

Invited Written Testimony

From
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Software & Information Industry Association (SIIA)

To
Federal Advisory Commission on Accessible Instructional Materials
in Postsecondary Education for Students with Disabilities (AIM Commission)

July 19, 2011

[This written testimony represents SIIA's full, formal comments to the Commission.]
[These comments elaborate on remarks presented before the Commission on July 12, 2011.]

On behalf of the Software & Information Industry Association (SIIA) and our 500+ member high tech companies, thank you for the invitation to testify before the federal AIM Commission hearing on July 12, 2011 in Seattle Washington. I write to follow up on that testimony with an extended set of comments and recommendations on the important issue of instructional materials accessibility for postsecondary students with disabilities. I was also pleased to be joined July 12 by representatives from SIIA members Adobe, Inkling and SAS (see appendix), who shared their related product efforts.

About SIIA

SIIA is the principal trade association for the software and digital content industry. SIIA provides global services in government relations, business development, corporate education and intellectual property protection to more than 500 leading software and information companies. All SIIA members depend on our nation's education system to provide a skilled, high-tech workforce. Some one-third of SIIA's members have products and services designed for use in education. These range from learning management systems to faculty training, from online learning institutions to technology devices, and from adaptive learning software to digitized textbooks. They are helping to personalize learning, improve access and increase productivity of the student, professor and institution. I've attached a list of our Education Division members for your reference.

SIIA has long provided leadership around the use of technology and universal design to support the needs of students with disabilities, and the unique needs of all students, including:

- SIIA has hosted a number of forums and working groups to build industry awareness and understanding.
- SIIA's recent Experts Guide to Postsecondary Education includes a chapter advising companies how to build accessibility and universal design into their development process.
- I sit on the advisory board of the CAST National Center on Universal Design for Learning.
- And SIIA's work around personalized learning calls out the role of "multi-modal and universally designed digital content, adaptive software, and multimedia resources, including learning games and simulations, that address various learning styles and reading levels."

This testimony:

- identifies several key trends in postsecondary education relative to technology that will help drive accessibility;

- highlights several examples of how SIIA member high tech companies are making their products accessible, and integrating universal design into their software and digital resources to meet the needs of students and others with disabilities; and
- provides several comments and recommendations to the AIM Commission and other stakeholders for improving accessibility of instructional materials for students with disabilities.

Digital Trends in Postsecondary Education

As is well known, technologies are evolving at an incredible pace. Within our educational system, demand for technology and digital resources is significant and growing, though education still trails other sectors in its transformative deployment. Education is increasingly digital and online, enhancing the opportunities to provide accessibility. The future is bright for all students.

Here are some key trends in postsecondary education relative to technology that will help drive accessibility:

- **Online Learning:** Online learning has exploded over the last decade, revolutionizing education by increasing access and removing barriers of time and space. Online learning is not only improving opportunities for non-traditional adult learners and geographically isolated students, but also fostering a mastery-based model that challenges our traditions of seat-time education. According to Campus Technology, in 2009, about one third of all students had taken at least one course online. The growth rate for online enrollments exceeds overall growth, pointing to a decrease in traditional course enrollments. According to Ambient Insight, by 2015, 25 million postsecondary students in the United States will be taking classes online, and that number may soon after exceed the number in a physical classroom.
- **Mobility and Cloud Computing:** As costs fall and functionality improves, students are increasingly mobile through the growing use of smartphones, tablets, netbooks, and eReading devices. A recent Student Monitor study found that nearly 90% of college students use a laptop, while 14% own a tablet and another half are interested in buying one. Campuses are expanding their network capacity and leveraging virtualization and cloud computing to support anytime, everywhere access to data, resources, communications and applications. Mobile learning will extend the online learning model exponentially.
- **eTextbooks and Digital Content:** There is an increasing use of digital and online content sequenced into the both traditional and online courses, and increasing use of interactive content. While a recent National Association of College Stores (NACS) study found half of college students “would not consider” buying digital textbooks, this is expected to change. So-called eTextbooks will continue to evolve from simply digitized books with modest enhancements to more interactive learning tools that leverage digital platforms and touch tablet interfaces to redesign the pedagogy. Such a digital first approach to development will meet student current needs, while adding functionality well beyond the current textbook. According to Xplana, over the next 5 years, digital textbook sales in the United States will grow from 1% in 2010 to 25% of new sales, and digital will be the dominant form factor inside of 7 years. In many introductory and remedial classes, this is already happening through the use of interactive, adaptive tutorial software, especially in mathematics. According to a recent survey by Harris Interactive for the Pearson Foundation, a majority of community college students believe they would benefit from online materials and tutorial software.
- **Personalization and Universal Design for Learning:** Technology is enabling the differentiation and customization of learning. Students have increasing choices about which classes they take, from whom, from where and at what pace. Technology is also supporting a broader range of instructional resources and supports for students, and options for faculty to reach students. Digital will drive a parallel shift from bundled textbooks to disaggregated, modular content from myriad sources. Adaptive learning applications, multimedia, simulation software and digital content libraries provide a just-in-time menu of digital learning resources to meet student’s wide variety of learning interest, styles, pace and modalities. They are increasingly developed from the start with universal design for learning principles to provide content in multiple formats to engage all learners.

- **Learning Management Systems:** A Learning Management System (LMS) is now in about 90% of postsecondary institutions in the U.S. The LMS continues to grow in scale and scope from an access point for syllabus and assignments to a one stop, enterprise critical portal for not only course content (integrated from faculty and third party publishers) and instruction, but also for faculty and students to manage various administrative tasks from registration to grades to student account.
- **Integration & Interoperability:** While the plethora of technologies and accompanying customization is growing, so too is the move toward standardization to provide more seamless use across platforms and applications. Much work remains, but IMS, ePub, XML and other standards efforts are enhancing data, content and application interoperability. For example, the IMS Common Cartridge enables content to be used by any LMS. And ePub enables publishers to distribute a single file format that will reflow text according to the device. It can be used with Digital Rights Management (DRM) and incorporates Daisy XML. While ePub is currently optimized for text-centric content, ePub 3 will accommodate multimedia and formats like MathML and Scalable Vector Graphics (SVG), allowing for further revolution of the eTextbook form and function.
- **Social Learning:** Along with online learning and mobility is an increasing emphasis on collaboration and the social web – a shift from lectures, instruction and the transfer of information to one of helping students learn. Institutions and students are implementing software with collaboration features, such as conferencing, desktop and file sharing, blogging, student and group portfolios, wikis, project management, and connections to social networking sites like Facebook and Twitter. Learning sources are no longer limited to the students in class, the faculty on campus, or the books in the library, while student collaborative content creation is an increasingly recognized strategy for learning.

What does it all mean for our educational institutions? As suggested in SIIA's recently released Postsecondary Guide, "Once technology makes access to learning ubiquitous, does formal learning also dissolve into the Internet . . . ? How do institutions adapt to meet the needs of learners of today for access, immediacy, and relevancy? If they don't, will they eventually disappear from the business of learning just as other services have become completely disrupted in the Internet Age?" In other words, the educational market and the technologies are rapidly evolving, and any efforts to address accessibility, as to address many other needs, must be flexible and dynamic to exploit both the continuing development of technology and its increasingly positive impact on educational institutions and practices.

Technology Industry Efforts to Support Accessibility

With that as background, following are several examples of how a sample of SIIA members are making their products accessible and integrating universal design into their software and digital resources to meet the needs of students and others with disabilities:

- **Adobe:** Adobe Systems is dedicated to supporting the goals of accessibility, both in user interfaces offered in Adobe applications as well as in content and applications authored using Adobe developer tools. Adobe's two most popular applications, Flash Player and Adobe Reader, have offered Flash and PDF access to assistive technology since 2002. Adobe also develops a host of authoring tools – including Dreamweaver, Acrobat, LiveCycle, Flash Catalyst and Captivate – that enable authors to integrate accessible design practices into their production workflows. Using Adobe Connect, educators can accommodate blind or low-vision users, deaf or hard-of-hearing users, and people with motor disabilities in a classroom environment that helps to level the playing field for all learners.
- **Apple:** Apple includes assistive technology in its products as standard features. For example, iPhone, iPad, iPod, and Mac OS X include screen magnification and VoiceOver, a screen-access technology, for the blind and visually impaired. To assist those with cognitive and learning disabilities, every Mac includes an alternative, simplified user interface that rewards exploration and learning. And, for those who find it

difficult to use a mouse, every Mac computer includes Mouse Keys, Slow Keys, and Sticky Keys, which adapt the computer to the user's needs and capabilities. Apple innovations include braille mirroring, which enables deaf and blind students to work together on the same computer at the same time; a screen reader that can be controlled using finger-based gestures; and captioning of downloadable digital movies.

- **Blackboard:** Blackboard's core Blackboard Learn software is gold certified by the National Federation of the Blind for non-visual access. Blackboard achieved accessibility by designing workflows with users and experts, and by coding and testing against the Section 508 guidelines and W3C WCAG standards using both automated and manual testing in-house as well as third-party. Additionally, Blackboard is an early adopter of ARIA from the W3C to further support screen reader access. The platform is accessible for non-visual and vision-impaired access, keyboard only usage, and can be leveraged effectively to support those with learning disabilities as well. Blackboard also provides free guidance to content authors on how to develop universally designed curriculum to be accessible on its platform, and provide accessible Blackboard UI tag libraries and guidelines to help developers design, develop and test accessible extensions to the platform.
- **Cengage Learning:** Cengage Learning delivers a wide range of print and digital instructional materials and is committed to accessibility for students with disabilities. Particularly challenging is the task of making acquired and other legacy platforms accessible that were not initially so designed. Cengage conducts ongoing accessibility audits to identify areas requiring attention, and then remediate where feasible. Some changes were implemented across most platforms, such as header tabs with text based buttons rather than image-based, updated HTML tagging so full pages are accessible to screen readers, proper tagging of column headings, and adding "skip to content" links to each page for screen readers. In other more challenging areas such as adding captioning and transcripts to many video assets, and addressing accessibility for Flash-based content, extensive work remains underway. New resources are being created following W3C HTML coding guidelines and also adding ARIA enhancements.
- **FlatWorld Knowledge:** Flat World Knowledge, as an open textbook publisher, has built a business around the principle of enabling the greatest possible number of learners to access our materials. Rather than adopt a particular compliance standard, Flat World Knowledge strives to achieve maximum accessibility by offering a multitude of content *formats*. Textbooks are readily available through a typical web browser online in HTML format, as well as ePub, mobi, PDF, and (in most cases) MP3 Audio file formats. Critically, Flat World Knowledge has also broken new ground on accessibility by partnering with Bookshare, a non-profit organization that converts content to accessible formats. ePub files are streamed to Bookshare, who then produces digital Braille and DAISY reader versions, all available *for free* to any student.
- **Inkling:** Inkling's client software is VoiceOver enabled for iPad, making every corner of the application accessible to those with special visual needs. Beyond a simple screen reader, Inkling helps users navigate through the learning content and application, locate defined terms, listen to guided tours audibly and provides alternative descriptions of visual content whenever possible. Inkling also accommodates colorblind users by using symbols rather than just colors, and accommodates users with special hearing needs by providing transcripts and closed captions for video and other audible resources. Inkling is a free download, and all content purchased within the application automatically benefits from these accessibility features.
- **Moodlerooms:** Moodle open-source learning management system is fully Section 508 compliant as outlined in Moodleroom's VPAT. Because Moodle is able to re-use content created by external authoring tools, an institution can stay well-within accessibility guidelines by generating qualified Web accessible content in an authoring tool and then rendering it within Moodle. Moodle is built on joule, which supports the use of assistive technologies such as screen readers, text magnifiers and speech-to-text solutions. Additionally, all functionality in joule is designed to allow accessible keyboard navigation through the Yahoo User Interface (YUI) for all JavaScript. Moodle has standard accessibility tests that run the W3C's Validator to check for strict XHTML compliance, as well as the common "Cynthia Says" validation for both

Section 508 and Web Content Accessibility Guidelines (WCAG) compliance. The core of joule meets W3C WCAG 2 level A, with exception to third-party modules, themes and the chat module.

- **RedHat:** Red Hat Enterprise Linux (RHEL) is a distribution of Linux, which is an open source operating system. RHEL generally ships with the GNOME desktop, whose accessibility toolkit enables features for those who cannot view or interact with a traditional graphic user interface (GUI). Add-ons include Orca, which combines screenreading speech-to-text technology and BRLTTY, a background process that provides access to the Linux/Unix console when in text mode for a visually impaired person using a refreshable Braille display. Various open source accessibility software programs can be downloaded free of charge onto any Linux machine. For example, Red Hat assisted a group from the Rochester Institute of Technology that developed an open source videochat program with sufficient quality to support readable sign language for the deaf over videochat. The program, called Open Video Chat, was launched in 2010 and has been downloaded nearly 10,000 times from the One Laptop per Child project website.
- **SAS Institute, Inc:** SAS analytics software products are widely used by students in higher education at the undergraduate and graduate levels. Students use the SAS Display Manager to load data, analyze it, manipulate it, export it, and create accessible reports that can be shared on the web. SAS Display Manager supports keyboard-only input and customizable keyboard commands. Additionally, it can be used with screen readers, magnifiers, and other assistive technology products. Students with disabilities also use the free accessible SAS Flash Cards iPad application to study using crowd-sourced born-digital decks of flash cards. SAS incorporates feedback from employees and customers with disabilities while products are being developed. SAS also tests its products against the Section 508 Standards for Electronic and Information Technology during the product development process and discloses results to customers upon request.
- **Texthelp:** Texthelp Systems is an assistive technology software company whose products help people with reading, writing, and literacy difficulties. Texthelp's Read&Write GOLD tool-set helps make learning accessible for students with a wide range of learning abilities, including students with physical and learning disabilities and English learners. Features include text-to-speech with dual color highlighting and the Screen Shot Reader to read aloud all text, including text that is embedded within an image or video or is contained within Flash which has not been authored in an accessible manner. The Speech Input feature converts speech to text and is a useful tool for people who struggle with writing tasks. The MathML support feature helps create and read aloud MathML files. The customizable Read&Write GOLD toolbar sits on top of the wide range of common applications, browsers, operating systems and devices, including Microsoft Office, Internet Explorer, Safari and Adobe Reader, so users can independently succeed at their own pace. These features are also now available for publisher's to license and embed in their online curriculum materials, eBooks and assessments.

It is obviously not possible to include the accessibility and universal design efforts of all SIIA members due to practical limits of time and space, but these examples provide a good sampling.

SIIA Recommendations to AIM Commission

These examples demonstrate how digital and online resources can more easily be made accessible and can be universally designed from the outset, how the industry is addressing the needs of students with disabilities, and how their efforts are evolving.

Following are several key points and recommendations:

- **Section 508.** SIIA recommends a focus on Section 508, which has become the default standard for the industry, and for many states and public educational institutions. Section 508 provides an appropriate set of functional performance standards and review criteria, as well as a balanced process that recognizes the multitude of applications and platforms, the dynamic nature of technology, and the wide variety of decision factors. Section 508 appropriately focuses on functional requirements rather than a specific file or other

format. We understand the pending updated Section 508 standards will be largely aligned with WCAG 2.0 guidelines. The single 508 standard is especially appropriate, because many technologies are designed for use outside of education, but imported to education's use. It will promote competition in the industry by clarifying market requirements for accessibility. SIIA recommends that it would be appropriate and beneficial for the postsecondary community to help shape Section 508 standards. In fact, the federal Access Board has guidance around e-learning [<http://www.access-board.gov/sec508/e-learning.htm>]. It reads, in part: "[508] . . . both meets the long-term needs of Federal employees with disabilities and allows EIT developers and manufacturers freedom to design innovative technologies and solutions for accessibility." For instance, if no completely accessible technologies are available, agencies are required to purchase those that 'best meets the standards.' 508 standards recognize the innovative nature of technology and permit alternative techniques – i.e., "equivalent facilitation" – to meet the goals, if not the literal wording, of a particular provision in cases of "undue burden" where providing access is significantly difficult or expensive. "This flexibility creates economic incentives [and] . . . helps the IT industry continue to innovate . . . while ensuring that people with disabilities gain greater and greater access." This parallels the recent federal Kindle-related guidance allowing, if necessary, for "accommodations or modifications that permit [students] . . . to receive all the educational benefits provided by the technology in an equally effective and equally integrated manner."

- **Universal Design for Learning.** SIIA encourages the use of the principles of Universal Design for Learning (UDL) to meet the needs of students with disabilities, rather than the narrower goal of retrofitting for accessibility. UDL is neither a specific set of technical requirements nor appropriate for regulatory mandate, but is instead a methodology for designing and delivering all aspects of education, including but not limited to instructional materials. Developers are increasingly responding to the diversity of student skills, styles and needs by incorporating UDL principles into their digital content and software, recognizing that making their resources available through multiple modalities will better support the learning needs of all students. According to CAST, universal design is "the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design." Further, CAST explains that UDL is "not a single, one-size-fits-all solution but rather flexible approaches that can be customized and adjusted for individual needs. [It] (A) provides flexibility in the ways information is presented, in the ways students respond or demonstrate knowledge and skills, and in the ways students are engaged; and (B) reduces barriers in instruction, provides appropriate accommodations, supports, and challenges . . ." Further, "UDL materials offer multiple media and embedded, just-in-time supports such as hyperlinked glossaries, background information, and on-screen coaching." Retrofitting for accessibility can be cost-prohibitive and technically unfeasible, especially in many low incidence resources. Most faculty will go years without teaching a student with a severe disability, and so will be more compelled to look to pursue universally designed resources knowing they will help support the learning of all students. The opportunity is to look to development of new models and materials that leverage the digital medium and integrate universal design to meet the needs of all students.
- **VPATs and Local Determination.** SIIA recommends transparency as an important means of driving accessibility. Institutions should look to detailed Voluntary Product Accessibility Templates (VPATs) from publishers and developers as a primary vetting tool. Even within the relatively singular and unified market of federal procurement, a single certification of materials as accessible has been deemed inappropriate by the Access Board. Certification would give one entity too much influence, would not keep up with the enormous scale and scope of technologies and the fast pace of innovation, would create a floor that would inevitably become a ceiling that hurts innovation and competition, and would not recognize unique use case circumstances. The current use of VPATs along with accessibility determinations based on unique circumstances is most appropriate.
- **Market Demand.** SIIA appreciates the Commission's recognition (in draft) that "achieving accessibility in the marketplace is the best way to ensure the greatest diversity of content reaches the greatest number of individuals with print disabilities." SIIA encourages the Commission to look to support and incentivize postsecondary stakeholders to drive development and adoption of digital resources universally designed to

support all students, including those with disabilities. Students, faculty and institutions are increasingly calling for these designs and functions, but much work remains to be done on this demand side of the market. As evidence, the 2010 Managing Online Education survey found that more than a third of campuses reported that ADA compliance for online courses resides with each individual faculty member. Such policies should be institution-wide, driven by leadership, and accompanied by faculty education.

- **Faculty Education.** In many instances, faculty and other decision makers are likely unaware of their responsibility, the benefits, and the performance standards around accessibility. SIIA believes postsecondary institutions should educate their faculty about accessibility and universal design. SIIA would encourage the Commission to endorse efforts to support further development and delivery of training around best practices for various stakeholder groups. In contrast, forcing a technology on users may lead to its undervaluation, creating a check-box floor that becomes a market ceiling on innovation. In addition, the Commission may want to encourage faculty to consult with campus disability support services (DSS) offices. By requiring identification of course materials at the time of course registration, Section 133 (d) of the Higher Education Opportunity Act of 2008 will support this process, and provide further opportunity for interaction among students, faculty, DSS offices and vendors to support accessibility.
- **Vendors as Resources and Partners.** SIIA members and other publishers and developers look to their customers for feedback on product design and support. Institutions and faculty should further reach out to content, software and technology providers to outline their accessibility needs, including by facilitating input by students. Similarly, the postsecondary community should look further to publishers and developers to provide technical assistance around providing accommodations to students with disabilities.
- **Voluntary Licensing and Sharing.** SIIA would support examination of further voluntary and voluntary collective licensing models to allow for more timely access to, and production of, accessible instructional materials. For example, SIIA is a supporter and participant in the Copyright Clearance Center. Publishers and developers may also want to provide licenses that explicitly outline the unique terms around creating derivative works for accessibility. SIIA would also support further efforts for the domestic sharing of accessibility-enhanced instructional material files among and between institutions and other organizations producing these accessible materials in compliance with Chafee and all other relevant laws, regulations, and requirements in place to protect all rights of the copyright holder. SIIA also would support further education-industry efforts to develop and adopt metadata standards for tagging, identifying and finding instructional resources that are accessible, including through collaborative sharing networks.
- **DRM.** Digital Rights Management technologies are critical to meeting the needs of software, digital content and online learning providers, as well as supporting the needs of their users. At the same time, SIIA recognizes that DRM may sometimes cause challenges with regard to making resources accessible to those who are blind or have other print disabilities. SIIA therefore offers to help serve as liaison for the industry in working with all stakeholders to minimize the degree that DRM serves as an impediment to accessibility, including through standards development and adoption.
- **Chafee Amendment.** The Chafee Amendment has proven to be a good model for providing accessibility to certain allowable works where appropriate. Recognizing evolved technology, new scientific understandings around individuals with disabilities, and other factors and issues, SIIA would support a narrowly tailored and targeted Congressional review of the scope, effectiveness and continued need for the Chafee Amendment targeted to address specific problems. However, SIIA would caution against any wholesale or broad changes to the provision that has been generally effective and balanced. We also believe it would be inappropriate to recommend regulatory review, because no federal agency should be invited to use rulemaking to simply reinterpret the carefully crafted statutory text in ways that likely would first require legislative revision.
- **Single Standard Independent of Source.** SIIA recognizes that instructional materials used in postsecondary education come in many formats, from many authors, and at varying price points.

Recognizing that the impact on students is the same, SIIA encourages that faculty developed, free, open and other resources designed specifically for use in postsecondary learning also be held to the same goals and criteria of accessibility as are those procured from content publishers and technology developers.

- **Developer Tools and Training.** SIIA is supportive of further development and adoption of technical standards to further support accessibility and universal design, and has been especially active with regard to interoperability standards. The areas around STEM education – including multimodal representation of data, numbers, equations, etc. – are most challenging, and therefore would be most appropriate for government and collaborative efforts. SIIA would also support further investments in developer tools and techniques to address difficult task of providing accessibility. SIIA is also supportive of incentivized competitions that stimulate innovation in accessible instructional materials and the processes that produce them. Incentivized competition has a long history as a tool to stimulate innovation, including in cases like this where many of the challenges of accessibility require cross-disciplinary teams of researchers and practitioners. Finally, SIIA recognizes the need for more expertise within the development community – for professional software developers and programmers who understand how to provide accessibility. SIIA recommends that further investments, incentives and training be provided to increase this capacity. Such recruitment and training should emphasize the importance of bringing people with disabilities directly into the development process, as they promote awareness and provide immediate and constant feedback.

Thank you for the opportunity to provide these comments and recommendations, as a follow up to testimony by SIIA and several SIIA members at the AIM Commission's July 12 hearing. SIIA appreciates the opportunity to discuss the important issue of instructional materials accessibility for postsecondary students with disabilities. Recognizing that the Commission has been deliberating for nearly a year and this testimony comes late, SIIA appreciates the Commission's efforts to apply what was learned to refine its final findings and recommendations as appropriate. SIIA is also pleased to respond to the Commission's further questions and request for information and recommendations.

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Appendix I

Introduction of SHIA Member Company Representatives Testifying at the July 12, 2011 AIM Commission Hearing

Matt May is Accessibility Evangelist with Adobe. His work includes providing guidance on accessibility-related subjects to Adobe's product teams, as well as advocating principles of accessibility and universal design to the public at large. He lives in Seattle.

Ed Summers is a blind software engineer and an accessibility specialist with SAS. He has a B.S. in Computer Science and nineteen years of professional experience as a software developer and a development manager. Ed leads the accessibility team at SAS Institute, the market leader in business analytics software and services that is used at over 50,000 sites in over 100 countries. The SAS accessibility team helps people with disabilities succeed using SAS software. They also help SAS customers fulfill their disability-related legal obligations. Ed's personal mission is to use technology to improve the lives of people with disabilities. He fulfills that mission as a leader in the software industry and blindness-related not-for-profit organizations. Ed is the President of the Raleigh/Durham Chapter of the Foundation Fighting Blindness and a member of the Board of Directors for the Triangle Radio Reading Service.

Matt MacInnis is Founder and CEO of Inkling. A native of Canada, Matt attended Harvard University where he received a degree in Computer Engineering and Chinese Language. He spent the next eight years of his career at Apple, where he most recently managed Apple's international education market development group. During that time, Matt spent a lot of time in classrooms, observing the use of technology for learning, and in 2009, he decided to leave Apple and start something that would improve learning with technology. He started Inkling, which now provides a growing library of interactive, engaging learning content for iPad, rethinking the very notion of textbooks from the ground up.

Appendix II

Members of the Education Division of the Software & Information Industry Association

- ABC-CLIO
- Academic Benchmarks
- Academic Business Advisors, LLC
- AcademicMerit, LLC
- Adobe Systems, Inc.
- American Public University System
- Amos Group
- Apella Consulting
- Apple Education
- Arc Capital Development
- Atomic Learning
- Avant Assessment
- Avanti Management Group
- Award Publishing Ltd.
- Benchmark Education Company
- Berkery, Noyes & Co.
- Bert Davis Executive Search
- Big Universe Learning, Inc.
- Blackboard Inc.
- BLEgroup
- Bottom Line Publishing Services, LLC
- BrainPOP
- Bridgepoint Education - Learning Resources
- BSG Team Ventures
- C. Blohm & Associates, Inc.
- CafeScribe
- Cambridge Global Grid for Learning (GGfL)
- Capstone Digital
- CDW Corporation
- Cengage Learning
- Cherry Tree & Associates, LLC
- ClassLink, Inc. Coaxis Services Inc.
- College Board - SpringBoard Division
- CollinsConsults
- Computer Power Solutions of Illinois, Ltd. (COSI)
- Conceptua Math, LLC
- ConnectEDU
- ConnectYard, Inc.
- Consulting Services for Education
- CyberSmart! Education Company
- Dell | ASAP Software
- Digital Directions International
- Dorsey and Whitney, LLP
- DreamBox Learning
- DynamicBooks
- E.T.C. International
- E2020, Inc.
- East Wind Advisors (Private Equity)
- edtech systems
- Education Networks of America (ENA)
- Education TURNKEY Systems, Inc.
- Education Week and Digital Directions
- Educational Systemics, Inc.
- EDUMETRIX INC.
- EduTone Corporation edWeb.net
- eGenio Education Solutions
- Egremont Associates, LLC
- eInstruction
- Empirical Education Inc.
- Enablearning, Inc.
- Engaged Minds Inc.
- Espresso Education
- eThORITY
- EyePower, Inc
- First Analysis Corp.
- Flat World Knowledge, Inc.
- Florida Virtual School- Global Services Division
- Focus EduVation, Inc.
- Focus Marketing
- Follett Corporation - Technology Solutions & International Group
- Footsteps2Brilliance
- FTC Family of Companies
- Full Potential Associates
- Gaggle
- GlobalScholar
- The Golden Company, LLC
- Google, Inc.
- Greaves Group LLC
- HAIKU Learning Systems, Inc.
- Headsprout, Inc.
- Her Interactive
- Highlights For Children
- Houghton Mifflin Harcourt
- I-EDIT
- IBM Corporation
- Imagine K12
- Inkling
- Inspiration Software, Inc.
- Intel Corporation Education Group
- Interactive Educational Systems Design, Inc.
- Intrinsic Strategy
- itslearning, Inc.
- ITWorx Inc.
- JASON Project, National Geographic Society
- Jordan, Edmiston Group, Inc.
- K12 Inc. - Corporate Development
- Kaplan Publishing
- Key Curriculum Press
- Knewton
- Kno Inc.
- Knowledge Delivery Systems, Inc.
- Learning Today
- Learning.com
- Lerner Publishing Group - Electronic Content Division
- Lesson Planet
- LeverEDge
- Lexia Learning Systems, Inc.
- Livescribe Inc. - Education Group
- Loom
- Market Data Retrieval (MDR)
- Marketing Projects, Inc./Big Deal Book

- MathResources, Inc.
- The McGraw-Hill Companies, Inc.
- MCH, Inc.
- Measured Progress
- MetaMetrics, Inc.
- Metria Learning
- Mimi Jett Strategies
- MIND Research Institute
- MMS Education
- Monarch Teaching Technologies
- Moodlerooms, Inc.
- Muzzy Lane, Inc.
- My Learning Plan Inc.
- National Geographic School Publishing
- National Network of Digital Schools Corp. (NNDS)
- NBC Learn
- netTrekker
- New Markets Venture Partners
- Northrop Grumman Educational Assessment Group
- One-to-One Institute
- Oracle Corporation
- PASCO Scientific
- Pat Walkington Education Sales & Marketing
- Paula Maylahn Consulting
- Pearson
- Pegeen Wright Associates
- PolyVision
- Promethean Inc. (USA)
- Red Hat, Inc.
- RedRock Reports
- Renaissance Network, Inc.
- Reviews.com
- Ripple Effects
- RM Education
- Ruppelt Consulting
- SAS Institute Education Group
- Sassafras Software, Inc.
- Scantron Corporation Testing & Assessment Division
- Scholastic Education - Curriculum
- School Improvement Network
- School Specialty Intervention
- Sebit, LLC
- Second Avenue Software
- Seeds Software
- Shore Communications, Inc.
- Six Red Marbles
- Skoodat, LLC
- SMART Technologies ULC
- SMARTHINKING
- SoftChalk LLC
- Sokikom
- Spectrum K12 School Solutions Inc.
- SRI International - Center for Technology in Learning
- StepWare, Inc.
- Taylor Associates Communications, Inc.
- TechERA (Technology for Education Reform and Accountability)
- TechSmith Corporation
- Texas Instruments Education Technology Group
- Texthelp Systems, Inc.
- TextTelevision, Inc.
- Thomson Reuters
- Time to Know
- Triumph Learning
- Turning Technologies - K-12 Division
- Tutor.com
- Twist Education, LLC
- uBoost
- Vernier Software & Technology - Software Division
- Victory Productions Inc.
- Virtual Nerd, LLC
- Vocab Network LLC
- Waterford Institute
- Whizz Education Inc.
- WILL Interactive, Inc.
- Winter Group
- Wireless Generation
- Wowzers