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Effects of Curricular Adaptation on Participation Levels of Students With Severe Disabilities in Inclusive Classes

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EFFECTS OF CURRICULAR ADAPTATION ON PARTICIPATION LEVELS OF
STUDENTS WITH SEVERE DISABILITIES IN INCLUSIVE CLASSES

An EdS Field Project

Presented to the

Department of Psychology

and the

Faculty of the Graduate College

University of Nebraska

In Partial Fulfillment

of the Requirements for the Degree

Education Specialist

University of Nebraska at Omaha

by

Sherry L. Stuhr-Huffman

July 11, 2000

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EDS FIELD PROJECT ACCEPTANCE

Acceptance for the faculty of the Graduate College,
University of Nebraska, in partial fulfillment of the
Requirements for the degree Education Specialist
University of Nebraska at Omaha

Committee

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Date *July 11, 2000*

EFFECTS OF CURRICULAR ADAPTATION ON PARTICIPATION LEVELS OF
STUDENTS WITH SEVERE DISABILITIES IN INCLUSIVE CLASSES

Sherry L. Stuhr-Huffman, EdS

University of Nebraska, 2000

Advisor: Robert H. Woody

The educational community has continued a move toward educating all students, regardless of disability, within general education classrooms. The majority of investigations on this topic have targeted students with mild disabilities within elementary settings. By contrast, this study looked at junior- and senior-high school students with diagnoses of severe disabilities included in general education classes at sites across Nebraska. It examined a strategy used to make the inclusion of these students most appropriate: curricular adaptation. Data was collected using a Curricular Adaptation Observation Form (CAOF) tracking the type and number of adaptations made, and rating the perceived participation of target students in the lesson. Results reveal a significant relationship between number of adaptations made and participation levels of students in two classes. Other associations are evident but not significant due to small sample size. Chance differences are revealed when comparing participation rates within three conditions of no adaptations, substitute curriculum and at least one adaptation. The majority of observations took place in nonacademic classes, yet no significant difference is found for number of adaptations provided in academic and nonacademic settings. Results suggest that quality, not quantity, of adaptations increases participation. Implications for future inclusion studies are included.

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Effects of Curricular Adaptation on Participation Levels of Students with Severe Disabilities in Inclusive Classes

Chapter One

Introduction

A monumental body of research has been conducted in the past two decades focusing on the benefits of inclusion for students with disabilities in the regular classroom. The gains have been demonstrated in social (Janney, Snell, Beers, & Raynes, 1995; Quелlette, Horner, & Newton, 1994; York, Vandercook, MacDonald, Heise-Neff, & Caughey, 1992), behavioral (Cheney & Harvey, 1994), and academic realms (McDonnell, Thorson, McQuivey, & Kiefer-O'Donnell, 1997; Giangreco, Edelman, Luiselli, & MacFarland, 1997; Salisbury et al., 1994). The majority of these studies have focused on those students presenting with mild to moderate disabilities, with severe categories being represented by limited topics. In the same manner, a review of historic inclusion literature reveals an emphasis on inclusion efforts in the elementary grades as opposed to junior and senior high (Nietupski, Hamre-Nietupski, Curtin, & Shrinkanth, 1997).

The educational community has, in general, moved to a strong commitment to end the segregated education of students with severe disabilities (Hilton & Liberty, 1992). The progression toward inclusion of these students has been evident in the majority of educational facilities in one form or another, accompanied by benefits for the students with disabilities as well as for their peers without disabilities (York, et al., 1992; Lipski & Gartner, 1995). Thus, it is time to move beyond a discussion of whether

students with severe disabilities should be educated within regular classrooms, to an analysis of how this can be achieved; the focus on what "best practices" facilitate this inclusion, and on measuring the degree of integration as a function of these practices (Brinker & Thorpe, 1984).

Focus on Curriculum

The characteristics of the learner and his/her environment are under close examination when considering the implementation of specialized educational practices. Center, Ward, and Ferguson (1991) suggested that disability, per se, is not the dominant predictor of integration success, but rather, classroom and school factors that are more closely associated with positive outcomes for children with disabilities. Similarly, Nietupski et al. (1997) call for the investigation of ways to adapt the content of regular education to make instructional activities relevant to the needs of students with severe or multiple disabilities. Therefore, it is the objective of this study to meet the challenge set forth by Brinker and Thorpe (1984) to provide insight as to what "best practices" facilitate inclusion of students with severe disabilities. Specifically, its purpose is to evaluate the outcomes of one inclusion practice: adaptation of curriculum, as used in junior and senior high settings with students with severe disabilities in the general education classroom.

Focus on Number of Adaptations

Center et al. (1991) stated the importance of such a focus on degree of curriculum modification in determining integration: "this degree of modification is directly related to the severity of the child's cognitive disabilities and hence to his academic status in the

classroom" (p 82). Because students with severe disabilities encounter a wide variety of limitations, they often require several forms of adaptation to be successful in typical settings. This study examined how the number of adaptations made affects a student's participation in the lesson, and what effect the variables of "separate curriculum" or "no adaptations made" have on this participation rating. Because inclusion practices often place students in a wide variety of educational settings, traditional academic classes and "specials" were examined for differences in the number of adaptations made.

Definition of Terms

Although each practitioner and educational facility has a unique impression of what the word "inclusion" encompasses, this term has generally come to mean a set of practices and beliefs that includes educating all students, regardless of disability, in their neighborhood school and in age appropriate general education settings with appropriate supports and necessary services (Deschenes, Ebeling, & Sprague, 1994). These necessary services and adaptations can include any of a variety of practices. The support device under investigation here is curriculum adaptation. Curriculum refers to the content of instruction or what is taught (Nietupski, et al., 1997). It is described as activities and experiences a student encounters under the direction of the school whether planned or in addition to subject material and content (Hoover, 1987). Curriculum adaptation, then, is defined by Deschenes et al. (1994) as the practice of altering existing curriculum materials to meet the unique needs of one or more students, including: adaptations of textbooks, worksheets, tests, and activities.

Taking into account the limited amount of research in the specific area of curricular adaptation for secondary students, this topic warrants further investigation. This is especially true for populations with multiple handicapping conditions, such as children with severe disabilities. The purpose of this study was to examine how the number of adaptations made to the curriculum affects the participation of students with severe disabilities in junior high and high school general education lessons.

Review of Relevant Literature

By definition, students with severe disabilities bring unique and challenging aspects to the environments they operate in. The verification "mental handicap: severe/profound" is used to describe those students demonstrating a deficiency in cognitive ability with a score of 40 or below on a standardized test of intellectual functioning. Frequently, these students display limitations in any combination of the following areas: communication (articulation, language, voice, nonverbal), orthopedic impairment or mobility (physical support, wheel-chair bound), behavior, and sensory functioning (sight, auditory, tactile). When these students are brought into a new setting, a variety of adaptations and supports must be put into place for them to be successful participants. Because of this, students with severe disabilities have traditionally been served in artificial environments (Giangreco, Dennis, Edelman, & Cloninger, 1994) namely, in the form of special classrooms or separate buildings.

As mentioned above, there has been a recent trend toward more inclusive education for all students with disabilities. This priority was first instigated by the Individuals with Disabilities Education Act (IDEA, 1990), through "least restrictive

environment" requirements. To the maximum extent appropriate for them, students with disabilities must be educated in and not removed from the general curriculum unless they cannot benefit from it even when provided supplementary aids and resources. The rationale for this has been expressed by Haring, Farron-Davis, Goetz, Karasoff, Sailor, and Zeph (1992), and York, et al. (1992). The priority of inclusion has been based on the need to learn in natural environments in which age-appropriate models of behavior and functional demands for performance are operative, and on the need for children with severe disabilities and their peers to learn about each other and develop the positive interdependence necessary to be part of the same community. Center et al. (1991) also attribute the move toward inclusion of students with severe disabilities to the following: (a) recognition that children have the right to be educated in environments that are non-discriminatory and maximize the normalcy of their experiences, (b) the desire to develop efficient and flexible systems to deliver the highest quality of education to children with special needs, and (c) the need to develop schools which are maximally effective for all students. For these many reasons: educational, moral, legal, and economic, a single educational system is recommended to serve all students with their age appropriate peers in general classrooms (Cheney & Harvey, 1994).

Inclusion in practice.

Inclusion of students with severe disabilities into the regular classroom is not an easy task. Even if the staff is willing, and the school climate is open to the idea, merely having these students in the classroom will not lead to an effective inclusive environment. The importance of this policy has been demonstrated by Hilton and Liberty (1992), who

provide an example of a baseline condition to illustrate the outcome of placing students with severely disabling conditions into integrated high school settings without making arrangements for accommodation. In their study, 16 high school students were placed in ten classrooms in nine different public high schools. Observational data collected over one school year indicated that contacts between target students and peers without disabilities occurred infrequently, and teachers were not observed to actively prompt integration activities or arrange schedules to accommodate interactional opportunities. Progress made by students with disabilities was examined through the use of skill-oriented student progress reports. Analysis of the progress indicated that the majority of the target students had made slight or no progress in skill development areas. One student had even lost skills. It is a reality that merely placing these students into integrated settings does not ensure that integration will take place.

Curricular adaptation.

It is evident that accommodations must take place; however, making adaptations to facilitate the inclusion of students with severe disabilities can go beyond the more common methods of providing behavioral and social support. One such example is the adaptation of curriculum.

By its very nature, curriculum is the focal point of education (Hoover, 1987). Although overwhelmingly successful, only a few studies have been published on the subject. Salisbury, et al. (1994) describe a process of curriculum adaptation that was successfully used by teachers in an inclusive elementary school. A five-step adaptation process was utilized that represented progressively greater departures from the objectives

and activities planned for typical students (Salisbury, et al., 1994). These steps included: level one--same activity and objectives/same materials; level two--same activity easier step (modified objective)/same materials; level three--same activity, different objectives and materials; level four--same theme, different tasks and objectives; and level five--different theme, different activity. Whenever possible, team members responsible for facilitating this adaptation process utilized the lowest level of adaptation necessary to include the student with disabilities in the regular classroom lesson. This practice can serve as a valuable model, in that the team's priority was basing adaptation levels on the needs of each child. Different levels of adaptation were available, and the level utilized was matched to student need. The goal to enhance the instructional integration of children with mild to profound disabilities was, and continues to be, achieved in this elementary setting.

Having these opportunities to be actively engaged in instruction has been repeatedly shown to be one of the best predictors of achievement for students. McDonnell, et al. (1997) examined the academically engaged time of students with severe disabilities in elementary grade general education classes as compared to students without disabilities in similar settings. When comparing the frequency of academic responding and task management behaviors, no significant differences between students with disabilities and their non-disabled classmates surfaced. Both groups were observed to have comparable rates of academic engagement. They concluded that curriculum and instruction can be organized in ways that will provide students with severe disabilities meaningful learning opportunities.

Class type.

One area of consideration not highly represented in the literature surrounds a common practice of placing students with disabilities in settings other than the traditional academic content areas in the name of inclusion. These classes, often referred to as "specials," include Art, Music, Physical Education (P.E.), and Library. As the primary goals focused on in these settings are other than academic, it is the expectation of many educators that this would be a task easily facilitated. Keeping in mind the many challenges that these students bring to a situation, students with severe disabilities will often still require adaptations. A study by Evers and Bursuck (1994) illustrates the inclusion of students with disabilities in secondary technical vocational education programs. The assumption that vocational education classes would facilitate inclusion without the adaptations were made in more obviously academic settings was not supported. Interviews of teachers in a variety of vocational classes revealed a high demand for traditional academic skills. Based upon the levels of reading, writing and math literacy required for success in these technical classes, there was a definite need for adaptations. Evers and Bursuck state that "helping students apply learning strategies found successful in mainstream academic classes to managing technical material would seem appropriate" (p. 141).

There are still significant gaps in understanding how the curricular strategies typically used in the general education classes influence the academic participation of students with severe disabilities. Because inclusion of students with severe disabilities in general education classes is a relatively recent phenomenon, little empirical data have

been systematically collected and analyzed about the outcomes and about strategies for making it work (York et al., 1992). Nietupski, et al. (1997) completed an examination of curricular research in severe disabilities from 1976 to 1995. They found that although the number of inclusion articles have increased substantially in 20 years, academic skill curricular research, the primary focus of general education, has not increased appreciably. A number of sources have confirmed this position, stating that research on methods of adapting regular education content to make the activities relevant to student needs is necessary, particularly at the secondary level (Nietupski, et al., 1997; Myers & Bounds, 1991). Schumm and Vaughn (1991) have emphasized that research on the effectiveness of new models can help educators and will lead to the willingness and success at making adaptations.

Expected Outcomes and Hypotheses

The following hypotheses are based upon findings of previous research on inclusive education for students with disabilities:

Hypothesis 1: Assuming that full inclusion of students with severe disabilities in the curriculum requires a number of adaptations, it can be stated that the more adaptations in place, the higher the participation. It was hypothesized that a positive correlation will exist between number of adaptations observed and perceived participation level of students with severe disabilities in academic and nonacademic general education lessons as observed through the use of the Curricular Adaptation Observation Form (CAOF). Furthermore, indication of no adaptations made on the CAOF was expected to result in lowest participation levels.

Hypothesis 2: The original CAOF, as developed, includes substitute curriculum as a method of adapting the general education curriculum. However, this study holds that this modification closely parallels no adaptations made. It has been demonstrated that the mere placement of students with severe disabilities in the general education setting does not insure participation or subsequent educational gain. Therefore, Hypothesis 2 stated: indication of substitute curriculum on the CAOF will result in lowest participation levels, similar to that of no adaptations made.

Hypothesis 3: Finally, investigation of necessary skills has revealed that even those classes considered nonacademic require students to use the same skills critical in the academic classes. Therefore, no difference was expected between the number of adaptations made in traditional academic classes and the number of adaptations observed in those classes referred to as "specials."

Chapter Two

Method

This study utilized data collected during a three-year research and training project entitled Maximizing Achievement eXcellence via Inclusive Education Programs (Project MAX-IEP). This federally funded grant worked to improve educational outcomes for middle school and secondary students with severe disabilities through inclusion in the general education setting. The training component of the grant provided frequent workshops, school-specific site support, personnel assistance, furnishing of necessary materials, and skills instruction for teachers who had either direct or indirect contact with the ten target students. Various measures comprised the research component of the project. Targets included Individualized Education Program development, social interactions and networks, parental involvement, valued outcomes, and school-wide belief surveys. For the purpose of this study, observational data collected throughout the second and third year of the grant was examined.

Participants

Ten individuals, identified in their district as students with severe disabilities, and requiring pervasive support in three of ten functional skills areas comprised the participant selection (two 12 to 16 year-old students identified in each of five participating school districts). Students of both sexes, diverse ethnicity, and varying disability characteristics were represented. Nine of the target students participated in the research grant for three years. One student moved out of state during the second year of the project. Student demographics are displayed in Table 1.

Study Sites

Five school districts in Nebraska were selected because of their interest in inclusive education, varying approaches to inclusion, and geographic and cultural diversity. These districts included: Omaha Public Schools, the state's largest, serving over 43,000 students (almost 6,000 in special education); Westside Public Schools, an urban district in the Omaha area, serving over 4,500 students (almost 600 in special education); Grand Island Public Schools, an urban district 150 miles west of Omaha, serving over 7,000 students (over 1,000 in special education); Elkhorn Public School, a suburban district near Omaha, serving around 2,000 students (almost 300 in special education); and Schuyler Public Schools, a rural school system served by Educational Service Unit #7 in Columbus, serving around 1,000 students (over 100 in special education).

Materials

The sole measure of curricular adaptation and participation levels was an observation protocol developed by Ebeling, Deschenes, and Sprague (1994). The Curricular Adaptation Observation Form (CAOF) solicits information on the following: the adaptations being implemented by the classroom teachers or others, types of adaptations (0-10 possible in one activity) being implemented, quality of specific adaptations (stigmatizing or isolating), description of the activity occurring, and the classroom participation level of the target student (on a 5-point Likert scale).

The measures of concern on the CAOF included Adaptations Observed and Student Level of Participation in Lesson. Following is a description of possible adaptations. Size Reduced: reduction in the number of items that the learner is expected

to learn or complete. Difficulty Reduced: the skill level or problem type is reduced. Extra Time Allotted: the time allotted and allowed for learning, task completion, or testing is lengthened. Support: personal assistance with a specific learner is increased through teacher support, assistant support, or peer support (peer tutor or peer pairing). Input: adaptation of the way instruction is delivered to the learner (the use of picture cues, etc.). Output: adaptation of how the student can respond to instruction (use of AAC device to answer questions). Alternate Goals: adapt the goals or outcome expectations while using the same materials (e.g., in geology the student is sorting rocks by color, while others by geological period). Substitute Curriculum: provide different instruction and materials to meet a student's individual goals (e.g., in geology the student is completing a work sheet on numbers while others take a test on geological periods).

The 5-point Participation scale ranges from low participation to high participation, and is defined by the following ratings:

1 = no interaction to/ from the target student in any activity during the observation

2 = very limited interaction to/ from the target student (less than half the participation observed from other students.

3 = moderate interaction both to/ from the target student, approximately half that of other students' participation.

4 = interaction to/ from the target student is over half that of other students' participation,

5 = full participation equal to that of other students.

Data collection on the CAOF was completed by the Project Director, Project Coordinator, and four trained graduate research assistants throughout the school years of

1996 to 1997. The database consisted of approximately 220 observations of different classroom lessons. Interrater reliability checks were performed on 21% of the observations. In this condition, two observers independently completed CAOF protocols during one simultaneous observation. Interrater reliability agreement on adaptations observed had a mean of 93%. Interrater reliability agreement for rating target students' level of participation was 54% when using the 5-point Likert scale as intended by developers. For the purpose of this study, a rating of 1 or 2 on the CAOF form was considered a low participation rating. A rating of 4 or 5 on the CAOF form was considered a high participation rating. Ratings of 3 were disregarded, as they did not significantly contribute to low or high participation comparisons. Using this method, interrater reliability for high and low participation ratings agreement was 80%.

Procedure

Two components of the CAOF were utilized in data analysis, namely adaptations and participation level. When examining the relationship between these two variables in Hypothesis 1, a Pearson product-moment correlation coefficient was used. The following pair of variables was compared: number of adaptations and participation rating for target students in each class type. A t test was also completed for participation ratings over cumulative observations (both academic and nonacademic classes) for the variables of no adaptations made and at least one adaptation made to determine the impact of adaptation on perceived participation in the lesson.

For Hypothesis 2, a one-way repeated measures analysis of variance (ANOVA) examined how target students' participation rating varied as a function of three treatment

conditions: no adaptations made, at least one adaptation made, and substitute curriculum.

Additionally, an a priori comparison was figured for the variables of mean participation rating for no adaptations made and substitute curriculum combined versus participation rating for observations in which at least one adaptation was observed.

Hypothesis 3 required a correlated t test to compare the number of adaptations made in academic and nonacademic classes. A chi-square analysis was also used to determine if significant differences existed between the frequencies of types of adaptations used in these classes.

Chapter Three

Results

Adaptation and Participation

A Pearson product-moment correlation was computed on a per-class basis to gauge the relationship between number of adaptations observed and perceived participation level of target students. Significant correlations between adaptation and participation were found for the classes of Art, $r(2) = 1$, $p < .05$ and P.E., $r(5) = -.80$, $p < .05$. In the case of Art, a positive correlation existed, while a negative correlation was revealed for P.E. Associations between the variables of adaptation and participation for the classes of Family and Consumer Science, $r(4) = .52$, ns; Technology, $r(2) = .68$, ns; Homeroom, $r(3) = 0$, ns; Choir/Music, $r(1) = .81$, ns; and Science, $r(4) = .74$, ns, were evident but statistically significant.

Cumulative observational data was then analyzed for no adaptations made and at least one adaptation made, $t(5) = .03$, ns. Participation rates for no adaptations made ($M = 1.65$) and at least one adaptation made ($M = 1.65$) did not differ significantly, indicating that samples were drawn from the same population.

Substitute Curriculum

A one-way repeated measures ANOVA examined whether average participation rate varies as a function of type of adaptation made (no adaptation, $M = 1.58$; at least one adaptation, $M = 1.26$; or substitute curriculum, $M = 1.45$). Results indicated that any difference between the group means for participation was due to chance alone, $F(1, 8) = .36$, ns.

Additionally an a priori grouping of average participation rates for substitute curriculum and no adaptations made was compared to average participation rate for those classes where at least one adaptation took place. This analysis also revealed no significant findings, $F(1, 8) = .64$, ns.

Adaptations used in Academic/Nonacademic Classes

The number of adaptations observed in academic and nonacademic classes is represented in Table 2. Correlated t -test results showed that, when accounting for unequal numbers of observations, no significant difference existed between average number of adaptations made in academic ($M = 1.60$) and nonacademic classes ($M = 1.46$), $t(7) = .45$, ns.

Data indicated that for Student 3, significant efforts were made to provide adaptations in inclusive classes, yet these observations were not included in data analysis due to the fact that this student was never present in an academic class, thus failing to meet criteria for data pool.

In regard to types of adaptations most commonly utilized, a chi-square analysis looking at the frequency of use resulted in significant findings, $\chi^2(8) = 168$, $p < .001$. Table 3 demonstrates that teacher support (27%) and assistant support (27%) were the most frequently used adaptations, followed by alternate goals (14%), peer support (12%), difficulty reduced (11%), size reduced (4%), output (2%), extra time allotted (1%) and input (1%).

Chapter Four

Discussion

As hypothesized, a relationship is evident between curricular adaptation and participation level in a small sample of observed classes. A significant relationship exists between adaptation and participation for Art and P.E. In the case of Art, a positive relationship was established, indicating that an increased number of adaptations was associated with a higher rating for student participation in the lesson. When fewer, or no adaptations were provided, target student participation tended to be low. This finding may be explained by contrasting the skills required to meet classroom expectations in the setting with target student characteristics. The majority of this subject pool had limited fine and gross motor control. They also, by definition of their academic label, were handicapped by diminished intellectual functioning. Art is frequently a class in which more abstract thinking skills are necessary, and these ideas are primarily expressed through motor responses. The processes involved in Art are generally nonlinear, there are rarely “right or wrong” responses, and acceptable products for one class period of Art may not be acceptable in the next day’s Art class. The obvious mismatch between expectations and skills demands a higher number of adaptations. It is evident that providing personal assistance, modifying methods of output and content requirements are more necessary in this setting. Art is often a less structured setting in which adaptations could be more easily facilitated without disrupting the flow of the class. Staff may have recognized these variables, attempting a higher number of adaptations and consequently

“leveling the playing field” for target students. This may account for the positive correlation.

In the case of P.E., a negative correlation was found. Curiously, when fewer adaptations were provided, target student participation tended to be higher. Similar to Art, the desired response is primarily motor in nature, and one would expect that students would require more adaptations to meet the demands of the lesson. As this does not seem to be the case, examination of other variables present within the P.E. setting can be considered.

Because many P.E. activities allow for paired or team efforts, this may have served as an “invisible” support built into the lesson’s activities. Target students may have been able to meet demands of the lesson through collaborative efforts, or through individually imitating peers’ actions, lessening the need for teacher or assistant support. The gradient of skills acceptable in this setting may also be broader (i.e. it would be unrealistic to expect a seven-minute mile from all students, or even a majority of them) again lessening the need for adapted output methods.

Another possibility is that staff may have recognized that providing adaptations within P.E. tended to stigmatize the target student as opposed to enabling him. One can imagine how obviously different a junior-high student would look with an assistant shadowing his every action, or how inconvenient a picture-exchange communication system would be during a ball game in this setting. Attempts to make the target student more independent in P.E. activities may have contributed to this finding.

Finally, although not an intentional reason to withhold support for a student, one variable should be mentioned that might have impacted the number of adaptations observed in P.E. settings. With high demands for staff availability throughout a school building and considering staff scheduling, assistants often take required breaks or cover academic classes when target students are in P.E. This too, may have accounted for some of the reduced number of adaptations in this setting.

Comparing participation levels of target students in classes where no adaptations were made to classes where one or more adaptations were made did not result in significant findings. The means indicate that they were drawn from the same population; It cannot be stated reliably that adaptations lead to predictable participation as observed by an outside party. Results do not support the contention that increasing the number of adaptations provided to a student will consistently increase the student's participation in the lesson. To reword this finding: the quantity of adaptations provided has not been demonstrated to consistently correlate with a student's participation in the lesson. Both conditions resulted in the same amount of participation from target students. These results suggest that when the goal is to increase student participation, it may be the quality, not quantity of the adaptation that is most effective.

Contrary to the hypothesis that indication of substitute curriculum on the CAOF would lead to lowest participation levels, no significant difference was found between the mean participation rating for students in this condition when compared to participation in classes where substitute curriculum was not noted, or in classes where adaptations were made. Additionally, findings do not support the idea that substitute curriculum and no

adaptations made would consistently result in lower participation levels than in classes where adaptations were made. Given these results, it may be suggested that quality of chosen adaptation is a key factor.

Substitute curriculum may, in fact, represent a valid adaptation to pursue in inclusion settings, as stated by developers of the CAOF. A more sensitive, direct test of this hypothesis is warranted, insuring more clearly defined target groups. Ideally, participation from a substitute curriculum group in which no other adaptations were made would be compared to a group in which no adaptations were made or one or more adaptations were made during the lesson. Due to the nature of the observations completed for this study, absence of noise was compromised for larger sample size. Even in substitute curriculum conditions, other adaptations were present during the observation, but disregarded as adaptations in data analysis. Substitute curriculum did not “overshadow” any other adaptations and correspond to lowest participation levels in this study. Additional conclusive findings may be established with a more direct test as outlined above.

Consistent with previous literature (Evers & Bursuck, 1994), this study revealed that the majority of observations took place in nonacademic settings (specials). Due to the lessened focus on academic skills necessary to participate, inclusion often takes place in these settings first. However, when compensating for unequal number of observations, there was no significant difference in number of adaptations made. A similar number of adaptations were made in both academic and nonacademic classes.

Academic classes may seem to require more mental computation and revolve around paper-and-pencil task production when compared to nonacademic classes. However, task analysis of typical nonacademic classes reveals that students are required to use multiple modes of output (body movement, physical response, motor manipulation, and verbal solutions), making adaptations just as frequently necessary. Results support that school staff view it necessary to make adaptations for skill constructs (organization, mental computation, verbal and auditory processing, comprehension skills) as well as modifying for a student's more visible limitations (mobility, speed, range of motion, physical strength). Even tasks that appear to be nonacademic in nature may require more traditional academic skills in order to be successful.

This study reveals that there were two adaptations used with a significantly higher frequency than all others: teacher support and assistant support. A common procedure in school settings is to pair students with severe academic concerns with associates in inclusive classes. Although this may indeed be a beneficial practice resulting in continued use of this adaptation, this finding also lends itself to asking what other reason may be behind the consistent use of teacher and assistant support.

These adaptations may have been unknowingly chosen due to their ease in facilitation or as a result of teachers' comfort level in implementing them. Adaptations may or may not have been consistently matched with individual student needs. As stated by others studying this topic, in order to increase a student's participation level, adaptations must be chosen according to specific needs of the student (DePaepe, et al., 1994; McDonnell et al., 1997; Schumm & Vaughn, 1991). Assuming general qualities

about a student as a result of his academic label will not provide a substantial basis for choosing modifications.

Implications for Practice

It is widely known that special considerations must be made for including students with severe handicaps in the general education setting. More and more, these considerations clearly become an examination of quality, not quantity. More is not better in this situation. It is not beneficial to choose adaptations based on common practice or ease of utility. Best practice continues to point toward individualizing adaptations for a target student.

This is obviously a considerable task to undertake. The school staff participating in this study were provided with training, workshops, on-going site visits, and materials for implementation. Similarly, it will be necessary for educational agencies to provide support to teachers, and for staff to work collaboratively toward reaching successful inclusion-targeted goals. Although this study targeted students with more severe educational needs, the findings can be generalized to including students with any range of ability into a setting. It requires comparing the expectations for successful participation in a lesson with the capabilities of the target student and bridging the gap between the two.

This study also questions one of the practices common in settings working toward inclusion. Nonacademic classes are often the first environment to which a student with disabilities is introduced. As seen in this study, no significant difference in the number of adaptations made was found for academic and nonacademic classes. Hence, promoters of

this practice may be wise to widen the focus when considering the most appropriate inclusion settings for students. Assumed ease of transition in nonacademic lessons has not been supported here. These findings, in collaboration with other academic research, will be helpful to those working toward inclusive settings.

Limitations and Suggestions for Future Study

Although the present study is valuable due to its longitudinal nature, age and grade composition, and characteristics of the target students, the population sample is relatively limited for student number and locale (all within one state). Future research on this topic is warranted, utilizing an increased sample size and various measures for adaptations provided and corresponding participation. The findings presented here are limited to the stated population and are not necessarily representative of all inclusion settings. One variable that must be considered is the reactivity of staff and students in having observers present in the setting. It is believed that this effect was somewhat diminished as a result of numerous observations taking place over several years, yet it remains an aspect of research that is not entirely avoidable.

Participants involved in this study were selected on the basis of their interest in the topic and project goals. Although MAX-IEP's influence extended to many individuals within the participating districts, the focus was not on entire systems change. It is felt that upcoming study targeting district-wide procedures and altered practices on a school-wide basis as opposed to per-class, would be beneficial. More comprehensive and reinforced efforts would certainly result in useful information.

Due to the fact that one element of this study, rating student participation, relied on observer judgment, reliable quantification of the variable was difficult. Alternate methods of accounting for and measuring student participation are recommended. Other observational data such as hand raising, vocalizations made, permanent product review, target student self-rating scales, or tracking skills mastery are other ways of gauging lesson involvement. Studies that dissect these sources may lead to a better understanding of participation and how to best meet student educational goals.

Finally, this study was concerned primarily with how many adaptations were made. It was not designed to identify which adaptations were associated with increased participation. Again, this author maintains that an appropriate conclusion of this present study is that quality of adaptation may precede type, frequency, and count of adaptation. Yet it is suggested that examination of the most successful types of modifications would lead staff and other educational agencies toward acceptable starting points for inclusionary efforts.

In spite of above mentioned limitations, this study provides valuable input for those striving to teach all learners within a common setting. It is a fact that teachers will continue to be responsible for a wide variety of student needs in their classrooms. Their skill at choosing appropriate modifications and utilizing these adaptations will continue to be an imperative topic. Future examination on the types of adaptations frequently made, methods of measuring participation, and evaluating the utility of modifications would be valuable contributions to the subject of appropriate inclusion practices.

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Table 1

Target Student Demographics

Student	Gender	District	Additional Presenting Characteristics
One	F	Urban	Verbal, social interaction issues
Two	M	Rural	Quadriplegia, nonverbal, eye-gaze communication
Three	M	Rural	Verbal, little social interaction
Four	M	Urban	Downs Syndrome, verbal
Five	M	Urban	Paraplegia, verbal
Six	M	Urban	Downs Syndrome, nonverbal
Seven	M	Rural	Paraplegia, low motor control, nonverbal
Eight	M	Rural	Downs Syndrome, nonverbal, self-injurious behavior
Nine	F	Urban	Nonverbal, behavior control concerns
Ten	M	Urban	Limited vocabulary, behavior control concerns

Table 2

Number of Adaptations Observed in Academic and Nonacademic Classes

Adapt. Made	Academic	%	Nonacademic	%	Totals	%
None	2	1 %	21	14 %	23	16 %
One	15	10 %	29	20 %	44	30 %
Two	19	13 %	31	21 %	50	34 %
Three	10	7 %	10	7 %	20	14 %
Four	4	3 %	4	3 %	8	6 %
Five	1	1 %	1	1 %	2	2 %

Table 3

Observed Frequency for Each Adaptation

Adaptation Type	Frequency	%	Rank
Size Reduced	9	4 %	5
Difficulty Reduced	25	11 %	4
Extra Time	2	1 %	7
Teacher Support	60	27 %	1
Assistant Support	60	27 %	1
Peer Support	27	12 %	3
Input	3	1 %	7
Output	5	2 %	6
Alternate Goals	31	14 %	2

Figure Caption

Figure 1. Sample Curricular Adaptation Observation Form (CAOF)

