Technical Brief

Access, Participation, and Progress in the General Curriculum

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Introduction

The landmark IDEA amendments of 1997 stipulate that students with disabilities are entitled to access, participation, and progress within the general education curriculum. This language offers greater potential educational opportunities for students with disabilities than they have ever before enjoyed. Whether these potential opportunities are realized will depend upon how we interpret each of the key terms—"access," "participation," "progress," and the "general curriculum—"and whether new tools, methods, and approaches are implemented.

In our view, the conception, design, and implementation of the general curriculum and the assumptions that underlie it are the most important determinants of whether students with disablilities can access, participate, and progress within it. Consequently, the most critical step to increase access, participation, and progress for students with disabilities is to change the curriculum itself. In so doing, we will create a curriculum that is better not just for students with disabilities but for all students.

Because the "general curriculum" itself evolves, and because legislation has dramatically advanced opportunities for students with disabilities, the terms "access, participation, and progress" have not always meant the same thing. Before IDEA, the "access" hurdle was about legal access to an education and physical access to buildings and classrooms. As these barriers were removed (though even these persist in some settings), new ones came into view. Once in the building, students were faced with a curriculum filled with barriers, a curriculum that for many was virtually unusable. The challenge for educators of students with disabilities is a moving target—and fortunately so; the changing nature of the barriers reflects progress towards true access, participation, and progress.

Background

Over the past 25 years, general education classrooms have served a growing number of learners with disabilities. This trend reflects policy changes stemming from growing awareness on the part of educators and parents that students with disabilities benefit from engaging with their peers in a common, challenging curriculum.

As recently as the 1960's, many students with disabilities were not being educated at all, either because they were denied access to school or because they were physically in school but not being educated. For example, the US DOE notes that "in 1970, U.S. schools educated only one in five children with disabilities, and many states had laws excluding certain students, including children who were deaf, blind, emotionally disturbed, or mentally retarded (OSERS, 2001)."

Sustained federal leadership in support of special education has dramatically improved educational opportunities for students with disabilities. In 1975, the Education for All Handicapped Children Act (P.L 94-142) entitled students with disabilities to an individually designed, free and appropriate public education provided in the least restrictive environment. One key purpose of this law was "to assure that all children with disabilities have available to them…a free, appropriate public education which emphasizes special education and related services designed to meet their unique needs (OSERS, 2001)."

PL 94-142 opened doors for students who had previously been excluded from public education and for students whose disabilities were not well understood or addressed.

Although PL 94-142 dramatically improved education for students with disabilities, simple access to an individualized education proved an insufficient foundation for success, especially when the general education community began to seek higher standards and accountability for all students. With the focus on individualized programming, students with disabilities were often excluded from those standards and high expectations, to their detriment.

In 1990, the Education for All Handicapped Children Act was amended and renamed The Individuals with Disabilities in Education Act (IDEA). In 1997, the law went further, entitling students with disabilities not only access to free and appropriate education but also access, participation, and progress within the general education curriculum. Under IDEA and its amendments, schools must educate students with disabilities to meet the same state standards and pass the same state-mandated assessments designed for students without disabilities. Specifically, students with disabilities are to be included in general state and district-wide assessments, with appropriate accommodations. IDEA supports the idea of appropriate instruction for diverse learners in mainstream settings. Further, IDEA brings parent involvement and participation to the forefront by offering principles for professional/parent collaboration.

IDEA has produced significant improvements in outcomes for students with disabilities. In 2000, Secretary of Education Richard Riley noted, "Twenty-five years ago, IDEA opened the doors to our schoolhouses for students with disabilities. Today, millions of students with disabilities attend our public schools. We have made steady progress toward educating students with disabilities, including them in regular classrooms, graduating them with the proper diploma and sending them off to college (US Department of Education, 2000)."

However, we have a long way to go. The mandate for access, participation, and progress in the general curriculum is a recent development. It represents a new level of accountability for special education and a new set of challenges. Current practice falls short of the IDEA '97 imperative, with many of our children failing to achieve real participation and progress in the general education curriculum. The reasons are multiple and complex, but we believe that the nature of the curriculum itself lies at the heart of the problem, as well as at the heart of the solution. To explain why, we explore how our changing understanding and implementation of curriculum has affected diverse students' ability to truly access, participate, and progress within it.

What is the General Curriculum?

The "general curriculum" is the overall plan for instruction adopted by a school or school system. Its purpose is to guide instructional activities and provide consistency of expectations, content, methods, and outcomes across differing classrooms in each school or school system. Curricula usually include an assortment of content materials for student use, teacher's guides, assessments, workbooks, and ancillary media. For the purposes of this paper and for our work on Universal Design for Learning, we define four main components of the general curriculum: 1) goals and milestones for instruction (often in the form of a scope and sequence), 2) media and

materials to be used by students, 3) specific instructional methods (often described in a teacher's edition), and 4) means of assessment to measure student progress.

The design and implementation of the general education curriculum is increasingly driven by external standards that are adopted from statewide or national school reform initiatives. Developed by national, state, and local curriculum writing groups and by subject area experts, standards aim to articulate clearly the knowledge, skills, and understandings all students should gain in a particular subject, with more specific benchmarks of achievement by grade level. Standards articulate what schools value and, therefore, what teachers teach and assess.

Under IDEA, students with disabilities are to be educated in the general curriculum and aspire to the same standards and expectations as their peers. This means that all four components of curriculum—goals, media and materials, teaching methods, and assessment—need to apply to all students.

One of the biggest obstacles to ensuring this across the board application is that the general curriculum today is largely inflexible, because the printed textbook remains at its core. The medium of print has long dominated communication and therefore education and curriculum design. Once material is committed to paper it cannot be adjusted and changed: the text is one size and available only to those who can handle the physical book, see and decode the text, and understand the concepts necessary to interpret it.

Because printed text has been the standard and the only viable way to convey information, teaching and learning have been configured to accommodate this medium, and approaches to teaching students with disabilities have proceeded with printed text as a given. Consequently, students who for varied reasons are not able to learn effectively from printed texts have been unable to truly "access, participate, and progress in the general curriculum."

To illustrate in greater depth how the fixed nature of the general curriculum has affected special education, we turn to some historical context.

The Special Curriculum

When special education for students with disabilities was first mandated, the general education curriculum was the only game in town. But this curriculum was not designed to include or accommodate students with disabilities. It provided "one size fits all" goals, methods, materials and assessments that targeted a hypothetical homogeneous group of students. Before PL 94-142, this meant that students who could not use this curriculum had no viable opportunity for education.

The legal mandate for "a free, appropriate public education which emphasizes special education and related services designed to meet their unique needs" was a huge step forward. Now students with disabilities were entitled to an education designed for them. The law did not specify the curriculum to be used, except in that it needed to meet students' individual needs. Because the existing general curriculum could not accommodate diversity effectively, the logical response of

educators and curriculum designers was to create a "special curriculum" in which the goals, methods, materials, and assessments were highly individualized.

When PL 94-142 was well implemented (and of course, this was not always the case), students with disabilities benefited tremendously from the change. Through the evaluations connected to the process of developing an Individual Education Plan (IEP), their learning needs were better described and understood. The curriculum – the goals, methods, materials, and assessments – that they encountered was tailored to them as individuals, and as such was highly accessible. Specialists, trained and motivated to teach students with different disabilities, understood their students' learning needs and addressed them individually in appropriate ways. And because they now had a right to an appropriate education, students and their families had recourse when they encountered barriers in the general curriculum. They could initiate an IEP process and advocate for a range of individualized services including preferential seating, individual work with specialists, adapted assignments, and placement in a separate school.

Many students benefited tremendously from these changes. Students with low incidence disabilities (such as blindness, deafness, and severe cognitive disabilities), who had often been denied even physical access to school buildings, saw hugely increased opportunity. Their parents embraced the increased attention to their individual needs. Students with high incidence disabilities (such as learning disabilities and attention deficit disorder), who had previously often been seen as lazy and unmotivated, were more closely studied, evaluated, and understood. New instructional methods and materials suitable to their learning needs were developed.

Hindsight, however, shows us risks and problems inherent in the language and approach of PL 94-142 but not evident in the beginning. Because the "one size fits all" goals, methods, materials, and assessments of the general curriculum were largely inaccessible for students with disabilities, the "special curriculum" was born. Often called the "parallel curriculum," it was neither "parallel" nor a true "curriculum." It was not parallel because the work that students with disabilities undertook often bore no actual relationship to the general curriculum, and it was not a curriculum because there was no overarching approach to setting goals and developing methods, materials, and assessments. The special curriculum was a double-edged sword. While it offered students increased access to individually appropriate learning experiences, it also perpetuated a gap between them and their peers that remained very difficult to bridge.

Goals in the special curriculum were set according to a student's IEP, which was based on individual learning needs rather than on an external set of standards and benchmarks. The goals were more likely to be attainable with individualized instruction, because they could be targeted according to students' diagnosed levels of performance. Most goals had a remedial focus, such as attainment of basic literacy skills, often with the implicit purpose of improving students' ability to "catch up" and return to the general curriculum. But when goals are nested solely in the context of the individual, they do not address students' ability to progress in relation to their peers or ultimately function in the real world. Further, separate goals foster separate methods, materials, and assessments, supporting the idea that learners with identified disabilities are inherently different from other learners.

Materials and methods in the special curriculum saw a great deal of development and innovation. Because the printed texts and lecture format of the traditional classroom did not work for these students, new materials and methods were developed. An example of an individualized tool for blind students is the Cranmer abacus. Blind children have great difficulty setting up arithmetic problems in the standard rows and columns format. The Cranmer abacus, with its felt backing, allows blind students to set and clear beads tactually for purposes of calculation. In addition to tools such as this one, large numbers of interactive programs both in print and on the computer were designed to support basic skills and strategies. For example, Educators Publishing Service developed numerous language arts books such as Solving Language Difficulties and Wordly Wise that were motivated and informed by the challenges of students with learning disabilities but useful for any student in need of more structure. Companies like the Learning Company, the Minnesota Educational Curriculum Company (MECC), Davidson, and Edmark developed programs drawing upon the computer's interactive capacity to reinforce basic skills and create simulations to support strategic thinking. Examples include Oregon Trail (MECC), Math Blaster (Davidson), Reader Rabbit (Learning Company), and Millie's Math House (Edmark). These products were marketed to both the regular education and special education communities; understanding the particular needs of students with disabilities helped designers to create products that were useful to a variety of learners.

Companies such as Educators Publishing developed a significant amount of specialized print material for students with learning challenges and helped us to understand ways to teach differently. Many of these materials were used extensively in special education and in remedial programs.

The proliferation of materials and methods designed to support learning for students with various disabilities was critical both for learners' progress at that time and for future developments. Research, development, and practice informed our understanding of the particular strengths and weaknesses among students with different disabilities and how they learn, as well as what materials and methods work best for them. Further, developments like the design of software programs with built-in options for students at different levels or "half-full" of content so that teachers could enter material appropriate for individual students, supported the special curriculum.

But the rigidity of the general curriculum engendered a primarily remedial focus for these methods and materials. The understanding that the general curriculum, as then embodied with its print-based, inflexible methods and materials, could not or did not need to change prevailed. Thus the barriers inherent in the general curriculum were not identified as such and were not addressed. And students with disabilities, though many progressed in various ways, were by and large no more well suited to using the general curriculum than they had been. Further, the very separateness of disability specialties made it difficult for different disciplines to enrich each other, and for commonalities to be seen between their students and their teaching approaches.

Assessment in the special curriculum consisted primarily of formal and informal individual evaluations whose purpose was to assess progress in relation to the individual goals set out in the IEP. Since the results of these assessments applied to individual students only, they were

generally not a part of the school system's overall accountability. The downside of this separation was that the success (or failure) of students with disabilities was marginalized even farther from the core of the curriculum: these students really did not "count." This lack of accountability and lack of reference to standards became increasingly untenable (and unethical) as the nation moved steadily toward increasing attention to standards and accountability.

Access, Participation and Progress in the Special Curriculum

Though the terms "access," "participation," and "progress" were not part of the language of PL 94-1452, it is instructive to consider what the special curriculum offers in these domains to students with disabilities.

Access to the special curriculum for students with disabilities is generally very good, because it is designed specifically for them. Overcoming the basic physical access barriers and the barriers that precluded a right to an education was a very significant positive step. In its best implementations, the special curriculum provides maximum access to the materials and methods in the special curriculum. However, hindsight enables us to see the negative consequences of the fact that students with disabilities found little or no access to the goals, materials, methods, and accountability systems of the general curriculum.

Participation in the special curriculum is supported by its design. Numerous factors are expected to result in increased participation, including isolation from higher-achieving students, increased teacher/student ratios, smaller groups, slower academic pace, reduced demands and frustration, and explicit attention to affect and self-esteem. Most important to special educators, instruction and activities are targeted to the level diagnosed for the student (Jackson et al, 2001). However, participation is limited to the individualized "special" curriculum in whatever form has been devised locally and may not include any participation in the general curriculum.

Progress in the special curriculum is generally measured against the individual goals defined in the IEP and is officially documented when students are re-evaluated. These goals may, but often do not, relate to goals in the general curriculum. Thus, a student could hypothetically be progressing well in the special curriculum but falling farther and farther behind in the general curriculum. Because of the stipulation that students be placed in the "least restrictive environment" possible, progress is sometimes also measured in terms of increased time spent within general education settings. But time spent in general education classrooms does not necessarily imply participation and progress. Thus the special curriculum has a kind of internal accountability—progress is defined in relation to its own goals but not to the overall goals and standards of the general curriculum—increasing the perception of difference and the implementation of separateness for students with disabilities.

Conclusions Regarding the Special Curriculum

The special curriculum arose in response to the mandate of PL 94-142 to provide students with disabilities with a free and appropriate public education in the least restrictive environment. This curriculum was a critical step forward in special education because of the resulting deeper understanding of the particular needs of different students and the important, innovative materials and methods that were developed and tailored to individuals.

The key problem with the special curriculum is its separateness from the general curriculum, with its attendant implications for students. The notion that separate schooling helps students "catch up" or "be fixed" and then return to the regular setting is flawed on the face of it. If students are missing the presentation of essential subject area content and skills, year after year, it is unlikely they will ever truly be able to make up lost ground. Further, the separation of students with disabilities reinforces the idea among general educators that they are in some way lacking what it takes to participate in the mainstream. This applied most obviously to students with low incidence disabilities such as sensory and motor disabilities who were often in separate classes or placements, but also to students with behavior difficulties, learning disabilities, and other learning challenges. In fact, research evidence shows that for most students a separate, highly individualized education does not realize its promise to help them catch up or reunite with their peers and function well in regular education settings.

The great expense of separating regular and special education programs, which escalated over time, also created various problems, including backlash against special education. Private placements were often deemed most responsible for budget overruns, and schools were incented to return students to the public education special programs in order to control costs and meet basic service requirements. When overburdened school systems were forced to cut a variety of other programs, many perceived the culprit to be special education.

Further, curriculum designers most involved with developing materials and methods to reach students with disabilities were often not involved with the development of materials and methods of the general curriculum. Two unfortunate consequences resulted from that omission. First, the existing barriers within the general curriculum persisted because the students and teachers who would have made them obvious were marginalized. Second, the innovations in individualizing education that were commonplace in the "special" curriculum had little salutary effect on the general curriculum: it remained inflexible and largely ineffective for many of its students. The separation of special education perpetuated the misguided assumption that the general curriculum in its inflexible form was a given.

The Mainstream Curriculum

Increasing evidence suggested that the special curriculum was not bringing about the desired outcomes for students with disabilities. The general curriculum was moving in the direction of high expectations, standards, and greater accountability for student progress, and students with disabilities were being left further and further behind.

The 1997 IDEA reauthorization moved students with disabilities back into the equation, mandating their participation in what is often called the "mainstream curriculum." IDEA '97's language entitled students with disabilities to access, participate, and progress in the general curriculum and specifically stated that these students be held to the same standards and methods of assessment as their non-disabled peers. Yet, the general curriculum itself still contained major barriers for many or most of these learners. The mandate for inclusion of students with disabilities in the new accountability set forth a new challenge for educators and curriculum designers: how could goals, materials, methods, and assessments be created that would

appropriately serve widely varied learners, when the underlying assumption had always been homogeneity?

The new accountability was mandated with no initial change in the curriculum itself. Consequently, teachers were challenged to meet the demands of a more diverse student population and satisfy increasingly ambitious state and federal standards largely without new tools, media, and methods to support them. Participation in the mainstream curriculum also required that special and regular education teachers work more closely towards the same goals for these students, a major shift since each was accustomed to independence. Special education teachers tended to experience a vastly increased load because they were often called upon as instructional aides in the mainstream classroom while still being responsible for improving basic skills so that students with disabilities could function effectively in class (Hewitt, 1999). At the same time, general education teachers felt ill prepared to work with students with disabilities – both for lack of training and lack of time (Scruggs & Mastropieri 1996; Hewitt 1999).

General educators who proved most capable often found more students with disabilities placed in their classrooms, then felt obliged to sacrifice lunch periods and other free time to service these additional needs (Moody, Vaughn, Hughes, & Fischer, 2000). These efforts were perceived by some as "taking away from other children both academically and socially" (Hewitt, 1999). Even in the mainstream curriculum, there is a rampant perception that the existent tensions are rooted in students with disabilities (King-Sears, 1997) – not the curriculum (Jackson et al, 2001).

Like the stresses that occurred at the inception of the special curriculum, the stresses that occurred at the inception of the mainstream curriculum led to vitally important progress. Language in the IDEA amendments states that in some cases assessments need to be provided with accommodations so that students with disabilities can participate. Accommodations might include lengthening the time allowed or providing information in list form rather than paragraph form. The notion that such changes might be necessary introduced the concept of needed change in the curriculum.

The work of modifying materials and methods after their initial design opens the door for people to consider that the curriculum itself might need to be changed in order for students with disabilities to succeed within it. Thus, the mainstream curriculum provided another crucial step towards the future. Still, retrofitting of inflexible materials is a flawed approach, because it suggests that there is a primary curriculum for *most* students, that "one size" fits "most," and that retrofitting that "one size" is the way to reach outliers.

Goals in the mainstream curriculum are intended to be aligned with state and local standards for all students. Sometimes, however, the wording of student goals precludes their attainment for some learners. This happens particularly when the goal is confused with the means for attaining it. For example, consider the common goal of "writing a story." So specified, the goal requires a written text output which some students may not be able to produce. If the goal were stated as "creating a narrative," then written text would not be the only means of attaining it. Similarly, changing the wording from "collect information from a variety of books" to, "collect information from a variety of sources," could remove a barrier for some students who might have difficulty

using books but who could gather information from the Internet, from interviewing people, or from video sources. Thus, a goal that restricts students to one type of content or one method of expression is not likely to be attainable by the entire class. Most mainstream curricula do tend to lock goals into particular means of achieving them.

Materials in the mainstream curriculum tend to be largely bound within a limited range of options, with a hypothetical "typical" student in mind. For example, students generally learn the concepts and facts of history by listening to the teacher and taking notes, and by reading chapters in a textbook. Students who are deaf or have language processing difficulties and those with motor disabilities or spelling, handwriting, and organizational problems find barriers instead of access when listening to a lector. Students with dyslexia, students who are blind or have low vision, students who are physically disabled and unable to turn the pages, and students for whom English is not their first language find barriers instead of access when working with a textbook.

Of course, curriculum publishers have been modifying and modernizing their materials in response to the availability of new technologies as well as the mandates of IDEA. Adjunct materials in media other than print such as audiotapes, videos, software, and even Internet based supports are common in 2002. These materials are rarely core and tend to be seen as enhancements. They constitute "add-ons" rather than true alternative ways of presenting essential concepts. Still, the increasing prevalence of such materials paves the way for a more central purpose for nontraditional media.

"Alternative versions" of materials are sometimes supplied to accommodate learner differences. These include Braille or large format versions of text and books on tape, as well as simplified versions of content at lower reading and cognitive levels. Though these tools can provide access where there is none, provision of alternative versions is costly and not always effective. For example, a student who has trouble decoding words may be perfectly capable of appreciating Shakespeare or understanding the subtleties of a complex period in history. But because of her reading difficulties, she might be offered a simplified version of Hamlet or a history text, thus precluding participation at the appropriate cognitive level and risking disengagement from learning.

Another development that expands the materials toolbox of the mainstream curriculum is the design and refinement of so-called "assistive technologies," tools that help bridge the gap between mainstream curricular materials and learners with a variety of disabilities. These tools often modify the interface between the student and the material so that the material becomes more accessible. For instance, a page turning device enables students with physical disabilities to progress through a printed book; a screen reader reads aloud text on a computer screen; an augmentative communication device enables someone who cannot speak intelligibly or at all to communicate by selecting words and phrases and having them read aloud by a portable device containing a computer; a single ability switch enables a student who cannot use a keyboard to enter text and execute commands on a computer; and a talking calculator can support a student with low vision or a student with learning disabilities who has difficulty keeping track of numbers visually. Most assistive technologies are "attached" to students and in some way augment their capacities and help them use materials that would otherwise be inaccessible.

Something as simple as eyeglasses are a kind of assistive technology, and these technologies will always be essential and important for special education. However, to rely solely or even primarily on assistive technologies keeps the burden of adaptation on the student and presumes that the curriculum can remain inflexible. The mainstream curriculum, despite progress, is still largely predicated on that assumption.

Methods in the mainstream curriculum, though still based on a "one size fits most" model, have undergone small but significant changes. Of course, instructional methods are constantly changing as educational theory, research, and practice contribute to the knowledge base. And increasingly diverse classrooms and IDEA 1990 have also spurred educational publishers to explicitly support teachers with suggested methods for addressing diverse learners. Many teachers' editions now contain suggestions for how to modify a lesson when working with students with disabilities and other learning differences. Some companies attempt to address the needs of diverse learners by explicitly offering alternative methods for teaching a particular concept, by including varied media for students to work with, and by suggesting a variety of methods to assess progress for different students.

Many teachers and school systems are faced with the need to modify and adapt teaching methods to reach diverse learners – the retrofit approach being the only recourse. Some examples include: allowing more time, rewriting materials with simpler vocabulary and syntax, preparing concept maps for purposes of clarification and organization, reducing classroom distractions, and providing peer tutoring and buddies to repeat and clarify tasks and assignments. Review of common commercial curricula (O'Connell & Ruzic, 2001) reveals that the suggested accommodations and modifications are haphazard and infrequently available at best and cannot possibly be counted on to make the curriculum accessible. For the most part, teachers must rely on their own ingenuity, training, diligence, and the cooperation of special needs teachers for suggestions and help.

Assessment in the mainstream curriculum presents thorny challenges, because they are constructed without the needs of students with disabilities in mind. Typically, students are evaluated with single format tests (such as multiple choice or question and answer printed tests), often administered at the completion of a lesson unit. For students with disabilities, proficiency with the test medium is confounded with the actual skills or knowledge that are supposedly being tested, "Traditional assessments tend to measure things that teachers are not trying to measure (visual acuity, decoding ability, typing or writing ability, motivation) making it impossible to disaggregate the causes of success or failure (Rose & Meyer, 2002)."

Because the IDEA '97 amendments require accommodation where necessary, the light about assessment is beginning to dawn. But many of the accommodations now provided do not actually support students appropriately. Consequently, their progress is still not accurately measured. For example, if a student with a learning disability has "read" his history text using books on tape and then is simply given extra time on a written exam, he is unlikely to be able to truly demonstrate what he knows. Adaptations in testing need to parallel the supports and scaffolds that students use in their daily schoolwork. Currently, mainstream assessments are still constructed in a rigid way for one type of learner, excluding many with learning differences.

Access, Participation, and Progress in the Mainstream Curriculum

IDEA specifies that students with disabilities be able to access, participate, and progress in the general curriculum. The mainstream curriculum as currently designed offers students some improved ability to achieve these goals, but it contains many barriers, chief of which is the underlying assumption that there is one set of goals, methods, materials, and assessments that work for "most," and an alternative or adapted set for "special" learners.

Access to the mainstream curriculum, because its design is inflexible, is largely afforded through post-hoc adaptations and assistive technologies that help students to bridge the gap. Though certainly better than nothing, these approaches rarely provide true access. Adaptations can sometimes significantly change or "water down" the concepts and skills of the curriculum, offering in effect access to a different, diminished curriculum. And some assistive devices are cumbersome to use in a school setting. A page turner is a large machine that cannot easily be transported from class to class; an electronic magnifier, such as a closed circuit television reader, makes text literally visible to someone with low vision but information from the page image cannot be readily skimmed or captured for note taking.

Participation in the mainstream curriculum is required by IDEA to emphasize that physical placement in a regular classroom does not guarantee that a student will be learning there. To the extent possible, the aim is to reduce dependence on separate or "special" activities as the vehicle for participation and instead to find ways to increase the involvement of all students in common, mainstream activities.

Because the mainstream curriculum has not been designed with the needs or capacities of students with disabilities in mind, participation is often achieved in a limited fashion. Equivalent participation among all students is not usually assumed. In fact, with the fixed goals, methods, materials, and assessments that they have in their toolbox, teachers have no viable way to make across the board participation happen. Because they must either find or create adaptations, teachers often have to resort to offering students with disabilities rote or more basic tasks while other students are involved in higher order tasks such as goal setting, problem solving, self-monitoring, or enrichment activities. Even cooperative learning, which can be a very effective way to call upon students' strengths and scaffold their weaknesses, can end up reducing learning opportunities if some students are only nominally contributing or are not in fact being challenged.

Many of these practices can inadvertently replicate the problems inherent in the special curriculum, where the goals, challenges, and experiences are substantially different, and less interesting or valuable, for students with disabilities. Participation for students with disabilities may be difficult to achieve until the inclusion setting is able to provide not only a shared classroom and curriculum but also equivalent learning opportunities.

Progress in the mainstream curriculum is on the surface defined in the same way, and is measured by the same yardstick for students with disabilities as for any other student. The same goals and benchmarks in theory apply to all. In reality, however, goals are often defined differently for students with disabilities, in part because the curriculum itself has been watered

down rather than made truly accessible. With lowered expectations, smaller amounts of progress than might actually be possible are accepted as sufficient. Further, in order to demonstrate progress in the mainstream curriculum, students with disabilities must first demonstrate progress in their ability to overcome the barriers in the curriculum, an extra burden not experienced by students without disabilities.

Further, because the mainstream curriculum is not built with diverse learners in mind, teachers have few resources, such as time and training, to support progress (Klingner & Vaughn, 1999). Although assistive technologies and other ancillary materials and methods can be added on to the curriculum to support progress, these efforts are often inadequate. Accommodations and modifications need to be made in the context of a specific goal, or they can actually undermine learning. A book on tape is a useful scaffold when a student's goal is to grasp science concepts. But it impedes learning and eliminates the healthy challenge when it is used during a reading lesson. Even worse, accommodations may become seen as "crutches" that succeed primarily in identifying the student as handicapped.

The rigid nature of assessment as currently practiced is one of the most significant barriers to progress for students with disabilities. Post hoc testing, usually requiring paper and pencil and offering formats like multiple choice, question and answer, or fill in the blank, simply eliminates participation for some, such as students who are blind or physically disabled, and presents extra hurdles for others, such as students with learning disabilities. Such assessments do not accurately reflect the knowledge and skills of students who have difficulty with the format and medium of the test itself.

Conclusions Regarding the Mainstream Curriculum

The mainstream curriculum arose out of IDEA's mandate to provide students with disabilities the opportunity to access, participate, and progress in the general curriculum, including large-scale assessment programs. Because the general curriculum did not consider the diverse needs of students with disabilities in its original design, adaptations, modifications, and assistive technologies proliferated to support these learners' progress. These techniques and tools are in themselves valuable for special education in that they expand student capacities and opportunities.

But even more important is the conceptual shift that underlies the work of adapting and modifying the curriculum. For the first time, the idea emerged that the curriculum itself, rather than the students, might be in need of change. In the special curriculum model, the "one size fits all" general curriculum remained essentially untouched. In the mainstream curriculum model, the "one size fits most" general curriculum takes a step forward, becoming part of the formula for a better fit between the learner and the learning experience.

On the other hand, the mainstream curriculum model is still hampered by an assumption based in the traditional print-based curriculum, the assumption that there is one predominant design for most students that needs to be retrofitted after the fact for "different" learners. While the concept that the curriculum itself might need to be modified moved thinking forward, retrofitting an inherently unsuitable curriculum to fit diverse learners still conveys the message that there is a

"more correct" or "more appropriate" way to do things and lesser or "other" options that are needed for particular learners.

The Universally Designed Curriculum

It has been said many times that if a person from the 1800's were to observe our culture now, the only thing that would look the same would be the schools. In contrast, were a teacher or parent of student with a disability from 1970 able to view the current status of special education, he or she would be amazed at how far we have come. So much more is known about these students and the approaches, tools, and contexts that help them learn. Policy changes have brought unprecedented opportunities, and innovative ideas and approaches are continually developing. Yet, there are still flaws and shortcomings in the overall approach to special education.

The general curriculum is still largely designed to serve a core group of students exclusive of students with disabilities. Even when publishers explicitly include techniques for diverse learners, those diverse learners are considered as outliers and exceptions. These exceptions include not only students with disabilities but also students with exceptional talents, those whose native language is not English, and many others.

The assumption that there *is* a "core" group of learners that is mostly homogeneous, outside of which other learners fall, is itself flawed. Common sense, and increasingly neuroscience, tells us that learners considered to be within a group are at least as diverse along various dimensions affecting learning as are learners considered to be in different groups (Rose & Meyer, 2002). In fact, we know that myriad subtle differences make each learner unique.

The post hoc retrofitted solutions that spring from the assumption of homogeneity consume much time and money, with only modest effectiveness. These drawbacks stem from the mistaken view that students with diverse learning needs are "the problem," (King-Sears, 1997) when in fact barriers in the curriculum itself are, in our view, the root of the difficulty.

The insights gained from the special curriculum and the mainstream curriculum have been crucial steps along the way to a new more flexible curriculum, the universally designed curriculum. The idea of creating a flexible environment that serves diverse users originated with universal design in architecture. Retrofitting buildings with added-on ramps and automatic doors to accommodate people with disabilities is costly, marginally effective, and often esthetically disastrous. Architects have learned that designing buildings with the needs of diverse users in mind from the beginning saves costs and leads to more streamlined, accessible buildings, in which alternatives are integral to the design. And as it turns out, universal design works better for everyone.

> The curb cut is the classically cited example. The curb cut was originally designed to better enable those in wheelchairs to negotiate curbs, but they also ease travel for people pushing strollers or riding skateboards, pedestrians with canes, and even the average walker. Commercial product designers also practice universal design, with similar results. Consider television captioning. When these captions first appeared, individuals who were deaf had to

purchase expensive decoder boxes, retrofitting their televisions so that they could access the captions. Later, decoder chips were built into every television, making captions available to all viewers. This universal design feature now benefits not only the deaf but also exercisers in health clubs, diners in noisy restaurants, individuals working on their language skills, and couples who go to sleep at different times. Furthermore, as a built in feature, access to television captioning costs a few cents rather than several hundred dollars (Rose & Meyer, 2002).

In the early 1990's CAST began to apply the concept of universal design to curriculum materials and methods and coined the term "Universal Design for Learning" or "UDL." The UDL framework helps us to see that inflexible curricular materials and methods are barriers to diverse learners just as inflexible buildings with stairs as the only entry option are barriers to individuals with physical disabilities. If curriculum designers recognize the widely diverse learners in current classrooms and build in options to support learning differences from the beginning, the curriculum as inherently designed can work for all learners. In addition, the need to modify, create alternative versions, and employ assistive technologies is greatly diminished. Universally designed curricula include a range of options for accessing, using, and engaging with learning materials — recognizing that no single option will work for all students (Rose & Meyer, 2002). Universal design for Learning shifts the burden for reducing obstacles in the curriculum away from special educators and the students themselves and leads to the development of a flexible curriculum that can support all learners more effectively.

How can we create a curriculum whose goals, materials, methods, and assessments serve widely diverse learners? To meet that goal, teachers need to offer a large number of alternative ways to access, use, and engage with learning content. In a print-based environment, where there is one "primary" version and others are all alternatives, offering such variety is impractical. Fortunately, digital media and computer technologies make it possible to offer a curriculum that is created once but can be displayed and used in an almost limitless variety of ways. With the power of digital technologies, it is possible to provide a malleable curriculum in which content and activities can be presented in multiple ways and transformed to suit different learners. Thus, with digital content we can provide multiple representations (e.g. image, text and video), transform one medium to another (e.g. text to speech or speech to text), or modify the characteristics of a presentation (e.g. size and color of text, loudness of sound) (Rose & Meyer, 2002; Hitchcock, 2001).

Building a curriculum with inherent flexibility also helps teachers to maintain educational integrity and maximize consistency of instructional goals and methods while still individualizing learning. To see how such a curriculum might work, we highlight key features of UDL goals, materials, methods, and assessments, as derived from CAST's research and development (Rose & Meyer, 2002; Hitchcock, 2001).

Goals in a UDL curriculum provide an appropriate challenge for all students. UDL goals begin with standards and benchmarks that reflect the knowledge and skills all students will strive for

and are carefully conceived and expressed to encourage multiple pathways for achieving them.

To develop a UDL goal, teachers must first and foremost thoroughly understand what they want students to learn. This sounds simple and obvious, but it is not a given. Many times the language of the goal incorporates a specific means for achievement when that means is not in fact what the student needs to learn. In such cases the goals inadvertently specify one acceptable path. Almost any goal can be made inaccessible by unnecessarily limiting the means for reaching it. And conversely, most goals can be achieved if there is flexibility in the means. Human flight is a good example. The goal of human flight is unreachable if the means are limited (e.g. "students will fly using their arms as wings"), but quite attainable if more alternatives are included ("students will fly").

Similarly, if a goal for composition is stated narrowly ("Handwrite a 300 word essay about the challenges faced by Lewis and Clark") then students with motor disabilities and many with learning disabilities are excluded or severely disadvantaged. The same goal stated more broadly ("generate a 300 word essay…") allows students with many disabilities to participate and make progress by using word processors, spell checkers, voice recognition software, and other scaffolds and supports. This rewording reflects a clearer focus on the purpose of the essay, which is to gather, synthesize, and express certain historical information, not to demonstrate penmanship!

Once the true purpose for learning is understood, various means, media, scaffolds, and supports can be used to help students reach the goal without undermining the challenge and the learning. For example, if the goal is for students to understand a mathematical or scientific relationship, students could reasonably employ a variety of media and approaches for gathering and keeping track of information and expressing knowledge. Graphics and video, or digital text with reading supports could be among the many appropriate routes to achieving this goal.

Clear goals also reduce problems likely to arise from inappropriate accommodations and adaptations. If the goal were clearly focused on learning to decode words, then many kinds of reading supports or accommodations that would be appropriate in a history lesson would eliminate the challenge and opportunity for learning to decode. Clear goals enable us to know when alternative methods and materials are NOT appropriate for reaching those goals.

Well-conceived and carefully expressed goals are the foundation of a curriculum in which all students can participate and make progress.

Materials in a UDL curriculum are provided in a flexible format supporting transformation between media and multiple representations of content to support all students' learning.

The critical content at the center of a curriculum, the facts, concepts, information, principles and relationships that are to be learned, must be rendered in some medium. What medium is best? No single medium (e.g. text, voice, images) is accessible to all students. The UDL curriculum offers built in "alternate" or "multiple" representations.

With printed books, the content and its display are inextricably linked; the ink of the text or image is embedded in the page. With digital media, the content can be separated from its display. Thus, the content can be provided once and displayed in a variety of ways. For example, text can be displayed at any size on a screen or in print, as speech, in the context of a concept map, or as Braille (either printed or on a refreshable Braille device), among others. An image can be presented in print or on-screen at any size and with colors modified to increase visibility, as a text or spoken description, or as a summary of the image's importance and implications for the context in which it is found. Further, this same content can potentially be displayed on various electronic devices such as hand-held computers or even telephones.

This adaptability increases accessibility for students with visual, auditory, reading, or motor impairments because they can elect to view and respond to the content in a medium and means that suit their needs. Students may choose the medium or media most effective for them, as long as the learning goal is not undermined.

Digital content makes possible another important kind of flexibility, the flexibility to embed supports and links. Not only can digital content be displayed in different ways, it can provide optional "smart supports" to be used by individual students as needed. Thus digital documents can include hyperlinks to glossaries, related background information in multiple media, graphics and animations to summarize or highlight key relationships, queries to support strategic thinking, or sequenced supports for step-wise processes, among many others. Embedded supports can also take the form of tools for expression and organization such as a note pad with capacity to store text, recorded voice, and images; or a Q&A tool to ask questions of teachers or peers online.

Digital materials for expression are also far more flexible than their print-based cousins. The power of word processing is by now widely known and used, with its ease of editing and multiple writing tools such as thesauri, spelling and grammar checkers, and dictionaries. Tools to track changes and identify the authors of changes, insert annotations, and merge documents elegantly support collaborative composition. Voice recognition software enables students who type with difficulty or not at all to compose in text. Multimedia tools such as HyperStudio and ClarisWorks offer diverse learners alternatives to composing in straight text, including creating an entire communication using images and sound or recorded voice, or alternately, beginning with images or sound and moving to text once the key ideas are laid out.

Within a UDL curriculum these alternatives are all viable means of expression. Flexible materials fulfill the promise of UDL in that they open doors and circumvent barriers for students with disabilities and also improve learning opportunities for all students – in the same way that universally designed buildings and technologies benefit "mainstream" users. As long as the learning goal is kept in mind and the challenge remains in place, the curriculum should offer rich scaffolds, supports, and alternative ways of obtaining information and expressing ideas. Through these alternatives, all students benefit.

Methods in a UDL curriculum are flexible and diverse enough to provide appropriate learning experiences, challenges, and supports for all students.

Good pedagogy is at the core of a good curriculum. The value of instructional design is in elevating the probability that any one child, and every single child, will learn what is critical to the curriculum. Rather than offering content unsupported and leaving students' success to happenstance, privilege, or random discovery, we teach what is important, and we teach it by adopting the most effective methods so that all children will learn.

In a diverse classroom, no single method can reach all learners. Multiple pathways to achieving goals are needed. In a UDL classroom, teachers support those multiple pathways by presenting concepts in multiple ways, offering students multiple means of expressing their knowledge, and providing a variety of options to support each student's engagement with learning. Teachers practicing UDL assume that each student needs his or her own "size," and provide options, scaffolds, and further opportunities for in-depth learning as a matter of course. In the examples that follow, we illustrate what *could* be real, given technologies that exist today, though of course UDL is not yet fully implemented by publishers or by educators.

Using a UDL approach to presenting concepts, teachers offer multiple examples and highlight the critical features that differentiate that concept from others. In a UDL classroom, teachers also assume that students bring varied amounts of background knowledge to a particular concept and offer optional additional background information for those who may lack prerequisite knowledge. Digital technologies could substantially ease this process. Consider for example conveying the critical features of a right triangle. With software that supports graphics and hyperlinks, a teacher could prepare a document that shows:

- Multiple examples of right triangles in different orientations and sizes with the right angle and the three points highlighted,
- An animation of the right triangle morphing into an isosceles triangle or into a rectangle, with voice and on-screen text to highlight the differences,
- Links to reviews on the characteristics of triangles and of right angles,
- Links to examples of right triangles in various real-world contexts,
- Links to pages that students can go to on their own for review or enrichment on the subject.

The document could then be projected onto a large screen in front of the class. Thus, the concept is presented not simply by a teacher explaining it verbally or by a textbook or workbook page, but via many modalities and with options for extra support or extra enrichment.

When supporting strategic learning, teachers using a UDL approach offer models of skilled performance, plentiful chances for students to practice with appropriate supports and ongoing feedback, and opportunities to demonstrate skills in a meaningful social context. These models and supports need to be provided in a number of ways to meet all students' needs. For example, a U.S. History teacher might ask her students to construct an essay that compares and contrasts the industrial north with the agricultural south in the 1800s. Her focus is the thinking behind the essay, the method of comparing and contrasting, as a means to help her students gain deeper understanding of the period and the geographical locations. She emphasizes that there are many different approaches to constructing the essay and offers examples such as outlines, diagrams, concept maps, digitally recorded "think alouds," and drawings. She uses tools that support each

of these approaches, so that students who need extra structure can choose the supports that work for them, and she creates templates with partially filled in sections and links to more information. Because this is a long-term assignment, the teacher breaks the research and the writing into pieces and builds in group sharing and feedback to help students revise as they work. The teacher also provides models of the process by sharing the work of previous students who approached the problem in varied ways.

Teachers using a UDL approach recognize that each student will engage with learning for different reasons and in different ways. To support these differences, teachers offer students choices of content and media or tools to work with as long as the learning goal is not compromised. To stay interested and committed to the task at hand students also need an appropriate balance of challenge and support. Vygotsky describes the ideal balance point as where the goal is just beyond reach but achievable with effort, what he calls the "zone of proximal development (ZPD) (Vygotsky, 1978)." Of course, the ZPD is different for different students, and teachers can lower the bar without compromising the goal by supporting students in areas of need that are not germane to the challenge at hand. Optional scaffolds might include offering concept maps highlighting main points and supporting details, showing relationships between events or parts of a complex concept, or stepping learners through an inquiry process. Tools that help students organize their work such as templates (visual or textual), highlighting tools that enable students to code and collect content by categories, and many others, can support organizational or motor difficulties. The learning context can also be adjusted such that collaboration, rather than competition, is emphasized, as in cooperative learning (Slavin et al 1984; Johnson & Johnson 1986; Johnson & Johnson 1989). Offering such varied options supports the motivational and emotional involvement of varied learners in a UDL classroom.

Assessment in a UDL curriculum is sufficiently flexible to provide accurate, ongoing information that helps teachers adjust instruction and maximize learning.

Effective teaching requires accurate knowledge of progress. To obtain this knowledge, we must separate the skill required to use specific media, such as printed text, from the skill or knowledge being assessed. A test given in a single medium inevitably tests mastery of that medium, "Traditional assessments tend to measure things that teachers are not trying to measure (visual acuity, decoding ability, typing or writing ability, motivation) making it impossible to disaggregate the causes of success or failure (Rose & Meyer, 2002)." For students with disabilities who may have difficulty with a particular medium, the test poses insurmountable barriers that have nothing to do with the actual skill or knowledge that is supposedly being evaluated.

Like UDL teaching, UDL assessment requires a clear understanding of the learning goal. With that understanding, teachers can provide scaffolds during an evaluation to help students overcome media-related barriers and show what they really know. Even better, evaluation should be embedded in the materials with which students are working, so that ongoing monitoring and feedback can help them stay on track. CAST's "Thinking Reader," being developed as part of the "Engaging the Text: Reciprocal Teaching and Questioning Strategies in a Scaffolded Learning Environment" project funded by the US Office of Education, Office of Special

Education Programs (OSEP), offers an early example of embedded assessment. *Thinking Reader* is a Web-based "supportive reading environment" that embeds strategy supports into digital versions of award-winning children's literature (Dalton, Pisha, Coyne, Eagleton, & Deysher, 2001). Students respond to prompts embedded in the text that support strategic thinking, and their responses are saved in a reading log that can be viewed and discussed by students and teachers. This kind of embedded assessment is integral to the learning task and provides the same supports that students need while learning. Thus the focus of the assessment matches the focus of the instruction, and students do not face media related barriers. Though much more research is required, this direction is promising and the technology is here to make it possible.

Access, Participation, and Progress in the Universally Designed Curriculum

When implemented, the UDL curriculum will be ideally suited to supporting true access, participation, and progress in the general curriculum for students with disabilities, and indeed, to improving learning opportunities for all students. With the premise that each student can benefit from a flexible curriculum offering clear goals, multiple pathways for reaching those goals, and fair and accurate assessment, the UDL curriculum reflects an understanding that each learner is unique.

Access in a UDL curriculum occurs at many levels. Most basically, because students with disabilities are considered from the outset, many barriers found in the mainstream curriculum are eliminated or very much reduced. By building in flexible options for teachers to convey concepts and for students to express their knowledge, the UDL curriculum increases access for everyone. Thus the goals, methods, materials, and assessments in a UDL curriculum are accessible to all.

There is a tendency to equate access in a curriculum with access to information, or access to activities. But a curriculum is not information or activities, it is a plan for learning, and therefore the learning has to be accessible. After all, the important thing is not whether a particular activity or piece of material (a textbook, a film, a software simulation) is accessible; the important thing is whether the learning for which the material or activity is designed is accessible. That is its purpose in a curriculum. Thus, access needs to be implemented in the context of learning goals.

An example will illustrate. Suppose a student is assigned an Aesop's fable to read. The purpose of this assignment determines the appropriate steps for making it accessible. Is the goal to learn to decode text, to learn comprehension strategies for extended passages, to build vocabulary, to learn the moral or point of the fable, to learn the common elements of any fable, to learn how to compare and contrast fables with news reports, to articulate the relationship between the fable and the overall culture? The scaffolds and supports that might be appropriate depend entirely on the purpose of the assignment.

If for example the purpose of the fable assignment were to become familiar with the elements commonly found in fables, then supporting word decoding, vocabulary, and comprehension of the story itself would not interfere with the learning challenge. Supports such as text-to-speech, linked vocabulary, or animations illustrating interactions between characters would support different students but still leave the appropriate kind of challenge for all learners. But if the goal

were to provide practice in decoding and reading fluency, providing those same supports could undermine the learning challenge and actually impede access to learning. The reading support would eliminate the students' opportunity to practice and work towards reading independence.

Because the alternatives offered in a UDL curriculum could in theory "give away" the point of a lesson, the alternatives and options must be carefully embedded in learning goals in order to preserve true access to learning.

Participation in a universally designed curriculum means true engagement with learning, in pursuit of the goal that is defined for the class as a whole. Clearly articulated goals, communicated and agreed to by students, are the bedrock of a functional UDL curriculum and a prerequisite for true participation. John Dewey long ago articulated the importance of active participation for real learning to take place:

> There is, I think, no point in the philosophy of progressive education which is sounder than its emphasis upon the importance of the participation of the learner in the formation of the purposes which direct his activities in the learning process, just as there is no defect in traditional education greater than its failure to secure the active co-operation of the pupil in construction of the purposes involved in his studying (John Dewey, 1938, p.67).

To build learners' awareness and commitment to their learning purposes, teachers in a UDL classroom make goals clear and help students keep them front and center when working in class or on homework assignments.

More than simple content or skills learning, true participation involves "learning how to learn." The heavy emphasis on content learning observed in the mainstream curriculum is shifted towards the mastery of skills and strategies in a universally designed curriculum, "Learning how to plan, execute, and evaluate a range of tasks from forming single letters to writing a research paper, directing a video production, or creating a Web site… is highly critical to all aspects of learning (Rose & Meyer, 2002)." Skill development is embedded in all content learning activities to provide opportunities to "learn how to learn."

With digital tools, supports for active learning can be built into curriculum materials themselves. In CAST's "Thinking Reader," features like text-to-speech, leveled prompts and hints for various strategies that are introduced; and a selection of content, challenge, and support, help all learners become more strategic, self-aware, and engaged – critical components to participating in the curriculum.

Progress in a UDL curriculum is centered on curricular goals, not on overcoming curricular barriers. The distracting "proxies" for progress – changes in setting or place, increased participation in activities, reduction of barriers, or success in utilizing accommodations and modifications – are no longer the central focus. Measures of

progress for students with disabilities become the same measures as for other students: measures of learning.

This emphasis on the goals for learning is possible because the curriculum is designed to eliminate barriers to access and participation. But eliminating those barriers does not eliminate all effort or challenge in reaching goals, which most significant learning requires. On the contrary, Universal Design for Learning requires that the challenge and resistance essential to real learning be preserved, but properly focused (Rose & Meyer, 2002). The goal of universal design is not to reduce all effort, but to reduce extraneous effort – effort that is unrelated, distracting, disabling – because it is expended in overcoming barriers and poorly designed pedagogies. When goals do not needlessly restrict the pathways to success, all students, even those with disabilities, can make progress with them.

For diverse students to work effectively towards a common goal, the goal must be clearly defined so that teachers can easily identify "allowable" scaffolds, scaffolds that do not interfere with learning, that preserve the challenge. In addition, assessment measures need to have the same scaffolds built into them that students use when working in class. Only then is the evaluation a fair and accurate assessment of what students know and can do in relation to that particular learning goal.

Conclusions Regarding the UDL Curriculum

The UDL curriculum arose in response to a rethinking of a core educational assumption. The assumption that there are two types of learners – those with disabilities and those without disabilities – no longer seemed valid. Simple classroom observations and neuroscience findings show that every learner is unique, rendering these commonly used categorizations artificial – and counterproductive. Retrofitting the mainstream curriculum, although a step forward from the special curriculum perpetuated these categorizations and undersold all students, especially those with disabilities.

The UDL curriculum is meant to satisfy the need and desire to further improve the education of all students, especially those with disabilities. Drawing from the principle of universal design in architecture, the UDL curriculum acknowledges students' tremendous diversity. The curriculum *is designed* to be flexible enough to meet diverse learner needs from the beginning.

Drawing on technological advances, especially digital media, UDL builds flexibility into each of the four main components of the general curriculum. Clearly stated goals, centered on the true learning purpose, are the cornerstone. Stripped of unnecessary restrictions, UDL goals can permit multiple pathways to achievement. To support these multiple pathways, students use flexible materials – multiple formats and media, with optional supports and scaffolds; teachers offer not one teaching method but many different methods; and assessment is offered in multiple forms, making use of varied media and scaffolds.

Because every student can benefit from a more flexible learning environment, UDL is ideally suited to supporting access, participation, and progress for all learners, not just those with

disabilities. When goals are clear and properly focused and materials, methods, and assessment diversified, access is ensured to not merely information but more importantly, to learning. Because goals are not over-specified, they are inclusive of all students, enabling whole-class participation. Moreover, they support the broad skills and strategies fundamental to "learning how to learn." Progress for students with disabilities is no longer merely a matter of overcoming curriculum barriers. For them, as for all other students, progress is defined as advancement towards curriculum goals.

The technologies, tools, and methods built up through the years since the beginning of IDEA have all made it possible to conceive of and to realize UDL. However, there is no such thing as a completely universally designed curriculum. For one thing, the field is too new. For another, universal design is a process rather than an outcome. The intent in practicing universal design is to engage in a process that creates better and better curricula. That process will improve over time, but there will always be room for more improvement, new techniques, and even newly discovered barriers. Consequently, there will always be a need for assistive technologies and other adaptations – the reachable goal is to reduce the need for them substantially in favor of better solutions wherever possible.

One erroneous perception is that a UDL curriculum will immediately reduce the cost of education by bringing special education students into participation in the general curriculum and using one general curriculum for all learners. While costs may be reduced in the long run, once the strategies and the accessible, supportive materials are developed and in place, moving from the current state of affairs to a full implementation of UDL will take time and money. Investments in planning, product development, professional development, teacher collaboration, technology and other aspects of UDL curriculum will be needed in the short run. The allocation of resources to the needs of a special population will result in educational benefits for all students and more than justify the investment.

The Changing Face of Curriculum

Since the inception of IDEA in 1975, the challenges facing disability educators have progressed from the most basic concerns of access to buildings and classrooms to concerns of equal participation and progress towards high standards of excellence. This progress has been spurred by IDEA's progressive language and amendments reflecting a clear monitoring of the changing landscape in schools for students with disabilities.

Although IDEA in its initial form did not specify students' rights to access, participation, and progress in the general curriculum, hindsight shows the appropriateness of this language as an ultimate goal. When IDEA was initiated, the general curriculum itself created barriers for students with disabilities. Its fixed nature, born of its firm print-based foundation, reflected the underlying "one size fits all" assumption. This precluded participation by students with varied learning needs and led to the development of the separate, special curriculum. This was highly individualized but lacked the overarching accountability for students' progress.

The later mandate for access, participation, and progress in the general curriculum led to extensive development of modifications and alternatives, as well as assistive technologies to

support students with disabilities. This work reflected a shift from a "one size fits all" to "one size fits most" assumption. This shift opened the door for changes in the curriculum and was a crucial step towards universal design. However, retrofitting a still-rigid curriculum to meet diverse learning needs proved costly and ultimately ineffective.

The National Center for Accessing the General Curriculum supports a new underlying assumption for curriculum design, namely "each learner needs his or her own size." While this may seem radical, this notion is old hat to clothing manufacturers, designers of car seats, and makers of fitness equipment. Resting on this new assumption, UDL offers design principles, technology tools, and implementation strategies for creating one curriculum that is sufficiently flexible to reach all students. Clear goals, flexible methods and materials, and embedded assessments make it possible for students with disabilities to truly access, participate, and progress in the general curriculum.

Each stage of curriculum development has contributed significantly to the knowledge base and tool set that made it possible to conceive and begin to implement UDL. The special curriculum contributed in-depth knowledge of student characteristics and the widely varied techniques and tools needed to reach all students. The mainstream curriculum contributed the viewpoint that the curriculum itself needed to be adjusted, and the technologies and tools to make these adjustments. Collectively, these insights and techniques form the substance of the flexibility to be embedded in UDL curriculum.

Resources

National Center for Accessing the General Curriculum (NCAC)
http://www.cast.org/ncac

CAST established NCAC in 1999 through a cooperative agreement with the U.S. Department of Education's Office of Special Education Programs, as part of a national initiative that emerged from IDEA'97. The National Center draws on the talents of five partners who are already established leaders in their fields to provide leadership in using the UDL framework to increase access to the general education curriculum for all learners. NCAC is investigating and making recommendations in 4 major areas: policy and legal issues, curriculum design, teacher preparation and training, and building consensus among varied stakeholders.

     Agreement Number H324H990004, December 1, 1999 - November 30, 2004
     Bonnie D. Jones, Project Officer, U.S. Department of Education
     David Rose, Principal Investigator, CAST
     Chuck Hitchcock, Project Director, CAST

Office of Special Education Programs, US Office of Education (OSEP)
http://www.ed.gov/offices/OSERS/OSEP/index.html

The Office of Special Education Programs (OSEP) in the U.S. Department of Education provides funding for the National Center on Accessing the General Curriculum. OSEP has primary responsibility for administering programs and projects relating to the free

appropriate public education of all children, youth and adults with disabilities, from birth through age 21.

CAST

http://www.cast.org/

Founded in 1984 as the Center for Applied Special Technology, CAST is a not-for-profit organization that uses technology to expand learning opportunities for all people, especially those with disabilities. Visit the CAST Web site to learn more about CAST's work and Universal Design for Learning.

Teaching Every Student: TES Web Site

http://www.cast.org/tes

The Teaching Every Student (TES) Web site is an interactive learning environment that explains and exemplifies CAST's concept of Universal Design for Learning (UDL), and forms a bridge between UDL theory and classroom practice. Through TES:

- Gain a thorough understanding of what UDL is all about: its roots in brain, media, technology, and educational research; the nature of the theory itself; and how UDL can help reach diverse learners by setting goals carefully, supporting varied paths to learning, and assessing students fairly.
- Find tutorials, tools, activities and scaffolds to help apply UDL in the classroom.
- Connect with CAST researchers, colleagues, and others interested in using UDL to reach and teach all learners.

Universal Learning Center (ULC)

http://www.ulc.cast.org/

The ULC is Web-based resource designed to provide educators, parents, and students with accessible and universally designed core curriculum materials. It is also designed to support schools wishing to find an authorized method for obtaining digital content appropriate under the copyright exemption for individuals with disabilities (Section 316 of Pub. L. 104-197 Legislative Branch Appropriations Act, 1997)

National Consortium on Universal Design for Learning

www.cast.org/nationalconsortium

CAST recently announced the formation of the National Consortium on UDL, a community of educators and other professionals dedicated to developing systemic practice models that better serve the educational needs of all students, including those with disabilities. The principles of Universal Design for Learning are central to the mission of the National Consortium.

Bobby WorldWide

http://www.cast.org/bobby

The leading Web-based program is helping designers make sites accessible to the largest possible number of people, especially those with disabilities. This interactive tool examines Web pages to identify potential barriers to access and is available in two formats: an online server version and a downloadable client application. Many businesses have expressed their

support for Web accessibility by sponsoring Bobby in the past, including long-time supporter IBM Corporation.

IDEA'97
http://www.ed.gov/offices/OSERS/IDEA/index.html

This Act strengthens academic expectations and accountability for the nation's 5.8 million children with disabilities and bridges the gap that has too often existed between what children with disabilities learn and what is required in regular curriculum.

IDEA'97 Amendments, Final Regulations
http://www.ideapractices.org/lawandregs.htm

Assistance to States for the Education of Children With Disabilities and the Early Intervention Program for Infants and Toddlers With Disabilities (OSERS), March 12, 1999.

IDEA Partnership Projects
http://www.ideainfo.org

The IDEA Partnerships are four national projects funded by the U.S. Department of Education's Office of Special Education and Rehabilitative Services (Office of Special Education Programs) bringing together administrators, families/advocates, policymakers and service providers. This new gateway Web site provides links to the following four partners, as well as to the Office of Special Education Programs (OSEP) and the U.S. Department of Education:

> The IDEA Local Implementation by Local Administrators (ILIAD)
> The Families and Advocates Partnership for Education (FAPE)
> The Policy Maker Partnership for Education (PMP)
> The Associations of Services Providers Implementing IDEA Reforms in Education (ASPIIRE)

Council for Exceptional Children (CEC)
http://www.cec.sped.org/

CEC is the largest international professional organization dedicated to improving educational outcomes for individuals with exceptionalities, students with disabilities, and/or the gifted. CEC advocates for appropriate governmental policies, sets professional standards, provides continual professional development, advocates for newly and historically underserved individuals with exceptionalities, and helps professionals obtain conditions and resources necessary for effective professional practice.

National Association of State Directors of Special Education (NASDSE)
http://www.nasdse.org/index.htm

The National Association of State Directors of Special Education, Inc. (NASDSE) promotes and supports education programs for students with disabilities in the United States and outlying areas. NASDSE is a not-for-profit corporation established in 1938.

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