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ABSTRACT
                This paper examines differences between students with and
without learning disabilities (LD) in processing social information within
the context of a social information processing model. It proposes that
language problems may not be the sole cause for poor social skills in
students with learning disabilities and suggests that social remediation
programs consider the possible underlying processing difficulties that may
affect these students and their ability to process social information. The
paper first explains the social information processing model. It concludes
that this model assumes processes that occur at a rapid rate and largely at
an unconscious level, with conscious processing taking place only in
relatively novel situations with attention given only while such information
is in short term memory. The paper then examines characteristics of students
with learning disabilities and their characteristic difficulties with memory
in information processing. The following section connects students with LD to
social information processing by showing how memory processing difficulties
affect these students' social perceptions. The final two sections discuss
poor social relational behavior in students with and without LD and
implications of this theory for social skills intervention. (Contains 21
references.) (DB)

Social Information Processing in Students With and Without Learning Disabilities.

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Abstract

Many students with learning disabilities (LD) have poor social skills, are often rejected by peers, and often have low self concept or low self esteem. Past research has held to the hypothesis that this may be a result of their academic failure initially caused by a phonological processing difficulty. However, by integrating a well-established theoretical framework of social information processing into this equation, poor academic achievement or deficient verbal processing may not be adequate to explain inappropriate or deviant social behavior. In fact, these behaviors may be caused by processing difficulties that are independent of those responsible for the difficulties that students with LD have with verbal or academic material. This theoretical review proposes that language problems may not be the sole cause for poor social skills within the learning disabled population. Therefore, it is suggested that social remediation programs consider the possible underlying processing difficulties that may affect students with LD and their ability to process social information.

Social Information Processing in Students With and Without Learning Disabilities.

Introduction

For the past twenty years researchers have examined the social relational problem solving skills of students with learning disabilities (LD). A consistent finding of this research is that many students with LD exhibit social relational problems. These students may demonstrate significant difficulties with social relationships and often exhibit inappropriate social relational behavior.

Researchers have examined three hypotheses to explain the cause of the inadequate social relations in students with LD (Tur-Kapsa & Bryan, 1994). The first and earliest hypothesis is that language deficits may interfere with the ability of students with LD to participate in satisfying social interactions. That is, linguistic and communicative skills of students with LD appear to be deficient across ages and tasks. These deficiencies may hinder peer interaction thereby preventing satisfying relationships. A second hypothesis is that many students with LD experience academic failure on a regular basis. This, in turn often leads to feelings of low self-worth and a low self concept. Subsequently, this may lead to a withdrawal from social activity, peer rejection and poor social relational skills. A third hypothesis, one relevant to the current paper, is that poor social relational behavior may result from underlying processing problems that affect the acquisition of appropriate social skills. The processing system that is responsible for these problems can be thought of as being similar to the information processing systems described in many cognitive processing models. In other words, the third hypothesis assumes that language deficits and social relational problems may be independent of each other.

However, many students with LD exhibit perfectly appropriate social behaviors. The learning disabled population is heterogeneic in nature and the within ability-group differences in social behavior is in accordance with the very definition of learning disabilities;

Learning Disabilities is a general term that refers to a heterogeneous group of disorders...Problems in self regulatory behaviors, social perception, and social

interaction may exist with learning disabilities but do not by themselves constitute a learning disability...(NJCLD Memorandum, 1988)

Furthermore, many students without LD exhibit the same inappropriate social behavior as students with LD. However, the cause of the inappropriate behavior may differ for students with and without LD.

In order to examine the social relational behavior of students with and without LD, I adopt a theoretical framework based on a model of social information processing proposed by Dodge (1986). This model is grounded in a theory of cognition and is adequately generalizable to account for the social information processing differences between students with and without LD. This model assumes that a student comes to a social situation with a biologically determined set of response capabilities, a storage system full of past experience and prior knowledge, and an information processing system that encodes, organizes and processes information. The behavior that is produced by an eliciting social cue is a function of the way that the student processes social information.

The psychological processes involved in producing social behavior are theoretical in nature and are, at times, difficult to examine. Yet, it is important to examine the causal factors related to social behavior deficiencies within the learning disabled population and across learning disabled and non learning disabled populations. If, in fact, maladaptive social behavior stems from different causal factors for students with and without LD, the appropriate remediation for one ability group may be different from the appropriate remediation for the other.

This paper is a theoretical review of a social information processing model and the link between this model and the ability of students with LD to process social information. A second goal of this paper is to examine the possible differences between students with LD and without LD in their ability to process social information. The social information processing model proposed by Dodge (1986) may be particularly useful in explaining these causal differences. However, in order to understand how this model applies to each population, one must first be familiar with the

cognitive framework upon which this model is based, as well as the specific cognitive processing problems that affect students with LD.
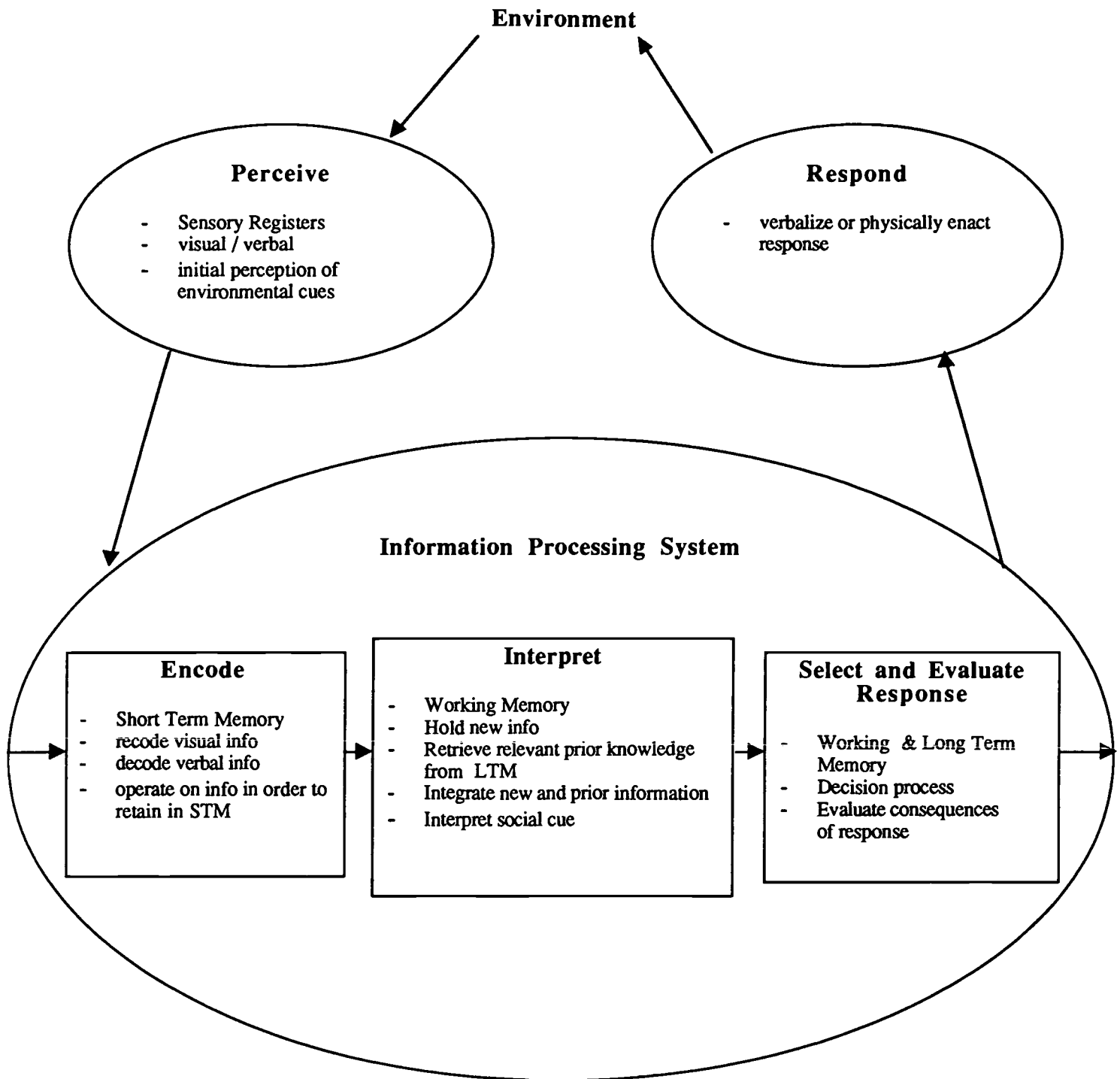
A Social Information Processing Model

Students are involved in many social situations within the classroom. In accordance with many information processing models, students come to these social situations with a biologically determined set of response capabilities (Dodge, 1986; Rubin & Krasnor, 1986). This has been described as being analogous to a computer's hardware system. This system should be intact unless students have suffered neurological damage during pre or post-natal development.

However, this does not mean that all individuals will respond in the same manner to one situation. Response capabilities may differ across students, in that they may be affected or influenced by social or environmental factors. As students develop they are exposed to the way their parents, siblings, teachers and friends respond to social situations. These instances may be encoded or processed by students, influencing the way they react to similar social situations. In other words, as students are exposed to social responses of individuals in their environment, they will develop a database that predisposes them towards particular social responses. The development of this database may also be fostered by accretion of prior behavioral response knowledge with one or many social situations.

Regardless of individual differences, one fact remains salient. Students' behavioral responses to social cues occur as a function of the way that they process information. As with many cognitive models, in Dodge's model (1986) social information is processed sequentially. That is, processing at one stage is dependent upon processing at the preceding stage or stages. The following social information processing framework has 5 stages (see figure 1).

In the first stage, students must perceive the social cues within the classroom environment. This initial perception occurs through the students' sensory registers, typically either visually or auditorily. However, students are exposed to a great deal of information within the classroom. Students must therefore be selective with the cues to which they attend. Generally, a successful

Environment

Perceive

- Sensory Registers
- visual / verbal
- initial perception of
  environmental cues

Respond

- verbalize or physically enact
  response

Information Processing System

Encode

- Short Term Memory
- recode visual info
- decode verbal info
- operate on info in order to
  retain in STM

Interpret

- Working Memory
- Hold new info
- Retrieve relevant prior knowledge
  from LTM
- Integrate new and prior information
- Interpret social cue

**Select and Evaluate
Response**

- Working & Long Term
  Memory
- Decision process
- Evaluate consequences
  of response

1. A Social Information Processing Model   7

beginning to the entire social process occurs when the student attends to the appropriate social cues directly related to the situation to which he or she must respond (Dodge, 1986).

The second stage in this process involves encoding the perceived social cues. Encoding refers to the transformation of information from a raw perceived form into a meaningful form (Reber, 1995). Information perceived by the sensory registers will be lost unless it is actively attended to and encoded. This process is typically a function of short term memory. The encoding process involves two steps. First, students must recode the information into meaningful form. Often information is in a form that is not easily encoded. For example, as a student perceives information through his or her visual sensory registers, the information is often recoded into verbal information. A fellow classmate may be visually perceived but quickly recoded into a verbal description of the classmate. Second, but almost simultaneously, students must prevent relevant information from being lost, by using tactics such as rehearsal or chunking. These tactics will ensure that information remains in short term memory so it may be operated upon later in this process.

The encoding of social information becomes even more complicated due to the nature of social activity. Within the classroom, activities and situations occur quickly and constantly. Therefore, encoding must occur in real time (Dodge, 1986). That is, students must perceive, attend to and encode social information as it is occurring in their classroom. Therefore, students must encode social information on line, quickly and efficiently. For example, in response to being aggressively pushed during a game of soccer, a student must focus on the cues of the student who instigated the push, his or her own internal sense of hostile behavior, and the external cues of the other students who witnessed the incident. This is a large amount of information to process that must be processed quickly, and due to the limited capacity of short term memory, students cannot attend to all of this information simultaneously. In order to appropriately encode all of this information, students must learn to use heuristics, a method of encoding that reduces the range of possible solutions. Inefficiency at this stage may increase the possibility that students' responses will be deviant or inappropriate (Dodge, 1986; Rubin & Krasnor, 1986).

The third stage in this process involves interpreting the newly encoded social information. In order to do this, the student forms a mental representation of the social event. This representation is then interpreted. This is a function of working memory, in that newly encoded information, attended to in short term memory, is integrated with prior knowledge from the student's long term memory database (Baddeley, 1986). As the new and prior knowledge is successfully integrated, a meaningful interpretation of the social cue may be constructed.

The long term memory database from which students retrieve information includes information that is stored either innately, such as the recognition of threat, or acquired through experience, such as the behavior that was elicited by a similar event that occurred a week previous to the one in question. The previously enacted behavioral response may have been influenced by a multitude of factors including parental, educational, or social factors.

The fourth stage in this process is the response search. Once students have perceived, encoded and interpreted the social cues in a meaningful way, they can begin the process of generating a behavioral response. A response is produced by matching the interpreted social cue with an appropriate response stored in a database located in long term memory. This database is somewhat different from the database that holds the information used to interpret the social cue (Stage 3). However, the separation of these two databases, is not definite. The purpose of distinguishing between the two is only to distinguish between the two types of information that are being retrieved from long term memory.

Keep in mind that for any one interpretation of a social cue, many responses are available to the student. The response selection process involves decision making. The decision of which response to enact is based on a set of criteria or rules. Using the example of the aggressive push in the soccer match, a student may respond in many different manners based on the decision process; he or she may decide that the push was an act of provocation and a retaliative action is warranted, or he or she may decide that the push was an act of aggression and a submissive action is warranted, or he or she may decide that the push was an act of sportsmanship and no action is warranted. In other words, a response is based on some questions that the child asks: Was the

push an act against me or for the soccer match? Do I feel hurt or threatened by this push? Are others around me interpreting the push as an act against me or an act for the soccer match? If the student answers, "Yes, this is an act against me," and/or "Yes, I do feel threatened," and/or "Yes, I do feel that others have interpreted the push as a threat against me," he or she may react in a negative manner. This may or may not be an appropriate behavioral response. On the other hand, even though a student may feel that a negative response is warranted, he or she may react in a manner contradictory to what he or she feels is warranted. This may occur because the student has been socialized in such a such a way. In fact, many classroom practices encourage students to not react negatively to negative provocation. An example of this is evident in the expression, "turn the other cheek". However, in many circumstances, students do in fact, react in a negative manner by retaliating or submitting. Or perhaps even more troublesome is the student who reacts with a negative response when in fact, one was not warranted.

The decision about how to react may be based on the student's innate reflex or the student's prior knowledge with similar social exemplars. Piaget (1965) pointed out that response decisions may be developmental in nature. That is, a young child often hits back when they have been hit, regardless of the circumstance. As children mature, they develop other less retaliative tactics for dealing with similar situations. This maturity may be a result of parental, educational or social influence.

The decision process also includes an evaluation of the consequences of the chosen response. One response may hold different outcome consequences than another. Also, one may be more effective than another. By evaluating the consequences of a response, before its enactment, students take into account the characteristics of this particular social situation. These may include the characteristics of the instigator, the surrounding environment, and characteristics of the self. For example, although a student may encode and interpret the aggressive push as a personal threat and feel that retaliation is warranted, he or she may not initiate a retaliative response because of the physical size difference between him or herself and the provocateur. This process has been compared to the process by which a computer plays chess (Dodge, 1986). A computer

responds to an opponent's move by generating countermoves and evaluating the consequences of each move. The move having the best consequences is selected for engagement. The memory of a computer is large and therefore can process the consequences for each possible response. The human memory system does not have a large capacity and therefore cannot process the consequences for each possible response.

Accuracy in appropriate estimation may also be developmental in nature (Piaget, 1965). Young children are often unable to make accurately estimate the consequences of a response because they cannot hold the necessary information in working memory for a sufficient period of time. Furthermore, young children may respond inappropriately due to a lack of engagement in the estimation process. This may result in children responding in accordance with the first response they elicit. This method of responding appears to dissipate as children mature (Piaget, 1965).

The fifth stage in the social information process is the enactment of a response. Once students have selected, and evaluated the consequences of a response, they must act it out. This usually involves verbalizing information and/or the utilization of motor skills. Using the same example, if a student decides that the aggressive push warrants a response of inquiry in order to further assess the provocateur's intentions, he or she must possess verbal skills in order to enact a script of inquiry. Once a response is acted out, the continual process begins again as the student must evaluate the provocateur's response to his or her own.

Three possible errors may occur during the first three stages. First, students may fail to appropriately encode the new information. This may be a function of inadequate recoding or inadequate use of the tactics or strategies used for retaining information. The second type of error may be a result of students' inability to properly utilize the social cues. This is the case when the child fails to attend to the cues at all. The third type of error may be a function of inadequate interpretation of the social cue. For example, students may encode an unintentional aggressive act as a threat, that in turn may elicit a feeling of threat based on an innate response, or a feeling of threat based on the child's past negative experience with this type of situation. The results of these three types of errors may lead to a deviant or inappropriate response.

A deviant or inappropriate response may also be the result of a breakdown in the fourth (response search) stage. Two possible errors may occur. (a) an error may occur as a student generates a negative response even though the encoded social cues do not warrant such a response; or (b) an error may occur because of an inaccurate outcome estimate. Estimates are inaccurate usually because the student has misinterpreted a provocateur's behavior as hostile. An exception to this may be immature development resulting in a limited or small working memory capacity. This, in turn, may lead to an inaccurate consequence estimation and subsequently, a deviant response.

In summary, the proposed social information model assumes processes that occur at a rapid rate and largely at an unconscious level. Unconscious processing is likely when the task or situation is highly automatic for the student. However, conscious processing may occur when the situation is novel or particularly unusual. Furthermore, Ericsson and Simon (1993) suggest that information is conscious to an individual only when it is heeded in short term memory. Incorporating this into this model, one may assume that only the information attended to in short term memory, during initial perception and/or during enactment of the response, will be available to consciousness. The rest of the processes involve long term and working memory systems and may not be accessible to consciousness.

Students with Learning Disabilities

The field of learning disabilities (LD) continues to grow at a rapid rate. Torgesen (1998) estimates that during the 1994-95 school year approximately 2.5 million students were identified as learning disabled in North America. The National Joint Committee on Learning Disabilities (NJCLD) (1988) defines learning disabilities as:

a general term that refers to a heterogeneous group of disorders manifested by significant difficulties in the acquisition of listening speaking, reading, writing, reasoning, or mathematical abilities. These disorders are intrinsic to the individual, presumed to be due to a central nervous system dysfunction, and may occur across

the life span. Problems in self regulatory behaviors, social perception, and social interaction may exist with learning disabilities but do not by themselves constitute a learning disability (pp. 282)

Students with LD, by definition, experience learning problems that interfere with their academic success. However, an Interagency Committee on Learning Disabilities (ICLD, 1987) found that students with LD often have difficulties in social perceptions and interactions, and have pushed to include this in the 1988 definition. McNamara (1996) reviews research suggesting that students with LD often have low self-esteem and low self concept, and often exhibit difficulties in social situations. There are three possible causes of social difficulties within the learning disabled population. The first two assume that social difficulties may be a function of academic failure. From their early years, students with LD are continually faced with academic difficulties and often academic failure. These problems are often worsened as students both with and without LD compare their performance and as successes are made public in the classroom. This can often lead to feelings of low self worth and low self esteem (see McNamara, 1996). In turn, this often results in peer rejection and poor social adjustment (Vaughn & Haager, 1994). Vaughn and Sinagub (1998) review many studies that find that students with LD fall far behind their non learning disabled counterparts in social skills.

However, poor social abilities may not solely be a function of academic difficulty. Recently, researchers (e.g., Pearl & Cosden, 1982) have demonstrated that students with LD display much less accurate social interpretations of common social situations than students without LD. However, many of the studies that show this result have been criticized for a lacking a solid theoretical framework. Tur-Kapsa and Bryan (1994), recognizing this problem, have suggested that researchers attempt to develop a theoretical framework to explain the findings suggesting that students with LD have difficulty in perceiving and understanding social cues. They have adopted Dodge's (1986) social information processing model to explain these findings. Below is an

examination of the social difficulties experienced by students with LD within an information processing framework.

I believe that the key to establishing this link is understanding the underlying processing difficulties in students with LD. In a recent historical review of research, Swanson (1998) found that students with LD exhibit a variety of difficulties in the area of memory; the underlying construct of information processing. In the following section I will examine the memory processing difficulties experienced by students with LD as well as how these processes may affect social perceptions for these students.

Students With LD and Social Information Processing

In accordance with the proposed information processing model, environmental information is assumed to first enter the appropriate sensory register. Research on the sensory registers of students with LD suggests that these registers are generally intact (Swanson, 1998). Researchers such as Lehman and Brady (1982), Manis (1985), and Santiago and Matos (1994), all found that students with and without LD are comparable at this initial recognition stage of information processing. Therefore, students with LD should have adequate ability to at least recognize social cues within the classroom environment. In simpler terms, these students should not have difficulty seeing and hearing physical or auditory social cues within the classroom.

The next stage in the social information processing model is encoding social cues. This occurs after information is transferred into the limited capacity short term memory. Short-term memories are typically retained as auditory-verbal linguistic representations. Raw visual images that have been perceived by the visual sensory registers are often recoded into verbal linguistic representations because linguistic information is typically more meaningful to the individual. Linguistic information is easily stored and categorized in long term memory. However, some information may indeed be encoded in its raw visual form. In any case, information while in short term memory may be lost if not attended to. The rate of decay cannot be estimated because it is

controlled by the individual. Control is exercised by tactics or strategies, such as rehearsing or subvocalizing, until the information is interpreted and transferred to long term memory.

Tur-Kapsa and Bryan (1994) found that students with LD were substantially poorer than low achieving students without LD in their ability to encode social cues. In their study, the researchers controlled for the hypothesis that learning disabled students' problems in the social domain are related to their verbal processing deficiencies by testing students' ability to decode the verbal vocabulary that was directly relevant to the social situation. Students with LD did not significantly differ from low achieving students without LD on their ability to decode the relevant vocabulary, yet did differ significantly on the encoding process. This finding is not overly surprising as research suggests that the cognitive processes responsible for encoding information are general in nature (Swanson, 1998). Therefore, it is reasonable to conclude that students with LD may have difficulty encoding not only verbal information, but social information as well.

The third stage in the social information processing framework is interpreting social cues. This is a function of working memory, in that the interpretation is produced by integrating the recently encoded information with prior relevant knowledge from long term memory. Baddeley (1986) describes working memory as a limited capacity central executive that interacts with a set of two passive store systems used for storing different classes of information. The phonological loop component is responsible for the temporary storage of verbal information while the visual sketch pad is responsible for the temporary storage of visual-spatial information. The working memory system is viewed as an active memory store that is a dynamic system simultaneously focusing on storing, retrieving and processing information (Swanson, 1998). In earlier studies in this area, researchers argued that students with LD faced problems with specific processes such as phonological coding and rehearsal tactics. However, recent research has found that the memory processing difficulties faced by students with LD may be a function of the executive component of working memory. In a study by Swanson, Ashbaker and Lee (1996), students with LD were compared to students without LD in their ability to handle information under high and low processing demands. They found that students with LD had a significantly lower performance

score under a high load memory condition. These results were similar for verbal and non-verbal material. The results of this study suggest that ability group differences may be related to a general processing deficiency rather than to isolated verbal and non-verbal systems.

Therefore, an executive processing deficiency may affect the ability of students with LD to interpret social cues. If this is the case, these students may have difficulty integrating the encoded information with the information already in long term memory. This, along with the probable encoding difficulties, may have an impact on the ability of a student with LD to produce an appropriate behavioral response.

The fourth stage of the proposed model is the response search. There has not been much, if any, research done in this area, but in accordance with Dodge's model (1986) and the research examining the ability of students with LD to utilize appropriate retrieval strategies, one may be inclined to believe that students with LD may have difficulties with the response search. However, it is important to note that due to the sequential nature of this model, the ability of students with LD at this stage may be confounded by difficulties with the two preceding stages.

Swanson (1998) reviews many studies that suggest that students with LD have difficulty utilizing organizational strategies needed for recalling information. Students with LD are somewhat similar to younger students in that they are less likely to use organizational strategies when searching for information in long term memory. These results have been interpreted as reflecting a developmental lag in the ability of students with LD to utilize appropriate recall strategies. This may also be the case when students with LD attempt to retrieve an appropriate behavioral response. This may be further complicated because of the on-line processing that is needed. Unlike many academic situations, a behavioral response is required almost immediately after the initial provocation.

The final stage of this model is the response enactment stage. This involves verbalizing or physically acting out the response. Students with LD do not have difficulties with verbalizing or motor activity and should not have trouble with this process. However, this stage may also be

viewed as a product of the previous stages. Therefore, the actual response that is enacted may be inappropriate because of the processing difficulties experienced in the preceding three stages.

In summary, students with LD often exhibit inappropriate and deviant social behavior. This has often been explained by the academic difficulties or verbal processing difficulties that these students exhibit. However, by integrating a well-established theoretical framework into this equation, poor academic achievement or deficient verbal processing may not be adequate to explain inappropriate or deviant social behavior. In fact, these behaviors may be caused by processing difficulties that are independent of those responsible for the difficulties that students with LD have with verbal or academic material. Specifically, these students may have difficulty with encoding and interpreting social cues as well as the behavioral response search process. The result may be an inappropriate or deviant behavioral response.

Poor Social Relational Behaviour; Students With and Without LD

As mentioned in the introduction, it is well known that many students, both with and without LD, have poor social skills. The previous section examined some possible causal factors affecting the social abilities of students with LD, but did not take into account students without LD. This is important as it may hold remedial implications. In this section, I address the question of whether students with LD who exhibit inappropriate social behavior should be remediated in the same manner as students without LD who exhibit similar behavior. I compare this paradigm to the garden variety poor reader - learning disabled poor reader paradigm proposed by Gough and Tumner (1986). This paradigm assumes that the reading difficulties of the student with LD stem from problems different from those characterizing the garden variety poor reader. I believe that a similar paradigm may also hold in social situations.

The proposed social information processing model holds that students with LD may have processing difficulties that primarily affect their ability to encode and integrate social cues. This may result in an inappropriate or deviant behavioral response. However, this may not be the case

for students without LD. Yes, these students may respond with equally inappropriate responses, but I believe that this may be caused by something different.

The reading difficulties of the garden variety poor reader have been explained by a variety of causal factors. These include below average intellectual ability, inadequate education, or poor environmental influences. What differentiates this population from the learning disabled population reading at an equivalent level, is a cognitive processing problem. This is usually characterized by a phonological processing difficulty or possibly an executive processing difficulty. In other words, the poor reading performance of students with LD is often caused by a cognitive processing problem, a problem not found in non LD poor readers.

In the same way, the social difficulties of the student without LD may be explained by a variety of factors. These may include poor social environments, inadequate social training in school or at home, or deviant social experiences, all of which may lead to a database full of inappropriate social responses. Therefore, what differentiates the inappropriate social behaviors of students with and without LD is the social processing difficulties described in the social information processing model.

This may be illustrated using the example of the aggressive push during the soccer match. A student with LD may respond in a negative manner even though the push was an act of sportsmanship. This may be due to the inability of the student with LD to effectively encode or interpret the social cues. This may be the result of an overload of information in working memory or the quick rate of the on-line processing that is required. The student without LD, on the other hand, may also respond in a negative manner but this is not due to a processing problem. Instead the student may respond in this manner because he or she experienced such a situation in the past and was told that a retaliative response was warranted. This is not to say however, that a student with LD cannot be affected by similar parental or social influence. Rather, the point here is to show that the response of the student with LD may be additionally affected by a processing problem, whereas the response of the student without LD is not.

One further cautionary note; many students with LD exhibit appropriate and even exemplary social skills. Often these students are taught metacognitive tactics and strategies or are given strong parental, educational or social support. These networks, tactics and strategies often enable students with LD to compensate for processing difficulties and therefore, produce appropriate and effective behavioral outputs. Also, the learning disabled population is heterogeneic in nature and therefore, some students with LD will not have problems processing social information. However, a salient characteristic of students with LD is the processing difficulties that they experience. These difficulties may be an important causal factor in their ability to effectively process social information and therefore deserve attention. Furthermore, many students with LD are able to achieve grade level reading skills by participating in remedial reading programs designed to address phonological processing difficulties. In the same way, social remedial programs designed to address social processing difficulties may be effective for students with LD who exhibit inappropriate social skills.

Social Skills Intervention

The above section speaks to the need for social intervention specifically for students with learning disabilities. Perhaps the most prominent guiding theoretical framework behind social interventions is the deficits model, which points to the student with LD as the source of the problem and as the focus for intervention (Wong, 1996). Ladd and Mize (1983) proposes one such program. Their cognitive - social learning model is designed to assist students with LD to cope effectively with social information. This model posits that students learn behaviors through observation and their interpretations of the consequences of implementing these behaviors. In accordance with this model there are three objectives for instruction: enhancing skill concepts, promoting skill performance, and promoting skill maintenance and generalization. Ladd and Mize (1983) suggest three instructional techniques to meet these objectives.

The first technique is instruction, defined as providing information that exemplifies the desired behavior. The instructional example can be verbalized or modeled. Techniques for doing

so are role-play, videotaped exemplar situations, or simply a verbal discussion about provocation and behavioral responses. This technique will enable students with LD to experience and appropriately encode social cues. This technique will expose the student to appropriate behavior that, through continued practice, may develop into the database of responses from which the student can retrieve response alternatives when required. In other words, this technique will develop the appropriate prior social knowledge.

The second variable is rehearsal. This involves acting and/or practicing a behavior until it reaches a standard. This can be overt, as when a student practices a specific behavioral skill, or covert, as when a student mentally rehearses a specific behavioral skill. This technique will enable a student to practice the encoding of social information as well as how to appropriately interpret a social cue. Corrective feedback will enable the student to evaluate his or her own success in each situation.

The third variable is feedback. This is useful in that it allows the student opportunity to evaluate the extent to which the exhibited behavior corresponds to the target behavior. This corresponds well to the fourth stage of the social information processing model, in that students are able to evaluate the consequences of their chosen behavioral response.

The cognitive - social learning intervention is one that will maximize the probability that students with LD will produce, and maintain positive social interactions. Furthermore, this model accounts for the possible encoding, interpreting and searching difficulties that students with LD may experience. However, social skills problems are not ubiquitous among students with LD, and although interventions such as the one above may be necessary for some students, it is important to target those students with LD who lack the relevant social skills and will directly benefit from such a program.

Conclusion

Social information processing is indeed complex. The general information processing framework attempts to explain the movement of information from the environment to the individual

and back to the environment. This process is often at an unconscious level and involves cognitive tactics and strategies; emotional, social and contextual variables; as well as the individual's biological characteristics. This process becomes even more complex when social variables are added to the equation. Social situations differ across contexts, environments and individuals. When examining students both with and without LD and their ability to process social information, one needs to consider the vast differences between home and school and the social situations that occur in these environments.

However, the fact remains that many students with LD have poor social skills, are often rejected by peers, and often have low self concept or low self esteem. Past research has held to the hypothesis that this may be a result of their academic failure initially caused by a phonological processing difficulty.

Recently, researchers have proposed an alternative hypothesis (Tur-Kapsa & Bryan, 1994). This hypothesis assumes that language deficits and social deficits in students with LD are independent of one another. Social deficits may result from deficiencies in underlying processes of students with LD that solely affect the acquisition and maintenance of social skills. Assuming this hypothesis, Dodge's (1986) social information processing model integrated with the memory research of Swanson (1998) may help to explain the underlying deficiencies. Specifically, students with LD may have difficulty encoding, interpreting and searching for responses to social information. It is possible that these deficiencies are a result of problems with information processing. Specifically, these deficiencies may occur in short term memory, executive processing, and strategy production and utilization that in turn affects information storage and retrieval. Any one or combination of these problems may result in a student's inappropriate or deviant behavioral response.

In conclusion, this theoretical review proposes that language problems may not be the sole cause for poor social skills within the learning disabled population. Students with LD may, in fact, have difficulties with the acquisition and maintenance of social information. Therefore, it is

suggested that social remediation programs consider the possible underlying processing difficulties

that may affect students with LD and their ability to process social information.

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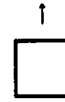| The sample sticker shown below will be affixed to all Level 1 documents	The sample sticker shown below will be affixed to all Level 2A documents	The sample sticker shown below will be affixed to all Level 2B documents
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