

Using iPads to Support Student Participation in the Individual Educational Plan Process
Report for Year 3
By Ben Satterfield, Ed.D.

ABSTRACT

In this three year research project, eleven special education students were invited to take part in a self-determination curriculum that included the “ASPIRE” training program during the school year to prepare them to lead their Individualized Educational Plan (IEP) meetings at year’s end. In year one, six students were given iPads to support their preparation for and participation in the IEP. The other five were not provided with technology. The students with iPads were supported with training and technical assistance for iPad use. A survey was completed by student, teachers, and family following the IEP to collect perceptions of student ability and performance. All students were seen to have participated successfully in their IEP meetings. However, students who used iPads were reported to have demonstrated leadership behaviors at their meetings to a greater degree than the control group. In year two all students were provided with iPads and participated in ASPIRE training. The five (5) students who received iPads for the first time experienced significant improvement in their leadership behaviors in their meetings. Further, it was observed that student classroom performance (as measured by 100-point GPA) rose a mean average of 3.28 points in the year that iPads were provided. At the end of year three 90% of students in the project graduated on time exceeding the school’s overall average, with the one exception currently planning to continue in school and graduate next year.

INTRODUCTION

High school age students have been encouraged to attend and participate in their Individualized Educational Plan (IEP) meetings since the 1997 amendments to the Individuals with Disabilities Education Act (IDEA) mandated their invitation (Mason, Field & Sawilowsky, 2004). Students who participate in their IEP meeting have been shown to be more likely to reach goals (Agran & Hughes, 2008; Arndt, Konrad, & Test, 2006; Martin, Van Dycke, Christensen, Greene, Gardner, & Lovett, 2006; Mason, McGahee-Kovac, Johnson, & Stillerman, 2002; Kennedy & Haring, 1993; Perlmutter & Monty, 1977; Powers et al. , 2001; Realon, Favell & Lowerre, 1990; Van Reusen, Deshler, & Schumaker, 1989).

Student leadership in IEP meetings has been linked to enhanced communication and self-advocacy skills (Mason, McGahee-Kovac, Johnson, & Stillerman, 2002), improved academic performance (Schunk, 1985), and to elevated rates of completion of high school (Benz, Lindstrom, & Yovanoff, 2000). Further, there are indications that such participation has positive impacts upon employment and quality of life as students become adults (Furney & Salembier, 2000; Halpern, Yovanoff, Doren, & Benz, 1995; Wehmeyer, Agran, & Hughes, 2000).

A body of resource material has emerged during this period to describe the steps in preparing students for participation in their meetings (Konrad, 2008; Konrad, & Test, 2004; Mason, McGahee-Kovac, & Johnson, 2004; Torgerson, Miner, & Sehn, 2004; Test, Mason, Hughes, Konrad, Neale, & Wood, 2004). However, the practice remains under-utilized (Stanberry, 2010). Argan & Hughes (2008) report that, while many students are now being taught the concepts of self-determination and advocacy, it remains unusual for students to be active participants in the planning and execution of their IEP meetings. Anderson (2012) suggests that students are physically present in their IEP meetings in greater numbers,

but few participate in their meetings and student leadership is rare. Nevertheless, students who do lead their IEP meeting regularly describe their experience as one of the most memorable learning experiences of their year (Hawbaker, 2007). Surveys and observations of IEP meetings have revealed that students as early as the elementary level are able to provide valuable input at their meeting particularly as regards their challenges and abilities and the effectiveness of their accommodations (Danneker & Bottge, 2009).

There remains a need for deeper investigation of programs that are designed to build self-determination among students with disabilities and their outcomes. Roberts, Ju & Zang (2014) reviewed 18 studies from 2004 to 2012 that examined self-advocacy among students with disabilities and found that few studies were of sufficient quality upon which to generalize.

Very little investigation has been done regarding the effective use of technology in support of student leadership of IEP meetings. Stanberry (2010) suggests that the use of technology in student-led IEP meetings can help provide motivation for students to take a more central role in the planning and conduct of these meetings. Case studies presented appeared to indicate elevated involvement in meeting preparation and leadership.

Project Concept

In the first year of our study, twelve high school sophomores from a pool of eighteen who were enrolled in a special education program in middle Georgia agreed to participate in a project to study how access to an iPad might impact student participation in their individualized educational plan (IEP) meeting. The group was made up of students with learning disability, mild intellectual disability, autism spectrum disorder, and emotional/behavioral disorder. None of the participants had spoken previously at an IEP meeting and only two had ever actually attended a meeting. The students were divided into two groups. Members of one group (intervention) were given iPads to use, the members of the other (control) group did not have access to iPads. Both groups were given ASPIRE (Active Student Participation Inspires Real Engagement) training from the same teacher on a regular basis throughout the school year. Students were asked to participate actively in their IEP meeting.

Research Design

The initial research design for this project was a Posttest-Only Control Group Design (Campbell & Stanley, 1963). This experimental design was chosen because it was an accepted fact that none of the students had actively participated in IEP meetings in previous years. Only two students had actually attended an IEP meeting before this project. Neither had spoken at their previous meetings. The twelve students who were selected for the project were divided into two groups. A rough equivalence between the two groups was attempted on the basis of designating sets of matched pairs, from which participants would be randomly assigned to the two groups.

All participants (both groups) were included in a single "advisement group" for the purpose of training in the ASPIRE curriculum. This advisement group met weekly during the school year. All students were exposed to the same goal-setting, leadership, and self-advocacy instruction.

One group (treatment) was provided with iPads and training for the purposes of: (1) collecting work examples, and (2) preparing & delivering presentations at the IEP meeting. The other (control) group

received no technology or technology support, but did receive preparation for participation in the IEP meeting (ASPIRE training).

Challenges to this design approach arose when two participants, who learned of their random assignment to the control (non-iPad using) group, withdrew from the project. Their withdrawal took place prior to the first ASPIRE instruction. Other individuals from the original pool were invited to take their place. Despite the best efforts of the research team to select appropriate replacements, the “matched-pair” nature of the assignments may have been compromised to some degree. Ultimately there were five individuals who agreed to participate in the control group. The research team decided to proceed and to note developments related to these substitutions.

Methodology

A survey (“Post-IEP Meeting Survey Results Combined for Students and Adults”) developed by Martin, Van Dycke, Christensen, Greene, Gardner, & Lovett (2006), was used to assess student participation leadership in the IEP meetings. These meetings were held in the spring. This survey listed behaviors associated with effective participation and leadership (See appendices). The survey was divided into five areas of IEP participation: (1) Prior knowledge, (2) Transition Issues, (3) Meeting Behaviors, (4) Positive Perceptions, and (5) Leadership. This five-point Likert survey was taken by all participants (students, parents, and faculty) who attended the IEP meeting (see Appendices 1 and 2).

Mean averages for each survey question were calculated for each group and for the participants as a whole. Comparisons between mean scores between groups and comparing year over year were made. Because the differences were slight, and because the initial scores were generally high and left little room for growth, the research team decided to only consider mean score changes of 0.2000 and higher as meaningful.

Technical Assistance and Support

Technical assistance and training in the use of the iPad was provided to the students in the treatment group over a six month period. This consisted of two whole-group trainings and four sets of meetings with students individually or in small groups to address specific issues. These sessions were provided in addition to the ASPIRE training that both groups received.

iPads were provided to students by the regional learning resource agency. These were iPad version 2 units that were WiFi enabled and equipped with a camera. *Survivor* protective casings were provided along with a stylus. In addition to those that come standard on the iPad, apps that were provided to all students in the iPad group included: Keynote, Pages, Numbers, Dragon, VoicePad, Inspiration, ClaroSpeak US, Pictello, iHomework, inClass, and SlideShark. During the course of the project, students requested access to additional apps such as: G Docs, Google Drive, Quick Office, Say Text, Garage Band, Photoshop, and Documents. These were also provided.

Because of concern that the project might create intermittent burdens upon the school building’s bandwidth and Wi-Fi system, the regional learning resource agency also provided technical support to the school for the project. The resource agency provided a separate Wi-Fi router to support iPad use in selected classrooms and areas of the school where the project participants used the iPads. This unit

made it possible to expand access to the Internet (primarily in the classroom in which the students attended advisement sessions). Wireless access was also available in the Career and Technical and Adult Education (CTAE) classrooms (where students also sought technical assistance). In subsequent years upgrades to the school's IT infrastructure provided full coverage throughout the school and greater band-width.

Method

In year 1, all students in the project attended regular meetings of their advisement group. Each advisement session was led by the same instructor. The advisement group met weekly for one class period from November until the end of the school year in May. The student IEP meetings were held in late February through March. All students received instruction in IEP leadership and participation, based upon the adapted ASPIRE curriculum, between November and February when the meetings commenced.

The iPad group was given two group training sessions on general iPad use by an AT specialist from the Center for AT Excellence, a consultant for assistive technology for this project. There were four additional meetings with students (in small group or with individuals) in the treatment group to provide technical assistance prior to the IEP meeting.

Students prepared for their participation and leadership in their IEP with the help of their advisement instructor and the Career and Technical (CTAE) instructor. Students using technology for this project brought questions about their preparations for their meeting to the technical advisor as well.

Data Collection

A survey, based upon that used by Martin, Van Dycke, Christensen, Greene, Gardner, & Lovett (2006), was used to collect data on the level of IEP meeting participation and leadership of each of the participants. This survey consisted of 39 questions. The questions employed a five-point Likert scale, where 1 represented least agreement or lowest performance, and 5 represented full agreement or best performance. One version of the survey was prepared for staff and parents (see Appendix 1) to complete. A second, slightly more personalized, version of the survey was developed for the students (see Appendix 2).

All of the students in the project took part in their IEP meeting. The survey was administered to the student, parents and the faculty in attendance immediately following the IEP meetings. Results of the survey were tabulated and descriptive statistics were calculated. Group means for each question were compared and the difference calculated (see appendix).

To test for significance, a two-tailed t-test (two-sample) assuming unequal variances (where $p < 0.05$) was applied (Campbell & Stanley, 1963). Where p -values are lower than 0.05, we have greater confidence that the treatment was responsible for the difference in the scores of the two groups.

Comments were also solicited from all participants. These were collected and analyzed for insights into other data collected. In addition, an ASPIRE questionnaire was administered, as part of the first year of administration of the ASPIRE curriculum, at the beginning of the advisement (ASPIRE) course and again at the end. The results appeared to run counter to the data collected in the survey (perceptions of performance/progress appeared to go down over time). When given the opportunity to comment,

participating students said that, at the outset, they did not fully understand (have a real appreciation for) the questions in this particular instrument. The modified ASPIRE training and their IEP experiences had helped them realize what was involved in the questions. This may have implications for how this instrument is used in the future.

Results for Year 1

The survey was divided into five areas of IEP participation: (1) Prior knowledge, (2) Transition Issues (3) Meeting Behaviors, (4) Positive Perceptions, and (5) Leadership.

Prior knowledge. According to the surveys, students in both groups demonstrated an understanding of the reason and purpose of their meeting. The iPad group appeared to receive slightly higher marks regarding their awareness of what they were to do at the meeting than did the students in the control group (see Appendix 3).

Transition Issues. Nine items were considered under the Transition Issues section of the survey. Students in both groups were viewed to have taken comparably active roles in the discussions about living arrangements after high school. Members of the treatment group were viewed as being more active in discussions about educational opportunities after high school, supports students might need after high school, and community activities and services that the student may desire after high school. To a lesser degree, the treatment group was also seen as being more engaged in discussions about their classes for the coming year, future job possibilities, and possible school activities than their control group counterparts. While surveys from both groups said that the IEP document was a good reflection of the student's own post-school vision, those observing meeting of students from the treatment group were more confident about this than those observing students from the control group (see Appendix 3).

Meeting Behaviors. Six behaviors were identified in the Meeting Behaviors aspect of the survey. They included talking in general, talking about needs, strengths, interests, making decisions, and discussing supports that the student currently requires. With regard to these meeting behaviors, members of the treatment group were seen as slightly more engaged in every aspect. The biggest differences were observed in regards to the treatment group students' willingness to talk about their own strengths and needs (see Appendix 3).

Positive Perceptions. With regard to perceptions of the meeting itself, there were few areas of difference between the two groups. The treatment group was perceived as being somewhat more comfortable when talking during the meeting. They were also seen as coming away from the meeting with more of a positive feeling. Very slight differences were perceived in how students were heard, respected, and understood at the meeting, and in the perceived achievability of their goals. Each of these areas was rated by all participants and observers in very positive terms (see Appendix 3).

Leadership. It is in the section on leadership where the greatest differences between the treatment and control groups appeared in the first year. In each of the twelve identified indicators of leadership, treatment group students were seen as engaging in these behaviors to a much greater degree than their control group peers. Students in the treatment group introduced themselves, introduced team members, stated the purpose of their meeting, reviewed recent progress, and asked for feedback, asked questions when they did not understand, identified needed supports, expressed personal interests, described their own skills and limits, and closed the meeting by thanking those in attendance. The difference in perception of the students in the two groups was sizeable. Differences in mean ranged

from 0.6278 to 1.6333 on these survey questions. There were less extensive differences between the groups regarding the students' levels of engagement when discussing goals and options (see Appendix 3).

Variance

One student from the control group decided, on his own, to use PowerPoint on a classroom PC to develop a slide presentation with which to guide his meeting. When he announced that he wanted to use this approach, it was unclear how aware he was of the way in which treatment group members would use the iPads at their meetings. The research team did not prevent the student from pursuing this approach. While the student did not receive technical assistance as the treatment group had, he did seek out guidance for organization of the content he had gathered. This support was provided.

The research team decided to observe this student's outcomes and note how they might be different from those of other students in the control group. This student had a very successful meeting and received survey marks for leadership and communication at his meeting that were on par with those of the treatment group.

Project Plan for Year Two

For year two, all eleven of the original students in the project participated again. Because of the success of the intervention group in the first year, it was decided that iPads would be provided to all students in the project for year two. All students would again participate in the same advisement group during which modified ASPIRE training was provided. The group was to meet once each week for about 40 minutes. Technical assistance sessions were again provided to all participating students in year two. The focus of these sessions was to build a stronger basis for student participation in the IEP meeting (broader leadership of the IEP meeting) and to work with each student to identify ways in which the iPad could be used to support classroom learning. Students once again led their IEP meetings in the spring.

At the start of year 2, changes were made to the expectations of the students and the data being collected:

Greater Student Leadership of the IEP Meeting. This year students were asked to step up to a greater degree of leadership of their IEP meeting: to become an interactive facilitator of the entire meeting. In year one, several students made a presentation but did not provide specific leadership for the discussions of academic performance or questions regarding accommodations for the coming year. For year two, students were provided with a more extensive outline for their IEP Meeting which called for them to remain engaged and help guide the discussion throughout their meeting.

iPads and Apps as Assistive Technology. With regard to iPad use, students were asked to explore how the available apps could help them be more successful in class. In the first year of the project the focus was largely on the presentation capability of the iPad and upon preparation for the IEP meeting. In year two, the team sat down with each student and reviewed their academic challenges. The student was

guided to investigate apps that could be helpful in classes that the student identified as difficult. Those apps were made available and students were challenged to explore their use in class.

Impact on indicators of progress toward graduation. In year two, data was collected going back to the start of the freshman year in areas associated with high school completion including: (1) attendance, (2) discipline, (3) grade-point average, and (4) performance on end-of-course and other standardized tests. The results were subdivided into years and semesters and arrayed over time. Then the timeline of this project was superimposed upon the results to determine how any observed changes or trends might relate to participation in this project.

Surveys. Once again in year two, surveys were taken by all participants (students, parents and faculty) following each student's IEP Meeting. The surveys were collected and tabulated to determine the perception of each student's performance. The progress of the two groups was tabulated separately to discern the differences in IEP participation for each student from the performances in year one.

Variance. One student from Group 2 (Control) moved at mid-semester to another state and withdrew from the project.

Results for Year 2

Survey results. Once again, the members of the original intervention group (Group One) received high rankings in all areas. Only minor changes in mean survey ratings (as compared to year one) were observed. Students in this group were rated slightly lower in the areas of (1) Identification of local services and (2) in Introduction of IEP team members, than in the previous year. These same students were rated higher in year two in the areas of (1) their ability to state the supports that they needed, (2) their ability to describe their strengths and weaknesses, and (3) their ability to ask clarifying questions when they did not understand something at the IEP meeting.

Members of the original control group (now with iPads) demonstrated gains across the board generally and especially in areas of Meeting Behaviors, Transition Issues, and Leadership. In the area of Transition, this group was viewed to have improved significantly in: (1) talking about possible jobs after high school, (2) identifying opportunities for training after high school, (3) discussing supports needed in future, and (4) believing that resulting IEP reflected the student's vision. Surveys indicated gains in every aspect of Meeting Behaviors, especially with regard to students' ability to talk about their weaknesses and strengths. There were broad gains in the area of Leadership as well. Improvement was especially evident in the students' ability to articulate the purpose of the IEP meeting and to discuss the supports they needed.

Indicators of progress toward graduation. Attendance appeared not to be influenced by participation in the project as much as it was influenced by illness and family issues. With one exception, all students in the project were regular school attenders. If they missed more than an occasional day, it was noted that illness or family issues were involved. No pattern of student behavior appeared in the data we collected. Discipline appeared to be affected by situations beyond the scope of the project. However, progress toward graduation was being made by all but one student.

Course grades. The mean grade point average (GPA – calculated by the high school on a 100 point scale) for all students in the project went up 4.07 points from September, 2011 to May, 2014 end of year two of this project). With one exception, all students improved their GPA. Students who received iPads to

use in year one were seen to experience a slight increase in GPA by the end of year one of the project (2.45 points). By the end of year 2, group one had shown an increase of 3.50 points. Students who received iPads in year 2 demonstrated a more immediate and pronounced increase in GPA Of 3.89 points.

Standardized test scores. Nine of eleven participants in the project met expectations on their Georgia High School Writing Test (GHSWT). Six of ten who took the American Literature exam met expectations. Six participants in this project passed one or more standardized tests in year two whereas in previous years they had only managed to pass one or less such tests.

Observations for Year 2

Slightly lower survey scores in select areas for Group One (original intervention group) students. The slight reduction in mean survey ratings for the intervention group from year one to year two may be a reflection of higher expectations combined with other dynamics of the local setting. The fact that students in this group were rated slightly lower in the area of *Identification of Local Services* may be a reflection of the limited options available to residents of their area. The failure to maintain the high survey ratings from year one on the *Introduction of IEP team* members in attendance is believed to be related to the intimate setting within the school and with attending family members. Such familiarity may have led some students not to emphasize the need for introductions and to focus instead upon the larger role they were to play in their meeting.

Improvement in select areas for Group One (Treatment) students. The higher ratings these students received for their ability to talk about their strengths and weaknesses, their needed supports, and their ability to ask clarifying questions when they did not understand, are indicators of greater self-knowledge and self-confidence. While this may involve the maturity that comes from being a year older and having had another year's experience, these aspects are clearly target objectives of the modified ASPIRE training provided at the High School. As students invested time in their preparation for their IEP, as part of the ASPIRE program, they were answering key questions about their future. When these questions are resolved, students are likely to grow in confidence about themselves and about their future.

Improved survey scores for Group Two (Control) on Leadership, Meeting Behaviors, and Transition.

Students in Group Two demonstrated gains in many areas. Their improvement in the area of Meeting Behaviors was evident in their willingness to address their weaknesses as well as strengths and to identify need supports in school. Their participation in the decision making process was evident as well. In the area of Transition, those attending the IEP meetings expressed a sense that this set of IEP sessions were a better reflection of each student's vision than last year's meetings had been. In particular, students in this group spoke with greater confidence about needed supports, post-secondary training opportunities, and courses need while still in high school. With regard to leadership, this group received higher mean scores across the full range of leadership indicators. They received high marks for their ability to articulate the purpose of their IEP meeting and for their engagement of the IEP team in providing feedback. Having had a year to consider their role in the IEP process and their thoughts about the future, group two students found that the iPad provided the platform to collect and present these ideas in a more coherent and organized manner.

Leap in GPA in year two for Group Two (original control group) students. With one exception, students who received iPads in year two demonstrated their greatest progress in improving GPA in year two of the project. In the same year in which they received their iPads, grades for this group improved an

average of 3.89 points. Besides the motivation from being entrusted with an iPad as part of the project, one of the factors contributing to this accelerated progress may have been their use of the iPad, and the accompanying apps, as assistive technology (AT) in support of their classroom learning.

Project Plan for Year Three

One student from group one (Treatment) withdrew from the project over the summer. The remaining students continued in the modified ASPIRE advisement group and retained possession of their iPads from the previous year. The project team sought to focus upon the iPad as assistive technology (AT) support for classroom performance in addition to preparation for leadership of the IEP meeting. We continued to track longitudinal progress toward graduation.

In year three, a third cohort of five students was added to the project. The purpose of the third group was to discover whether the gains observed in the first two cohorts would be evident in the experience of another group. These students were selected from a pool of eleven rising juniors. This group included students with learning disability and mild intellectual disability. These students were given iPads and joined in the ASPIRE training during advisement with students in the first two groups. Each of these new participants received the same technical support as other students.

In year 3 the research team challenged all of the students to: (1) take greater initiative for preparation for the final IEP meeting and transition planning, (2) take a leadership and facilitative role in spring IEP Meeting, and (3) improve classroom performance thru appropriate use of iPad .

Results for Year Three

Data collected in year three indicated that all students in the project made progress and experienced growth. Mean survey scores reflect high marks in all areas for the participants as a group. At the end of year three, the survey results taken as a whole and for the individual groups indicated high scores (4.0 or higher) on every item in the survey. These results reflect general progress in every area of the IEP meeting behaviors and particular advancement in the area of leadership. There was improvement in the grades of every student. In addition, 8 of the 9 participating seniors successfully graduated. The one student who did not graduate was retained and plans to graduate next year.

Few slight drops in overall survey results for specific survey questions over three years. Students who participated in this project evidenced high survey results in all areas and generally maintained or improved those scores over the course of the project. When taken as a whole, over the course of three years the participants registered slight declines on only two of the items on the survey. The first had to do with knowing what course to take next. The second item related to knowing what to do next about the student's educational program (see Appendix 7).

Once again, the members of the original intervention group (Group One) received high rankings in all areas. Only minor changes in mean survey ratings (as compared to previous years) were observed. Students in this group were rated slightly lower in the areas of (1) identification of classes that student will take next, (2) discussing possible jobs for the student after high school and (3) discussion of where the student will live after high school. These same students were rated higher in year three in the areas of (1) their ability to state the supports that they needed, (2) their ability to describe their strengths and

weaknesses, and (3) their ability to ask clarifying questions when they did not understand something at the IEP meeting.

The only area in which mean survey scores declined for students in Group Two was related to Meeting Perceptions: knowing what the next step would be in their educational program. There were also slight declines in the student's sense of confidence in the outcomes of the meeting decisions and about the degree to which students felt respected at their meeting. The declines in these areas were slight (0.2 point over a three year period) and the final survey scores were still high.

One observation made by the research team was how much more critical the participating students were on their own surveys in year three as compared with previous years. Clearly participants had a better idea of what was expected and of the transition issues they faced. Nevertheless, several of these students had reached the end of their high school career, had developed plans for what they wanted to do next, but had not made a final arrangements as to what would come next (i.e. technical school, college, living arrangements, etc.). It was observed that while these students appeared to understand the IEP and transition process, they still had significant choices to make.

Another factor to consider in the year-over-year comparisons of survey results was the high initial scores achieved (especially by students in group one) in the first year. As expectations of students rose in the second year, there was little room for higher scores on many indices. Group two, by comparison, had initial scores in year one that were much lower than group one. The progress that group two demonstrated over the three years of this project provides insight into the breadth and strength of the progress made by all students in this project.

Some of the declines in mean survey scores, although slight, may be a reflection of rising year-over-year expectations of student performance by teachers and parent attending the IEP meeting as opposed to decreases in performance. Once seen as more capable and effective than previously evident, students may have been expected to meet a higher standard of parent/teacher expectations in subsequent meetings.

Specific gains in overall survey results over three years. Taken as a whole, students participating in this study demonstrated noteworthy gains on five areas. The first area was from the Transition section of the survey: talking about the supports they will need after high school. The other four areas were from the Leadership section of the survey: reviewing past goals and progress, asking for feedback, asking questions if they did not understand, and talking about the supports they needed. These areas of progress reflect openness, maturity, and self-awareness and represent a foundational step in the direction of self-advocacy.

Indicators of progress toward graduation. Once again, attendance in year three seemed to be related to physical health and family issues than by participation in this project. There was no pattern of student behavior evident that appeared to be related to participation this project. The state changed its requirements regarding standardized tests for graduation, so those were no longer tracked. However, grades for students in the project continued to climb. The mean GPA for students in the first two cohorts rose by 3.21 points in year 3. The students in group three improved their mean GPA by 3.46 in year 3.

Use of iPads as Assistive Technology. In year one students were provided with apps and told that they could make use of them to support their work in the classroom. In years two and three of the project

the research team challenged students to make greater use of their apps to improve their academic performance. Students reported using their iPads in a variety of ways to assist in class. One student reported,

“The iPad gave me a better way to get information when I needed it for my classes. And it is capable of reading things to you...”

Another added,

“If I had something to read, like an assignment, and it was difficult, the iPad would read it to me.”

Other students used the technology to help with note-taking:

“I used it to take notes. It’s faster. If I know I can’t get the notes down on paper in time, I know I can take a picture of the board and later review it when I have [more] time ...”

Several students used the iPad to help with foreign language.

“The iPad made it easier for me to study. It helped me with Spanish, `cause I have difficulty with the words. It helped me find the meanings. It was right there when I needed it.”

Introduction of Group Three. In the third year of the project an additional cohort of students was added to the project. They were placed in the same advisement group with the students from groups one and two and presented with the modified ASPIRE training as the other students. They were given iPads and provided with technical assistance. The mean average survey results for this group were all very high (4.2 or higher on every item) and on a par with the year three scores for the other two groups. As with group Two, grades rose following the introduction of the iPad. The average increase in GPA (in the semester they received their iPads) among group three participants was 5.40 points.

Analysis of Results for Year 3

It seems clear that all students in this project were perceived to have participated in their IEP meeting and demonstrated a high degree of leadership. Since none had participated prior to entering this project, every student was viewed to have improved their participation. It is evident that students in all groups were seen as having achieved positive outcomes in the result of the IEP meeting.

While there were pronounced gaps in the area of leadership between groups one and two in year one, these gaps began to close in year two and largely disappear in year three. With regard to the other four areas of student IEP participation addressed in this study (prior knowledge, transition issues, meeting behaviors, and positive perceptions) all groups were given similarly high marks. It would appear that all students demonstrated progress in participation and leadership in their meetings over the three years. In year three, students in all groups were perceived to maintain their leadership skills in their IEP meetings (mean scores over 4.0 for all items for all groups). The students in group three also demonstrated strong results in the area of leadership (mean scores over 4.0 for all items).

Questions:

Based upon positive survey results from year one, the research team felt it was important that all participants in this project have access to an iPad. Once all participants were equipped with these devices, the research team focused upon several factors for possible impact upon the results:

Variance: How did the students and their assignment to the two groups impact the results?

As observed above, the attempt at random assignment from among matched pairs was somewhat thwarted when some students elected at the outset not to participate in the project. The makeshift composition of the control group is a potential weakness in this study. Consideration must be given to the make-up of the treatment group as it relates to their performance during the project.

However, after observing the two groups during the course of the project, the staff was convinced that the composition of the groups was not a factor. The success experienced by the student who attempted to “cross-over” with his PowerPoint presentation may be confirmation that there was something else at work. In year two, when the control group was given access to iPads, their improvement in IEP meeting leadership and in grade point average that year appeared to confirm the conclusion that that the differences and changes were due to more than student differences. The survey results from group two in years two and three and the performance of group three in its first year, suggest that the manner of assignment of individuals to these groups may not have made a difference.

Technology: What was the role of the iPad upon IEP Leadership?

To be sure, when students received their iPads, it appears that they used them as a platform on which to explore their goals and options for the future and to gather information for their meeting. Many students shared that the iPad became a platform for staging and organizing their thoughts about the future.

However, from student and teacher comments, it seems clear that the introduction of the iPads made a difference to the students in other ways, as well. Most reported feeling a sense of responsibility which they took seriously. Students were seen as being “special” for their role in this project. Staff observed that this seemed to encourage and bolster student confidence.

In year 1, group one students, having received iPads, evidenced a high degree of leadership in their IEP meeting. In year 2, once the students in group 2 received iPads, surveys from their IEP meetings reflected much stronger leadership from these students than in the previous year. The experience of group three follows the pattern of strong results on their surveys in the area of Leadership.

However, the student from the control group who created a PowerPoint presentation for his meeting year 1 introduced an interesting question. Was the iPad alone, with its uniqueness and its portability, sufficient to explain the observed differences? This student received survey marks for leadership that were comparable to the students in the treatment group. So it may be worthy of further research to investigate whether using PowerPoint and a personal computer would accomplish similar results.

Instruction: What was the role of the modified ASPIRE training?

It seems clear that all students profited from participation in the advisement group – during which the principles of ASPIRE were taught. This included the areas of transition and futures planning, and meeting purposes and procedures. The instruction they received provided the general outline of “what” should

be discussed at the meeting and what constituted proper and expected behavior. Students in all groups responded positively.

The modified ASPIRE instruction presented all students with an outline for the conduct and flow of an IEP meeting. Students in all groups had this outline available to them as they planned their meeting. Students reported that it was an advantage to work from this template.

All students in this project were perceived as more effective at communicating about their needs and goals. It appears clear that all students reflected the content of the ASPIRE training in their participation in their IEP meetings.

Instruction: What was the role of the Technical Assistance?

In their first year of working with their iPad, students in this project attended two training sessions on general iPad use. There were four additional small group, or individual, meetings with students to provide technical assistance. In subsequent years there were four to five individual or small group technical assistance sessions provided to each student each year.

These technical assistance sessions were largely devoted to technical aspects of preparation for the IEP meeting. Having the “main questions” provided by the advisement (modified ASPIRE) classes, these students used these sessions to determine what they wanted to say about each question. By doing this, students came to grips with important choices that lay before them. Several students reported that the iPad was helpful in preparing for the IEP. One student reported feeling greater confidence and a sense of empowerment by having the iPad available:

“With my slides and notes on my iPad, I felt like ‘ I can now do this’ and having pulled together all the resources I had, instead of having to go off my mind, I felt as if I was prepared for anything that came up in the meeting.”

By committing their thoughts and ideas to these slides and by having them projected before the group assembled for their meeting, students reported a sense of relief that their basic point was well presented. As the student’s IEP team demonstrated acceptance of these ideas, a sense of confidence emerged in each case that encouraged students to talk in greater depth about their ideas.

Cognitive Support: What was the impact of having to create slides for a presentation at the meeting?

It is possible that the process followed in this project served to provide cognitive support for students in the preparation for and leadership of their meeting. Student comments were instructive in helping us understand what was taking place. Students reported that the fact that their ideas were contained in the slides and then projected before the group, made the task of communicating their thoughts less challenging. They reported feeling encouraged to elaborate upon the slide rather than struggling to describe their point from scratch. One student reported:

“For the IEP meeting the iPad helped me get down all the information I wanted to say instead of having to think of it all myself. The outline helped me break it down.”

The slides that students created were based upon an outline for planning for the IEP meeting. Students in both groups had this outline from which to work. However, the task of creating a slide presentation *guided* them to use the outline to address questions about their future in the process of preparing for the meeting.

Beyond this, it may be that the development of each thought as a visual representation helped them associate the broader discussion they desired to present with the slide itself. As each slide was presented, the words and images contained in each slide may have served as prompts to help them elaborate further. We observed that many students added images and graphics to each slide that they said helped define their ideas. This visual support added a multimedia dimension to the process. The engagement of multiple senses was at work. Their ideas were in concrete, visual form rather than in the abstract. All of these appeared to play to the students' strengths. One teacher observed:

“Support of the iPad clearly helped [this student] during his meeting, as he referred to it when he became off track or hesitated. It was also apparent that he [had been] using the iPad for internet access for research purposes, and for organization.”

What was the impact of the iPads on classroom performance?

Isolating the impact of one aspect of an educational program in an educational field setting is very difficult (Smith, 2002). There were many interventions and supports at work in this particular environment, beyond those presented by this project. However, it is worth considering the evidence provided by student and teacher comments about students' classroom use of iPads. Further, the jump in grade averages by students in the year they received their iPads is noteworthy. While this is a small sample, potentially subject to unanticipated influences, these results may nevertheless be worthy of further study.

Several students reported that using the iPad in the classroom and on assignments proved helpful across a range of subject areas and classroom tasks:

“I used mine in history to look at events on my timeline app. Find when the events were..”

“When there are lots of notes on the board or we are given a page that we need to read over or copy, I took pictures of them (with my iPad and the camera app). That way I could review it and it helped me understand.”

“I could look up stuff I needed to find on my iPad. I could do problems on there that I could not do on my calculator.”

Some students found the iPad helpful in foreign languages:

“The iPad has become more important to me and made things easier for me. I was on the breaking point in some of my classes... that's where it made a difference for me. I am even passing Spanish!”

“I use the Spanish app. It has improved my Spanish. It has actually got lessons on it: vocabulary and how you pronounce words and how you use words in sentences.”

Others found it to be helpful with Language Arts:

“I have used the dictionary - it helped me a lot - especially in language arts. I look up words that were being used in class that I did not know. And they were right there....”

“I believe it's helped me in my literature class. My vocabulary has grown substantially.”

“When I first got my iPad I was majorly struggling. I struggled in my grammar and spelling - but that has greatly improved since I got my iPad.”

One teacher observed that:

“The iPads helped the students I taught keep up with classwork and information. It kept them engaged. It helped them with confidence.”

Other teachers observed that the iPad was helpful for students in class and produced desirable impacts beyond immediate classroom performance:

“[This student] was the perfect example of how an iPad could benefit not only students with IEPs, but all students.”

“Students seemed to take ownership of their learning/abilities.”

“The familiarity the students developed with the iPads appeared to lead to proficiency with other technology.”

To be sure, students did use their iPads for non-academic purposes and, at times, in inappropriate ways (for the classroom). Classroom expectations differed from teacher to teacher. Generally, however, students were confronted when inappropriate use was discovered. Most students accepted this correction and complied with class expectations. As the project continued, most students in the first two cohorts demonstrated increasing responsibility for their use of their iPads and such episodes became rare.

Summary and Conclusions

At the end of this three-year study, the survey results indicated high scores (4.0 or higher) on every item in the survey across all groups. These results reflect general progress in every area of the IEP meeting behaviors and particular advancement in the area of leadership. There was improvement in grades of every participant. Eight of the nine students in the first two cohorts successfully graduated, and the one student who did not graduate was retained and plans to graduate next year.

This was a small study. It addressed a small range of students across several disabilities. While the sources of variance were tracked and addressed, any conclusions must remain tentative. Nonetheless, the research team came to the following conclusions regarding these students:

1. When students received their iPads, they used them as a platform on which to explore their goals and options for the future and to gather information for their meeting. However the presence of the iPad platform likely made a difference in three other respects:
 - a. Setting the students apart as special – but in a positive way. Providing them a sense of responsibility and purpose in this project.
 - b. Laying a foundation on which confidence was built as students developed and organized a presentation that contained their ideas.
 - c. Providing a platform to support classroom performance.
2. The ASPIRE-based self-determination training provided students in all groups with the background understanding for participation in their meeting. Each student demonstrated that they understood the key questions to address in their meeting. Performance at meetings confirmed that students were identifying the transition issues facing them. Mean survey scores for all groups were high (4.00 or greater) on every item. Not all students, however, had taken the action steps they had laid out to implement their plan, by graduation.
3. The technical assistance sessions in preparation for their meetings provided students with the opportunity and support to craft their personal responses to the key questions raised in the ASPIRE training. This step guided them to address these questions.
4. During the IEP meetings, the fact that the student's ideas were present and organized on their iPads provided students with a starting point from which to talk about themselves. The projection of the notes students had prepared served as a form of cognitive support, prompting students to describe their strengths and weaknesses and to elaborate upon their hopes and plans for the future. The centrality of the student's own ideas at the meeting, present in multi-media form, together with the acceptance from faculty and parents, provided further encouragement to students to be assertive and provide leadership at their meeting.
5. Most students in this project used the apps provided on their iPads to help them in class. Several students ascribed great value to these apps with regard to their classroom performance and course grades. Teacher comments confirmed the value of the iPad to classroom performance.

APPENDIX 1. POST IEP MEETING SURVEY: STAFF & PARENTS

STUDENT # _____

STAFF/PARENT

	Prior Knowledge	Strongly Disagree	Somewhat Disagree	Don't Know	Somewhat Agree	Strongly Agree
1.1	The student knew the reason for the meeting,	1	2	3	4	5
1.2	The student knew what he/she needed to do at the meeting.	1	2	3	4	5

	Transition Issues	Strongly Disagree	Somewhat Disagree	Don't Know	Somewhat Agree	Strongly Agree
2.1	The student helped identify classes for the student to take.	1	2	3	4	5
2.2	The student helped identify school activities for the student to be involved in.	1	2	3	4	5
2.3	The student discussed jobs the student might do after high school.	1	2	3	4	5
2.4	The student discussed opportunities for education after high school.	1	2	3	4	5
2.5	The student discussed where the student will live after high school.	1	2	3	4	5
2.6	The student discussed supports that the student will need in the future.	1	2	3	4	5
2.7	The student discussed community activities for the student	1	2	3	4	5
2.8	The student discussed services from outside agencies.	1	2	3	4	5
2.9	I believe the IEP reflects the student's post-school vision.	1	2	3	4	5

	Meeting Behaviors	Strongly Disagree	Somewhat Disagree	Don't Know	Somewhat Agree	Strongly Agree
3.1	The student talked at the meeting.	1	2	3	4	5
3.2	The student talked about the student's needs	1	2	3	4	5
3.3	The student talked about the student's strengths	1	2	3	4	5
3.4	The student talked about the student's interests.	1	2	3	4	5
3.5	The student helped make decisions.	1	2	3	4	5
3.6	The student discussed supports that the student needs now.	1	2	3	4	5

	Positive Perceptions of Meeting	Strongly Disagree	Somewhat Disagree	Don't Know	Somewhat Agree	Strongly Agree
4.1	I believe people listened to the student at the meeting.	1	2	3	4	5
4.2	The student felt comfortable saying what he/she thought	1	2	3	4	5
4.3	The student felt respected at the meeting.	1	2	3	4	5
4.4	The student understood what was said	1	2	3	4	5
4.5	I believe the meeting was worth my time and effort to attend.	1	2	3	4	5
4.6	I think the goals on the IEP will be met.	1	2	3	4	5
4.7	I thought everyone at the meeting participated in the development of the IEP	1	2	3	4	5
4.8	I know what I am supposed to do next about the student's educational program	1	2	3	4	5
4.9	I feel good about this meeting.	1	2	3	4	5
4.10	I agree with the decisions made at this meeting.	1	2	3	4	5

	Leadership Steps	Not at All	Not Well	OK	Good	Excellent
5.1	Student introduced himself/herself.	1	2	3	4	5
5.2	Student introduced team members.	1	2	3	4	5
5.3	Student stated purpose of meeting.	1	2	3	4	5
5.4	Student reviewed past goals and progress.	1	2	3	4	5
5.5	Student asked for feedback.	1	2	3	4	5
5.6	Student asked questions if I didn't understand.	1	2	3	4	5
5.7	Student was able to deal with differences of opinion.	1	2	3	4	5
5.8	Student stated needed support	1	2	3	4	5
5.9	Student expressed interest	1	2	3	4	5
5.10	Student expressed skills and limits	1	2	3	4	5
5.11	Student expressed options and goals	1	2	3	4	5
5.12	Student closed meeting by thanking everyone	1	2	3	4	5

Comments:

APPENDIX 2. POST IEP MEETING SURVEY: STUDENT

STUDENT # _____

STUDENT

	Prior Knowledge	Strongly Disagree	Somewhat Disagree	Don't Know	Somewhat Agree	Strongly Agree
1.1	I knew the reason for the meeting.	1	2	3	4	5
1.2	I knew what I needed to do at the meeting	1	2	3	4	5

	Transition Issues	Strongly Disagree	Somewhat Disagree	Don't Know	Somewhat Agree	Strongly Agree
2.1	I helped identify classes I wanted to take.	1	2	3	4	5
2.2	I helped identify school activities I want to be involved in.	1	2	3	4	5
2.3	I discussed jobs that I might do after high school.	1	2	3	4	5
2.4	I discussed opportunities for education after high school.	1	2	3	4	5
2.5	I discussed where I might live after high school.	1	2	3	4	5
2.6	I discussed supports that I might need in the future	1	2	3	4	5
2.7	I discussed community activities I want to be involved in.	1	2	3	4	5
2.8	I discussed services I might use from outside agencies.	1	2	3	4	5
2.9	I believe the IEP reflects my vision for when I finish school.	1	2	3	4	5

	Meeting Behaviors	Strongly Disagree	Somewhat Disagree	Don't Know	Somewhat Agree	Strongly Agree
3.1	I talked at the meeting.	1	2	3	4	5
3.2	I talked about my needs.	1	2	3	4	5
3.3	I talked about my strengths.	1	2	3	4	5
3.4	I talked about my interests.	1	2	3	4	5
3.5	I helped make decisions.	1	2	3	4	5
3.6	I discussed supports that I need now.	1	2	3	4	5

	Positive Perceptions of Meeting	Strongly Disagree	Somewhat Disagree	Don't Know	Somewhat Agree	Strongly Agree
4.1	I believe people listened to me at the meeting	1	2	3	4	5
4.2	I felt comfortable saying what I thought.	1	2	3	4	5
4.3	I felt respected at the meeting.	1	2	3	4	5
4.4	I understood what was said	1	2	3	4	5
4.5	I believe the meeting was worth my time and effort to attend.	1	2	3	4	5
4.6	I think the goals on the IEP will be met.	1	2	3	4	5
4.7	I thought everyone at the meeting participated in the development of the IEP	1	2	3	4	5
4.8	I know what I am supposed to do next about my program.	1	2	3	4	5
4.9	I feel good about this meeting.	1	2	3	4	5
4.10	I agree with the decisions made at this meeting.	1	2	3	4	5

	Leadership Steps	Not at All	Not Well	OK	Good	Excellent
5.1	I introduced myself.	1	2	3	4	5
5.2	I introduced team members.	1	2	3	4	5
5.3	I stated the purpose of meeting.	1	2	3	4	5
5.4	I reviewed my past goals and progress.	1	2	3	4	5
5.5	I asked for feedback.	1	2	3	4	5
5.6	I asked questions if I didn't understand.	1	2	3	4	5
5.7	I was able to deal with differences of opinion.	1	2	3	4	5
5.8	I stated needed support.	1	2	3	4	5
5.9	I expressed interest.	1	2	3	4	5
5.10	I made suggestions about my skills and limits.	1	2	3	4	5
5.11	I made suggestions about goals and options for my plan.	1	2	3	4	5
5.12	I closed meeting by thanking everyone.	1	2	3	4	5

Comments:

APPENDIX 3. SURVEY RESULTS

Year 1 Comparison of Means

	Prior Knowledge	IPad Group Mean	Control Group Mean	Difference	P-value
1.1	The student knew the reason for the meeting	5.0000	4.8000	0.2000	0.1036
1.2	The student knew what he/she needed to do at the meeting.	4.8000	4.4000	0.4000	0.0559

	Transition Issues	IPad Group Mean	Control Group Mean	Difference	P-value
2.1	The student helped identify classes for the student to take.	4.8889	4.4500	0.4389	0.0018
2.2	The student helped identify school activities for the student to be involved in.	4.5000	4.2000	0.3000	0.2638
2.3	The student discussed jobs the student might do after high school.	4.9444	4.5000	0.4444	0.0128
2.4	The student discussed opportunities for education after high school.	4.8333	4.3000	0.5333	0.0060
2.5	The student discussed where the student will live after high school.	4.6286	4.5000	0.1286	0.3790
2.6	The student discussed supports that the student will need in the future.	4.5714	3.9000	0.6714	0.0326
2.7	The student discussed community activities for the student	4.5000	3.8500	0.6500	0.0241
2.8	The student discussed services from outside agencies.	4.4000	3.5000	0.9000	0.0074
2.9	I believe the IEP reflects the student's post-school vision.	4.7778	4.4500	0.3278	0.0229

	Meeting Behaviors	IPad Group Mean	Control Group Mean	Difference	P-value
3.1	The student talked at the meeting.	4.9722	4.7000	0.2722	0.0208
3.2	The student talked about the student's needs	4.8056	4.3000	0.5056	0.0592
3.3	The student talked about the student's strengths	4.8611	4.4000	0.4611	0.0842
3.4	The student talked about the student's interests.	4.9722	4.6500	0.3222	0.1427
3.5	The student helped make decisions.	4.8889	4.5500	0.3389	0.0129
3.6	The student discussed supports that the student needs now.	4.8333	4.5000	0.3333	0.0831

	Positive Perceptions of Meeting	IPad Group Mean	Control Group Mean	Difference	P-value
4.1	I believe people listened to the student at the meeting.	5.0000	4.7500	0.2500	0.0210
4.2	The student felt comfortable saying what he/she thought	4.6667	4.3000	0.3667	0.1077
4.3	The student felt respected at the meeting.	4.9444	4.8000	0.1444	0.2818
4.4	The student understood what was said	4.8611	4.6000	0.2611	0.1636
4.5	I believe the meeting was worth my time and effort to attend.	4.8889	4.9000	-0.0111	0.9154
4.6	I think the goals on the IEP will be met.	4.8571	4.6000	0.2571	0.1716
4.7	I thought everyone at the meeting participated in the development of the IEP	4.8286	4.7000	0.1286	0.2186
4.8	I know what I am supposed to do next about the student's educational program	4.8571	4.8500	0.0071	0.9547
4.9	I feel good about this meeting.	4.9722	4.6000	0.3722	0.0130
4.10	I agree with the decisions made at this meeting.	4.9722	4.9500	0.0222	0.7123

	Leadership Steps	IPad Group Mean	Control Group Mean	Difference	P-value
5.1	Student introduced himself/herself.	4.6667	3.7000	0.9776	0.0050
5.2	Student introduced team members.	4.4722	3.2500	1.2222	0.0046
5.3	Student stated purpose of meeting.	4.8333	3.2000	1.6333	0.0000
5.4	Student reviewed past goals and progress.	4.4444	3.6000	0.8444	0.0092
5.5	Student asked for feedback.	4.4167	3.4000	1.0167	0.0055
5.6	Student asked questions if I didn't understand.	4.1563	3.4737	0.6826	0.0751
5.7	Student was able to deal with differences of opinion.	4.7188	4.0000	0.7188	0.0214
5.8	Student stated needed support	4.5278	3.9000	0.6278	0.0283
5.9	Student expressed interest	4.8000	4.1500	0.6500	0.0144
5.10	Student expressed skills and limits	4.6667	3.9500	0.7176	0.0047
5.11	Student expressed options and goals	4.8333	4.3500	0.4833	0.0308
5.12	Student closed meeting by thanking everyone	4.8333	4.0000	0.8333	0.0232

APPENDIX 4. SURVEY RESULTS

Comparison of Means: Group 1 & Group 2 - 2014

	Prior Knowledge	Mean All Students 2014	Group 1 Mean 2014	Group 2 Mean 2014
1.1	The student knew the reason for the meeting	4.8864	5.0000	4.8000
1.2	The student knew what he/she needed to do at the meeting.	4.8182	4.8000	4.4000

	Transition Issues	Mean All Students 2014	Group 1 Mean 2014	Group 2 Mean 2014
2.1	The student helped identify classes for the student to take.	4.7045	4.8889	4.6923
2.2	The student helped identify school activities for the student to be involved in.	4.4091	4.5000	4.6923
2.3	The student discussed jobs the student might do after high school.	4.7955	4.9444	4.6154
2.4	The student discussed opportunities for education after high school.	4.7500	4.8333	4.6154
2.5	The student discussed where the student will live after high school.	4.5455	4.6286	4.6923
2.6	The student discussed supports that the student will need in the future.	4.6364	4.5714	4.3077
2.7	The student discussed community activities for the student	4.1364	4.5000	3.9231
2.8	The student discussed services from outside agencies.	3.7045	4.4000	3.4615
2.9	I believe the IEP reflects the student's post-school vision.	4.7727	4.7778	4.7692

	Meeting Behaviors	Mean All Students 2014	Group 1 Mean 2014	Group 2 Mean 2014
3.1	The student talked at the meeting.	4.9318	4.9722	4.8462
3.2	The student talked about the student's needs	4.9545	4.8056	5.0000
3.3	The student talked about the student's strengths	4.9318	4.8611	5.0000
3.4	The student talked about the student's interests.	4.9318	4.9722	4.9231
3.5	The student helped make decisions.	4.7727	4.8889	4.8462
3.6	The student discussed supports that the student needs now.	4.9318	4.8333	5.0000

	Positive Perceptions of Meeting	Mean All Students 2014	Group 1 Mean 2014	Group 2 Mean 2014
4.1	I believe people listened to the student at the meeting.	4.9318	5.0000	4.7500
4.2	The student felt comfortable saying what he/she thought	4.6136	4.6667	4.3000
4.3	The student felt respected at the meeting.	4.8636	4.9444	4.8000
4.4	The student understood what was said	4.7727	4.8611	4.6000
4.5	I believe the meeting was worth my time and effort to attend.	4.9545	4.8889	4.9000
4.6	I think the goals on the IEP will be met.	4.7500	4.8571	4.6000
4.7	I thought everyone at the meeting participated in the development of the IEP	4.8182	4.8286	4.7000
4.8	I know what I am supposed to do next about the student's educational program	4.7955	4.8571	4.8500
4.9	I feel good about this meeting.	4.8409	4.9722	4.6000
4.10	I agree with the decisions made at this meeting.	4.9545	4.9722	4.9500

	Leadership Steps	Mean All Students 2014	Group 1 Mean 2014	Group 2 Mean 2014
5.1	Student introduced himself/herself.	3.6136	4.6667	3.7000
5.2	Student introduced team members.	4.2045	4.4722	3.2500
5.3	Student stated purpose of meeting.	4.7273	4.8333	3.2000
5.4	Student reviewed past goals and progress.	4.5455	4.4444	3.6000
5.5	Student asked for feedback.	4.4318	4.4167	3.4000
5.6	Student asked questions if I didn't understand.	4.5238	4.1563	3.4737
5.7	Student was able to deal with differences of opinion.	4.5952	4.7188	4.0000
5.8	Student stated needed support	4.8182	4.5278	3.9000
5.9	Student expressed interest	4.7273	4.8000	4.1500
5.10	Student expressed skills and limits	4.8837	4.6667	3.9500
5.11	Student expressed options and goals	4.9091	4.8333	4.3500
5.12	Student closed meeting by thanking everyone	4.7500	4.8333	4.0000

APPENDIX 5. SURVEY RESULTS

Comparison of Means: Group 1 2013 to 2014

	Prior Knowledge	Group 1 Mean 2013	Group 1 Mean 2014
1.1	The student knew the reason for the meeting	5.0000	4.9677
1.2	The student knew what he/she needed to do at the meeting.	4.8000	4.8710

	Transition Issues	Group 1 Mean 2013	Group 1 Mean 2014
2.1	The student helped identify classes for the student to take.	4.8889	4.7419
2.2	The student helped identify school activities for the student to be involved in.	4.5000	4.7742
2.3	The student discussed jobs the student might do after high school.	4.9444	4.8065
2.4	The student discussed opportunities for education after high school.	4.8333	4.8065
2.5	The student discussed where the student will live after high school.	4.6286	4.4839
2.6	The student discussed supports that the student will need in the future.	4.5714	4.7742
2.7	The student discussed community activities for the student	4.5000	4.2258
2.8	The student discussed services from outside agencies.	4.4000	3.8065
2.9	I believe the IEP reflects the student's post-school vision.	4.7778	4.7742

	Meeting Behaviors	Group 1 Mean 2013	Group 1 Mean 2014
3.1	The student talked at the meeting.	4.9722	4.9677
3.2	The student talked about the student's needs	4.8056	4.9355
3.3	The student talked about the student's strengths	4.8611	4.9032
3.4	The student talked about the student's interests.	4.9722	4.9355
3.5	The student helped make decisions.	4.8889	4.7419
3.6	The student discussed supports that the student needs now.	4.8333	4.9032

	Positive Perceptions of Meeting	Group 1 Mean 2013	Group 1 Mean 2014
4.1	I believe people listened to the student at the meeting.	5.0000	4.9355
4.2	The student felt comfortable saying what he/she thought	4.6667	4.7419
4.3	The student felt respected at the meeting.	4.9444	4.8710
4.4	The student understood what was said	4.8611	4.8710
4.5	I believe the meeting was worth my time and effort to attend.	4.8889	4.9677
4.6	I think the goals on the IEP will be met.	4.8571	4.8710
4.7	I thought everyone at the meeting participated in the development of the IEP	4.8286	4.7742
4.8	I know what I am supposed to do next about the student's educational program	4.8571	4.8065
4.9	I feel good about this meeting.	4.9722	4.9032
4.10	I agree with the decisions made at this meeting.	4.9722	4.9677

	Leadership Steps	Group 1 Mean 2013	Group 1 Mean 2014
5.1	Student introduced himself/herself.	4.6667	3.8710
5.2	Student introduced team members.	4.4722	4.4194
5.3	Student stated purpose of meeting.	4.8333	4.9032
5.4	Student reviewed past goals and progress.	4.4444	4.5806
5.5	Student asked for feedback.	4.4167	4.5484
5.6	Student asked questions if I didn't understand.	4.1563	4.7241
5.7	Student was able to deal with differences of opinion.	4.7188	4.6207
5.8	Student stated needed support	4.5278	4.7742
5.9	Student expressed interest	4.8000	4.7079
5.10	Student expressed skills and limits	4.6667	4.9333
5.11	Student expressed options and goals	4.8333	4.9677
5.12	Student closed meeting by thanking everyone	4.8333	4.8710

APPENDIX 6. SURVEY RESULTS

Comparison of Means: Group 2 2013 to 2014

	Prior Knowledge	Group 2 Mean 2013	Group 2 Mean 2014
1.1	The student knew the reason for the meeting	4.8000	4.6923
1.2	The student knew what he/she needed to do at the meeting.	4.4000	4.6923

	Transition Issues	Group 2 Mean 2013	Group 2 Mean 2014
2.1	The student helped identify classes for the student to take.	4.4500	4.6154
2.2	The student helped identify school activities for the student to be involved in.	4.4200	4.2308
2.3	The student discussed jobs the student might do after high school.	4.5000	4.8462
2.4	The student discussed opportunities for education after high school.	4.3000	4.6154
2.5	The student discussed where the student will live after high school.	4.5000	4.6923
2.6	The student discussed supports that the student will need in the future.	3.9000	4.3077
2.7	The student discussed community activities for the student	3.8500	3.9231
2.8	The student discussed services from outside agencies.	3.5000	3.4615
2.9	I believe the IEP reflects the student's post-school vision.	4.4500	4.7692

	Meeting Behaviors	Group 2 Mean 2013	Group 2 Mean 2014
3.1	The student talked at the meeting.	4.7000	4.8462
3.2	The student talked about the student's needs	4.3000	5.0000
3.3	The student talked about the student's strengths	4.4000	5.0000
3.4	The student talked about the student's interests.	4.6500	4.9231
3.5	The student helped make decisions.	4.5500	4.8462
3.6	The student discussed supports that the student needs now.	4.5000	5.0000

	Positive Perceptions of Meeting	Group 2 Mean 2013	Group 2 Mean 2014
4.1	I believe people listened to the student at the meeting.	4.7500	5.9231
4.2	The student felt comfortable saying what he/she thought	4.3000	4.3077
4.3	The student felt respected at the meeting.	4.8000	4.8462
4.4	The student understood what was said	4.6000	4.5385
4.5	I believe the meeting was worth my time and effort to attend.	4.9000	4.9231
4.6	I think the goals on the IEP will be met.	4.6000	4.4615
4.7	I thought everyone at the meeting participated in the development of the IEP	4.7000	4.9231
4.8	I know what I am supposed to do next about the student's educational program	4.8500	4.7692
4.9	I feel good about this meeting.	4.6000	4.6923
4.10	I agree with the decisions made at this meeting.	4.9500	4.9231

	Leadership Steps	Group 2 Mean 2013	Group 2 Mean 2014
5.1	Student introduced himself/herself.	3.7000	3.0000
5.2	Student introduced team members.	3.2500	3.6823
5.3	Student stated purpose of meeting.	3.2000	4.3077
5.4	Student reviewed past goals and progress.	3.6000	4.4615
5.5	Student asked for feedback.	3.4000	4.1538
5.6	Student asked questions if I didn't understand.	3.4737	4.0769
5.7	Student was able to deal with differences of opinion.	4.0000	4.5385
5.8	Student stated needed support	3.9000	4.9231
5.9	Student expressed interest	4.1500	4.7692
5.10	Student expressed skills and limits	3.9500	4.7692
5.11	Student expressed options and goals	4.3500	4.7692
5.12	Student closed meeting by thanking everyone	4.0000	4.4615

APPENDIX 7. SURVEY RESULTS

Comparison of Means: Group 1 & 2, 2013-2015

Survey Item No.	Prior Knowledge	Grp 1 & 2 Mean 2013	Grp 1 & 2 Mean 2015	Diff.		Grp 1 Mean 2013	Grp 1 Mean 2015	Diff.		Grp 2 Mean 2013	Grp 2 Mean 2015	Diff.
1.1	The student knew the reason for the meeting	4.9245	4.7619	-0.1626		5.0000	4.9048	-0.0952		4.8000	4.6190	-0.1810
1.2	The student knew what he/she needed to do at the meeting.	4.6604	4.6667	0.0063		4.8000	4.8095	0.0095		4.4000	4.5238	0.1238

Survey Item No.	Transition Issues	Grp 1 & 2 Mean 2013	Grp 1 & 2 Mean 2013	Diff.		Grp 1 Mean 2013	Grp 1 Mean 2015	Diff.		Grp 2 Mean 2013	Grp 2 Mean 2015	Diff.
2.1	The student helped identify classes for the student to take.	4.7407	4.5238	-0.2169		4.8889	4.4762	-0.4127		4.4500	4.5714	0.1214
2.2	The student helped identify school activities for the student to be involved in.	4.3846	4.4146	0.0300		4.5000	4.5238	0.0238		4.2000	4.3000	0.1000
2.3	The student discussed jobs the student might do after high school.	4.7778	4.7143	-0.0635		4.9444	4.6190	-0.3254		4.5000	4.8095	0.3095
2.4	The student discussed opportunities for education after high school.	4.6481	4.6667	0.0185		4.8333	4.8095	-0.0238		4.3000	4.5238	0.2238
2.5	The student discussed where the student will live after high school.	4.5660	4.4286	-0.1375		4.6286	4.2857	-0.3429		4.5000	4.5714	0.0714
2.6	The student discussed supports that the student will need in the future.	4.3208	4.5476	0.2269		4.5714	4.6190	0.0476		3.9000	4.4762	0.5762
2.7	The student discussed community activities for the student	4.2963	4.2143	-0.0820		4.5000	4.3810	-0.1190		3.8500	4.0476	0.1976
2.8	The student discussed services from outside agencies.	4.0943	4.1707	0.0764		4.4000	4.1429	-0.2571		3.5000	4.2000	0.7000
2.9	I believe the IEP reflects the student's post-school vision.	4.6667	4.6667	0.0000		4.7778	4.7143	-0.0635		4.4500	4.6190	0.1690

Survey Item No.	Meeting Behaviors	Grp 1 & 2 Mean 2013	Grp 1 & 2 Mean 2013	Diff.		Grp 1 Mean 2013	Grp 1 Mean 2015	Diff.		Grp 2 Mean 2013	Grp 2 Mean 2015	Diff.
3.1	The student talked at the meeting.	4.8889	4.7619	-0.1270		4.9722	4.9524	-0.0198		4.7000	4.5714	-0.1286
3.2	The student talked about the student's needs	4.6296	4.7073	0.0777		4.8056	4.8095	0.0040		4.3000	4.6000	0.3000
3.3	The student talked about the student's strengths	4.6852	4.7619	0.0767		4.8611	4.8571	-0.0040		4.4000	4.6667	0.2667
3.4	The student talked about the student's interests.	4.8519	4.7857	-0.0661		4.9722	4.7619	-0.2103		4.6500	4.8095	0.1595
3.5	The student helped make decisions.	4.7593	4.7619	0.0026		4.8889	4.8095	-0.0794		4.5500	4.7143	0.1643
3.6	The student discussed supports that the student needs now.	4.7037	4.7805	0.0768		4.8333	4.8095	-0.0238		4.5000	4.7500	0.2500

Survey Item No.	Positive Perceptions of Meeting	Grp 1 & 2 Mean 2013	Grp 1 & 2 Mean 2013	Diff.		Grp 1 Mean 2013	Grp 1 Mean 2015	Diff.		Grp 2 Mean 2013	Grp 2 Mean 2015	Diff.
4.1	I believe people listened to the student at the meeting.	4.9074	4.8810	-0.0265		5.0000	4.9524	-0.0476		4.7500	4.8095	0.0595
4.2	The student felt comfortable saying what he/she thought	4.5370	4.3571	-0.1799		4.6667	4.4762	-0.1905		4.3000	4.2381	-0.0619
4.3	The student felt respected at the meeting.	4.8889	4.7619	-0.1270		4.9444	5.0000	0.0556		4.8000	4.5238	-0.2762
4.4	The student understood what was said	4.7593	4.6190	-0.1402		4.8611	4.7619	-0.0992		4.6000	4.4762	-0.1238
4.5	I believe the meeting was worth my time and effort to attend.	4.8889	4.8571	-0.0317		4.8889	5.0000	0.1111		4.9000	4.7143	-0.1857
4.6	I think the goals on the IEP will be met.	4.7736	4.6667	-0.1069		4.8571	4.8571	0.0000		4.6000	4.4762	-0.1238
4.7	I thought everyone at the meeting participated in the development of the IEP	4.7736	4.7143	-0.0593		4.8286	4.8095	-0.0190		4.7000	4.6190	-0.0810
4.8	I know what I am supposed to do next about the student's educational program	4.8491	4.4878	-0.3613		4.8571	4.6500	-0.2071		4.8500	4.3333	-0.5167
4.9	I feel good about this meeting.	4.8333	4.6341	-0.1992		4.9722	4.7500	-0.2222		4.6000	4.5238	-0.0762
4.10	I agree with the decisions made at this meeting.	4.9630	4.8049	-0.1581		4.9722	4.9500	-0.0222		4.9500	4.6667	-0.2833

Survey Item No.	Leadership Steps	Grp 1 & 2 Mean 2013	Grp 1 & 2 Mean 2013	Diff.		Grp 1 Mean 2013	Grp 1 Mean 2015	Diff.		Grp 2 Mean 2013	Grp 2 Mean 2015	Diff.
5.1	Student introduced himself/herself.	4.3333	4.3902	0.0569		4.6667	4.4500	-0.2167		3.7000	4.3333	0.6333
5.2	Student introduced team members.	4.0370	4.1707	0.1337		4.4722	4.3500	-0.1222		3.2500	4.0000	0.7500
5.3	Student stated purpose of meeting.	4.2778	4.4000	0.1222		4.8333	4.7368	-0.0965		3.2000	4.0952	0.8952
5.4	Student reviewed past goals and progress.	4.1667	4.4390	0.2724		4.4444	4.4500	0.0056		3.6000	4.4286	0.8286
5.5	Student asked for feedback.	4.0926	4.4146	0.3220		4.4167	4.4000	-0.0167		3.4000	4.4286	1.0286
5.6	Student asked questions if I didn't understand.	3.9400	4.4878	0.5478		4.1563	4.6000	0.4438		3.4737	4.3810	0.9073
5.7	Student was able to deal with differences of opinion.	4.4490	4.5500	0.1010		4.7188	4.6000	-0.1188		4.0000	4.5000	0.5000
5.8	Student stated needed support	4.2963	4.5610	0.2647		4.5278	4.6500	0.1222		3.9000	4.4762	0.5762
5.9	Student expressed interest	4.5660	4.6585	0.0925		4.8000	4.8000	0.0000		4.1500	4.5238	0.3738
5.10	Student expressed skills and limits	4.4074	4.6000	0.1926		4.6667	4.6842	0.0175		3.9500	4.5238	0.5738
5.11	Student expressed options and goals	4.6667	4.6341	-0.0325		4.8333	4.6500	-0.1833		4.3500	4.6190	0.2690
5.12	Student closed meeting by thanking everyone	4.5283	4.6000	0.0717		4.8333	4.6500	-0.1833		4.0000	4.5500	0.5500

APPENDIX 8. Results of Comparison of Grade Point Average RESULTS

Comparison of Means: Group 1 & 2 & 3 from Fall of 2011- Spring of 2015

Mean GPA for All Participants:

Semester	Mean Grade Point Average	Change
Fall Semester, 2011	78.4697	
Spring Semester, 2012	78.5844	
Fall Semester, 2012	80.2768	
Spring Semester, 2013	80.2321	
Fall Semester, 2013	81.8839	
Spring Semester, 2014	82.2667	
Fall Semester, 2014	84.3616	
Spring Semester, 2015	85.5338	
Mean Change in GPA in GPA 2011-2015		7.0641

N=16

Mean GPA for Group 1:

Semester	Mean Grade Point Average	Change
Fall Semester, 2011	79.2381	
Spring Semester, 2012	80.6429	
Fall Semester, 2012	82.3571	
Spring Semester, 2013	83.0952	
Fall Semester, 2013	83.0714	
Spring Semester, 2014	84.1429	
Fall Semester, 2014	86.7780	
Spring Semester, 2015	87.0920	
Mean Change in GPA 2011-2015		7.8539

N=6

Shaded area represents iPad access

APPENDIX 6. Results of Comparison of Grade Point Average RESULTS (Continued)

Comparison of Means: Group 1 & 2 & 3 from Fall of 2011- Spring of 2015

Mean GPA for All Students Group 2 :

Semester	Mean Grade Point Average	Change
Fall Semester, 2011	77.5476	
Spring Semester, 2012	76.1143	
Fall Semester, 2012	78.3143	
Spring Semester, 2013	77.8286	
Fall Semester, 2013	81.7143	
Spring Semester, 2014	80.4286	
Fall Semester, 2014	79.2575	
Spring Semester, 2015	84.3246	
Mean Change in GPA 2011-2015		6.7770

N=5

Shaded area represents iPad access

Mean GPA for Students in Project Group 3 :

Semester	Mean Grade Point Average	Change
Fall Semester, 2012	79.7429	
Spring Semester, 2013	79.2000	
Fall Semester, 2013	80.6286	
Spring Semester, 2014	81.4857	
Fall Semester, 2014	86.0286	
Spring Semester, 2015	84.9429	
Mean Change in GPA 2012-2015		5.2000

N=5

Shaded area represents iPad access

References

- Agran, M., & Hughes, C. (2008). Students' opinions regarding their individualized education program involvement. *Career Development for Exceptional Individuals*, 31, 69-76.
- Anderson, C.A., (2012). *An investigation into the involvement of California Central Valley high school students with disabilities in the IEP process*. (Doctoral Dissertation) retrieved from <http://csufresno-dspace.calstate.edu/handle/10211.3/118772C>
- Arndt, S. A., Konrad, M., & Test, D. W. (2006). Effects of the Self-Directed IEP on student participation in planning meetings. *Remedial and Special Education*, 27, 194-207.
- Benz, M. R., Lindstrom, L. & Yovanoff, P. (2000). Improving graduation and employment outcomes of students with disabilities: Predictive factors and student perspectives. *Exceptional Children*, 66, 509-529.
- Campbell, D.T. & Stanley, J.C. (1963) *Experimental and Quasi-Experimental Designs for Research*. Houghton Mifflin Co. Boston.
- Danneker, J.E., Bottge, B.A., (2009). Benefits of and Barriers to Elementary Student-Led Individualized Education Programs. *Remedial and Special Education* July/August 2009 vol. 30 no. 4 225-233
- Furney, K., & Salembier, G. (2000). Rhetoric and reality: A review of the literature on parent and student participation in the IEP and transition planning process. In D.R. Johnson & E. J. Emanuel (Eds.), *Issues influencing the future of transition programs and services for students with disabilities* (pp. 111- 126). Minneapolis, MN: University of Minnesota, Institute on Community Integration.
- Halpern, A.S., Yovanoff, P., Doren, B. & Benz, M.R. (1995) Predicting participation in postsecondary education for school leavers with disabilities. *Exceptional Children*, 62, 151-164.
- Hawbaker, B.W. (2007). Student-led IEP meetings: Planning and implementation strategies. *TEACHING Exceptional Children Plus*, 3(5) Article 4. Retrieved 11/01/2012 from <http://escholarship.bc.edu/education/tecplus/vol3/iss5/art4>
- Kennedy, C. H., & Haring, T. G. (1993). Teaching choice making during social interactions to students with profound multiple disabilities. *Journal of Applied Behavior Analysis*, 26, 63–76.
- Konrad, M. (2008). Involve students in the IEP process. *Intervention in School and Clinic*, 43, 236-239.
- Konrad, M., & Test, D. W. (2004). Teaching middle school students with disabilities to use an IEP template. *Career Development for Exceptional Individuals*, 27, 101-124.
- Lynch, E., Crain, S. & Moore, P. (2012) Georgia Parent Mentor Partnership Conference presentation. <http://www.doe.k12.ga.us/Curriculum-Instruction-and-Assessment/Special-Education-Services/Pages/Georgia-PMP-Conference-Handouts.aspx>
- Martin, J. E., Marshall, L. H., & Sale, P. (2004). A three-year study of middle, junior high, and high school IEP meetings. *Exceptional Children*, 70, 285-297.

- Martin, J. E., Van Dycke, J. L., Christensen, W. R., Greene, B. A., Gardner, J. E., & Lovett, D. L. (2006). Increasing student participation in IEP meetings: Establishing the Self-Directed IEP as an evidence-based practice. *Exceptional Children, 72*, 299-316.
- Mason, C., Field, S., & Sawilowsky, S. (2004). Implementation of selfdetermination activities and student participation in IEPs. *Exceptional Children, 70*, 441-451.
- Mason, C. Y., McGahee-Kovac, M., & Johnson, L. (2004). How to help students lead their IEP meetings. *TEACHING Exceptional Children, 36*, 18-25.
- Mason, C. Y., McGahee-Kovac, M., Johnson, L., & Stillerman, S. (2002). Implementing student-led IEPs: Student participation and student and teacher reactions. *Career Development for Exceptional Individuals, 25*, 171-192.
- Perlmutter, L.C., & Monty, R.A. (1977). The importance of perceived control: Fact or fantasy? *American Scientist, 65*, 759-765.
- Powers, L. E., Turner, A., Westwood, D., Matuszewski, J., Wilson, R., & Phillips, A. (2001). *TAKE CHARGE* for the Future: A controlled field-test of a model to promote student involvement in transition planning. *Career Development for Exceptional Individuals, 24*, 89-104.
- Powers, K. M., Gil-Kashwabara, E., Geenen, S.J., Laurie E. Powers, L.E., Balandran, J., & Palmer, C. (2005). Mandates and Effective Transition Planning Practices Reflected in IEPs. *Career Development for Exceptional Individuals*, Spring, 2005 28: 47-59,
- Realon, R. E., Favell, J. E., & Lowerre, A. (1990). The effects of making choices on engagement levels with persons who are profoundly mentally handicapped. *Education and Training in Mental Retardation, 25*, 248-254.
- Roberts, E.L., Ju, S., Zhang, D. (2014). Review of Practices That Promote Self-Advocacy for Students With Disabilities. *Journal of Disability Policy Studies* 1044207314540213, first published on August 4, 2014
- Schunk, D. H. (1985). Participation in goal setting: Effects on self-efficacy and skills of learning disabled children. *Journal of Special Education, 19*, 307-317.
- Smith, R. O. (2002, June). *Assistive technology outcome assessment prototypes: Measuring "INGO" variables of "outcomes."* Paper presented at the RESNA 25th International Conference: Technology & Disability: Research, Design, Practice and Policy, Minneapolis, MN.
- Stanberry, K. (2010). Student-Led IEP meetings: Technology puts teens in the driver's seat. *Special Education Technology Practice, 12*(5), 15-18.
- Test, D. W., Mason, C., Hughes, C., Konrad, M., Neale, M., & Wood, W. M. (2004). Student involvement in individualized education program meetings. *Exceptional Children, 70*, 391-412.
- Torgerson, C.W., Miner, C.A., & Sehn, H. (2004). Developing student competence in self-directed IEPs. *Intervention in School and Clinic, 39*(3), 162-167.

Van Reusen, A. K., Deshler, D. D., & Schumaker, J. B. (1989). Effects of a student participation strategy in facilitating the involvement of adolescents with learning disabilities in the individualized educational program planning process. *Learning Disabilities, 1*(2), 23-34.

Wehmeyer, M. L., Agran, M. & Hughes, C. (2000). A national survey of teachers' promotion of self-determination and student-directed learning. *The Journal of Special Education, 34*, 58-68.