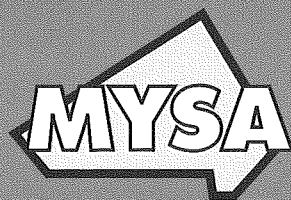


# Australian Journal of Middle Schooling

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Journal of the Middle Years of Schooling Association



# Editorial

A brief glance at the contents of this edition highlights the wealth of research and reflective practice happening in the middle years around Australia, New Zealand and the United States of America. Articles focus on providing information about meeting the needs of young people with learning difficulties, and a framework is explained for identifying and making a case for the 'distinct' nature of middle school programs that encompass neurological considerations of middle years students. We are also reminded of the importance of considering the voice of middle years students about what is a productive classroom environment and the implications of these for students' learning.

Another focus in this edition is on the importance of interdisciplinary teaming and what makes it effective in the middle years classroom. Also included is an article from the National Middle School Association about using Unified Arts classes as a means for helping to meet the needs of young people in middle years classrooms. As always, there are a number of wonderful middle schooling initiatives shared by practitioners in our 'Focus on Schools' section.

A new inclusion in this edition is a number of book reviews of recent educational literature that contribute to the identification of the distinctive needs of adolescents and how these needs can be best met through our curriculum, pedagogy and organisational and supportive environments provided within each school.

Thanks should go to our contributors for the enormous effort put into their submissions to this journal for the benefit of fellow educators who also hold a passion for improving student learning outcomes in the middle years. My thanks also to the members of the MYSA Publications Sub-committee for their tireless efforts and giving their own time to assist with the publication of the Australian Journal of Middle Schooling.

## Amanda Pentti

The views expressed in this journal are those of the individual contributor and do not necessarily reflect the views of the Publications Committee or the Middle Years of Schooling Association (MYSA).

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**Front Cover:** Collage on canvas by students from Holy Family Primary School, Indooroopilly, Queensland.  
See article by John Fitz-Walter on page 38.

**Back Cover:** Portrait of a person who inspires, painted by a student from All Saints Anglican School, Gold Coast, Queensland.

# Contents

## Refereed Articles

- Caught in the middle: Reaching and teaching middle years students with learning difficulties*  
Anne Bellert and Lorraine Graham ..... 3
- Distinction or extinction: Stepping towards a middle years model for survival*  
Michael Nagel ..... 11
- Conceptions of a 'productive classroom environment' held by middle school students at one independent Queensland school*  
Bryan West ..... 18

## Non-refereed Articles

- Interdisciplinary teaming: The core element of any integrated middle schooling reform plan*  
Susan Stevens ..... 24
- Unified Arts classes foster adolescent learning*  
Mary S. Childress and Robert C. Spear ..... 29

## Focus on Schools

- There's just one world, don't wear it out*  
Allan Sheffield ..... 31
- The road we're travelling*  
Simon Bryant and Althea Norton ..... 33
- Flinders Christian Community College middle years students in Papua New Guinea*  
Nick Toovey ..... 35
- St Francis Xavier Middle School*  
Kaye Vague ..... 37
- Arts in the middle years*  
John Fitz-Walter ..... 38
- Middle school — changing face of New Zealand education?*  
Anna Kenny and Mark Quigley ..... 39
- Building foundations for life long learning at St James College*  
Jo-Anne Campbell ..... 42

## Book Reviews

- Pahl, K. & Rowsell, J. (2005).  
Literacy and education: Understanding the new literacy studies in the classroom*  
Reviewed by Beryl Exley ..... 44
- Hargreaves, A. & Fink, D. (2006)  
Sustainable leadership*  
Reviewed by Sue Daly ..... 45
- Pendergast, D. & Bahr, N. (2005)  
Teaching Middle Years. Rethinking curriculum, pedagogy, and assessment*  
Reviewed by Jane Blackburn ..... 46

## Information for Contributors ..... 48





# Caught in the middle: Reaching and teaching middle years students with learning difficulties

Anne Bellert and Lorraine Graham

## Abstract

*This article focuses on providing classroom teachers with information about meeting the needs of middle years students with learning difficulties (LD). Cognitive obstacles that impede the learning progress of these students, particularly lack of automaticity and inefficiencies in working memory processes, are identified and discussed, and the educational and affective impact of LD on them are explored. Principles that can be used to inform effective classroom teaching for students with LD are then presented. These are derived from current research and recent literature focused on strategies that enable students with LD to learn in a mainstream classroom setting. The article concludes with a series of provocative questions centred on whether the provisions that classroom teachers can make for these students are enough, or if more intense intervention is required in order to cater for them adequately.*

Many classroom teachers would agree that students with LD in the middle school years (Years 5–9) are particularly hard to teach. The persistent nature of their learning difficulties makes it increasingly hard for them to keep up, and hopes that they will catch-up begin to fade. The gap in academic achievement between them and their normally-achieving peers frequently becomes wider during the crucial middle school years, and meaningful engagement with curriculum content subsequently decreases. Further, inherent social, emotional and cognitive factors associated with LD increasingly take their toll on both students and learning outcomes. Poor skill levels in literacy and numeracy have a negative effect across key learning areas, to the point where many students are increasingly at risk of being caught up in a failure cycle during this period.

At times, classroom teachers can also feel caught up in this failure cycle as they struggle to meet the educational needs of these students. They are often bewildered by the wide range of their needs, and concerned about the adequacy of their own level of professional knowledge to cater for them (Westwood & Graham 2003). Students with LD are present in almost all classes, and their teachers — who often have had no training in special education or LD — need information about how to effectively teach them curriculum content, with embedded literacy and numeracy outcomes.

This article, then, has two aims. The first part attempts to provide middle years classroom teachers with current and relevant information about the nature of LD and how deficiencies in academic and social skills, as well as cognitive processing, affect these students and their learning. The aim of the second section is to give teachers and administrators an overview of instructional strategies that research and practice have shown to be effective in meeting the needs of students with LD in the context of contemporary, middle years classroom teaching and learning.

## Learning difficulties

As a term, learning difficulties lacks a clear definition (Chan & Dally 2001; Scott 2004). Definitions of learning disabilities and learning difficulties vary from country to country, and controversies over identification procedures persist (Fuchs & Fuchs 1998; Scott 2004).

In Australia, there is no national operational definition of learning difficulty, and there is considerable overlap in the use of this term and learning disability (Scott 2004). The former term is usually applied to students based on their classroom performance, and on the results of school-based or state-mandated 'basic skills' assessments, rather than on the diagnosis of an individual profile of specific cognitive processing difficulties. Australian educators and researchers generally make a definitional distinction



Students from All Saints Anglican School, Queensland

between students with a diagnosed disability and those with a learning difficulty, although the validity of this distinction has been questioned (Scott 2004).

For the purpose of this article, students with LD are those who do not have a diagnosed disability but do under-achieve both in comparison with their age-peers and with their individual learning potential, which is assumed to be in the average range.

Notwithstanding the definition, the percentage of students identified with learning 'disabilities' or 'difficulties' continues to increase. In North America, for example, about seven per cent of the school-age population is currently considered to have some form of learning disability (Gersten et al. 2001). While in Australia, where the definition is broader, at least 20 per cent of school students are considered to have problems in academic areas, and five per cent of these students are considered to have specific learning difficulties (Westwood & Graham 2000). Also, students with LD unrelated to any disability or condition are the largest group of students with special educational needs (Westwood 2003).

## LD in the middle school years — obstacles to successful learning

By adolescence, many students with LD have unique learning needs because they have developed secondary learner characteristics due to persistent and often unaddressed primary learning difficulties. As these skill deficits develop at a time when students are forming a life identity (Lenz & Deshler 2004) they can affect their social and emotional adjustment. According to many recent research findings, the main obstacles to these students' successful learning are:

- a lack of automaticity in basic academic skills
- reading difficulties
- mathematics difficulties
- affective difficulties
- general cognitive factors
- working memory.

### *Lack of automaticity in basic academic skills*

On entering the middle school years, many students with LD have a developing understanding of basic academic concepts and procedures, yet many of them get 'stuck' and are unable to apply this information because of their poor literacy and numeracy skills. This lack of automaticity in basic skills such as reading and calculating can be readily observed.

Automaticity in basic academic skills was initially thought to occur when almost no cognitive resources were used (Anderson 1980; La Berge & Samuels 1974) but more recently researchers have linked it to extremely efficient cognitive processing, particularly as described by modularity theory (Fodor 1985; Perfetti 1988; Stanovich 1990). From this perspective, the most important feature of automaticity is not that it enables fast recall, but rather

that it reflects increasingly efficient and effective cognitive processing (Perfetti 1992).

'Expert' learners have highly automatised component sub-skills, while their 'novice' learner peers (in this case students with LD) need to work effortfully on component skills they have encountered many times before (Stanovich 1990). This lack of automaticity in basic academic skills therefore frequently precludes them from being able to focus on higher-order skills or procedural requirements.

### *Reading difficulties*

Difficulties in reading are the most common learning problem experienced by students with LD (Westwood & Graham 2000). This lack of proficiency underlies their difficulties in all other domains of literacy, numeracy and academic learning. Poor readers commonly have problems with the lower-order component skills of reading such as feature extraction, pattern recognition, letter identification, spelling pattern identification and lexical access (Sinatra & Royer 1993). Contemporary theories of reading difficulties commonly acknowledge weaknesses in phonological processing, orthography and naming speed as key skill processing deficits (Siegel 2003; Lovett, Barron & Benson 2003; Wolf & Bowers 1999; Wolf, Miller & Donnelly 2000), all of which negatively impact on higher-level comprehension processes.

The most obvious reading problem displayed by students with LD is a serious deficiency in swift and accurate word identification (Burns, Griffin & Snow 1999; Torgesen 2000). Many middle school students with LD can comprehend spoken language at, or close to, their age appropriate levels, yet their poor reading skills deny them similar access to written texts. Students with reading difficulties commonly need to use their cognitive resources, specifically, their time and attention, to decode words and process text, at the cost of inherently attention demanding higher-order thinking and learning such as comprehension and problem solving (Walczyk 2000). This limited ability to decode and make sense of texts obviously affects their performance across key learning areas. Though reading comprehension is generally very amenable to improvement through strategy instruction and training (Garner 1986), LD students' poor automaticity in basic academic skills is their biggest barrier to reading for meaning.

Besides these underlying difficulties, an increasing lack of experience or engagement with texts explains, in part, why poor readers lag further behind their peers as they progress through school (Stanovich 1986). Poor reading accuracy can be one of the most powerful blocks to academic and life progress that a person can experience (Galletly & Knight 2004).

### *Mathematics difficulties*

Students with LD in reading, often also have difficulties with numeracy and mathematics. The reasons for this include poorly developed number sense, poor processing

abilities, language and literacy difficulties, 'maths anxiety' and inefficient memory processes (Gersten & Chard 1999). Some researchers propose that students' failure in numeracy is related to teaching methods and curriculum issues, rather than to the students themselves (Pincott 2004; Vaughn, Bos & Schumm 1997). Nevertheless, students in the middle school years with mathematics LD fall increasingly behind their normally-achieving peers (Cawley, Yan & Miller 1996). In particular, they have difficulties in areas such as basic computation skills, word problems, understanding the language of mathematics, and mathematical reasoning (Milton 2000).

In mathematical computation, students with LD can have inaccurate or inefficient strategies, poor and error-prone retrieval of previously encountered content, and reduced or variable speed of processing basic number facts (Chan & Dally 2001). Geary (2004) suggests that disruptions in the ability to retrieve basic facts from long-term memory might, in fact, be considered a defining feature of mathematical learning disabilities. Just as effortful decoding of words uses up cognitive resources and renders them unavailable for comprehension of text, effortful calculation of basic arithmetic facts precludes LD students from focusing on procedures and problem solving. As a result, they can find content area learning in mathematics much more difficult.

#### *Affective factors*

During the middle school years, all students are dealing with the rather intense social and emotional challenges of puberty and adolescence. At this time, when social emphasis shifts from family, to friends and society, they can be sensitive about issues such as body image, 'normality', 'abnormality', and sexuality (Fuller 2002). Negotiating the challenges of adolescence alongside the experience of long-term learning difficulties can be a trial for students with LD. The literature and research indicate what many teachers, parents and students already know — that such experiences can have serious and negative impacts on students' emotional wellbeing and can detrimentally affect their social interactions (Fuller 2002; Vaughn & Hogan 1990).

In general, these students are also more likely to display inappropriate social skills (Elbaum & Vaughn 2003) and tend to be less popular with their peers than non-LD students (Vaughn et al. 1990). Accordingly, they often choose less competent solutions to social problems or difficulties (Wong 1996), which is a confounding factor in their social lives that affects their school experience and constitutes yet another obstacle to success.

Perhaps one of the best ways of understanding the 'self-system' is through research exploring students' notions of self-concept, self-esteem and self-efficacy, which indicates that children and adolescents with LD can have lower academic self-concepts than their normally achieving peers, but equally good self-concepts in non-academic areas

(Wong 1996). Academic self-concept appears to be an important variable that mediates academic achievement (Elbaum & Vaughn 2003).

Self-esteem, defined as the value one puts on one's self and behaviour, is almost entirely created by an individual's experience of success and failure (Seligman 1995). Accordingly, the low self-esteem displayed by some students with LD is not usually the cause of learning or behaviour problems, but develops as the result of repeated lack of success (Westwood 2004). In schools, students' positive self-esteem can be undermined by factors such as:

- labelling them
- some ability-grouping practices
- setting inappropriate tasks that result in frequent failure (Westwood 2004).

Recent literature on self-efficacy and learned helplessness shows a common link between negative student perceptions and attributions on school performance. Self-efficacy refers to students' pre-task judgments about their own performance (Harris, Reid & Graham 2004). Students with LD generally display a lack of self-efficacy, predicting that their performance will be judged poorly. However, researchers have also noted that they can have unrealistically high pre-task expectancies which can lead to lower self-efficacy following failure (Harris Reid & Graham 2004).

The feeling of powerlessness that leads these students to believe that they are unable to succeed has been termed 'learned helplessness' (Diener & Dweck 1978), which has a highly debilitating effect on academic performance. Specifically, if students believe that they cannot possibly achieve success because of factors beyond their control, then their levels of participation, engagement and performance on any task will decrease.

During the middle school years, learned helplessness and low self-efficacy in students with LD can result in the following 'learner characteristics':

- reduced motivation, including lack of persistence in the face of failure
- negative expectations about the future
- a tendency not to develop a strategic approach to learning
- development of avoidance strategies
- a generally negative affect (Weiner 1992; Westwood 2004).

#### *General cognitive factors*

In addition to deficits in basic academic skills and the impact of the salient affective factors already described, many LD students in the middle years of schooling also have particular cognitive characteristics or procedures that impede learning. For example, they are generally very inefficient in their approaches to learning (Westwood 1993a) because they:

- use inappropriate or inefficient strategies that are slow and produce high error rates

- have difficulty recalling previously encountered knowledge
- have difficulty flexibly using accumulated knowledge (Doyle 1983; Westwood 1993a).

Thus, LD students in the classroom often use lower-order strategies, such as counting on fingers to work out number facts or using sounds to decode previously encountered words, because of their inefficient 'cognitive habits', or non-strategic ways of thinking.

#### *Working memory*

Working memory refers to the system or mechanism underlying the maintenance of task-relevant information during the performance of a cognitive task (Miyake & Shah 1999). It has been described as the 'mental workbench' (Borich & Tombari 1997) where immediate and short-term cognitive operations take place. Its essential characteristic is that it functions by simultaneously storing and processing information (Ashbaker & Swanson 1996).

The processes and functioning of working memory have been identified as key underlying factors in all learning difficulties (Keeler & Swanson 2001). Not only do students with LD display inefficiencies within and between the components of working memory, but they are also believed to have less working memory capacity (the amount of information they can hold 'in mind') than their non-LD peers (Swanson & Siegel 2001; Swanson 2000). These limitations in working memory functions or processes, often closely related to deficiencies in linked executive processes such as memory and attention, pose significant obstacles to successful learning.

In short, students with LD in the middle school years display particular learner characteristics and face many obstacles to achieving age-appropriate learning outcomes. These difficulties are often artifacts of social and emotional difficulties, basic skills deficits and constraints, and inefficiencies in cognitive processing. Understanding these characteristics can guide classroom teachers in developing instructional approaches that are effective in both 'teaching and reaching' students with learning difficulties.

### **Classroom teaching — meeting the learning needs of students with LD**

Classroom teachers can do a great deal towards ensuring that students with LD participate meaningfully in quality teaching and learning experiences. Teaching them effectively does not generally require new or specific instructional strategies, but rather relies on what many practitioners would just call 'good teaching' or what Westwood (1993b:92) calls "the tried and true basics of skilled teaching". Research has shown that instructional strategies that enhance learning outcomes for students with LD result in improved outcomes for all students (Vaughn, Gersten & Chard 2000).

Effective teaching focuses on teacher actions and decision making to maximise student learning. That is, it is concerned with things teachers do to increase student participation and learning (Mastropieri & Scruggs 2002; Rosenshine 1997). Frequently, effective teaching for students with LD requires direct or explicit instruction on basic academic skills (Edwards-Groves 2003; Westwood 1993a). This is especially necessary when teaching new or difficult information and when content is critical to subsequent learning (Mercer, Jordan & Miller 1996). Students with LD also require a carefully sequenced curriculum rather than less structured student-centred learning approaches (Westwood 2003, 1993a, 1993b).

### **Strategies to support the development of literacy, numeracy and content knowledge**

Effective, explicit teaching involves showing, telling, using think-aloud protocols and self talk, as well as modelling and demonstrating by both teacher and peers, so that a systematic and structured approach to instruction leads students toward mastery and success. It also requires that the purpose of lessons and their intended outcomes are made clear to students, and that regular opportunities to practise and revise previous work are presented. Other strategies to support the development of literacy and numeracy skills and content knowledge for middle school students include:

- providing pre-teaching and practice in saying, reading and writing key vocabulary relevant to topics
- adjusting the level of difficulty of tasks so students can succeed at them
- providing abundant amounts of practice with formative feedback
- using graphic organisers to give an overview of the content to be covered and the links between known and 'new' information.

### **Affective strategies to support students with LD**

Improving LD students' academic skills can lead to significant gains in academic self-concept, self esteem and self-efficacy (Vaughn, Gersten & Chard 2000; Westwood 2004). Therefore, it is important for teachers to take every opportunity to 'break the failure cycle' by giving students experiences and tasks at which they can be successful. Identifying and discussing students' attributions for success or failure, for example, may help them identify maladaptive attribution patterns and encourage them to take greater responsibility for their learning. Other strategies to help these students overcome identified affective obstacles include:

- using groupings and cooperative learning strategies to facilitate good peer modelling and foster development of social skills

- valuing effort over achievement
- having a routine that underpins lesson presentation and allows students to develop a sense of security about how they are expected to contribute and participate in their own learning
- adjusting the level of difficulty of tasks so that students can succeed.

## Strategies to support efficient cognitive processing

In a meta-analysis of instructional components that best predict positive outcomes for adolescents with learning disabilities, Swanson and Hoskyn (2001) identified (i) advanced organisers (i.e. statements or strategies that direct students to preview instructional material and provide information about the learning task) and (ii) explicit teaching, review and practice, as the most important instructional components related to high-effect results in intervention studies designed to improve the academic performance of students with learning disabilities. Both these components enable students to work around any obstacles to efficient cognitive processing they may have. Specifically, review and practice encourage the development of a reliable knowledge base that can be efficiently accessed, and the use of advanced organisers provides students with a 'mental scaffold' of targeted learning content. Other strategies to help overcome cognitive inefficiencies include:

- making connections between the content to be taught and students' prior knowledge and experiences
- 'chunking' content and tasks into achievable, carefully sequenced steps
- teaching cognitive strategies, (i.e. task specific 'how to' step-by-step procedures
- developing and using mnemonics and other memory aids.

## Curriculum adjustment

Differentiated instruction, variously referred to as curriculum adjustment, curriculum differentiation, adaptation or modification, is both a way of thinking about teaching and learning, and a collection of strategies (Heacox 2002). Curriculum adjustment occurs mainly in content, process and product (Tomlinson & Allen 2000) but also includes factors related to classroom management and the learning environment, assessment procedures and grading practices (NSW Board of Studies 2004; Westwood 2001).

Modifying content by adjusting the level of task difficulty, so that students with LD can successfully develop and practise desired skills or strategies, rather than failing at difficult tasks, has great potential to positively influence learning outcomes (Vaughn, Gersten & Chard 2000). Examples of curriculum adjustments include:

- adjusting or re-phrasing directions and instructions
- accepting alternative formats for responses

- increasing the use of visual aids, hands-on materials and concrete examples
- adapting or modifying resource materials.

Sharon Vaughn's 'Pyramid Planning Model' (Vaughn, Bos & Schumm 2000; 'Follow-up to ELLA', NSW Department of Education and Training 2004) has great potential as a cohesive framework to help teachers plan for inclusive and adjusted instruction. The foundation of this model is the notion that all students are capable of learning, but not all students will learn everything presented in classroom instruction. In its simplest form, the model is visually represented by a triangle divided into three sections. The base consists of information essential for all students to learn — this would be the focus of explicit teaching strategies. The middle section represents information next in importance that most — but not all — students will be able to access. The top section contains information that enhances the basic concepts but is more complex, and will be grasped by only a few students. As planning progresses, teachers add teaching and learning strategies and assessment task criteria appropriate to each level of the diagram. The Pyramid Planning Model can be developed as a very useful tool for teachers as they attempt to adjust teaching and learning experiences to meet a wide variety of student learning needs.

## Conclusion and suggestions for future directions

Although students with LD face significant obstacles to learning, including basic skills deficits, social/emotional difficulties, and cognitive inefficiencies, with effective and explicit classroom teaching and appropriate adjustments they can, and do, make progress towards meaningful learning outcomes.

Effective teaching does not leave learning for vulnerable students to chance. The understanding of student characteristics and provisions for their learning outlined in this paper are necessary as a universal means of responding to the educational needs of a diverse student population, but are they sufficient? We pose the following questions as a challenge to educators to find a way forward towards improved learning outcomes for students with LD.

Is there a need for intense research-based interventions targeted to meet the needs of middle school students with LD? If these students can access effective, research-based interventions, which link to the curriculum and aim to develop basic literacy and numeracy skills, will they be better able to achieve learning outcomes commensurate with their learning potential?

It may well be that such students with persistent, 'treatment resistant' LD need more than authentic participation in classroom curricula if they are to overcome underlying difficulties that frequently present as poor



basic academic performance. The need for research-based intervention programs that are linked to classroom practices to support these students is apparent. As Torgesen (2004:31) points out,

*At present the zeitgeist suggests that the regular classroom is the place where all learning disabled children should be educated. However, the needs of children with LD for instruction that is more explicit, more intensive, and more supportive than normal are going to be very difficult to meet in most regular classroom settings.*

In response to this quote, further questions are also relevant. For example, does the apparent paucity of research-based interventions or programs developed specifically for middle school students with learning difficulties mean that educational administrators have abrogated responsibility for the learning needs of these students to the classroom teacher, who may not have appropriate or recent training? Is there a place in contemporary pedagogy for interventions for students with LD, which may take the form of specific programs in the classroom or withdrawal support programs? For some colleagues in special education who advocate full inclusion, such suggestions would, perhaps, be seen as a backward step. However, the view that classroom and content area teachers, expected to reach and teach all students in their classes with minimal extra support are being caught in the middle of a very difficult task, resonates with many practitioners.

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