Adolescent Students with Disabilities and Learning Strategies
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Students and teachers today are faced with many challenges in the process of learning. High stakes testing and accountability place demands that push the abilities of students and teacher alike. Students with disabilities are placed in inclusive settings, which also demand more effort and ability from each. Accountability for transition goals into the post secondary school environment also dictates more involvement. Because of the demands placed on students and teachers, the environment in which to learn has become fast paced and complex.

Learning strategies (LS) provide students with tools to adapt to the pace and complexity found in today's classrooms. They are defined as "techniques, principles, or rules that will facilitate the acquisition, manipulation, integration, storage, and retrieval of information across situations, and settings." (Alley & Deshler, 1979, p13). It is imperative for all teachers of middle and high school students to consider the benefits that can be gained from teaching learning strategies.

The purpose of this paper is to analyze the classroom demands in middle and high school and the expectations for independent learning in adolescent students. This paper also examines the performance deficits that are commonly found in adolescents with disabilities. An overview of learning strategies instruction follows. Finally, implications for adolescent students from this type of instruction are discussed.

Demands of Independent Adolescent Students

The learning processes that take place in middle and high schools create an environment that dictates an independent learning approach for all students. The setting is much different than what is found in elementary schools. The tasks become more

complex and abstract. Also, it is imperative that students possess a learning style that applies strategies.

Middle and high school education is more complex and abstract from that experienced at the elementary level. While elementary education focuses primarily on teacher-directed skills instruction and mastery, the secondary level focuses on higher level thinking and an independent manipulation and use of information. Students are expected to perform with a higher degree of independence when they enter middle and high school.

Sabornie and deBettencourt (2004) offer three important considerations for the secondary level setting. First, "success in the middle and secondary grades is often dependent upon the student's ability to demonstrate mastery of basic study skills applications and the metacognitive knowledge of when to use a strategy and which strategy is the most efficient" (p 236). This statement reinforces the notion that middle and high school students are to be independent learners.

Sabornie and deBettencourt (2004) add, "At the secondary level, the general education curriculum is departmentalized by content area and instruction is provided in an array of subjects by different teachers. Thus the basic setting demands differ quite drastically from elementary school." (p 5). Students entering middle and high school are faced with a different environment in which to learn. Unfortunately, many students are not prepared for the expectations they will meet when they leave elementary school.

Finally, task performance expectations also become more complex and abstract in

middle and high school. "Students are frequently required to (a) read many different content-area assignments independently over a short period of time, (b) take notes in each class, (c) keep each class material- and time-organized, and (d) write various papers synthesizing their research and thoughts" (Sabornie & deBettencourt, 2004, p 5). Table 1 provides a more detailed list of secondary setting demands. Given that the tasks are not prominent in the elementary setting, it is no surprise that students with disabilities lack the skills and strategies to meet these demands.

A weakness to use learning strategies in the secondary school setting is also displayed by all students. Ganz and Ganz (1990, p.180) state, "the study strategies they developed in the elementary school are often incomplete for the secondary school setting with its more formalized learning environment" Added to a deficit of strategies is an inability for students to generalize strategies. Ganz and Ganz (1990) add, "secondary teachers must realize that students were not likely taught how to adapt their study habits to a variety of learning situations during the elementary years" (p. 180). Finally, the metacognitive awareness to use strategies is another weakness of students. "Students often realize that they do not understand what was read or heard, but then fail to act on this understanding. This practice can reinforce an existing negative view of their ability or lead them to believe they are poor learners" (Ganz & Ganz, 1990, p. 180).

Added to the learning strategies deficits in students is a climate which does not lend itself to non-content goals. "Unfortunately, teachers must meet the demands of high stakes testing, and the collective performance of their students. A learning strategies curriculum is easily missed" (Tralli, et al., 1996, p. 204). A climate for effectively

teaching and mastering learning strategies does not exist.

<div align="center">Examining LS and Adolescents w/ Disabilities</div>

In middle and high school, adolescents with disabilities generally do not perform as well as their peers who are non-disabled. It has been asserted that adolescent students with disabilities reach a learning plateau in high school that is equivalent to about a fourth- or fifth-grade level of achievement (Deshler, Schumaker, Alley, Warner, & Clark, 1982). This achievement plateau can result from several factors, such as independent performance, inefficient application of learning strategies, and the phenomenon referred to as the "Matthew Effect".

First, success for adolescent students with disabilities at the secondary level is hindered by an inability to perform tasks independently in an environment that demands independence. As suggested by Tralli, Colombo, Deshler, and Schumaker (1996, p. 204):

> Students with mild disabilities lack many of the necessary skills and strategies required to respond successfully to the demands of the secondary setting; The prevailing culture in many secondary schools is more supportive of a content-centered than a student-centered orientation toward education. As a result, steps   to accommodate the needs of the students with disabilities are not top priorities of teachers and administrators; and for many teachers, raising *overall* class achieve-ment is an important goal, but they may be unwilling engage in heroic efforts on the behalf of a few students with disabilities in their classes.

It is not surprising to see a lack of learning strategies is one of the deficits found in students with learning disabilities (LD). "In many cases students with LD who learn strategies are as unlikely as their peers to use them independently and to generalize their use" (Lenz, Ellis, & Scanlon, 1996, p. 5). Support for this statement can clearly be understood by examining the meaning of learning disabilities. Smith and Dowdy (1989) state, "learning disabilities is often described as a breakdown in the process of taking in information (input), making sense of information (process), and using the information (output)" (p. 481). For LD students, learning strategies may simply be techniques, principles, and rules that are being applied to a broken down process.

This failure to apply learning strategies adds to a concept called the Matthew effect. It is a biblical reference, essentially to "the rich getting richer and the poor getting poorer". The verse in Matthew 25:29 states, "For everyone who has will be given more, and he will have an abun-dance. Whoever does not have, even what he has will be taken from him" (*New International Version (NIV)*, 1973). Applying the concept to education, Stanovich (1986) states, "Thus, one mechanism leading to Matthew effects in education is the facilitation of further learning by a previously existing knowledge base that is rich and elaborated. A person with more expertise has a larger knowledge base, and the large knowledge base allows that person to acquire even greater expertise at a faster rate"(p. 381). While Stanovich applied this concept to reading success, it is applicable to any learning experience and is especially applicable to the use of learning strategies.

The Matthew effect in learning strategies can be further understood by the following from Ganz and Ganz (1990) :

Mature learners engage in purposeful strategic learning activities tailored

specifically to the demands of each task. If necessary, they develop new

strategies. Less mature learners, on the other hand, do not necessarily introduce

appropriate   learning strategies. If they do, they may be inflexible in adapting

these strategies to different text or task situations. Furthermore, they are often

impeded by inferior, inefficient strategies which result in only partial success but

are consistently applied in a variety of situations (p. 182).

The immaturity of these learners can be attributed to an underdeveloped use of

strategies. Ganz and Ganz (1990) suggest, "such inflexibility of approach may stem from

the fact that students feel most comfortable using one kind of strategy, do not know any

other strategies, or fail to realize it may be their strategic action, rather than their lack of

ability, impeding their learning" (p. 182). It is this inability to act strategically that

suggests the need for teachers to consider learning strategies instruction.

<div align="center">Learning Strategies Instruction</div>

Learning strategies can be viewed at two different levels. The first level refers to

the actual techniques, rules and principles used by students. This level refers to the many

different single strategies used by students. The next level refers to entire programs which

use a collection of strategies. One of the most researched program is the Strategies

Intervention Model (SIM), which was developed at the University of Kansas by Donald

Deshler and his colleagues.

To view a clear perspective of the types of learning strategies, one may use the

organization of the SIM. The three types of learning strategies include those used for acquisition, storage, and demonstrated expression (Tralli, etal., 1996 p. 206). These three types encompass the original definition of learning strategies developed by Alley and Deshler (1979). Under this framework, one can examine the function of the techniques, rules and principles of learning strategies.

Acquisition strategies are "used for the assimilation and accommodation of information" (Lenz, et al., 1996, p. 27). The goal of these types of strategies is to improve the interpretation and comprehension of new words, ideas, and concepts. Examples of strategies used for acquisition include: "word identification, paraphrasing, self-questioning, visual imagery, interpreting visuals and multipass" (Tralli, et al., 1996 p. 206). These can be applied when reading new words or passages, and interpreting visuals.

Storage strategies are "used to transform and manipulate information once it has been assimilated" (Lenz, et al., 1996, p. 27). Using storage strategies benefits a student's ability to memorize and organize information efficiently. Storage strategies include: "FIRST- letter mnemonic, paired associates, listening and note-taking" (Tralli, et al., 1996 p. 206). They are applied when memorizing lists or groups of words. Also, they may used when listening to a speaker.

Demonstration and expression of knowledge strategies are "used to communicate one's knowledge" (Lenz, et al., 1996, p. 27). These strategies are used to create more accurate and organized forms of output such as essays and tests. They also focus on the components of the products, such as sentences and paragraphs. In addition to a focus on

the products of student expression, these types of strategies also focus on the developmental processes involved. Examples of demonstration and expression of knowledge strategies include: "sentence writing, paragraph writing, error monitoring, theme writing, assignment completion, and test taking"(Tralli, et al., 1996 p. 206).

Learning strategies are not to be confused with study skills, which according to Polloway et al. (2005, p. 105) "can be described as the specific skills that individuals employ to acquire, record, remember, and use information efficiently". There are obvious similarities between the two concepts since both are approaches for manipulating information. Figure 1 suggests the overlap between study skills and learning strategies. However, there lies a distinct difference between the two concepts. In reference to learning strategies, Sabornie and DeBettencourt (2004) add, "However, it is more comprehensive than a study skills program in that, in addition to learning how to perform particular skills, students also learn *why and when to use these skills and how to monitor their implementation"* (p. 235) In short, learning strategies encompass many study skills and take them to a higher level which involves more application decisions.

Through learning strategies instruction, a student can enhance his/her acquisition, storage, and expression of knowledge of information. However, these enhancements alone do not lead to the desired goal of independence. It is the ability to understand why they use their skills and the ability to know when they are to use their skills that lead to independence in the secondary learning environment.

Considerations for LS Instruction in Adolescents with Disabilities

If a learning strategies program, or instruction of specific strategies, is planned for single student or group, specific elements must be considered for the strategies to be useful. Relevance of the strategy for the student and the ability of the student to generalize must be considered to make strategies functional. Other considerations for LS instruction include the amount of time it takes away from other curricular needs, the entry level skills needed to acquire and execute the strategies, and the motivation for students to use them.

Learning strategies must be relevant to students, if the students are to use or apply them. Lenz et al. (1996) offer three guidelines for making learning strategies relevant to students. First, "the strategy should address a key problem that is found in settings that the student must face" (p. 16). Students can view the strategy as a tool to solve a real problem in their setting. Next, "the strategy should relate to frequently required demands, ideally those that occur across settings" (p. 16). This guideline also allows the student to see that problem-solving can be the same process in different settings, which assists in helping the student to generalize. The last guideline also focuses on generalization. Lenz et al. continue by stating, "the strategy must generalize across a variety of settings, situations, and contexts" (p. 16). Relevance is seen in the ability for a strategy to be applicable and generalized.

The three guidelines for usefulness, as asserted by Lenz et al, suggest the need for strategies to be generalized. Lenz et al. (1996) state, "The critical features that must be

considered across these conditions relate to the potential use and transferability of the

strategy across materials, people, settings, situations and time" (p. 15). Generalization is

defined by Lenz, et al. (1996) as "the process of applying a strategy to novel situations

and tasks" (p. 173). "Generalization really is the whole point behind learning a strategy

in the first place" (p. 174).

Generalization is often a weakness in learning strategy instruction. Lenz et al.

(1996) offer two reasons for this weakness. First, "many students who have great success

in learning how to perform a strategy fail to generalize its use". (p. 174). Second,

"reciprocally, many teachers who are excellent at teaching students how to perform a

strategy fall short when teaching those students how to generalize the strategy" (p. 174).

Lenz, et al., (1996) provide teachers with suggestions to establish and promote

generalization to their students, through orientation, activation, adaptation, and

maintenance.

Polloway et al. (1989) offer three relevant considerations if using a learning

strategies program for older students. They assert, "first, if such a model is used

exclusively, it can result in limited attention to other curricular needs, such as areas of

functional skills" (1989a, p. 173). This first consideration has even greater implications

today than in 1989, when it was presented.

While learning strategies can improve a student's academic performance, an

instructional focus on these may take away resources that could be used for other goals

and demands. Today, high stakes testing forces teachers and administrators to develop

curricula that is based heavily on content instruction. Strategy instruction receives little focus, because of the content demands of high stakes testing and the demands to include students with disabilities in the process. Also, success in academics may not be the educational goal for some students. The Individuals with Disabilities Education Act (IDEA) in 1990 mandated transition services in students' individual education plans. Post school goals for adolescent students with disabilities may exclude learning strategies instruction. In some cases, vocational training may be the most realistic educational experience and provide the best outcome for students.

Polloway, et al. (1989a) add, "second, careful attention should be given to the salability or appeal of the particular strategy being taught" (p. 173) This consideration is still relevant today, as it reinforces the notion that learning strategies should be perceived as relevant to the demands that students face. Students are more likely to use a strategy when they can see it as being useful. They will not be motivated to use strategies which do not provide them with immediate results.

Finally, Polloway et al. (1989b) suggest, "many students with mild learning handicaps simply may not possess the entry-level skills necessary for successful acquisition and execution of strategic behaviors" (p. 6). Some students with disabilities, even adolescents, may not possess the prerequisite skills to apply learning strategies. An example of is seen by applying mnemonic type strategies, when a student has poor phonemic awareness. The student will not remember the mnemonic, because he/she cannot decode the letters that create the sounds.

Including these considerations in learning strategies instruction can lead to more useful, motivating, and effective practices for adolescent students with disabilities. Strategy instruction is to provide students with long-term practices. Through relevance and generalization, strategies will become automatic.

Discussion

From an understanding of the expectations of the secondary school setting and the deficits of adolescent students with disabilities, it is obvious that these students can benefit from learning strategies instruction. Defining learning strategies gives a clear picture of the areas of the learning process which can be improved to foster independence. Finally, an examination of the elements which improve learning strategy instruction provides essential considerations to promote independence in adolescents with disabilities. Without this independence these students will not achieve in the middle or high school settings. Consider the negative side of the Matthew effect - "Whoever does not have, even what he has will be taken from him"(*NIV*, Matt 25:29).

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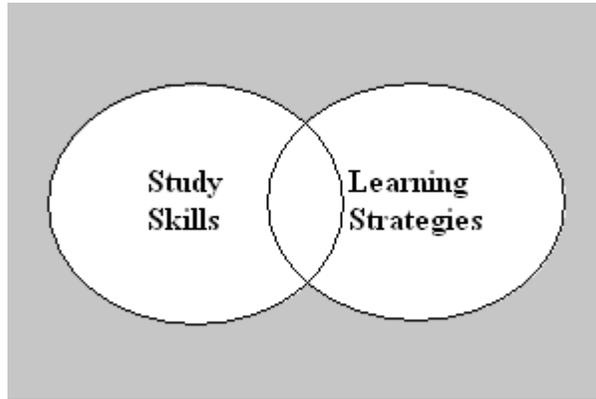
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Table 1
Secondary setting demands

1. Students need to be able to read a wide variety of content areas
   independently with fluidity and speed.
2. Students are expected to have prerequisite content knowledge and
   skills.
3. Students need to be able to learn from teachers who use lecture as
   their standard format and use a fast pace for introduction of new
   material.
4. Students need to be able to learn with less contact time with the
   teachers than they had in elementary school (e.g., 50 minutes/day
   versus 350 minutes/day).
5. Students need to have strong written language skills.
6. Students need to be able to work independently with little immediate
   feedback or correction.
7. Students need to be able to determine the importance of what is
   being said and take notes in a format that can be used later for
   review.
8. Students need to be able to break a long-term task into parts, and
   complete each part prior to the due date.
9. Students need to be able to keep track of their materials, their class
   requirements, and their schedules.
10. Students are expected to pass high-stakes testing.

(Sabornie & deBettencourt, 2004, p. 6)

Figure 1
Overlap between study skills and learning strategies

Polloway, E. A. (2004, Nov). Study Skills
Presentation in SPED 644, Lynchburg College