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Master of Education

by
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Do computers help educators navigate the myriad of paperwork seen in special education, or do they add to the frustration?

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Abstract

It can be a daunting task for education professionals to maintain the numerous documents that accompany today’s students with special needs. This documentation is very useful and even required by law, but it is a huge workload. This research addresses the following question: Can a computerized data collection system with all of its organization and task minimizing abilities prove to be a great tool for educational professionals, or will the added complexity just fuel the frustration?

A data collection system was implemented at a K-12 school for at risk students. Educators used the system to perform data tracking and reporting of several areas including daily behavior report cards and incident reports. After two years of use the educators who used the system on a daily basis were asked to anonymously complete a survey of their satisfaction with the system compared to the previous paper-based system. Survey data collected supports the hypothesis that a computerized data system is desirable over a paper based system. Suggestions for implementing such systems are included in the discussion section.
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Introduction

The documentation required to support students with special needs can be overwhelming. Student documentation includes an Individualized Education program (IEP), Evaluation Team Report (ETR), Functional Behavior Assessment (FBA), Behavior Plan, Diagnostic assessments, daily behavior report cards (DBRC), grades, phone log, incident reports, and student self-monitoring charts. To give an example of how difficult it can become keeping these documents organized and pertinent, consider the following example:

A student diagnosed with severe emotional disturbance has an IEP stating that he will reduce his classroom disruptions from “almost always” to “seldom”. A behavior plan is created to guide the student and teacher toward the desired outcome. A daily behavior report card is created to document progress, and the student keeps a daily reflection journal on his progress and suggested methods for improvement. These sound thorough, but consider the following problems.

Problem #1

The student’s doctor calls the school wanting to see documentation showing when the student is most and least disruptive so that his medication dosage or time can be modified. There is a DBRC for each day the student has been in school, but how do you extrapolate a composite best and worst hour of the day? If the DBRC uses a likert scale, do you average all the numbers by hand? What documentation do you show the doctor?

Problem #2

At the end of the quarter, a progress report must be sent to the student’s parents showing a percentage of improvement. By law there has to be documentation related to each goal on the IEP reflecting the amount of progress the student has made towards each
goal. Do you estimate progress or do you lay out all of the student’s DBRCs to get a more mathematical representation of progress?

Problem #3

Assuming a thorough examination of the DBRC’s, more than likely it will be found that the student made progress at times and regressed at other times. The inevitable question then is why? Perhaps something happened at home or maybe there was a change in the classroom at the time when he regressed. The student’s teacher remembers talking to the parents about something that might have caused the regression, but how do you ensure that the time of the event and the regression coincide? Careful examination of phone records to the parents might contain the answer. Perhaps an incident report contains information related to something that happened at school that could have caused the regression.

Problem #4

If the triggering event is discovered, the behavior plan will need to be modified to ensure there is a plan of action if the event occurs again. The behavior plan will probably be modified several times over the course of the student’s education. How will his future teachers know what has been tried and what hasn’t and to what end? Will all revisions of the student’s behavior plan follow him the next year?

Problem #5

The preceding example is just one student. Suppose there are 100 students with special needs in the school and the superintendent wants to know how effectively the staff is able to produce change in students. How would percentage of improvement over time be documented for all students with special needs? How do you show which teachers are most effective in producing change in their students?
Possible Solution

Education professionals need help pulling all of this documentation together and keeping it organized. In today’s age of computers, there must be some system available (or that can be created) to solve the documentation needs of special educators. In fact, some such systems exist, but many schools do not utilize them. Many educational professionals may be reluctant to purchase or implement systems that are expensive, are not proven, or that might meet resistance among the employees that will be interacting with the system. The S.P.I.D.E.R. computer system which stands for Special education Instrument for Data collection, Evaluation, and Reporting will be studied in this research. The following research will determine if the S.P.I.D.E.R. computer system proves to be useful in reducing the documentation work load that educational professionals face concerning students with special needs. If computer systems are the answer, then this research could reduce the reluctance of educators to implement them. Once implemented, the workload of educators will be reduced, producing happier employees. Most importantly, the computer-based system could improve the level of service provided to students with special needs. On the other hand, if this research had found that this computer system added to the work load of educators or was not useful; such a system could have been avoided or at least better understood.

Review of Literature

After an exhaustive literature search, only a few products were found that offer to solve some of the problems posed above. Some of the products are online. One is
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located online at [www.curriculumassociates.com](http://www.curriculumassociates.com) while another can be found at [www.esis.org](http://www.esis.org). They offer a way of creating, sharing and maintaining student individual education program (IEPs) and functional behavior assessment (FBAs). Once entered, the student information can be viewed between departments or across school districts which offers greater continuity of services for students moving between school districts.

However, the data collection process at [www.curriculumassociates.com](http://www.curriculumassociates.com) is paper-based, and doesn’t offer a daily data collection method. The [www.esis.org](http://www.esis.org) system does not offer a daily charting feature. Therefore, these systems do not quite fit the requirements and needs of special education teachers and related service professionals. The other product is called “School Wide Information System” (SWIS) that keeps track of student records and is especially useful for referring students to another district. This product also keeps track of some behavior events, but again does not appear to have daily data tracking capabilities.

That is not to say that S.P.I.D.E.R. is the only one out there; however, no others have been located that record and report daily behavior in addition to managing the other documentation. The availability of only a few other similar systems implies that schools recognize the need to have a tool that keeps track of the large amounts of student information. The lack of other systems like S.P.I.D.E.R. also doesn’t mean there is no literature existing on the topic, quite the contrary. For years, education professionals have been researching data collection in the classroom. This literature is reviewed to see how it relates to what computer-based data collection programs have to offer.

**Daily Behavior Report Cards**

One data collection tool in use by several schools is the daily behavior report cards (DBRC) to document student behavior. DBRCs document a single student’s behavior at
least once a day related to a pre-determined goal or set of goals. This performance-based behavior recording procedure is recorded using a Likert scale to show progress over time and speed the rating process (Steege, Davin, & Hathaway, 2001). DBRC’s are typically produced by the classroom teacher. Much debate has risen over the validity and accuracy of DBRC’s as opposed to direct observation. Direct observation is thought of as the gold standard in behavior data collection. According to Chafouleas (2005), direct observation typically involves a dedicated staff member recording a student’s behavior for a given period of time, and is recorded as the behaviors are occurring.

However, there are several disadvantages to the direct observation method. First, they are time consuming. While it might take less than 30 minutes to record a student’s behavior data, multiplying that time by the number of students in a classroom adds up to the teacher not having enough time to teach. Data collection has to be repeated to collect a good baseline and then several times again during several intervention strategies for every student to show any potential change in behavior. This may be tolerated for a day or two, but eventually the teacher has to teach. Also, if the teacher is doing less teaching, then the environment has changed and what is being measured is not what would occur during the typical class session. To help facilitate the data collection some schools will hire a classroom observer to perform the direct observation. However, many schools can’t afford an additional person on the payroll.

Chafouleas (2005) notes that there needs to be a balance between precision and the availability of resources. This research most notably states there is no significant behavior rating difference between an observer recording direct observation of a student and the teacher filling out a Likert scale on a DBRC after class has ended. Flugum and Reschly (1994) state that less than half of teachers and related school service personnel
used a direct observation method. Additionally, although defining and measuring behavior goals are a useful outcome of direct observation, positive student outcomes were not strictly associated with this method. Nolan & Gadow (1994) suggest that direct observation beyond the purposes of research applications is impractical. This is good news because not only do schools need to afford to collect the data, the DBRC’s need to be accurate. The accuracy of the rating is important because, according to Chafouleas, (2007) they are used for monitoring the effects of medication, assignment completion, defiant behavior, social behavior, and soliciting parent involvement. Even great ideas backed up by solid research are useless unless they can be implemented. Chafouleas (2006) reports that the DBRC is a flexible and widely accepted method of data collection among teachers. Keeping this in mind, the following research was designed to determine if computer-based data collection shifts this balance towards precision and simplicity or adds to the demand on school resources.

Prevention of Problem Behaviors

Once one gets past the daily data collection, how can the data help the students, especially those with emotional disturbance or severe behavior disorders? Researchers suggest the best way to decrease problem behaviors in school is through the use of a prevention-based model (Sprague, Sugai, & Walker, 1998; Walker et al., 1996). A prevention-based model has the following characteristics; a) identifies 3-5 positively stated expectations, b) instructs students on the expectations, c) provides reinforcements and consequences, and d) uses data to determine plan effectiveness (Lewis, & Sugai, 1999; Sugai, & Horner, 1999). The following research will demonstrate that the computer-based data collection supports each of these areas and is demonstrated in the
discussion section. But what if educators do all these things and there is no improvement in behavior?

Behavior Support Plans

Crone and Horner (2003) state that some students don’t respond to broad-based interventions. In these cases, functional behavior assessments (FBA) and intensive, individualized behavior support may be helpful. A functional behavior assessment is the process of gathering data from multiple sources to identify student triggers, strengths, and points of frustration, so that problem behaviors can be predicted and extinguished. From the FBA, a behavior support plan (BSP) is created for the student and teachers to follow. It encourages the student to engage in alternative pro-social behaviors and allows teachers to adjust the student’s environment to prevent the problem behavior from occurring (Horner, 1994). In fact, IDEA 1997 called for the implementation of FBAs and BSPs for students with disabilities who were at risk for change in placement. The reauthorization of the Individuals with Disabilities Education Act (IDEA; P.L. 105 – 17) now requires functional assessments and behavior intervention procedures to be implemented in the disciplining of students with disabilities. Nearly all students at the school where this research was conducted have had a change of placement and therefore should all have a behavior support plan in place that is communicated to all teachers that interact with the student throughout his/her day. This is another huge stack of paperwork that the special education teachers have to juggle daily.

Required by Law

This point should be emphasized again. Educators have to juggle these documents. By law, teachers are required to meet students’ needs through the creation and implementation of these documents. Educators not only have to go through the motions
of creating and implementing these documents, they must be done well. For example, in the case of Cobb County School District vs. Kristen B. (1997), the court decided the IEP developed for Kristen failed to include appropriate objective criteria and evaluation procedures. It was decided that systematic means of measuring were a significant departure from federal regulation (Gunter, Callicott, Denny, & Gerber 2003). Had a properly developed IEP and DBRC been in place to document daily progress, the lawsuit may have been avoided and the student better served. The purpose of this research is to address this very issue. It is a teacher’s job to properly perform all these tasks well, however overwhelming it may be. It may be found that simply making paper copies of these documents may not be enough to adequately meet the requirements of the law. The new age of special education may require the use of computer-based documentation. The following research was designed to examine whether or not a computer-based data collection system helps or just adds more balls to the juggler’s hands.

School Performance

Not only do schools need to track a tremendous amount of student data, but also school data as well. Samuels (2005) states the Federal Department of Education has outlined more than 30 separate indicators that states must begin tracking for children with disabilities. States are not only being required to track this data, but also to create benchmarks that show how they are going to improve student performance. The data educators are required to track never seems to end. The following research examines if computer-based data collections systems can help track school performance.

Teacher – Parent Communication
Good documentation doesn’t end in the classroom. Darch (2004) tells us that to be successful with students with behavior problems, teachers must also plan strategies for collaborating with families. This research addresses the benefits of parent involvement including higher test scores, better attendance, better homework completion, and more positive student motivation. Trusty (1998) explains that family, schools, and students benefit from effective parent-teacher collaboration. So how do teachers include the parents? According to Darch (2004), while they probably won’t initiate involvement, parents are already willing. “Parents of students with behavior problems are interested in learning about specialized reinforcement and discipline techniques that can be applied in their home” (p. 25). This is probably because students who are disruptive at school are also disruptive at home (Walker et al., 1995). One of the ways Walker and colleagues suggest to involve parents is through communication. Talking with parents and finding out about their attitudes about school, learning, and their expectations of their child’s performance is recommended (Darch, 2004). Darch also recommends being the first to take initiative in communication and always starting on a positive note. Perhaps too many negative phone calls can make parents defensive. Can a computer-based data collection system help with parent involvement? The following research will also seek to answer this question.

Method

This research investigates a computer system called S.P.I.D.E.R. which stands for Special education Instrument for Data collection, Evaluation, and Reporting. It was implemented at a K-12 school for at-risk students that will be referred to as “The School”. Over fifty employees at the school interact with the S.P.I.D.E.R. system on a daily basis and depend on it to provide information about the 165 students with special needs that
attend. Seventy six percent of the students served had a primary disability category of emotional disturbance. Eight percent of students served met the criteria for autism. Six percent of students served met the criteria for cognitive disabilities, and an additional 6% of students served were classified as typically developing and non-disabled. The primary disability category for 4% of the students fell within the classification of learning disability. The school provides an organized and structured multi-disciplinary treatment program as an alternative to hospitalization.

The S.P.I.D.E.R. system was developed using a central database to share information simultaneously between users. The user interface is a user friendly website accessible using any standard web browser. Information managed by the system includes daily behavior reports, student behavior trends, incident reports, phone logs, incident trends, school and classroom performance trends, grades, IEPs, ETRs, behavior plans, and more. All data collected using the system can be extrapolated automatically to generate common reports used by education professionals. Additional details of the S.P.I.D.E.R. system can be found in the appendix section.

Participants

The number of employees and students at the school has increased since 1994. At the time the S.P.I.D.E.R. system was first implemented there were about 100 students and 38 employees. The number of students and employees constantly changes. Two years later when the research survey was taken there were about 130 students and 43 employees. Of the 43 employees, 30 worked daily with the S.P.I.D.E.R. system and were eligible to participate in the anonymous study. The data in this voluntary study was collected at the end of the 2006 – 2007 school year from twenty three participants that had used the S.P.I.D.E.R. system for at least one year. The system was implemented in
its most simple form during the 2005 – 2006 school year. During the two years of its
development, features were added and the operation of the system was modified to meet
the needs and requests of its users. Some participants in the study were hired by the
school after the S.P.I.D.E.R. system was implemented. The data these participants
provided was separated from participants who used the paper-based system before
S.P.I.D.E.R. was implemented resulting in two groups, one group of users who had
experience with paper and with S.P.I.D.E.R. and a second group having experience with
S.P.I.D.E.R. only. This allowed the data to be examined for bias and validity.
Distribution and collection of the survey was conducted via the school mail during the
last two weeks of the school year. There were no incentives to participate in the study
other than a willingness to provide feedback that may have been used to improve the
system.

*Instrument*

The data for this study were collected using a 10-item questionnaire. The first
question was to determine if the participant had used the paper-based data collection
system prior to the implementation of the S.P.I.D.E.R. system. The next nine questions
used a 5-point likert-scale ranging from strongly agree to strongly disagree. The last
section allowed the participant to leave their own comments and suggestions. This
section was used to provide suggestions for another study, improvements for the system,
and a more detailed explanation of how well the participant felt the system met the needs
of the school. The following is an example of the types of questions asked:

Getting a copy of the daily behavior chart to the student at the end of the day using the
computer based behavior program is faster than photocopying hand written charts.
Data Analysis

All survey questions were worded in favor of the S.P.I.D.E.R. system. This was done to decrease confusion in Likert selections and to show level of agreement in using the S.P.I.D.E.R. system. A “Strongly Agree” response was given a value of +2, an “Agree” response was given a value of +1, an “Unsure” response was given a value of 0, a “Disagree” response was given a value of -1, and a “Strongly disagree” response was given a value of -2. The responses for each question were then averaged to show an overall level of agreement. For instance, a negative average score indicates that participants did not agree the S.P.I.D.E.R. system was useful for the particular area in question. A positive average score indicates that participants agree the S.P.I.D.E.R. system was useful for the particular area in question.

The first question on the survey was to determine if the participants had used the paper system before S.P.I.D.E.R. was implemented. This allowed for further examination for causes of level of agreement. The survey ended with an area for comments. This section was manually coded and scored using the same scale to determine if the comments were for or against using the S.P.I.D.E.R. system. Results indicate, among other areas, ease of use, level of frustration, perceived value for students and educators, and level of accountability.

Validity

The participants in the study were educators at The School who use the system. Participation was voluntary, anonymous, and there were no incentives to participate. The
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validity of the results may have been skewed by a desire for the participants to convey their frustration in using the system or give praise to the system’s creator who was the same person conducting the survey. Many of the participants recorded positive and negative comments in the survey adding to the validity of their feedback. The most likely reasons for an invalid result would be from the limited number of participants and that only one system was being studied. The number of participants was limited because of the uniqueness and rarity of the system and the school in which it was implemented.

Validity of the study was not disputed at any time by the participants. The raw data from the survey is included and the results of the study will show that the hypothesis is supported. Participants agree that the S.P.I.D.E.R. system is desirable over a paper based system based on its ability to help education professionals stay organized and provide documentation to support the IEP process.

Results

Several factors contributed in determining if a computerized data system is desirable over a paper based system. Each area was scored on a 5 point likert-scale from -1 to +1 and then averaged to show a level of agreement. This average score is referred to as an “agreement score”. The more positive the agreement score, the more the participants agreed with the survey statement. The more negative the agreement score, the more the participants disagreed with the survey statement.

The average response for all 10 areas considered in the survey resulted in a positive agreement score of 0.9, in favor of the S.P.I.D.E.R. system. There was only one area that participants rated with an overall a negative agreement score. Participants who had not used the paper system before S.P.I.D.E.R. was implemented reported a negative agreement score of -0.13 in the comments section. Most negative comments involved
aspects of the system that were unrelated to the areas being surveyed. More details about the participants’ comments are included in the recommendation section. All other areas covered by the survey received a positive agreement score from the participants.

The weakest area of agreement among participants (question #5) states; “The computer-based behavior program helps students manage and understand their own behavior through the use of behavior plans, trends, and daily feedback.” This question may have been poorly stated. While this area of the system may have functioned as well as the other areas, participants may have felt that students were not able to understand their behavior better because of the S.P.I.D.E.R. system over other methods.

The strongest areas of agreement were achieved with questions seven and eight each with an agreement score of 1.22. Question number seven stated “the computer-based behavior program increases communication between teachers related to student behavior; for example, when students switch classes and changes in behavior plans.” The reason agreement may have been high in this area could be due to the absence of a system that addressed this need prior to the implementation of S.P.I.D.E.R. Question number eight states, “Historical data is easy to access using the computer-based behavior program.” This area also was not addressed before the implementation of the S.P.I.D.E.R. system which could lead to excessively high ratings in favor of the S.P.I.D.E.R. system. Compiling historical information from the paper-based system was labor intensive. A more in-depth description of the work required to manually compile historical information from a paper-based system can be found in the discussion section.

Participants also had an agreement score of 1.17, indicating that the system was perceived as being “easy to use”. Finally, an agreement score of 1.13, indicated that preparing
copies of the daily behavior report cards for students to take home at the end of the day was reported to be easier than photocopying hand written charts.

Figure 1 shows the average agreement scores for each question by all participants. Figures two and three separate the participants into two groups; the participants that used the paper-based system before the S.P.I.D.E.R. system was implemented, and those participants who only used the S.P.I.D.E.R. system. The average agreement score for participants who used the paper-based system prior to the implementation of the S.P.I.D.E.R. system was .92, higher than the average agreement score from the group who only used the S.P.I.D.E.R. system. The average agreement score for all questions among all participants is .88, supporting the hypothesis that the computer based data collection system is more desirable than the previous paper based system based on its ability to help education professionals stay organized and provide documentation to support the IEP process.

*Figure 1*
**Figure 2**

![Graph: Used paper and SPIDER](image)

**Figure 3**

![Graph: Only used SPIDER](image)
Discussion

The results of the survey support the hypothesis that a computerized documentation system can help education professionals stay organized and provide documentation to support the IEP process. Most educators were very much in favor of using the S.P.I.D.E.R. system. The participants with the most notable objections were those who had not used the paper charting system. This group made comments that disagreed with the use of the S.P.I.D.E.R. system and had an average agreement score of -0.13. Many of the participants were frustrated with the paper system that was in place before S.P.I.D.E.R. These were the participants who were very happy with the system and the results that it brought to their classrooms.

While the students may not have noticed any improvement in services, they did however grow very accustomed to the color-coded DBRC. Students became very excited for instance to receive an “all green” chart. It was also easier for the students to see at a glance how they did by looking at the colors as opposed to having to read all the handwritten numbers. Without getting too far ahead, perhaps revisiting the five problems presented in the case study is the best way to demonstrate an accurate hypothesis.

Problem #1

The first problem presented in the case study had to do with trending behavior so that decisions could be made concerning medication, schedule, and environment. Question #8 in the survey gets to the heart of this matter and participants agreed that the S.P.I.D.E.R. system was a useful tool in generating historical data. An example of the documents that can be generated through a few mouse clicks is shown in Figure 4. Users can see from the charts that the student meets his goals best in the middle of the day. A
closer examination can be made as to which classes he has in the middle of the day that might affect his behavior.

*Figure 4*

**GOAL TRENDS**

| HOME | Start 10/24/07 | Days 2 Blaze |

![Graph showing goal trends](image)

*Problem #2*

The second problem presented in the case study is really an extension of the first. When it comes time to submit progress reports for students with an IEP, educators must have hard evidence demonstrating student progress. Again, question #8 addressed this issue. As seen in Figure 5, users can quickly see if a particular goal is being achieved by a student, how quickly progress is being made, and may even project when the goal will be met.
Problem #3

The third problem presented in the case study concerns parent-teacher communications and teacher-to-teacher communications. These areas were addressed by survey questions 4 and 7 and had agreement scores of 0.7 and 1.22 respectively. The importance of documenting incidents and communicating these events to others in the education field and to the student’s homes is paramount. The S.P.I.D.E.R. system
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addresses this problem with a phone log to track communications with parents and an incident report form that generates reports that can be queried for specific information. Examples of these documents are shown in the phone log and incident report sections of the S.P.I.D.E.R. user’s manual found in the appendix.

Problem #4

The fourth problem presented in the case study concerns the tracking of student documents such as behavior plans, individual education programs (IEPs), evaluation team reports (ETRs), and diagnostic assessments. This area was addressed by questions 6 and 7 which have agreement scores of 0.96 and 1.22 respectively. Participants agreed that the S.P.I.D.E.R. system was valuable in making these documents available to users.

Problem #5

The fifth problem presented in the case study concerned the school’s ability to track how effectively the educators were able to help students meet IEP goals. An example of how the S.P.I.D.E.R. system displays this information is shown in Figure 6. Again, participants showed agreement of 1.22 on question #8 that the S.P.I.D.E.R. system easily produced this historical information.
Many of the participants reported high levels of agreement related to the way that the system interprets information using graphs and charts. This could be because producing charts using the previous paper-based system was labor intensive. In order to trend a student’s progress for a goal, teachers had to first pull out of a file cabinet all of the DBRC’s for the particular student. Then, the teacher had to manually type the numbers into a spreadsheet program. Next, the teacher had to enter formulas for averages and manipulate the data to present the desired information. Finally, the teacher would use the graphing abilities of the spreadsheet program to generate the desired graph. Using the S.P.I.D.E.R. system, teachers can generate graphs for all goals and all students in the entire school within seconds.
Question number ten asked participants if the S.P.I.D.E.R. system increased staff professionalism. This issue is the most important for schools that utilize control positions for students in danger of hurting themselves or others. Any time a student is restrained, an incident report has to be written and the behavior plan has to be modified according to the policy at The School. Furthermore, educators discuss the event in detail to ensure procedures were followed during a meeting called a post-intervention. The S.P.I.D.E.R. system provides a means of tracking all incident reports and phone calls that involve a restraint to ensure procedures were followed. An example of this can be seen in the “Team Reports” section of the user’s manual.

There is a large amount of paperwork that education professionals are required to maintain. Each of these areas discussed address some of the main concerns they face daily. This research shows that each problem has an accompanying solution available in the S.P.I.D.E.R. system. While these solutions may not be the best solutions, they are measurably better than the previous paper-based system that the school was accustomed.

Recommendations

School administrators interested in implementing a system like S.P.I.D.E.R. should consider the following concerns stated in the participants’ comments. Many participants had trouble printing the daily behavior report cards due to printer problems. The school utilized a central network printer to meet the needs of all users with a cost-effective solution. This design worked until the printer was offline. When the printer is unavailable, no one is able to print their daily behavior report cards, leading the users to perceive the S.P.I.D.E.R. system as being faulty, rather than a printer-related issue.

Training is another area that needs to be stressed. Many users were upset that two users were not able to edit a student’s daily chart at the same time. This is a physical
impossibility for any system, but users often perceived it as a limit or fault of the particular system.

Another area of concern is system reliability. The S.P.I.D.E.R. system was designed “on the fly”. In other words, changes were being made to the system while it was in operation. The users played a role in debugging or testing each new revision. This added burden onto the users and possibly gave them a perception of low reliability. Finally, having an administrator available to users to answer questions and assist with areas of concern seems to increase user perception of reliability.

Future studies should consider comparing data collection systems. As more systems become available and put into practice, education professionals will begin to require statistics on how each available system can meet the individual needs of schools.

This study examined the perspective of educators. Future studies could be performed from the perspective of the students and parents. Such studies could compare students in a school that does not utilize a computer-based data collection system with students at a school that have implemented a system like S.P.I.D.E.R.

The five problems discussed in the introduction are problems that all educators face. Providing solutions that can be easily implemented should be a priority among educators. Hopefully this research enables others to consider implementing systems like S.P.I.D.E.R., or creating systems that are even better.

References

Chafouleas, S. M., Riley-Tillman, T. C., Sassu, K. A., LaFrance, M. J., & Patwa, S. S.
Special Education goes Paperless


Special Education goes Paperless


Appendix


SPIDER

Operator’s Manual

Version 1.1

Email Tech Support
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Overview

SPIDER is a collection of programs that help teachers handle the paperwork associated with students with special needs. One of the documents is called the DBRC which stands for daily behavior report card. Students have individualized plans to help them and the staff members achieve agreed upon behavior goals. Each plan is effective for one year before reevaluation. During the course of that year it is very important to know how well the student improved towards meeting those goals, outside factors influencing their success, and what interventions were attempted and to what outcome.

The purpose of the DBRC charting program is to be able to quickly capture the maximum amount of meaningful student data. Data for any student can be entered by any staff member to increase the amount of data entry opportunities. This information is then used to better service students, increase communication among staff, and document any unusual incidents. Data is collected each period based on how well the students met their ISP goals on a scale of one to five. A one meaning the student never met the goal, and a five meaning the student always met the goal for a given period. Comments are collected throughout the day to support the scoring and to note anything special that happened during a given class. Because of the rich data collected by the DBRC charting program, several reporting functions are available, and can be used to communicate to physicians, family, and staff how each student is progressing.
Entering Data

The DBRC screen shows one student’s information for a single day. Columns represent one of the four ISP goals and rows represent a 45 minute period. Data is modified by placing the cursor on the number to be changed and typing the number. The next number is selected by pressing TAB. Staff members are encouraged to enter as much information in the comments section as necessary to explain each period. A spell check is available to mark spelling mistakes. The data can be shown in color or black and white. Black and white is sometimes preferred when printing to a black and white printer.

Different students can be selected by clicking on the dropdown list and selecting a student or by using the next/previous buttons to select the next or previous student in the class. The date previous/next buttons can be selected to see data for a particular student on a different day. Data for a different date can also be viewed by changing the date in the date box and pressing enter.

The drop-down box at the top right is used for marking if the student was absent, school was cancelled, or if there was no school because of a holiday. This information helps explain gaps when trending the data. This is also a quick way of checking for truancy. Selecting a different class can be done by selecting the teacher text box, typing in the new name and pressing enter.
Behavior Plan

Selecting the behavior plan button at the bottom of the main screen will bring you to the student’s Behavior plan. Within fifteen days from the time a student is placed in seclusion or is restrained there must be a behavior plan in place to help the student and staff identify the student’s needs more accurately. The behavior plan identifies the student’s triggers, what strengths the student has, what behaviors to increase and related medical information.

Any time a new behavior plan is created the old one is saved so that staff can click previous or next to see what did and didn’t work in the last plan. Also, when printing the behavior plan the ISP Charting program stamps the date that the plan was entered to increase the integrity of the data. In a similar way, student IEP, ETR, and Diagnostic assessments can be tracked and shared among users.
Phone Log

Selecting the Phone log button on the main screen will show all of the phone calls that were made concerning a student. New phone calls can be documented by selecting NEW. The top of the screen will display the new blank record. The students phone numbers are displayed at the top of the screen for easy reference. Staff then enter the team the student is on, if the call was a concern, or a positive call, and the details of the call. Previous calls can be reviewed by clicking on them in the list at the bottom of the screen.
Grades

Class grades can be review and modified by selecting the GRADES button on the bottom of the main screen. Similarly to the main screen different students can be selected by choosing them from the drop-down list at the top left of the screen or by pressing the previous/next buttons. The grades screen shows the number of absences the student has had in a given quarter and allows the staff to enter a rule for grade reductions based on absences. A zero in the reduction per absence box will disable this feature.

Grades are entered by selecting the date the grade was given from the list box. Place the cursor on the yellow input box for the corresponding subject. Type the grade and press enter. If a subject is not listed, simply place the cursor in one of the fourteen subject boxes and type the name of the class.

All grades are given the same weight unless noted in the Weight box. If this grade contains a percentage then the grade is marked with a '*' and that grade is weighted accordingly. Comments for a day’s grades can be entered in the comment section. When entering grades be careful to note the quarter. The quarter that the grade is for is displayed next to the date under the comment heading. When the current quarter changes to the next, the quarter number must be changed. Subsequent grades will automatically display the new quarter number.

The bottom of the grades screen displays each quarter’s average grades as well as the running yearly average. Grades can be printed from this screen by single student or the whole class.
Selecting the TRENDS button from the bottom of the main screen will display a list of trends to choose from. Anytime someone wants to view data in a new way or search for new information the program can be modified to show this information an a new button added here. The first trend in the list is the student’s yearly trend.
Student Yearly Trend

This trend allows staff to view the trend of each individual ISP goal. Trends can be turned on or off by selecting the checkbox under the goal description. A vertical cursor is provided to navigate the trend. When the graph is clicked the corresponding information is displayed for the selected date. This is a great way of quickly checking trends in individual goals.
**Student Bi-Weekly Trend**

This trend shows a bar graph for each goal, each period over the course of two weeks. This screen is often viewed by physicians to see if there is a particular period of time when the students medication could be adjusted to increase their success. These trends are also sent home to the parents.
Phone Calls

The PHONE CALLS button will display a screen for showing how many students have less than an certain number of phone calls. To view the list, enter a number of phone calls to search for and then click update. The students names are listed next to the number of times their homes have been called this school year.
Ones and Twos

The Ones and twos trending option shows the effectiveness of Excel Academy’s program. The trend shows the percentage of 45 minute periods where students did not achieve their ISP goals. Any class period where a student receives a score of 1 or 2 is added to the trend value for the day. The sum of the “bad periods” for each day are then trended to hopefully show that the number of periods where students do not meet their ISP goals is decreasing.

Also related to this trend is the list of students who are having the most trouble meeting their ISP goals. This allows staff to focus extra attention on these students to ensure their success.
Incident Reports Overview

Incident reports are created anytime something happens that needs in-depth explaining. For instance, anytime a student is restrained or secluded, or suspected abuse, etc. When an incident report is created the main screen displays ‘INCIDENT REPORT ATTACHED’ in red so that staff knows that one has been entered. Selecting the INCIDENTS button on the bottom of the main screen will display a list of options to choose from. The staff member can create a new incident report, view existing reports for a student, or view reports that have been generated but have not yet been reviewed by the team leader.

Student Incident Reports

Student incident reports have a section for writing a detailed description of what happened before during and after the event. The report can be reviewed to ensure that interventions that follow the student’s behavior plan were performed. Other information included is the team leader, the staff member who wrote the report (staff1) and the staff member who assisted or witnessed the event (staff2). The location of the event, and up to two infractions and actions taken by the staff are also included.

Other incidents for the selected date can be viewed by clicking the previous/next buttons. Other incidents for different days can be viewed by selecting the previous/next day buttons. The number of incidents that were created on the given day is displayed at the top left of the screen. A spell check is also included for convenience.
Team Reports

The team reports screen is used by team leaders to review all the incident reports that have happened on their team. This is a great tool for ensuring that nothing happens without the necessary follow through. The team report screen is password protected so that only team leaders can approve the incident reports. The list shows the student’s name and the date that their last behavior plan was created. This ensures that if a restraint or seclusion was performed that the student has a behavior plan and that it was followed.

Reports are approved by double clicking the student’s name. This will approve just the one report, or by selecting APPROVE ALL, the team leader can approve all the reports in the list. When a report is approved it disappears from the list. Also, all of the incidents that occur on a team can be printed by selecting PRINT ALL.
### Class List

Classes are associated with a particular teacher by selecting CLASS LIST at the bottom of the main screen. The list on the right shows all of the students in the school. The lists on the left shows all the students in the teacher’s class. Students are added to the class by clicking on the student on the right. Students are removed from a class by clicking on the student from the left list.
Student Information

The STUDENT INFO button at the bottom of the main screen displays some of the student’s personal information. This is where the title for each period can be modified to provide more meaning in the main screen. Phone numbers are included here as well as parent names, address and what bus the student rides.
Printing

Several printing options are available from the PRINT button at the bottom of the main screen. The entire class’ daily charts can be printed by selecting PRINT CLASS CHARTS. A single student’s daily chart can be printed by selecting PRINT THIS STUDENT’S CHART. If several charts are needed for a particular student then selecting PRINT SEVERAL CHARTS FOR THIS STUDENT will allow a beginning and ending date to be used to select which charts to be printed. In the same manner several incident reports can be printed by selecting PRINT SEVERAL INCIDENTS FOR THIS STUDENT. The Bi-weekly trends for an entire class can be printed by selecting PRINT CLASS TRENDS.
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Home Chart

When The ISP charts are printed to be sent home they are first translated into the home chart. This is done by clicking on the ISP Chart text in the main screen. The numeric data is then translated to Red, Green, or Yellow. This is done so that the students don’t become obsessed with getting ‘all 5’s’. The chart is switched back to the ISP chart by clicking on the text ‘Home Chart’.

Useful resources (used in preparing this document):
