



UNIVERSITY OF OREGON

December 17, 2015

Ms. Sharon Leu
U.S. Department of Education
400 Maryland Avenue SW, Room 6W252
Washington DC 20202-5900
Electronic: www.regulations.gov

Reference: Docket ID ED-2015-OS-0105
Subject: Open Licensing Requirement for Direct Grant Programs

Dear Ms. Leu:

Thank you for the opportunity to provide comments on the Open Licensing Requirement for Direct Grant Programs. The University of Oregon is home to one of the nation's most research-intensive colleges of education. We are also one of the most productive universities in the use of researcher engagement and licensing as a form of research extension and commercialization. We are proud of our College of Education's exceptional reputation for conducting cutting-edge research in a number of relevant fields: assessment, school reform, special education, school-wide discipline, behavior management, positive youth development, family interventions, early intervention, and culturally responsive educational practices. This work has an enduring impact in Oregon and across the nation. Our faculty work is in all 196 school districts in Oregon, impacting more than 8 million students annually in more than 20,000 school districts nationally, and in 19 countries. According to recent rankings, our College of Education ranks third overall for faculty productivity in funded research per faculty member in the top fifty schools surveyed. Our work has been at the academic heart of the university almost from its founding with the establishment of the Clinic for Exceptional Children in 1926.

We are acutely aware of the vital role of education partners like the Institute of Education Sciences (IES) in enabling the University of Oregon to contribute to the teaching, learning, evaluation, and assessment practices that improve learning and opportunity for children. The federal government's investment in education research – just as in medicine, energy, and defense – provides the foundation of evidence upon which effective policies, practices, and systems are based. As education researchers, we are gratified that our faculty's work has been supported by external funders to such a great extent and that our faculty have

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served (and continue to serve) on IES review panels in the areas of special education, reading and writing, and social and behavioral context for academic learning.

While we share the U.S. Department of Education's commitment to make research findings widely available and readily accessible to practitioners and applaud the public access programs that all of the federal agencies are implementing to bring academic articles into broader distribution and provide data repositories to encourage the discovery and use of information, we believe this proposed rule (Docket ID ED-2015-OS-0105) is counterproductive to the objective of broad public access shared by the University of Oregon and U.S. Department of Education for the following reasons:

- The proposed rule is overbroad and will have unintended consequences; it will negatively impact our country's most vulnerable populations – lower income students, students with disabilities, and English learners – by opening up products that have not yet been proven to work or be implemented by those who have no training in implementation or interpretation of data collected.
- Researcher engagement and licensing protects the quality and fidelity of research-based applications and can be applied to meet the Department's open access goals.
- Researchers and universities are good stewards for scaling up education innovation while maintaining rigor and relevance. The current IES goal structure provides the right framework for scale up and dissemination of evidence-based applications.

We recommend the U.S. Department of Education adjust proposed rule 2015-27930 to include mechanisms for key stakeholders to incorporate evidence-based methodologies into the rule. Universities, higher education researchers, and our small business edutech communities were surprised by the minimum comment period for a proposed rule that would manage an entire innovation ecosystem based on one formulation of "open". We are unable to identify any scientific evidence suggesting the proposed rule will provide lasting results for the education system or positively impact student learning. Because work created under the rule would be used and modified by anyone, regardless of sufficient training to administer or validate changes made to the works, we worry that the proposed rule will actually undermine the U.S. Department of Education's goals of creating high quality, evidence-based assessments and interventions and making them broadly accessible to school districts serving diverse populations across the nation. As part of the rule making process, the U.S. Department of Education should provide an opportunity for universities and researchers to demonstrate to the public that it can have confidence in their roles as stewards of the works created under federal awards.

We recommend that the IES build upon the existing, successful IES goal structure. As mentioned above, this proposed rule is inconsistent with the IES goal structure for grants, which provides a clear path for public dissemination of evidence-based research

applications. The structure, as currently conceived, ensures that education researchers are developing products and applications that have lasting value. The current goal structure begins with exploratory studies to inform the development of new interventions and assessment tools (goal one) and moves to funding iterative development and pilot testing to document promise of effectiveness (goal two). IES also funds efficacy and replication studies to determine specific benefits of interventions (goal three) and effectiveness trials that support the independent evaluation of fully-developed education interventions to determine whether they produce a beneficial impact on student education outcomes (goal four). We worry the rule as proposed would lead to dissemination and modification of work before it was thoroughly tested, causing inefficiencies from a fiscal standpoint and delays. Past grant performance shows us that considerable improvement is derived from the current goal structure as research findings are applied in practice, refined, and further evaluated prior to broad dissemination.

We have found the field of education to be a unique environment. In this field, researcher engagement through extension programs and licensing is an important tool to effectively foster implementation and ensure fidelity to these research findings through the assessments, interventions, and professional development materials we create. The University of Oregon has implemented a diverse set of programs that address a number of the concerns highlighted in the proposed rule and we provide greater detail on our programs in the appendix.

Fundamentally, we recommend that the U.S. Department of Education take more time working with the education community and stakeholders before proceeding with a rule of this magnitude. We expect the U.S. Department of Education to address the ideas and concerns in this letter (including the appendix) in its response to comments received. We ask that our U.S. Department of Education colleagues also address the following major concerns as part of extending the rule making process:

- How will the structures in the proposed rule ensure the production of quality materials and products that are evidence based and rigorously reviewed for enhancements and corrections?
- How does the proposed rule encourage researcher engagement and protect the fidelity of thoroughly tested and high quality products and applications better than the current rule?
- How does the proposed rule incentivize the development and dissemination of evidence based educational methods and products better than the current IES goal structure?

What follows in our appendix are suggestions for models, focusing on the role of early project management, extension models, and clearinghouses that will achieve the Department's goals more effectively than the structures in the proposed rule. Additionally, we expand on our discussion of concerns that the proposed rule will jeopardize a thriving

research ecosystem that benefits student achievement and the educational system broadly. Lastly, we provide specific answers to the Department's questions.

Again, thank you for this opportunity to comment and please let us know if you have questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Brad Shelton", followed by a long horizontal line extending to the right.

Brad Shelton, Ph.D.
Interim Vice President for Research and Innovation
University of Oregon

A handwritten signature in black ink, appearing to read "Randy Kamphaus".

Randy Kamphaus, Ph.D.
Dean, College of Education
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University of Oregon Appendix

University-led Models to Consider

The dawn of the 21st century brought us two polar extremes in thinking about intellectual property. On one side are the entrepreneurs and investment community positing that the market works best and accelerates innovation when regulations are reduced, intellectual property is highly leveraged to incentivize investment and disruptive innovation is nurtured in startups with a competitive advantage. These companies are acquired or lead the formation of entirely new industries and markets. On the other side are those that are public minded, strive to prevent the closing of the commons, and maintain a playing field where the best innovation is not fenced in behind an IP wall. The power of the many can then be applied to solve our most pressing problems. However, it is important to note that neither model has fulfilled the promises of their prophets. Those who prophesize that innovation will not occur without high IP walls fail to understand the value of Open Innovation, the interconnectedness of things, and that adoption of innovation is rarely linear (See Steven Johnson's "How We Got to Now"). Those who believe only fully open systems can break down the walls, fail to appreciate the necessity of standards, stewardship and the requirement of reinvestment necessary to sustain certain types of systems. Additionally, it has become increasingly the norm that large corporations who compete on different terms than through leveraged intellectual property positions, ally with the public minded, because more open systems allow them to maintain their market share, high profit margins, and use their other advantages (supply chain, financial resources, adjacent capabilities) to close out a market or control the open community's efforts through short-term commitments to projects.

We support the U.S. Department of Education thinking critically about access to the innovation emanating from its competitive award programs and that the proposed rule represents a call to action. There has not been enough thought and discourse in the research community about how we build on the foundations created under these awards to bring evidence-based thinking to our curricula, assessments, interventions, and other tools. As change sweeps through the traditional publisher and distribution model, we need to form partnerships, explore models, and adapt our systems to accelerate education innovation. In that context, moving to only one form of copyright management will likely alienate authors and developers who have vision and long-term commitments to evidence-based research. It certainly will disrupt a number of the current models that, although not fully optimal, may not be replaced without significant new investment by the federal government.

There are some excellent models of university-led programs that are breaking down the traditional publisher model. These include the University of Chicago's Urban Education Institute and its partner, UChicago Impact, the Dana Center at University of Texas and its partner, Agile Mind, Inc., and efforts we are making here at the University of Oregon

whether in positive behavior support (pbis.org), assessment (easyCBM.com) or digital and print interventions (ctl.uoregon.edu). All demonstrate critical features of an effective solution by:

- 1) Building incentive to create and distribute curricula, assessments interventions and web tools under typical conditions;
- 2) Increasing the speed by which high quality evidence-based works are made available;
- 3) Keeping costs to a minimum; and
- 4) Allowing programs to recover costs and reinvest in improving the tools.

We recommend that the Department of Education explore these models to understand how these programs successfully deploy curricula, assessments, interventions and other tools. We believe that the proposed rule would fundamentally challenge these practices and derail other efforts to address the changing education model. We are constantly amazed by the depth of commitment and diversity in thinking that the education research community is bringing to a rapidly evolving innovation ecosystem, and would welcome sharing our thoughts with the U.S. Department of Education and our research colleagues at other institutions to improve the field and maximize the positive impact from works generated at our institutions.

The What Works Clearinghouse (WWC) in the Institute of Education Sciences (IES) is another excellent example of where we should continue to build our capacity to identify programs that work and deploy them in education. For nearly a decade, the WWC has been a central and trusted source of scientific evidence for what works to improve student outcomes. We need government to make a greater investment in this type of resource rather than experiment entirely in community-based project development. Regardless of what licensing models we use, none will be successful without a reliable system for discerning effectiveness. Research institutions could make good partners in expanding clearinghouse programs and we have already taken steps in that direction for a number of our programs in our Center on Teaching and Learning (CTL) such as the CTL Marketplace and the Learning Arcade.

We must also consider the real risk that disparate corporate interests may misuse the open model. There is evidence that this is a possible outcome. When Sun broadly licensed Java to the developer community to promote the adoption of cross platform coding, Microsoft tried to exploit the program and began distributing and implementing versions of Java that were incompatible with the main Java distribution, causing significant consumer confusion. Microsoft stopped only after several years of high cost litigation with Sun.

We should use WWC's own principles to assess whether proposed innovation models work. From decades of experience, we know our extension-based programs are successful when evidence-based works are deployed and sustained. We also know open intellectual property models work well only in arenas where a high rate of failure is not a problem,

long-term subsidies align among committed partners, and where major new innovations are not in play. Our classrooms do not fit this model.

Open source is about experimentation and that can be very powerful. What open source does not provide is a consistent ability to create hubs of activity based on research investments in fields where fidelity is critical. Much of our work in education is closer to agricultural extension, where a number of models of dissemination, quality control and utilization create an optimal system. Open source communities are just as dependent on relationships as any other innovation management structure. A combination of expertise, delivery, and support in the field is essential to knowledge exchange (at least two-way exchange if not more) and technology uptake. The proposed rule does not provide any proven models where relevant innovation, dissemination, and professional development hubs for education will reside and be adequately resourced. We should think more critically about how to use the Comprehensive Centers and other U.S. Department of Education funded resources in partnership with research institutions to anchor distribution and training activity, thus ensuring quality control. Leaving extension-based activities in the hands of the private sector is unlikely to either save money or engender the level of coordination to effect change in our education system.

Successful Extension Programs Drive Adoption

Most of what we do under U.S. Department of Education awards is already provided in an open environment. U.S. Department of Education projects are typically multi-institutional and highly collaborative. We are unaware of any barriers to knowledge sharing and development in this regard and unable to ascertain from the proposed rule what documented need the U.S. Department of Education is specifically looking to address.

The most challenging part of the proposed rule is the blanket requirement that all materials be available for modification. If we are required to provide open access to newly developed curricula or assessment tools, and these tools are available for modification, educational researchers will not be able to carefully test the effectiveness of these interventions. For example, a researcher might develop a math intervention for 4th graders through an IES Goal 2 Development and Innovation grant. They would have three years to iteratively develop the intervention and collect usability, feasibility, and pilot data. When the grant concluded they would use the pilot data to secure a Goal 3 Efficacy grant. If the intervention is made available through open access BEFORE the researchers are able to test the efficacy of the program it becomes more difficult for researchers to find sites that are not using the materials to participate. ***Put simply, this regulation will disrupt our ability to conduct research designed to improve educational outcomes.*** We urge the U.S. Department of Education to assess the negative impact of this proposed rule on the efficacy, replication and effectiveness studies currently funded by IES. It is also vitally important for many projects that the work, once validated continue to be curated and managed to ensure appropriate use, and where they form the basis of an extensive

extension-based activity, that we retain the ability to obtain and use data to inform our research and development.

Below we provide a few illustrative examples of the many open materials made available by University of Oregon researchers to demonstrate the wide availability of works created under U.S. Department of Education funding and follow with examples of how blanket modification would negatively impact the public for these projects.

Education and Community Supports (ECS)

Since 1997, the U.S. Department of Education has funded a national technical assistance center on Positive Behavioral Interventions and Supports. That Center now works with over 21,000 schools throughout the U.S. who are implementing PBIS. Supported by federal grants, we have developed materials for building positive behavior support in schools, materials for training school, district and state personnel to implement PBIS, and measurement tools for both evaluating implementation of PBIS, and assessing office discipline referral rates. These include:

1. Training materials for building school-wide behavior support are available at www.pbis.org at no cost.
2. Data systems for assessing and monitoring fidelity of PBIS implementation are available at no cost to users at www.pbisassessment.org.
3. Manuals for bully prevention, functional behavioral assessment, and classroom management are available at no cost at www.pbis.org.
4. The School-wide Information System (SWIS) is a suite of computer applications used to monitor office discipline referrals, and use the data for on-going decision-making. Schools can purchase access to this secure application at a fee of \$350 per year (well below any commercial alternative).

Localized modification of many of the PBIS materials is encouraged, but creating multiple new distribution nodes would confuse educators. These materials were developed by a multi-institutional research team that highly values extension and implementation such that an entire system was developed to provide schools the tools to understand and manage their discipline environment and then critically assess progress and future steps needed to fully implement positive behavior support. This extension activity is anchored by the SWIS platform, which is available at a nominal price that covers the cost of providing the service and training and allows the research group to obtain longitudinal data to continue refining this behavioral model based on the evidence. A formal open licensing model would seriously challenge what is a high performing and, for the most part, informal network of relationships at scale. Introducing uncertainty in this environment would result in new barriers to utilization that the existing system, through its researcher-led discretion, allows to evolve as needed to optimize implementation.

Center on Teaching and Learning (CTL)

The **Dynamic Indicators of Basic Early Literacy Skills (DIBELS)** are a set of measures and procedures for assessing the acquisition of early literacy skills from kindergarten through sixth grade. DIBELS and the Spanish equivalent, IDEL, are freely available from CTL's website. Millions of students are assessed annually using these tools.

As a research extension program, CTL also provides interested schools access to a data system to manage literacy and numeracy assessments at a cost of \$1 per student, which is well under the commercial rate (other vendors charge as much as \$14 per student) and not unsurprisingly, many of CTL's users are rural school districts. CTL provides expertise and thousands of free resources on the interpretation of DIBELS, professional development materials and the ability to share data up through the state level. Many of these users are also CTL research partners allowing CTL to engage in new and exciting research projects with significant participation by rural and economically disadvantaged communities.

The network created by this extension activity is critical to creating longitudinal datasets that inform future research and CTL serves an important role in the innovation system as a trusted steward helping assess students, manage the data, interpret the findings, and plan strategy. An open licensing environment puts these relationships and the capacity to conduct large follow-on studies at risk because it would increase instances of poorly researched implementations that then fail to deliver results. An example of this complexity can be found in a recent CTL presentation at:

<https://dibels.uoregon.edu/docs/training/dds-webinar1-presentation.pdf>. CTL ultimately created a new set of goals to help put the program back on track to better serve students.

Over the last 10 years, CTL has secured approximately \$45 million dollars in research and development funds through IES. They have developed over a dozen early intervention and prevention programs focused squarely on pressing needs that schools face on a daily basis with their most struggling learners – important subgroups of students that large publishing firms are not necessarily focusing on in any substantive way (English Learners, students with or at risk for learning disabilities, etc.). They have developed a range of programs in early literacy, early mathematics, science literacy, oral language and middle school mathematics. Through rigorous studies they have documented the efficacy of these programs and have conducted replication trials across grade levels, content areas, with diverse samples of students and settings (Portland OR; Boston, MA; Fairfax County, VA; Dallas, TX).

CTL has begun to disseminate these efficacious programs through their data system distribution channel and offer these programs well below market value - at a tenth of the cost if users had purchased a similar program through a commercial publisher. In addition, CTL delivers many interventions free of charge to states, districts and schools in exchange for a modest amount of student data to continuously evaluate the effectiveness of these evidence-based programs. For example, CTL is currently working with the Governor and

the Commissioner of Education of the U.S. Virgin Islands. The Governor has made the goal of all children reading proficiently by the end of third grade a major part of his platform. Up to this point in time, they have been implementing reading programs in the early grades that have no evidence of improving student reading outcomes and they pay millions of dollars to a commercial vendor for access to the online reading programs. Recent data from Smarter Balanced Assessments indicate that 12% of 3rd graders are currently reading at grade level. Beginning in February 2016, CTL will offer a comprehensive Tier 1 and Tier 2 literacy program (ECRI Reading) to improve reading scores to every Kindergarten through 3rd grade teacher across each of the islands. The ECRI program, developed and tested with IES funds, has been subjected to numerous efficacy and replication trials and has improved at risk students decoding and fluency skills. ECRI also systematically closed the achievement gap on standardized reading achievement tests. CTL will provide open access for the entire ECRI reading program to the U.S. Virgin Islands. In exchange, they will provide ongoing data to CTL to work collaboratively to examine if ECRI is having the desired effects across the schools and culturally adapt the learning materials, if warranted.

Across the range of intervention studies that CTL has conducted, the major factors related to improving student outcomes have been associated with implementation fidelity and quality. The degree to which teachers use the lesson materials as intended, do not modify components of the lesson, and deliver the programs with high quality implementation have distinguished teachers that have strong student outcomes from teachers that have not implemented the programs with fidelity and, as a result, lower student outcomes. As CTL begins to disseminate their evidence-based intervention programs, they are also providing online resources for schools to adopt and implement the range of interventions with fidelity. They provide extensive resources and supports for schools to increase the odds that teachers can successfully deliver the programs and tools to reading and math coaches to measure implementation fidelity and quality and engage in sophisticated data-based decision making with student performance and implementation data sources. For example, CTL is working with several large districts in Oregon to implement early literacy interventions developed and rigorously tested through IES funding. We are providing these districts with free DIBELS data system services to screen students in to the intervention and monitor the progress in response to the interventions. CTL is also providing implementation data reporting services so that literacy coaches can collect implementation fidelity data for the coach to provide ongoing, formative support to teachers to improve the implantation of the literacy programs.

Making these programs available for anyone to modify would severely and negatively affect our ability to maintain implementation quality control and to support the broad range of schools that are interested in delivering our evidence-based programs that are developed through IES funding. In contrast, allowing CTL to “manage” the IP for these programs and to make iterative modifications and improvements to the program through data-based incremental improvements would go a long way to scaling evidence-based programs and practices.

Behavioral Research and Teaching (BRT)

In 2006, the Office of Special Education Programs (OSEP) funded the University of Oregon, Behavioral Research and Teaching (BRT) to develop a progress monitoring system for use in a response to intervention (RTI). Over the course of two years, the researchers at BRT developed an assessment system with great care so that it was technically adequate using the Standards for Educational and Psychological Tests (American Educational Research Association, American Psychological Association, & National Council on Measurement in Education, 2014). Upon completion, this system was released as part of the original grant purpose to train teachers in supporting students with disabilities who need specialized services (individualized through strategic and intensive instruction). The project process and outcomes were published and widely disseminated through three chapters of a book dedicated to all funded projects in this competition (See Alonzo and Tindal (2011), Curtis, Sullivan, Alonzo, and Tindal (2011), (Liu, Alonzo, & Tindal, 2011). Scores of research articles also have been published acknowledging OSEP as the source of funding for all research conducted on this system as well as all enhancements made to the software with IES funds.

Upon completion of the project in 2008, the software (easyCBM.com) was distributed for free throughout the country. As of 2015, approximately 400,000 teachers had registered for the system to serve several million students with approximately 400 new registrants every day. The system is made available for free and continues under the stewardship of the research and development unit, BRT. Following the original competition that funded development of the system, we applied for and received government funds from competitive grant competitions to enhance the measures, again allowing teachers free access. Data that we obtain from this extension activity is critical in our formulating enhancements and imagining new functionality for progress monitoring. We have examined an open source model several times in the evolution of this project. Each time however, we were unable to identify an extension model that was sustainable as the annual costs to support the platform are in the hundreds of thousands of dollars and the work must be completed on a tight schedule to meet the needs of our teachers and schools.

With approximately eight years of distribution of easyCBM to teachers throughout the country, our research on this system points to three enhancements that would very likely improve student monitoring and instructional decision-making: (a) measurement sufficiency (choosing the most sensitive measures for monitoring skill development), (b) instructional decision-making (an easier interface for teachers to log in and share their instructional programs), and (c) prompts to change instructional programs in a timely manner. We are poised to conduct research on these three elements of the program. This is best done by first building the code to complement our current system and then by using a randomized control trial for understanding the effect size from each of these enhancements. If BRT developed the code and through an open source allowed it to be built into any other privately marketed system similar to easyCBM such as Pearson's AimsWEB or Renaissance's STAR, the market would move to an uneven landscape for conducting

appropriate studies. Indeed, the very question of effect size for this kind of experimentation would likely fall out of favor and turn toward simple universal availability. However, by maintaining the license with the University of Oregon, such development and research will not only benefit the field but also the science of education. ***Rather than develop programs and then determine their effectiveness, we propose conducting research on effectiveness and then developing programs.***

Center for Equity Promotion (CEQP)

The social/behavioral interventions we develop and disseminate to very vulnerable communities and populations in the U.S. and abroad require a very precise training approach, careful fidelity monitoring, regular supervision, etc. CEQP frequently works to make curricular materials freely available, but has to safeguard access to ensure uptake of the training and supervision model. For example, CEQP is developing the *Escuelas y Familias: Somos Juntos* (Schools and Families: We're Together) program under an IES award to support school success for Latino middle school students. It will have three primary components. The first component is based on an existing intervention, *Nuestras Familias* (NF) that will be adapted to include more school-relevant content. The NF program includes 13 weekly sessions for Latino parents and has been fully developed, manualized, and tested in previous efficacy studies. It uses instruction, discussion, modeling, role playing, and home practice to enhance parenting skills in academic engagement, encouragement, homework involvement, monitoring, discipline, and problem solving. The program is infused with elements intended to address cultural experiences and strengths of Latino families. The second component is a two-part school component: a workshop for all school personnel to introduce fundamental tenets of the parent program; and training for teachers to increase awareness of Latino culture and barriers to school success for Latino students. The final component is training to help Latino parents and school staff work together to support Latino students in school. The second and third components will be partly based on a model entitled *Miles de Manos* that has been developed and implemented in Central America. These new components will also be informed by behavioral support and restorative discipline approaches to encourage positive teacher-student and peer relationships within schools. Implementation requires a precise training approach and much like with a new pharmaceutical, giving access to medicine without monitoring dosage, titration, routes of administration, competency of delivery, etc. not only can lower efficacy but can actually cause harm. The proposed rule will allow this work to be used by anyone, regardless if they have received the vital training.

Northwest Indian Language Institute (NILI)

NILI supports and strengthens language preservation and revitalization efforts for Native Americans in the Pacific Northwest. With tribal, academic and community partners, NILI establishes collaborative, on-going projects, which meet the specific needs and desires of each language community. Integral to NILI are teacher training, curriculum development,

language documentation and appropriate uses in technology. Tribal governments have been deeply concerned with intellectual property rights for many projects we have worked on with them, and will likely oppose allowing the modification and reuse of their language and other artifacts. For many tribes, these works are sacred and are not intended for general distribution and modification. We have been unable to contract with any tribe over the last two years where we were not able to agree to respect their discretion to modify and distribute their works. The open licensing rule would cut out many of our most at risk populations of Native Americans from receiving the benefit of U.S. Department of Education research funding.

Grant-Created Materials Are Not All Products

We are deeply concerned that proposed rule mischaracterizes the vast majority of works created under grants as “products”. This is misleading and could drive innovation policy in the wrong direction. The U.S. Department of Education contends that “relatively few grantees develop and market copyrighted content paid for with Department funds.” Most of the materials created are not products in the sense that they are stand-alone, on-the-shelf materials ready for the education market and use in schools. What typically exists are early research class objects that are announced through peer-reviewed publications. Significant follow up work is required either to finalize the work for distribution/access or to conduct the efficacy trials necessary to support validation of the work. In fact, many platforms/works represent the culmination of a decade or more of successive grants to a dedicated group of researchers with a very long-term vision. As noted in the introduction to this appendix, the IES goal structure ensures that interventions will be backed by evidence and testing. At the University of Oregon, we have found that it can take twelve to fifteen years to get an application fully ready for dissemination with confidence in the rigor and efficacy of the application.

The majority of our works might be better described as “prescriptions” or “services” that require a hybrid extension model to be effective. We recommend that the Department of Education step back and define “product” in order for the research community to have clarity on what the Department is trying to address. Just as an invention should be determined by the inventor to be “patentable” for disclosure and prosecution under federal awards, the researcher/author should determine when a particular work is ready to be deemed a “product” and of merit to be distributed and in what form, to accelerate adoption and proper implementation. We are deeply concerned that the proposed rule will disrupt the highly productive long-term research model as we have found that many works that reach the stage of deployment are the result of several grant awards and if a research team was unable to conduct its work over what might be a decade of effort, these evidence-based works would simply never be created. The Department’s proposed rule does not address the need for sustained, long-term development efforts.

Mitigating the Risks of Commercialization

The U.S. Department of Education also alludes to instances where the public has been harmed because works that it funded turned out to be only commercially available. We agree that this is not a desirable result. Most of the major U.S. universities have committed to preserving rights for other universities and non-profits to conduct research that uses patented technologies. That commitment should be extended to copyright based works as well (See Nine Points to Consider at <http://www.autm.net/advocacy-topics/government-issues/principles-and-guidelines/nine-points-to-consider-when-licensing-university/>). The U.S. Department of Education also should consider encouraging universities to create non-exclusive licensing programs where possible and creating hubs for licensing and supporting evidence-based works where deemed effective as extension models. This would allow universities to continue to grow their education extension activities as well as partner with other entities on a non-exclusive basis to enable due diligence and quality control consistent with the U.S. Department of Education's desire to see more high quality materials available. CTL has already started down this path by offering evidence-based works from other universities and non-profits as well as providing its materials to multiple partners to broaden their distribution. CTL is also testing a variety of works which we anticipate making available through a Learning Arcade. Other universities with centers of excellence have similar opportunities to interact with the edutech community. It is important to remember that for many of our activities, licenses are only part of a much larger relationship, rather than simply an automated download from a website.

The U.S. Department of Education indicates that a grantee could apply to the Secretary for an exception to the open licensing requirement. We are very concerned that this process is not detailed in the rule for comment as it is substantial and will have costs associated with compliance. To put forward this proposed rule without making the exception process clear seems irresponsible. As this rule will likely be put into effect at the end of the Obama Administration, if there is no exception process in place that has not only the benefit of public comment but fulfilled the requirement to have a public comment because of the substantive nature of the process, it is unlikely that the next Administration will put forward a process on an expedited timeline due to the nature of presidential transitions and priorities. Given the substantive nature of the process, a public comment process is required for the successful implementation of an exception process. The Department needs to ensure there is an exception process that is not slow and is resourced to the extent necessary to manage the requests made, particularly in the first years after the proposed rule goes into effect. There also needs to be clarity about what would need to be demonstrated to receive an exemption. A more balanced response would be to set the default expectation as non-exclusive licensing by the grantee (allowing for a choice of licensing models) and a process by which grantees could apply or qualify for an exemption to license exclusively on a commercial basis provided that the grantee met specific conditions. These might include investment minimums, adoption in certain target areas, and adherence to evidence based requirements. The university community understands

this type of system in the patent context already and it allows for universities to serve in arguably their best societal role; as hubs for innovation, exchange and extension.

Another alternative would be for the Department to build open license requirements into individual grant competitions as appropriate. The Department makes several arguments for why open licensing should be required. As stated in the NPRM, “this access would accelerate innovation and improve quality in education by enabling others to test and build upon Department-funded work and by stimulating a market of derivative works. In addition, access to technology and high-quality materials would promote equity and especially benefit resource-poor stakeholders.” We support the underlying sentiment that resource-poor stakeholders should have access to the same proven interventions and strategies that others do. However, the Department’s use of the term “high-quality” can be at odds with the first sentiment of allowing others to build upon work started by another. Fully open license would mean that products that may be in the infant stages of development, may not be fully tested to work, or may even be proven not to work, would be opened up to the general public to use. This could mean resource-poor stakeholders are then using products that could ultimately cause more harm than good. Instead of just making a blanket requirement that all products of discretionary grants must be made openly available, we suggest that the Department assess each product as a part of individual grant competitions. Applicants could potentially receive more points in a grant competition if they propose to make their products openly available. Or the Department could decide that all applicants in a single competition must make some or all of their products available.

However, the critical component to this proposed suggestion is that the Department have reviewers available who are qualified to make the determination of what *should be* an open resource. This process could be modeled off of the work the Department is currently doing by incorporating evidence into grant competitions but relying on the expertise of IES to determine if this is done appropriately by applicants and grantees. This would allow for open licensing but in ways that are responsible and that don’t ultimately cause harm to the populations most in need of high-quality products that are proven to work. The open license could then also be paired with certain training requirements. We should not make our low-income students, students with disabilities, and English learners a testing ground for greedy developers.

Costs Associated with Implementation of Current Proposed Rule

In the background section of the proposed rule, the U.S. Department of Education claims that there will be no significant costs to awardees. This statement is incorrect. Given the early stage of work conducted under most grants, researchers do not conduct an extensive inventory of the background and other third party works that may be included in their research and their dependencies. Researchers rely on fair use defenses frequently and often get limited permission for use of materials in the research environment. It is just as

expensive to manage a completely open project as it is to manage a proprietary project and most research projects are not prepared for either model without significant assistance from the university's research office. The Department will need to provide additional dollars for grantees to obtain licenses from third parties that will allow their works to be distributed under the proposed Department open license. If unable to acquire sufficient permissions, the Department will need to be prepared to provide funds to create substitute works. Many researchers cannot afford to conduct all of the IP rights preparation prior to applying for a grant because of the uncertainty associated with grant funding, the large number of proposals they are working on, as well as the lack of any discretionary funds to obtain rights at such a speculative point in the grant seeking process.

It is clear that most individual authors have suffered from a lack of bargaining power in the publishing industry. We have been actively working to change this in the field of education, and copyrights are one of the tools we are using to move these projects forward. By bundling rights at the start of a project, we are able to put research versions into use as part of the validation process; all under the stewardship of the researchers. This promises to provide direct low cost access to educational districts and schools while allowing follow up on research access to improve and build on that work. This is a creative and promising response to the status quo, but what we have found is that it takes significant time and financial resources to take these original research funded works from the research environment into the classroom. For example, CTL worked for the last three years to bring its reading and math interventions from research versions to distributable versions. It turns out that the cost to bring these works up to distribution level was about \$220,000 per work. These expenditures covered staff time for the team of curriculum developers to make final revisions, staff time for final copyediting and formatting, including final tech transfer planning (e.g., front matter). The average staff time across these 3 years was approximately 3.0 full time staff members representing several professionals (e.g., curriculum team, editors). In total, CTL invested more than \$1,000,000 over and above the original U.S. Department of Education funding to bring these works directly to schools. While many schools are taking advantage of our licensing interventions directly to them as digital works, we have also found that many districts interested in our interventions are not able to print these works on their own and need more than a digital solution. We are actively working toward finding affordable printing solutions for these districts as well. The U.S. Department of Education must seriously consider these challenges when assessing whether an open source community will be able to develop open works sufficiently and arrange for affordable print versions.

Our extension models not only manage the quality control issue (the need for high quality evidence based materials) but also provide platforms to multiple providers, thus promoting standards where possible and expanding the reach of materials developed under U.S. Department of Education awards. In contrast, industry has no mandate to license through any other channels other than their own. They can decline to partner with other for-profits or universities at their discretion. They can also abandon projects in

midstream resulting in unfinished works without the resources and commitment to get to the finish line.

If the U.S. Department of Education truly desires to create a competitive playing field, it should consider requiring downstream developers of its funded works to also license non-exclusively on a reasonable and non-discriminatory basis. Under the proposed rule, the Department and researchers' control over quality and broad access will be lost immediately in the commercial marketplace. Creating a licensing mechanism to manage quality control and access is vital if the U.S. Department of Education wishes to bring materials to educators at a low price because simply cutting out the authors represents a very minor cost savings. Only 5-10% of the cost of materials is due to author royalties, so clearly disenfranchising the authors alone will not create a significant cost savings. Publishers represent the majority of costs in the stack. For those educators that have the time and can go to the Learning Registry, they may save on building a work from scratch, but the total cost of time and talent to bring that work up to a distributable version may actually be a wash or net loss when you factor in the costs of integrating, validating, and distributing the final work.

Encouraging Private/Public Partnerships

The University of Oregon has a rich history of partnering with local and regional small companies on U.S. Department of Education grants. The proposed rule will break existing relationships that are important not only for the innovation they generate but local and regional economic development. The proposed rule doesn't work for materials that come from non-U.S. Department of Education funded work--essentially it isolates U.S. Department of Education work from the rest of the world. We are engaged in numerous partnerships in edutech that are changing the face of education. The private companies creating digital learning games, better monitoring systems, and other education tools as part of these public/private partnerships are going to walk away from federal funding from the U.S. Department of Education if all of their works must go open. We have discussed this issue with a number of leading venture capital firms as well as the companies we have partnered with over the last decade, and every single entity has indicated that if the proposed rule is brought online, they will turn their attention and resources elsewhere.

We frequently work with our private company partners on a number of projects funded by different federal agencies over time. These include NSF, NASA, Department of Defense, and others. We have also had several SBIR and STTR projects launch local companies in the edutech space including Thought Cycle, Cognitopia, Hop Skip, and Life Technologies. Several local small companies are consistently subawardees on our federal grants (Concentric Sky, Emberex, IRIS Media) or are prime recipients of awards. We depend on tools developed by third parties all the time, whether these are proprietary or offered in a particular open source form. Most of the licenses to these tools are incompatible with the CC-Attribution license proposed by the U.S. Department of Education. While some

companies may be willing to undertake work for hire as a vendor relationship, we have found that collaborations with our private partners result in higher quality and new innovations than those provided by vendors.

Finally, our Regional Accelerator and Innovation Network (RAIN), largely funded by the State of Oregon, has invested considerable time and money in our startup ecosystem. Edutech is a vital sector cluster in our region that supports higher than average wage jobs and a focus of our entrepreneurial community in keeping with the White House's innovation agenda. The proposed rule appears to be at odds with the other major White House initiatives supporting innovation and economic development. These are traded sector opportunities where the U.S. has developed some competitive advantages in the edutech sector. Hamstringing education researchers by limiting the tools they can build their work on (i.e. libraries, video gaming engines, AI, voice recognition) and the partnerships they need to develop will decrease innovation rather than stimulate the development of disruptive solutions in education.

Responses to Specific Department of Education Questions

The University of Oregon would also like to address the specific questions posed by the U.S. Department of Education. Our responses directly follow each question.

- Should the Department require that copyrightable works be openly licensed prior to the end of the grant period as opposed to after the grant period is over? If yes, what impact would this have on the quality of the final product?

No. Research materials are works in progress that in most cases are not ready for adoption by schools even after the grant is completed. The vast majority of universities have no systems to conduct an intellectual property inventory and clear rights to materials that were used based on legitimate fair use defenses or other limited permissions that may not allow for further distribution or use for proof of concept materials or reference implementation code. Premature distribution would expose universities to significant potential liability and as articulated elsewhere in our response, make evidence based follow-on research nearly impossible.

The vast majority of our funded projects are iterative and require multiple grant funding periods. Open licensing before the end of the grant period and more importantly, before a project is truly completed risks distributing incomplete works. This would be detrimental for developmental grants where pilot projects are being tested. In this case materials would be made available for "projects that show promise" versus products that have been demonstrated to work. IES funds may be used to develop tools that are promising, but then when the tools are tested further in the scientific community, they do not work. If these were open licensed immediately, not only is it possible that the tool is ineffective, it is

potentially dangerous as we could release inappropriate diagnostic tools that would inaccurately classify children regarding social-behavioral and academic benchmarks.

- Should the Department include a requirement that grantees distribute copyrightable works created under a direct competitive grant program? If yes, what suggestions do you have on how the Department should implement such a requirement?

No. Federal grants rarely provide any funding for distribution efforts following award completion. Universities operate with lean staffing that is unable to guarantee maintenance and availability of works once a research project has shut down. We suggest the U.S. Department of Education support a resource for these materials to be available but through a portal that values and encourages pluralism. Examples of these platforms in tech transfer include Flintbox and IBridge. IES might create a new goal that would exclusively provide funding and training for researchers on how to make materials available to the public. Legal training on copyright would be an important part of any training program.

- What further activities would increase public knowledge about the materials and resources that are created using the Department's grant funds and broaden their dissemination?

University of Oregon is creating a hub for distribution of evidence based works and professional development materials through its Center on Teaching and Learning. Several universities plan to make their evidence-based works available through our portal. Product development takes time that generally spans multiple grant periods and it also takes time to develop a relationship with LEAs, state and local agencies and the public itself to make product reception successful. Timing of introductions is key to effectively increase public awareness of products rather than continuous announcements. Without education and time, products will be ineffectively developed, ineffectively marketed, and ineffectively utilized.

- What technical assistance should the Department provide to grantees to promote broad dissemination of their grant-funded intellectual property?

The Department should consider expanding the roles of the Comprehensive Centers and Content Centers to engage with universities in distributing and supporting high quality education materials. These could form a strong network where works could be screened in cooperation with WWC and successful distributions could be cross-licensed or members could participate at various levels in “research commons” that are aligned with excellence and interest. Governance structures might vary from the informal to formal but would be directed toward active stewardship and engagement with practitioners. Funding dissemination grants would be needed to help researchers learn how to disseminate in

effective ways. These would also need to include funds for technical support.

- What experiences do you have implementing requirements of open licensing policy with other Federal agencies? Please share your experiences with these different approaches, including lessons learned and recommendations that might be related to this document.

We have significant experience working with many agencies and all forms of open licensing programs. Several key “source available” licensing programs that fueled the bioinformatics revolution made source code available at no charge for all projects (including commercial) that made data available to the public. The share-share alike equivalent in this system was the data. This form of open licensing spurred startup formation, widespread use of the tools, and returned resources to the research group to support and further develop the tools for over a decade. We also pioneered the first “Research Commons” in proteomics, resulting in the rapid adoption of proteomics tools in a community based system that managed code versioning and through extension activities, re-educated the biotech private sector after it had lost most of its research capacity after extensive downsizing and mergers. Several startups also resulted and quality control was maintained through active management of code versioning. We also have experience working with open licensing as part of the Intel lablets, the Sony NORI lab, and the BSD licensing community (supercomputing software tuning through our TAU software tools program and spinout ParaTools). These open projects use copyright to maintain quality control and for the most part reinvest the resources returned from licensing or extension, back into the research and development programs rather than providing personal royalties.

Our researchers have significant experience teaming up with state agencies to provide materials at no cost to Oregon schools and districts. However, these collaborations have been successful because the materials were tested in partnership with the state, districts and schools and we have worked with these agencies for many years to demonstrate our responsible management of data and development of materials. This process required not only funds and human capital, but also a team of contracting experts to manage the intellectual property, FERPA and other concerns of the agencies.