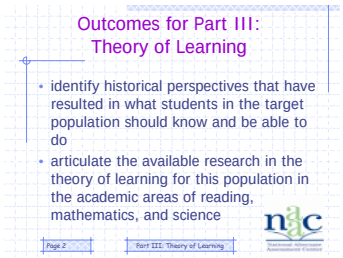
Part III: Theory of Learning

What students with the most significant cognitive disabilities should know and be able to do...

National Alternate Assessment Center

Part III: What Students with the most Significant Cognitive Disabilities Should Know and be able to do…

Purpose of Part III

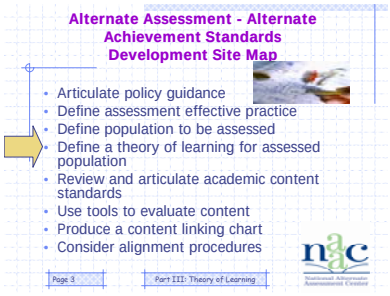


The outcomes for Part III discuss the research and curriculum history for students with the most significant cognitive disabilities. At the end of this presentation, participants should be able to:

- **articulate the available research in the theory of learning for this population in the academic areas of reading, mathematics, and science.**
- **identify historical perspectives that have resulted in what students in this population should know and be able to do.**

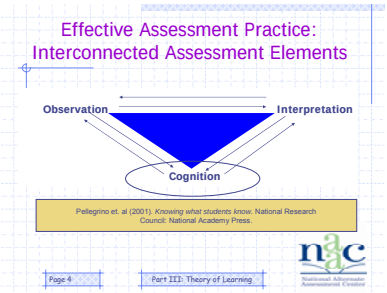
Trainer's Note: This presentation includes material from Part I: Overview, Terminology, Theory, and Research. Trainers may choose to only do this section or combine the two sections and then delete duplicate material.

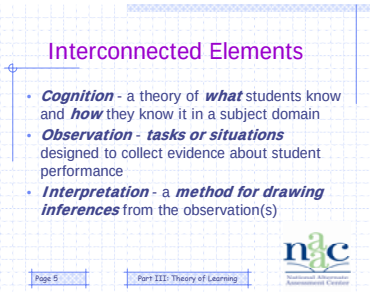
Development Site Map



Trainer's Note: Some of these slides can also be found in Part I: Overview, Terminology, Theory, and Research. The new slides begin with slides 24 and 25: Walk the Wall Activity and its introduction.

Theory of Learning for Students with the most Significant Cognitive Disabilities: Determining Competence in Academic Domains

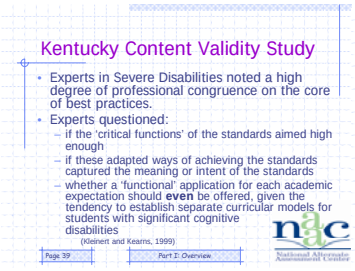


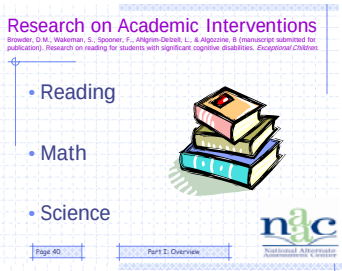


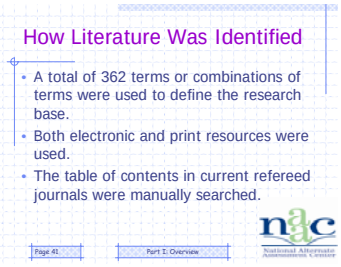
The cognition vertex of the assessment triangle includes the theory of learning or the development of competence for all students in the content domain areas of reading, mathematics, and science.

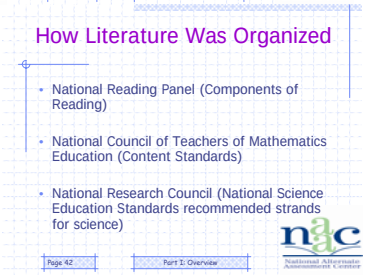
Because their learning is perceived to be so significantly different than typical children, curriculum for students with the most significant cognitive disabilities has not traditionally focused on academic content but encompassed a separate curricular focus. Indeed, in many cases it is thought that the student's Individual Education Program or IEP is the curriculum for each individual student. While the IEP certainly represents educational priorities and supports to achieve those educational priorities for the individual student, it does not represent the entire range of curriculum; nor does it represent the academic standards upon which a curriculum should be based (Giangreco, Cloninger, Iverson, 1999; Grisham-Brown, Kearns, 2001)

Therefore, we turn to the literature to determine what areas within the domains of reading, mathematics, and science have been taught.









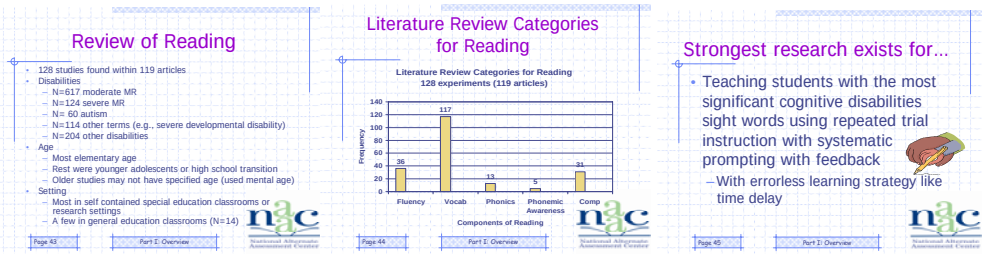
First, in a survey of experts in severe disabilities, Kleinert and Kearns (1999) found the highest degree of congruence on the core of effective practices found in the performance domain. However, even though Kentucky's alternate assessment has always had its foundation in the general curriculum standards, experts questioned whether:

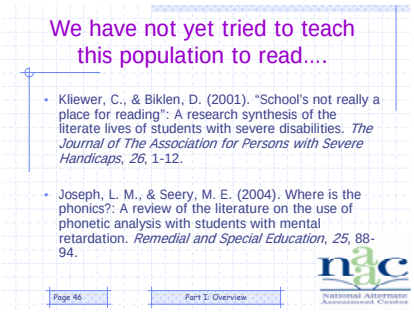
- the 'critical functions' of the standards aimed high enough,
- if these adapted ways of achieving the standards captured the meaning or intent of the standards, and
- whether a 'functional' application for each academic expectation should **even** be offered, given the tendency to establish separate curricular models for students with significant cognitive disabilities.

A comprehensive literature review was conducted for empirically based research from 1975-2003 related to the instruction of students and adults with disabilities in the academic areas of reading, math, and science at UNC-Charlotte. The literature had to be published in peer-reviewed journal in English with at least one participant with diagnosis of significant cognitive disabilities (moderate, severe, mental retardation, autism, or developmental disability). The intervention in the literature had to use a recognized experimental or quasi-experimental design (including single subject designs).

Nationally recognized standards or components of the academic content areas were used to organize the literature. The National Reading Panel (2000) identified five components that make up the content of reading. These components included fluency, vocabulary, phonics, phonemic awareness, and comprehension. The National Council of Teachers of Mathematics Education began in 1989 and continued through 2005 to describe mathematical content standards around which the curriculum should be organized. Number and operations, algebra, geometry, measurement, and data analysis and probability were recognized as skill areas necessary for students to be effective. Finally, in 1996 the National Research Council approved seven strands for science to help the nation's students achieve science literacy. These strands consist of science as inquiry, physical science, life science, Earth and space science, science and technology, science in personal and social perspectives, and the history and nature of science.

Reading



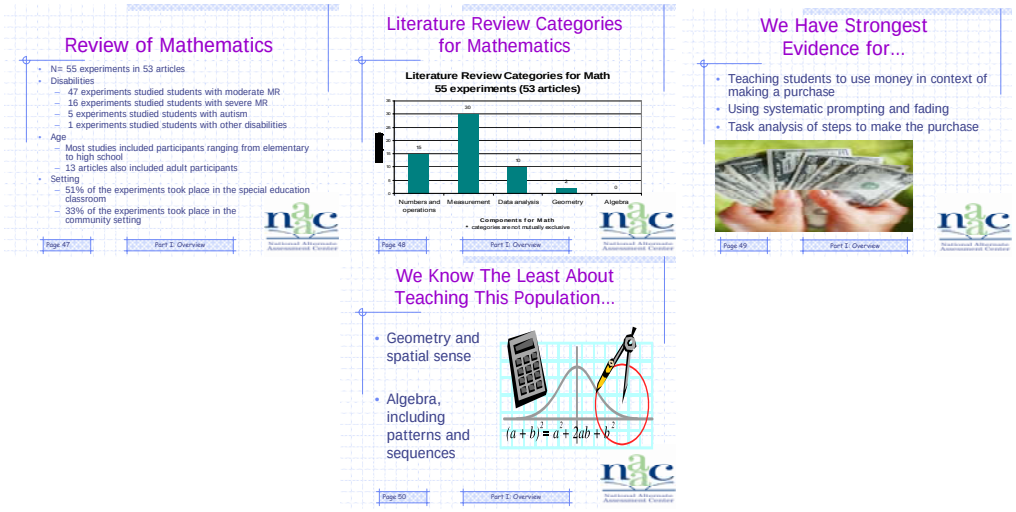


As you will see on the graphs for each slide, all data was categorized into the related academic areas for what is commonly accepted as the curricular focus. The five components of reading, the five content standards for math, and the seven strands for science were used to identify areas of strength and weakness for instruction with students with significant disabilities. Studies were also analyzed using quality indicators identified by Gersten, et al. (2005) for experimental studies and Horner, et al. (2005) for single subject studies. As there were very few experimental studies with this population, we were unable to apply Gersten. However, we were able to apply the criteria recommended for quality within single subject research in special education (Horner et al., 2005) as there were 88 single subject design studies. Fifty-two (59%) met all criteria for quality indicators. An additional 27 (31%) had all criteria except a measure of procedural fidelity leaving only 9 (10%) studies that missed two or more criteria. Of the 52 studies that met all criteria, 40 (77%) focused on sight word instruction. These 40 studies included 155 participants and were conducted in 9 different geographic locations.

The teaching of sight words was included in the category of vocabulary. Fluency was less likely to be the reading of a passage and the recording of errors than it was the tracking of error rate over time for symbol identification. Comprehension may be the reading of safety signs in the community or selecting the correct gender specific restroom. Most studies related to phonics were conducted by two sets of researchers in the 1980s.

Kliewer and Biklen (2001) described the need to get past what students are perceived as being unable to do and help them become involved in literacy through adapted and modified texts, materials, and routines. Joseph and Seery (2004) conducted a literature review of empirical studies that used phonetic strategies or instruction with students with mild or moderate retardation. Outcomes demonstrated that while the process of learning to read (i.e., phonetic instruction) is not being taught to students with mental retardation, these students may benefit from direct/explicit instruction in phonic analysis.

Mathematics



Notably, only one third of the intervention studies were in the content area of mathematics. Experimental studies that focused on math were predominately conducted with students with moderate disabilities. Over 80% of studies were either conducted in a separate classroom or in the community. This setting suggests that the type of instruction was on functional skills rather than academic content and is supported by the numbers in the graph.

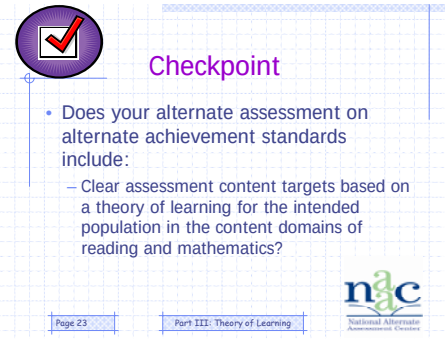
Measurement included time and money. Numbers and operations included counting and number identification. Data analysis included self-graphing and self-monitoring data. Geometry was primarily the identification of shapes. There is very little about teaching students anything past shape identification. While traditionally these areas have been thought of as out of reach, extended standards and entry points created by curriculum specialists can help teachers find meaningful ways to address complex standards (e.g., understand the concepts of over/under related to spatial understanding, reading the mathematical equation of $7 > 3$ to a student and providing choices for responses allows the student an opportunity to demonstrate understanding of the concept of greater than or less than).

Science

The one study for Earth and space science dealt with teaching the students about weather sight words. Most of the personal and social perspectives dealt with making correct responses or choices in safety situations (i.e., cooking, crossing the street). Information in the area of science is limited. Clearly there is a need for research in this area as the assessment of students in science is approaching. There will continue to be a need for extensive curriculum work to create appropriate, meaningful content standards for students with significant disabilities as well as a need for alignment of those standards to instruction and assessments.

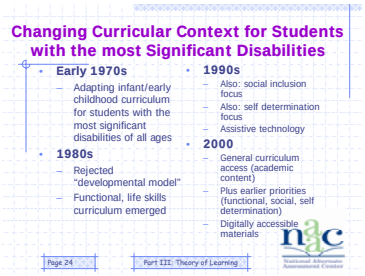
The reason for this lack of definition in academic content is the lack of literature and the separate curricular philosophies encompassed within the developmental and functional eras.

Checkpoint



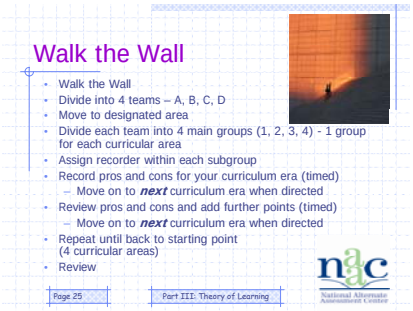
Notes

Curricular Context for Students with the most Significant Cognitive Disabilities



Trainer's Note: Once the following activity has been completed, the trainer will want to review the remaining slides to summarize this section.

Directions for Participant Activity: Walk the Wall



1. Give brief overview of each curriculum model (developmental, functional, social inclusion, general curriculum or standards based curriculum). Overview would not include timeline as all curriculum models are currently still in use nor would it include pros and cons – more just a quick explanation accompanied by what would you see if you walked into a classroom where that curriculum model was being used. (10 minutes)
2. Split into 4 groups (possibly 8 if group is large but this is a little awkward). Each group is assigned to a specific curriculum model posted on chart paper in four corners of the room.
3. Group brainstorms and lists pros and cons of their curriculum model. (5 minutes)
4. Groups move around to each other curriculum model charts and repeats activity for each. (4 minutes, 3 minutes, 2 minutes – decreasing amounts of time are given because they are building upon ideas already listed so there are less and less items to identify)
5. The groups end up at the one they started with so each group has read a "complete" pros and cons list for each model developed by the whole group. (2 minutes)

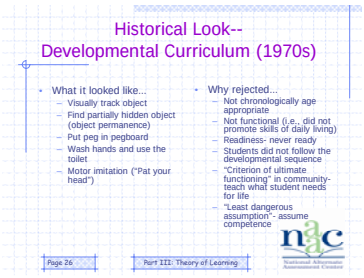
Alternative Activity: Four Corner Jigsaw

1) Participants number off at their "home groups" 1-4. The numbers represent the expert group in which they will be participating.
2) Each curriculum era has a handout for their curriculum era (i.e., 1 = 1960's Developmental Era).
3) Each curriculum era is assigned an expert group in one of the four corners of the room.
4) Participants move to their expert group.
5) Participants read, discuss, and develop a plan to teach the materials given to their group.
6) Participants return to their home groups and teach the others in the materials from their expert group.
7) Participants may use the note taking guide found on page 20.

Handouts for Jigsaw/Trainer Content

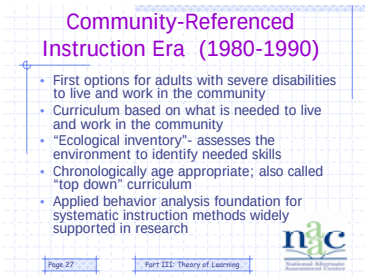
Curriculum for students with moderate and severe disabilities has evolved over the last thirty-five years since *Christmas in Purgatory* exposed the plight of children with disabilities living in institutional settings. As Blatt and Kaplan (1974) suggested, what children with moderate and severe disabilities should be taught may not be that different from what typical children are taught, and that the "specialness" of children with disabilities serves to reinforce lower expectations of achievement. Interestingly, the question of expectations and what is appropriate for children to learn again surfaced in the recent IDEA 97 and "No Child Left Behind" legislation (IDEA, 1997; NCLB, 2002). Indeed, recent research by Browder (2004) considered the question of curriculum alignment in alternate assessments. To understand today's mandate for children to "access the general curriculum", it is important to trace the evolution of curriculum for students with moderate, severe and profound disabilities and find the roots of our heritage so that we may more clearly see the possibilities in the future.

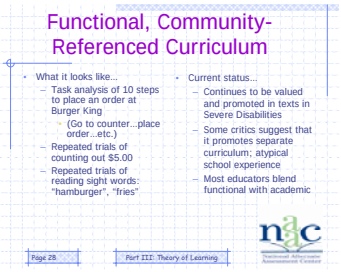
Notes



Because many children with cognitive disabilities were institutionalized in the 1970's, there was a focus on a developmental model of curriculum where children were described in terms of their developmental characteristics (i.e., 6 months of age). The predominant education theories applied to children and youth with mental retardation during this period focused on theories of learning such as developmental theory and behavioral science. Curriculum guides from this era suggested a developmental focus including these familiar areas: gross and fine motor skills, track objects, imitation, put pegs in peg boards, self help, toileting, hand washing, and some pre-academic skills such as writing name. An emphasis on task analysis as an essential element of instructional planning was the centerpiece of curriculum planning for students with disabilities. School programs that existed during this time were developed and supported by families who believed that their sons and daughters should be and could be educated.

In addition, the first research programs focused on the learning and behavior of individuals with disabilities and were authorized in the Elementary and Secondary Education Act (ESEA, 1965). The innovation during this period was the advent of what we know today as special education – confirming that indeed children with disabilities can learn. However, as children got older, the developmental model no longer seemed to make sense for a variety of reasons but most importantly because the gap between chronological age and developmental age appeared to be uneven across major life areas. For example, an adolescent playing with an infant toy reinforced the perception that the individual was only capable of skills which characterize infants. Providing only activities according to developmental milestones widened the gap in perception about what students with moderate and severe disabilities could learn and do. In addition, the developmental theme suggested that students couldn't move forward if they weren't developmentally "ready". Many of these developmentally "ready" steps would not be met at all by some children with significant cognitive disabilities.



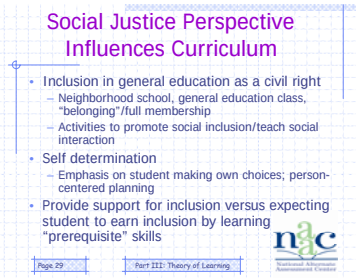


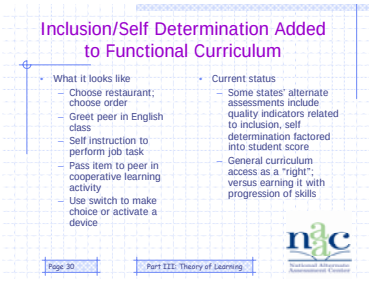
The advent of the functional curriculum in the late 70's and early 80's followed students with disabilities into the community and public schools. Functional curriculum activities addressed age-appropriate activities for high school age students regardless of developmental age and opened the doors of many regular public schools including high schools. Lou Brown (1982) and others put together the "functional curriculum model" where teaching "life skills" made sense, particularly for high school-age students. This model was useful for promoting transition services, (e.g., vocational training, community referenced instruction, recreation and leisure) especially as a large number of individuals moved from institutions into community settings.

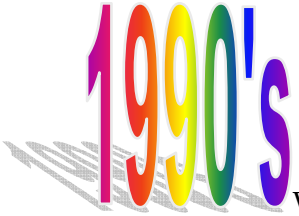
Curriculum planning during this time emphasized the use of ecological inventories to assess the environments in which students would live and learn. Curriculum guides during this period advocated the selection of functional activities from home, school, and community domains. Task analysis again served a prominent role in the design of instruction. During this era, many students began to receive services in age-appropriate settings including high schools. The principles of partial participation emphasized the need for students to engage in the activity regardless if they could perform all the steps of the task analysis. In addition, the readiness hypothesis was called into question. We found that if students had to master a certain set of skills before they could progress to the next set, the progression often did not occur because of the perceived level of mastery. The functional curriculum model was and continues to be the most popular curricular model for students with significant cognitive disabilities.

The problem, however, with both of these models is that social and communication skills are often the most deficient and most often the reason that students were being excluded from community settings including job sites. From our experience with community-based instruction for children and youth with the most severe disabilities, we learned that even developmental skills (e.g., reach/grasp) could be effectively embedded in activities that provided both an appropriate context along with natural prompts and cues. However, some argued that a large portion of this population would still not become completely

independent in community-based situations and, therefore, this curriculum model appeared also to be inappropriate for some students. In addition, while this model worked well for high school students, there appeared to be a “push-down effect” for elementary students, where students began working on community skills in elementary school outside of their school community which again created a disparity in perceived competence between students with disabilities and their non-disabled peers. Because children were still largely segregated in self-contained classrooms; social, communication, and literacy skills still seemed to languish.





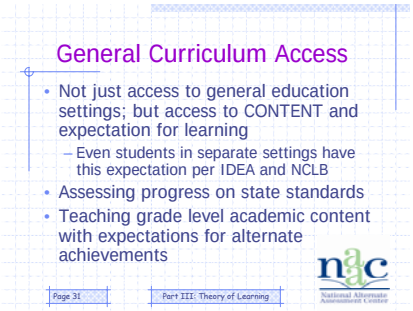


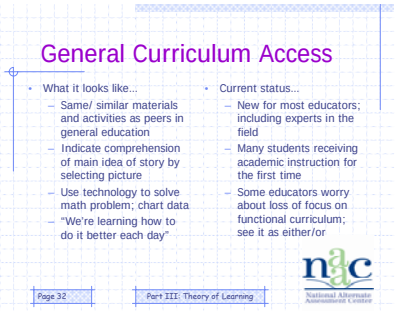
With the advent of inclusive education and community based service delivery in the late 80’s and early 90’s, we began to see students who previously exhibited serious communication and social problems now had something to communicate about and someone to receive the communication who could respond appropriately - both highly functional skills. A social justice perspective began to influence curriculum. Neighborhood schools, membership, and belonging were key words. In addition, social interactions and self determination began to emerge particularly as more students began to use communication systems. We began to recognize that the practice of embedding developmental skills that were learned in the community could also be applied to school and classroom routines and that a school day already has both functional and academic opportunities to learn. Most importantly, albeit secondarily, we found that students could learn academic content which in turn provided natural opportunities for enhancing communication and social interactions. As students acquired academic content, perceptions about their ability to learn raised important questions about our expectations for their achievement.

We learned that academic opportunities to learn are found in the explicit curriculum or the standards-based activities that provide students with rich opportunities to communicate and achieve literacy skills (math, language arts), while the implicit or hidden curriculum still provided opportunities to learn such functional tasks as negotiating classroom routines, keeping up with materials, waiting in line, using the restroom, enjoying lunch and snack time, engaging in homework, working in groups, and using the school library (all opportunities to learn "functional skills"). We found that students acquired skills at a higher rate when opportunities to learn were provided in

natural environments and distributed across the day rather than in mass trials in context free situations. Generalization of skills occurred naturally as the contexts for learning became inherently authentic.

Simultaneously, general educators were facing their own crisis with curriculum. Students with disabilities were not the only ones who needed functional application of skills. With the advent of standards-based instruction, general educators found the need to explicitly link classroom learning to real-life problems and situations. Because of the vast amount of knowledge in our digital, technological age, general education students needed to construct knowledge and engage in disciplined inquiry rather than simply memorize facts. The effective construction of knowledge necessarily required that there be some value beyond the classroom either to public problems or personal experiences (Newmann & Wehlage, 1995; Wiggins & McTighe, 1998).





The 2000 era ushered in the requirement for academic standards for all students. The reauthorization of the Elementary and Secondary Education Act (No Child Left Behind, 2002) required both achievement and grade-level content standards. This type of curricular experience provides optimal opportunities to learn both academic and functional skills for all students. Indeed, the quality of instruction in standards-based classrooms has evolved to include curricula that are universally designed and instruction that is differentiated so that the widest array of students can be accommodated in the general curriculum (Rose & Meyer, 2002). Assistive technology, too, opened the door for many students to participate meaningfully in classroom activities in more independent ways. Thus, some of the important features of standards-based, general education are increasingly becoming intertwined with what has been traditionally accepted as special education.

The Importance of Assistive Technology

Assistive Technology (AT) and the General Curriculum

The discussion of assistive technology at this point in the training is linked to general curriculum *access*. The Merriam Webster online dictionary defines *access* as the "freedom or ability to obtain or make use of," which, in this discussion, is the general curriculum. Advances in the design, function, and availability of assistive technology have increased *access* to, or increased the "freedom or ability to obtain or make use of" the general curriculum for individuals with the most significant cognitive disabilities.

We have already heard from CAST how multiple means of representation, expression, and opportunities for practice are essential to making learning accessible and meaningful to the widest array of learners. The use of assistive technology is one way to facilitate *access* to the general curriculum, and may, for many students with the most significant cognitive disabilities, be the best way to access learning.

Remembering that *access* refers to "the freedom or ability to make use of" the general curriculum, the Stepwise Process (Clayton, et al) suggests the following questions to ensure that the student is indeed able to "make use of" the general curriculum:

- *Is the student actively participating in each part of the instructional activity?* That may include reading, writing, speaking, listening, answering questions, doing research, taking tests, etc. These activities may be done in the context of different instructional formats, such as group or individual work. The focus is not upon *which* instructional activities will the student participate in, but *how*.

- *What is needed to engage the student in the instruction?* This may not require anything additional to what all students are receiving, but may be something as simple as the student having an object representative of the concept to hold while listening. The engagement should be matched to the particular learning style of the student and facilitate the acquisition of the content.

- *Does the student have a means to demonstrate the knowledge, skills, and concepts acquired?* Again, preferential learning styles should play a role here, and multiple intelligences (Gardner, 1993) should also be considered. Even though the student may be learning more complex and sophisticated ways to communicate knowledge, it may be preferable to rely on a more established means of communication so that the demonstration of new knowledge is not compounded by a "new" communication mode as well.

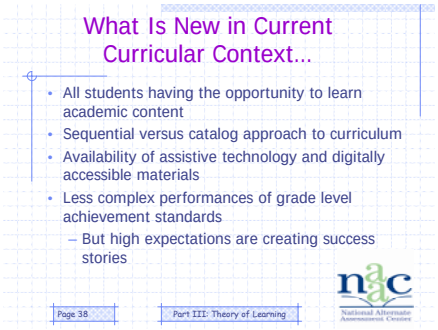
A means of communication is essential to active participation within the general curriculum, but is too often ignored, likely due to the complex nature of communication styles of students with the most significant cognitive disabilities. There are many different ways that students may develop a system – using graphics or symbols, objects, simple communication aides, or complex programmable devices such as the Dynavox. The most crucial element here is that the student has a way to communicate within the context of the class, and not be limited to basic wants and needs (drink, more, restroom, etc.).

All students are expected to read as part of general curriculum activities and this provides a challenge for individuals with the most significant cognitive disabilities as they may not have been exposed to the years of instruction and opportunities of practice afforded to their typical peers. The preceding slide illustrates several ways to actively participate in reading. It should be noted that reading is defined by varying philosophies across states, and a discussion of supports may be framed by that definition. However, the message here is that it is essential to facilitate *access* to grade level content material and this may require thinking in ways that are outside our immediate frame of reference.

Writing is also expected of all students as a means of expression, and again provides a challenge to individuals with the most significant cognitive disabilities. Think again in terms of Universal Design for Learning (UDL) and the Stepwise process discussing active participation. Individuals must be afforded a way to demonstrate what they know in a manner consistent with learning style. This may be through objects, graphics, laminated symbols and words, as well as the flexible media of digital text.

Assistive technology is developing at an unbelievable rate and is making things possible that were unheard of just a few years, months, or even days ago. It is important to check your state's resources in terms of assistive technology support – trainings for all those involved with the student, loan programs, conferences, and be sure that your state has guidelines in place for AT assessments and consideration of assistive technology through the IEP by those who are knowledgeable about devices and services.

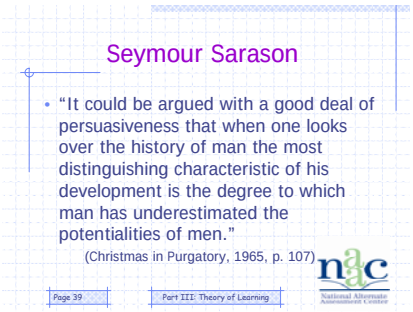
Summary



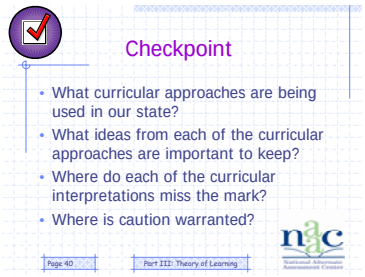
So we see that with each curriculum approach, some important learning has occurred that should guide access to the general curriculum for all students. Essentially, we need to keep the important concepts from each of the evolutionary periods:

- Developmentally appropriate practices that utilize age appropriate materials and activities while addressing students' current characteristics and emerging skills still play a part in the education of students with disabilities.
- Opportunities to learn functional skills remain a high priority for this population of students, but functional skills can, in reality, be taught most effectively within the context of natural routines using appropriate cues and consequences and there is functionality in academic skills.
- Self-determination (choice-making, goal setting) focused attention on teaching students to make choices about learning, participate in goal setting, and evaluate themselves. These skills appear to make a difference in their post school life.
- Continued efforts to refine our perception of curriculum for students with moderate, severe, and profound disabilities to include those skills, including academic, that make students more successful in current and future social, community, and work environments.

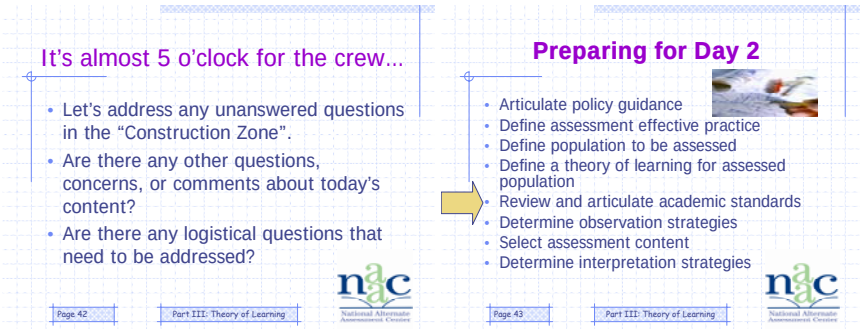
This "new" perception about curricula necessarily includes academic/cultural knowledge for functioning in a social situation, engaging in social conversations, increasing receptive understanding, and fostering individual interests. Our society places a high value on academic knowledge and skills, therefore, without attention to this aspect of learning, students with cognitive disabilities again face a future of lowered expectations and lower results.



As the keeper of memory, we must remember our history so that we understand our present condition and continue to improve results for students with disabilities. As Dr. Seymour Sarason (1965, p. 107) pointed out thirty-five years ago, "It could be argued with a good deal of persuasiveness that when one looks over the history of man the most distinguishing characteristic of his development is the degree to which man has underestimated the potentialities of men."



Notes



Team Reflection

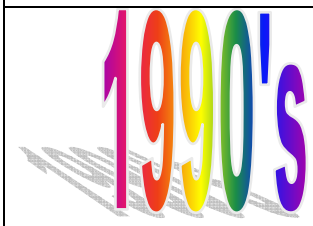
1) **What did we learn today that represented an "Aha Moment"?**

2) **What was most familiar to us?**

3) **How was our thinking challenged?**

4) **What are our next steps with this information?**

5) Note Taking Guide for Curriculum Eras

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