Embedding Technology in Education for All Learners:
CEC's Recommendations to the National Education Technology Plan

The Council for Exceptional Children – the largest professional organization of teachers, administrators, higher education faculty, researchers and others concerned with the education of children with disabilities, gifts and talents or both – appreciates the opportunity to provide input on the development of the National Education Technology Plan.

Technology is a driving force that will shape the future of our nation and, as such, it must be fully integrated and embedded in education. Technology can facilitate learning, engage students, and create opportunities for adaptation and creativity that benefit all learners. CEC is encouraged that the Technical Working Group appears to be considering a broad range of topics that address the full continuum of education – from early childhood to career preparation; from personnel preparation to continued professional development. CEC urges the Technical Working Group to consider the needs of diverse learners, including students with disabilities and/or gifts and talents, throughout the Plan.

CEC's comments center on three of the four themes articulated by the Technical Working Group: teaching, learning, and assessments; and will weave in anecdotes received from CEC members regarding their use of technology.

If CEC's comments should raise any questions, please contact Deborah A. Ziegler, Ed.D, CEC Associate Executive Director of Policy and Advocacy at 703.264.2406/debz@cec.sped.org or Kim Hymes, CEC Director of Policy and Advocacy at 703.264.9441/kimh@cec.sped.org.

General Recommendations

CEC Recommendation 1: Emphasize the importance of supporting and utilizing technologies that have a strong evidence base for a broad range of learners, including students with disabilities.

CEC Rationale 1: The National Education Technology Plan will serve as a blueprint for how technology should be integrated into education and as such, the Technical Advisory Panel has an obligation to emphasize the importance of ensuring that technologies used in classrooms across the country have a strong evidence base for a broad range of learners, including students with disabilities.

CEC Recommendation 2: Emphasize the necessity of having evidence-based research to support the use, effectiveness, and implementation fidelity of technology on a broad range of learners.

CEC Rationale 2: CEC supports the use of technology to support and enhance learning, provided it has a strong evidence base, and is applicable to a broad range of learners if appropriate. Such evidence should focus on the use, effectiveness and implementation

fidelity of the technology tool. Additionally, the evidence should emphasize the professional development needed to ensure that educators understand the potential benefits, utilization, application, and function of the technology.

CEC Recommendation 3: Emphasize the importance of incorporating the principles of Universal Design for Learning into all four themes of the National Education Technology Plan.

CEC Rationale 3: Universal Design for Learning (UDL) is a conceptual framework guided by the following principles:

♦　Providing multiple means of representation
♦　Providing multiple means of action and express
♦　Providing multiple means of engagement

It is well documented that one-size-fits-all learning/assessment system is an ineffective and inaccurate way of teaching students and measuring their knowledge and skills. UDL acknowledges that students learn and demonstrate their knowledge in a variety of ways. Technology plays an integral role in UDL and as such should be reflected in the National Education Technology Plan.

Therefore, as the Technical Working Group considers the four topic areas of teaching, learning, assessments and productivity, CEC urges the Group to incorporate UDL throughout each area.

CEC Recommendation 4: Emphasize and address the critical role of supportive leadership and funding in embedding technology in education.

CEC Rationale 4: CEC believes that the Technical Advisory Group should take this opportunity to emphasize how critical it is to have supportive leadership – at all federal, state, and local levels – to create school environments which foster the use of technology. Additionally, CEC encourages the Technical Advisory Group to highlight the key role of having sufficient funding to purchase technology and conduct professional development on its implementation throughout the National Education Technology Plan.

Teaching

CEC General Recommendation: When considering the teaching section of the National Education Technology Plan, CEC encourages the Technical Working Group to address the broad range of professionals who contribute to the academic achievement of a student, such as general/special education teachers, related service personnel (i.e. paraprofessionals, school psychologists, school social workers, speech and language therapists), early interventionists, early learning professionals, and school leadership.

CEC Recommendation 1: Emphasize the critical role of technology in the preparation of future educators with a dual focus on utilizing technology as a teaching tool once in the classroom; and as an innovative tool to better prepare future educators for their time in the classroom.

CEC Rationale 1: Technology has the potential to dramatically change how learning and demonstration of knowledge and skills occurs in classrooms. As many technologies become more readily available and applicable to learning, it is critical that educators are trained in how to best utilize technology to facilitate learning during their preparation programs. If technology is to be embedded into curriculum, instruction, and assessment, it is essential that programs that prepare future educators better integrate technology into their preparation programs. Because learning can occur through the use of technology, it is vital that educators be knowledgeable, prepared, and engaged in using technology. For example, many CEC members reported regularly using Smartboards, audio/video equipment, various software programs, and free online resources (i.e. twitter, blogs, delicious, wiki, etc.). Therefore, CEC urges the Technical Working Group to emphasize the importance of pre-service training in using technology in teaching.

Additionally, CEC believes it is important that the Technical Working Group support innovative techniques that better prepare future teachers for their time in the classroom.

Virtual programs, such as the TeachME: Teaching in a Mixed Reality Environment, are intended to provide future teachers with a variety of real-world experiences that mirror classroom experiences. TeachME, a program that purports to "positively impact teacher recruitment, preparation, and retention in education by allowing teachers to hone their skills with virtual children, providing a more ethical approach to learning the art of teaching," allows teacher-candidates to take the knowledge they gain from their preparation program and apply it in a setting that may be similar to what they encounter when they begin their role as a teacher.

> **CEC MEMBER STORY**
> *"The ultimate goal of our work [TeachME] is to increase student-learning outcomes and to increase the retention and effectiveness of teachers, particularly those teaching students with disabilities.*
>
> *Our approach is to provide ongoing and multiple virtual classroom experiences that better prepare beginning teachers for the classroom and enhance the skills of practicing teachers."*
>
> - Dr. Lisa Dieker & Dr. Michael Hynes University of Central Florida
>
> Check out TeachMe on MSNBC!
> http://www.msnbc.msn.com/id/21134540/vp/2593

CEC Recommendation 2: Emphasize the importance of on-going, high-quality, job embedded, professional development that focuses on the use of technology to enhance teaching, learning, and assessing student progress.

CEC Rationale 2: As you are well aware, technology is rapidly changing, the needs of students are frequently shifting, and the availability of resources to purchase technology fluctuates. Therefore, it is critical that educators are provided ongoing, high-quality,

embedded professional development to ensure that they are aware of how to most effectively utilize technology in their classrooms for a broad range of students. Additionally, educators should be made aware of technologies that may be free and available on the internet through a coordinated effort, rather than simply having each educator find resources on their own.

CEC MEMBER STORY
"Because my students have disabilities that prevent them from being able to hold a pencil and/or speak, I depend on technology to help me understand where my students are in their academics.

Technology has enabled me to enhance my teaching and engage my students so that they can be successful in the general education classroom."

- Elementary school teacher
    Tustin, California

Additionally, CEC believes it is important to consider how technology can be better integrated in the delivery of professional development. For example, instead of a traditional type of professional development that requires an educator to attend a seminar outside of the classroom setting, there have been new developments that incorporate online and mobile technology to allow educators to receive real-time virtual coaching while they are in their classrooms. Bug-in-the-ear technology is a method that utilizes Skype and Bluetooth to enable a professional development coach (who may be miles away) to observe and provide real-time feedback to an educator.

CEC Recommendation 3: Encourage greater availability of assistive technologies and support better pre-service and in-service professional development of general education and special education professionals in the utilization of assistive technologies.

CEC Rationale 3: Increasingly, students with disabilities are spending the majority of their school day in the general education classroom setting learning alongside students without disabilities. For some students with disabilities, assistive technology provides the necessary tools to engage in education and society. Therefore, it is important that students have access to assistive technologies that enable them to participate in learning. Examples of assistive technology devices include:

Technology in Action in Virginia

Loudoun County Public Schools in Virginia provides their staff with numerous resources on assistive technology, including an online video library which models various educational strategies that incorporate assistive technology.

Visit: www.loudoun.k12.va.us/>>services>>assistive technology

- ♦ Communication boards and wallets
- ♦ Sophisticated electronic communication devices
- ♦ Mobility aids, such as long canes and powered wheelchairs
- ♦ Expanded or adapted keyboards, touch windows, and speech recognition systems
- ♦ Magnification devices and computer screen reading adaptations

Learning

CEC Recommendation 1: All technology used in educational settings must be accessible to a broad range of learners.

CEC Rationale 1: Every classroom consists of students with a variety of learning styles. As you know, the majority of students with disabilities spent much of their time in the general education classroom, many of whom require accommodations to better access the curriculum, some low tech (i.e. a magnifying glass) and some more complex (i.e. computerized communication system).

Additionally, for some students with disabilities technology is a key factor that aids in learning. For students who for example, may have cognitive or physical disabilities, technology can provide them with the means to express themselves and enable them to learn and demonstrate knowledge that traditional methods are unable to do. For example, CEC members reported using book authoring programs that are accessible via multiple modes of expression (i.e. using a mouse, touch screen, joystick, switches, etc.)

> **CEC Member Story**
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> *I am a high school teacher of students who are profoundly mentally and physically disabled. My students are medically fragile, nonverbal, physically limited, and are all in wheelchairs.*
>
> *By using a book authoring program and individualized adaptive software, my students are learning vocabulary and gaining literacy skills.*
>
> - High School Special Education Teacher Orlando, Florida

to engage and build the literacy skills of students with a wide range of disabilities.

Therefore, as the Technical Working Group considers the important role technology can have on education, CEC believes it is critical that technology be accessible to a broad range of learners.

CEC Recommendation 2: Encourage the availability, utilization, and awareness of assistive technology devices and services.

CEC Rationale 2: Assistive technology enables an individual with a disability to increase, maintain, or improve their functional capabilities, as stated in the Individuals with Disabilities Education Act of 2004. Such technology can have a dramatic impact on the teaching, learning, and assessment of students. However, the availability and utilization of assistive technology devices and services varies widely between schools and districts. This variance exists for many reasons including the lack of resources purchase assistive technology devices or to employ an assistive technology coordinator, and possibly the general lack of awareness of what assistive technology devices (low and high tech) are available.

Therefore, CEC believes that it is critical that the Technical Working Group encourage the availability, utilization and awareness of assistive technology devices and services.

Assessment

CEC Recommendation 1: Encourage research and utilization of evidence-based technologies used in formative and summative assessments that accommodate diverse learners.

CEC Rationale 1: CEC believes that utilizing evidence-based technologies in formative and summative assessments is a promising practice for all students, including those with disabilities and/or gifts and talents.

Current assessments were not created to address the diverse learning needs of students and as a result, attempts have been made through the use of accommodations and other strategies to retrofit current assessments so they are more accessible. Instead of this piecemeal approach, CEC has recommended that assessments take into account diverse learners – including, but not limited to students with disabilities and/or gifts and talents – during the creation of the assessment. Specifically, CEC supports assessments that:

- Use multiple measures that are norm referenced on students with disabilities and/or gifts and talents
- Are formative and summative in nature in an effort to provide educators with useful feedback
- Take into account accommodations, modifications, enrichment, acceleration
- Utilize the principles of Universal Design for Learning
- Include computer adaptive testing

Additionally, CEC encourages the Technical Working Group to utilize the principles of Universal Design for Learning in the design of assessments, which consists of:

- Providing multiple means of representation (examples include providing options for how information is perceived and comprehended and how language and symbols are used)
- Providing multiple means of action and express (examples include providing options for physical action, expressive skills and fluency, and executive function)
- Providing multiple means of engagement (examples include providing options for recruiting interest, sustaining effort , and self regulation)

Excerpt from TEACHING Exceptional Children, a CEC Publication

"[NimbleTools] is the first computer-based test delivery system that embraces principles of universal design by building in multiple accessibility tools designed to meet the needs of students with disabilities and special needs – and permits students to use those tools in a flexible manner when working on an individual test item."

- *NimbleTools: A Universally Designed Test Delivery System* by Michael Russell, Thomas Hoffmann, Jennifer Higgins published in CEC's TEACHING Exceptional Children Nov/Dec 2009

While UDL has been a concept originally considered for students with disabilities, CEC believes that it is critical to recognize that UDL can benefit all students. A hard lesson that NCLB has taught us is that one-size-fits-all initiatives are often unsuccessful. This is also true for assessments. We know that

students – with or without disabilities – learn and demonstrate knowledge differently. An assessment can only be considered an accurate picture of a student's knowledge and skills if it is designed to allow a student to most effectively demonstrate what they know.

Lastly, CEC encourages the Technical Working Group to place a strong emphasis on the importance of creating assessments that yield meaningful information for educators and families. Assessments should be tools that help inform instruction, identify areas of strength and weakness, and help inform decision making. However, assessments can only be effective if they are presented in a way that enables the student to accurately demonstrate their knowledge and skill. To this end, CEC encourages the Working Group to emphasize how assessments can provide meaningful feedback to educators and parents from the first stage of assessment creation, rather than as an afterthought.

CEC Recommendation 2: Consider how technology can be used to address alternate assessments for students with the most significant cognitive disabilities.

CEC Rationale 2: Many students with the most significant cognitive disabilities participates in the alternate assessment based on alternate achievement standards (AA-AAS). A recent study by the National Center for Special Education Research within the Institute of Education Sciences, found that many states approach the AA-AAS differently. Some states use a portfolio or body of evidence to constitute the entire assessment. Others use techniques such as a rating scale/checklist, performance task/events, or multiple choice/constructed response assessments. The inconsistent approach to these assessments across states creates varying standards and expectations. Therefore, CEC urges the Technical Working Group to ensure that students with the most significant cognitive disabilities are considered as the Group formulates its report.

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