity’ amongst the learners in accordance with Feuerstein’s (1980) mediated learning strategies, as described by Skuy (1996). These learning strategies described as so necessary for school academic success are also shown to be essential for success at university (Ben-Hur 2006; Osman et al. 2000).

**IMPLICATIONS FOR HIGHER EDUCATION**

The case study of the implementation of the IATLI programme indicates that certain aspects of literacy skills and cognitive strategies were effectively developed by most of the learners over a six-month period. The findings from the small case study support the findings of McMahon-Panther (2008) and Reggie (2006) who obtained positive results using the CATLI regarding literary development in learners from disadvantaged communities, and those with cognitive barriers to learning, respectively.

The findings presented here support the findings of Wilmer (2008), Dryer and Nel (2003) and Kallison and Stader (2012) whose studies identified an urgent need for literacy development programmes and learning support programmes for underprepared university students.

The findings from Bradbury and Miller’s research (2011) indicate that failing university students from disadvantaged backgrounds cannot engage appropriately with higher order questions associated with university level curricula and that there is an urgent need to address the cognitive functions that students require for successful...
task engagement. What has also become apparent is the common assumption that acquiring a university entrance pass in the National Senior Certificate (NSC) examination does not indicate that a student is sufficiently prepared for the challenges of academic studies at a university (Shalem, Dison and Reed 2013).

The findings from the case study of the IATLI intervention indicate that the mediation of learning strategies and literacy skills needs to be done over an extended period of time through a dedicated process that fits into the structures of the institution. The support programme needs to be a part of the inclusive education structures of the educational institution for it to be truly effective. This finding supports findings of the research undertaken by Nell et al. (2006), Abreu-Ellis, Ellis and Hayes (2009), and Israel, Maynard and Williamson (2013) all of whom observed that only authentic literacy programmes mediated to learners over a significant period of time resulted in learning skills being transferred from one domain to another. The IATLI is specifically designed as an inclusive, authentic learning support initiative and the findings from a study of its implementation support the above-mentioned studies.

Finally, and of critical importance, are the findings of Loji (2012), Hlalele (2010), Burch et al. (2007), Brussow and Wilkinson (2010), Salisbury and Sheridan (2011), Massengill (2003), and Zawazia and Gerber (1993), all of whose research into various learning support programmes aimed at students in HEIs indicates that such interventions can be successful. Of particular significance for redress and access to higher education for underprepared students and the mediated IATLI programme described in the current article is the research conducted by Osman et al. (2000) and Skuy et al. (1993). These studies all showed that the implementation of Feuerstein’s cognitive learning programmes in pre-service teacher education courses were effective in equipping students with cognitive learning strategies that would enable them to be more effective as metacognitive thinkers. These positive findings are significant from a South African higher education perspective, as they indicate that integration of the IATLI or similar programmes into tertiary programmes can be successful and can contribute to addressing the current high drop-out rate amongst underprepared students in South African universities.

REFERENCES


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