From:	Mark Schneiderman
To:	RaceToTheTop.Assessment
Cc:	Midgley, Steve
Subject:	SIIA Comments to USED proposed RTTA Educational Assessment Technology Standards
Date:	Tuesday, November 08, 2011 2:25:02 PM
Attachments:	SIIAcomments_USED_RTTA_interoperabilityguidanceFinal.pdf

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To Whom It May Concern:

On behalf of the Software & Information Industry Association (SIIA) and our member high-tech companies, I write in response to the United States Department of Education's (USED) proposed draft technology standards priorities for Race to the Top Assessment (RTTA) consortia as provided in the October 17 USED blog post, "Educational Assessment Technology Standards."

SIIA appreciates the opportunity to respond to the USED request for comment on this important issue. Our comments are attached.

We look forward to further opportunities to inform USED and the RTTA consortia on these and related issues. Please do not hesitate to contact me with any further questions or requests.

Sincerely,
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November 4, 2011
Submitted To: RacetotheTop.Assessment@ed.gov
RE: USED Proposed Educational Assessment Technology Standards

To Whom It May Concern:

On behalf of the Software & Information Industry Association (SIIA) and our member high-tech companies, I write in response to the United States Department of Education's (USED) proposed draft technology standards priorities for Race to the Top Assessment (RTTA) consortia as provided in the October 17 USED blog post, "Educational Assessment Technology Standards." SIIA appreciates the opportunity to respond to the USED request for comment on this important issue.

1. Interoperability Tipping Point / Balance Innovation and Standardization

As noted in SIIA's January 17, 2011 response to the USED Assessment Technology Standards Request for Information (RFI) [http://bit.ly/vJo1Qr], SIIA supports the U.S. Department of Education's requirement that RTTA grantees "maximize the interoperability of assessments across technology platforms and the ability for States to switch their assessments from one technology platform to another." SIIA believes the RTTA program has an important opportunity to provide a tipping point in the adoption, and further development, of interoperability standards that can enable the more seamless migration of assessment content and student data and thus help drive continued educational and technological innovation, cost efficiencies and improvements.

The standards must be robust enough to support a modular architecture where third-party applications can be easily mixed and matched to address the many components of the assessment ecosystem, thus enabling flexibility/choice, competition and innovation and best leveraging limited RTTA resources. At the same time, if the standards go too far such as by limiting item type, delivery setting or adaptive algorithms, they could limit innovation in education practice, assessment design and technology. Failure in the first case -- insufficiently robust standards -- may lead local and state education agencies to rely on integrated systems built on proprietary technologies to ensure basic functionalities, which could unfortunately lock out alternatives, upgrades and innovation that raise costs for providers and education agencies. Failure in the second case -- insufficiently constrained scope for standards -- may lead to a premature "freeze" in the definition of assessment itself. There is clearly a challenging balance to be struck between being specific enough to assure interoperability, yet flexible enough to support innovation.

An example of such freeze would be new categories of computer-scored performance tasks, constructed response items, or adaptive algorithms using richer student response data, which are likely to go beyond existing standards and actually drive the evolution of expanded standards. We recommend that such development be permitted outside the consortia adopted standards – but with the goal of bringing them under the aegis of a standards body at the earliest reasonable time as appropriate. In some cases, non-operational placeholders might be included in the RTTA standards, with the particulars to evolve in the mid-term. In many cases, this innovation will happen initially through non-standard extensions or additions.

SIIA encourages that the USED and the consortia make explicitly clear that such extensions are appropriate. Interoperability standards have their limits, and additional function and value can be added to the educational process in "non-standardized" ways without compromising interoperability. In some cases, that extension may take place within a proprietary application, or in other cases in more collaborative situations but outside a more formal standards development process. Key is that these extensions allow for the backward

interoperability so that imported assessment information is not inappropriately locked within a proprietary system and is passed through either untouched or enriched, but not degraded. Other extensions may break off into new standards (organizations) that likely have different agendas, maturities and motivations if they cannot be folded back into the whole.

Further, RTTA interoperability should respect proprietary approaches, code and content, and recognize that open and interoperable technologies can coexist with proprietary technologies in the service of education needs. Technology will change faster than we can standardize around it. If the standards are built in such a way that specific deliverables are required, then they won't drive software or content innovation. Key is to ensure standards enable the use across multiple platforms, such as the way HTML sets up specific tags that the browsers all use, but enables third parties to determine how to use those tags.

As also previously suggested, SIIA recommends that the USED focus its RTTA interoperability policy around those technical standards most specific to the migration of assessments and related student data across applications and platforms. SIIA believes that if these core test/data interoperability standards are effective, the particulars of other more challenging elements should be less of a concern and will be addressed by other dynamics of education demand and technology innovation. For example, standards around delivery platforms or infrastructure standards of data activation and security -- where multiple standards, applications and protocols exist – may require more flexibility to avoid forcing untimely widespread changes in district and state technical infrastructure**.** The further the USED and RTTA consortia get from item and data interoperability, the more complex the considerations and the more flexibility is appropriate. Timeliness is also aided by avoiding over specification.

SIIA believes the USED proposed standards priorities are operating on these similar assumptions. SIIA would encourage the final priorities to better articulate this vision, providing this macro-, ecosystem-level use case to accompany the various micro-level uses cases outlined. The five proposed priorities appear to identify the key standards areas, but SIIA believes there is insufficient detail at this time to make a firm determination of whether they would achieve the innovation goals outlined above.

2. Devil in the Details

As noted just above, the five priority areas identified by USED where interoperability technology standards should be adopted appear to be a necessary – recognizing the challenges noted above such as with activation and security -- but perhaps a not sufficient list. That is unclear. SIIA believes it would be premature to provide definitive SIIA response at this time, due to the lack of definitional details of what would be included within those priority standards areas. SIIA is not suggesting that these standards go too far, nor that they do not go far enough, but only that insufficient information is available regarding the full intent and scope. The use cases for the proposed framework are not sufficiently specified, so we can only guess what they might be. Thus, it is not clear what needs the proposed framework is intended to meet, and what needs it will not meet. Following are several examples:

- The framework appears to call for scoring and test composition to be done by the host engine, with little, if any, metadata surrounding item properties. By contrast, the current state of the art in computer adaptive testing requires that intact tests have known properties, and that they should be scored using algorithms which make use of these properties. Algorithms should not be standardized, since they are a significant part of assessment innovation and competitive differentiation, but items must be packaged with sufficient description data to enable their integration into a third-party test blueprint. In this case, SIIA therefore asks whether the USED intent is for the consortia-adopted interoperability standards to address this important metadata? SIIA would encourage that it does.

- The definition of "Assessment Items" would likely benefit from more detail to assure that implementation supports linking assessment items with academic standards and the curriculum-based

resources that live in other district systems and are necessary to prepare students prior to assessment. The *Assessment Technology Interoperability Request for Information: Summary, Analysis and Observations* well makes the point for Assessment Items and Instruments that: "Packaging also includes standard representations of metadata used for classification and discovery, such as what curricular standards are measured; what activities are used during measurement; what format is used for measurement activity..." However, this definition has not been explicitly brought forward into the final USED proposal for interoperability. The "*link between student scores and relevant content and achievement standards"* is stated in the definition of Assessment Results. Having proper metadata to make this link is necessary at the Assessment Item level as well with Assessment Results. Without this link, Assessment Items cannot be associated with the vast collection of curriculum resources that schools already own and need to leverage.

- The consortia require cross-platform equity and security. This is a complex set of requirements, which must acknowledge that the properties of an assessment change according to the platform used for delivery. Furthermore, the exact nature of the tools and affordances available in a given assessment environment affect the way the assessment works, and what it measures. For example, the capabilities of a calculator provided, and how the calculator can be made visible and accessible, changes the properties of a math assessment in ways which often can improve the validity of the assessment. For cross-platform interoperability to work, the assessments (and items) need to be able to communicate their requirements for the whole assessment environment. This is not an issue which can be deferred, because it materially affects the assessment strategies which the two assessment consortia can consider.

- What, if any, is the intent regarding accessibility of test items and instruments to students with disabilities? The proposed descriptions do not make any mention. Interoperability standards can address some accessibility parameters available with each item or each instrument.

Interoperable and portable assessment items that can be delivered from multiple platforms is very desirable as part of a modular architecture. This must be balanced against the need to support continued innovation in item types. In general, innovative types will require additional assessment engines (to deliver and render items and capture rich student response data), additional adaptive algorithms and additional rules defining how the data are interpreted. We support developing standards so that innovations that prove themselves can be widely deployed, but recommend that the standards at any point in time permit room for deliberate innovation.

Innovation can coexist with standards where a full set of interoperability standards is not yet available, but it is critical that the infrastructure remains stable and that performance data can be reported out in a manner that other systems can interpret. The application may best run in its own environment, but such things as comparing scores to standards, identifying areas for remediation, etc. would be output in a standardized manner.

One question is whether the consortia states are looking to define how the content should be distributed, or if they are really looking for ways to use that content for reporting and analysis. It is therefore necessary for the consortia to further determine their requirements to meet their objectives. In short, the consortia need to drive the interoperability standards based on their requirements.

The core point of these examples is that many details are not included in the proposed standards descriptions, and so SIIA cannot make a definitive judgment on the appropriateness or sufficiency of the proposed priorities. That said, SIIA believes that the proposed priorities provide at least an important foundation upon which further interoperability standards could be added now and in the near-term as innovation is adopted and absorbed by the consortia and their partners. SIIA also recommends diligence to ensure this foundation does not become the roof – lest the house become unlivable in practice in the future. Initial standards are the

starting point and means to an end, and not the end in itself. Continued USED involvement may be helpful to encourage continued advancement.

3. Floor, Not a Ceiling

As noted above, the USED proposed assessment interoperability priorities provide an important starting point, and accomplish several important tasks to advance this ambitious agenda. First, the outline appropriately breaks the complex assessment challenge into smaller pieces built around the most critical use cases. Second, the outline begins to establish a baseline of priorities of which of those needs to address first. Third, the USED proposal recognizes that no one standard covers the entire domain, that multiple standards exist in some areas, and that there are gaps in coverage that must be addressed to meet interoperability needs.

That said, SIIA is concerned that these five priority standards areas may be viewed as a ceiling, rather than a floor, and would encourage that USED guidance make clear that there is expectation that the RTTA consortia would leave room for organic development beyond those minimal standards. For example, it is not clear, per the point above, whether these standards would sufficiently address various key components around formative assessment, as well as around the dynamic generation of assessments from items and test algorithms generated by two or more sources.

The proposed standards framework is an incomplete starting point with a focus only on areas which are most pressing, and core to the primary task of summative assessment. We are concerned, however, that the press to implement technologies for CCSS assessment in 2014 will mean that RFP's for state systems will take the standards emerging from the framework as the sole interoperability requirement. In practice, therefore, the "floor" could become the default "ceiling" for the first-generation state systems. This could have the effect of stifling innovation, especially surrounding future types of assessment for formative or adaptive purposes.

Assessment interoperability is clearly a complex and multi-faceted topic, further complicated in the ground breaking context of the RTTA consortia efforts. Assessments are changing in structure, usage, and form in ways that we do not yet completely understand, including embedded, through course and media-rich performance-based assessments. Today's efforts must create a pathway and leave the door open for additional standards in the near- and mid-term. The RTTA consortia have important opportunities to transition from test publishers to standards bodies which, while not necessarily creating interoperability standards, would include in their mission the description of use cases and the adoption of resulting standards as a requirement for third-party applications to play in their assessment ecosystem.

4. Dynamic Roadmap

Building on the points above, SIIA believes it may be premature to finalize interoperability requirements. The SBAC and PARCC initiatives are just now engaged in detailed internal discussions regarding their architectural design, including priorities and interoperability use cases. While we recognize certain decisions must be made in the near-term to stay on schedule for their initial launch, we would encourage USED to provide some guidance on not just the minimum standards viable today but also on encouraging the consortia to create evolving roadmaps to ensure continued evolution of the standards as computer-based assessment dramatically expands in the coming years. In some cases, the solution may not simply be whether there are, or should be, currently standards for that innovation, but a process guided by the consortia and/or other appropriate entities for that innovation to be submitted to a standardization process as appropriate.

Standards, and standards frameworks, evolve over time. Often, what starts as a proprietary extension gradually gains acceptance and becomes a part of the open standard. The proposed standards framework should encourage its own evolution, and provide a roadmap (or evolutionary vision and direction). Where there are mature standards, they should be adopted. Where standards are desired but do not yet exist to meet core use cases, these should be allowed through extension, perhaps included as a placeholder, and ultimately

standardized when appropriate. The standards process must also be provided sufficient time to clarify use cases, develop workable standards, develop consensus and enable time for adoption.

For example, the current generation of assessment technology assumes that items have only a unitary property (measured by an item characteristic curve for items scored right/wrong), but next-generation formative assessments may need to recover response patterns and multidimensional data from response streams generated in problem-solving environments such as simulations and games. We must consider how assessment fits into the larger teaching and learning life cycle. The point is not to specify an interoperability standards framework for these purposes now, but only to illustrate that premature closure on standards could have the unintended effect of "freezing" innovation at the current state of the art.

It is also critical for industry-specific standards frameworks, such as this, to align with global, Internet-wide interoperability frameworks as well as those specific to education. This will particularly affect issues such as privacy, security and rights management, cross-platform interoperability, communications formats, search, and the like.

We urge USED to carefully consider its role in the processes surrounding development and universal implementation of these standards. We believe that the leadership provided by USED should include developing consensus among all stakeholders on an evolutionary roadmap – not a static framework. The roadmap should create a framework for innovators such as the assessment consortia to drive standards development and adoption which will support implementation of the assessments they are creating. As these standards are then adopted and refined and thus become clear and uniform, sector wide implementation will be realized.

As background, the Software & Information Industry Association (SIIA) is the principal trade association for the software and digital content industry. SIIA's 500 members include some 180 publishers and developers of digital content, software applications, data systems, e-learning and related technologies used in education curriculum, instruction, assessment and classroom/enterprise management. SIIA member companies invest many millions of dollars each year to research, develop and deploy innovative educational technologies. All SIIA members depend on the nation's schools to provide a skilled, high-tech workforce. SIIA and our member companies have long collaborated with educators, policymakers and other stakeholders to improve education through the use of innovative learning technologies.

On behalf of the Software & Information Industry Association (SIIA), we appreciate the opportunity to comment on these important issues. SIIA strongly supports interoperability standards and views the RTTA initiatives as an important potential tipping point for development and adoption. We commend the Obama Administration for its leadership in the areas of computer-enhanced assessment and interoperability. We look forward to ongoing dialogue on these and related issues to ensure both federal policies and RTTA consortia initiatives are appropriately developed and successfully implemented. Please do not hesitate to contact me with any further questions or requests at marks@siia.net or 202-789-4444.

Sincerely,

Mark Schneiderman
Senior Director of Education Policy