THE TEACH ACT AND THE MPEG RIGHTS EXPRESSION LANGUAGE

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1 INTRODUCTION

U.S. Copyright law allows instructors to play copyrighted films or perform copyrighted works in classrooms. The newly passed Technology, Education and Copyright Harmonization Act (the TEACH Act) enables educational institutions to do the same as part of an online class.

The TEACH Act represents a hard-won compromise between accredited educational institutions who want more latitude in using copyrighted material for online education, and multimedia content producers who wish to protect their intellectual property and business models. Unlike the Fair Use doctrine (which still applies and can be used independently of the TEACH Act), the TEACH Act is relatively narrow in its scope and sets out very specific responsibilities for managing content and safeguarding it from unauthorized use. In doing so, it may also open the door to potential liability if copyrighted works are displayed or performed online without those responsibilities being properly fulfilled. The act also raises many other issues that educational institutions must inevitably face as they move towards ever more extensive and complex uses of digital educational content.

To take advantage of the expanded exemptions in the TEACH Act, educational institutions must establish rights management policies and procedures and implement technology that supports them. This will require both organizational and technological changes. Some changes are specified by the TEACH Act but others will come about because intellectual property management goes hand-in-hand with more centralized and more sophisticated approaches to content management and content delivery. This has significant implications not only for educational institutions but also for the developers of authoring tools, course management systems and content management systems.

This white paper explains how existing technologies and emerging digital rights standards can be applied to meet the requirements of the TEACH Act. Although many requirements can be met by existing technology or by "low tech" means, standardization is crucial. Rights must be expressed and re-expressed multiple times as educational content is created, acquired, stored, distributed, and eventually used by instructors and students. This involves diverse sets of technologies and content formats. The need for interoperability demands a standardized approach to expressing digital rights. This white paper describes how this can be achieved using the "rights expression language" being developed as an international standard by the Moving Pictures Expert Group (MPEG).

2 THE TEACH ACT

The Technology, Education and Copyright Harmonization Act of 2002, known as the TEACH Act (U.S. Copyright Office, 2002), was signed into law in November, 2002. The Act revises several important limitations imposed by the Copyright Act of 1976 with respect to use of copyrighted works in not-for-profit educational settings.

2.1 Background

The Copyright Act of 1976 establishes broad prohibitions against the copying of copyrighted works. Within this act are several exemptions to these prohibitions. The most widely known is the Fair Use exemption established in Section 107. The doctrine of Fair Use allows copyrighted work to be copied "for purposes such as criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship, or research" and sets out the factors to consider when determining if a use is fair (U.S. Copyright Office, 2001, Ch. 1, Sec. 107).

Fair Use, however, is difficult to apply and to test (Isenberg, 2002, pp.16-17) and it is ambiguous in how it applies to acts such as showing a film or playing copyrighted music in a classroom setting for instructional purposes. A separate exemption was therefore defined in the Section 110 of the 1976 Copyright Act for *displays and performances* shown in this context. Unfortunately, this exemption was only for physical classrooms and has been interpreted as not extending to distance learning settings. Congress therefore directed the Copyright Office to prepare a report and recommendations to address this limitation. This resulted in the TEACH Act, which broadens the section 110 exemption to allow displays and performances to be made available in online settings that parallel the instructional classroom settings of the original Section 110 exemption (Crews, 2001) (House Rpt.107-685, 2002) (Bureau of National Affairs, 2002).

2.2 TEACH Act Requirements

In broadening the scope of the exemption, the TEACH Act also adds a number of requirements, many of which came about in response to changes engendered by the Internet. The requirements can be divided into four categories:

1. **A Requirement that defines to whom the TEACH Act applies**

   The TEACH Act applies only to non-profit educational institutions and requires them to be formally accredited in order to make use of the exemption. This accreditation requirement was added because anyone can claim to be a non-profit educational institution on the Internet.

2. **Requirements that define the online equivalent of a performance or display in a traditional classroom setting**

   These requirements say three things.

   - The TEACH Act exemption only applies to performances and displays. It does not apply to textbooks, course packs, published online content, or any materials that students normally buy for educational or personal use.

   - The TEACH Act exemption only applies to works that are germane to a course and that are being used under the direction or supervision of an instructor. (This

does not require the instructor to be online or otherwise present when students access the work.)

- Performances of "non-dramatic literary or musical work" may be transmitted in their entirety but only "reasonable and limited" portions of other performances or displays may be transmitted. Thus it is acceptable to transmit a reading of a poem or to make an entire orchestral piece available, but it is not permitted to stream an entire opera, film, or music video.

3. Requirements that prevent institutions from violating copyright laws

The TEACH Act exemption allows educational institutions to create a digitized copy of qualifying displays and performances for the purposes of online transmission. However, this can only be done if

- The works have been legally obtained and are not already available digitally in a way that could be streamed to students.

For example, if a film is not available in digital format, a school could digitize it and make portions available to students in the context of a class. If the same film were available on a DVD but the contents of the DVD could not be transmitted due to a copy protection scheme, then the school could still digitize the film but is not allowed to "hack" the protection scheme on the DVD.

The TEACH Act also requires that educational institutions

- institute policies regarding copyright
- provide informational materials to faculty, students, and relevant staff members that accurately describe, and promote compliance with copyright law

In other words, a "don't ask, don't tell" policy is no longer a viable option.

4. Requirements that prevent unintended or illegal use of copyrighted material

The TEACH Act is very concerned about the possibilities of widespread copyright violations that can occur when content is made available online. To prevent this, the TEACH Act requires that institutions

- provide notification to students that relevant materials are protected by copyright
- maintain copyrighted material on a system or network in a way that reasonably prevents its use by anyone other than intended recipients and for any longer than is necessary for class use
- apply technological measures that reasonably prevent works from being retained by students in an accessible form longer than is necessary for class use and prevent unauthorized re-distribution of the work to others in an accessible form

The TEACH Act specifically requires prevention of misuse *through technological means*, not simply through copyright notices and licenses. It is intended to require that access to materials on institutional servers be password protected but it is not intended to impose general requirements on network security.

Similarly, the TEACH Act takes cognizance of the fact that if a student downloads a music or video file to a local computer, this is tantamount to acquiring a copy of the file unless it cannot be accessed in usable form beyond a class session. If a student can both access and copy a file, then it can easily be redistributed to others. The TEACH Act requires that this be prevented by technological means.

3 THE ROLE OF RIGHTS EXPRESSIONS AND STANDARDIZATION

At first glance, the TEACH Act requirements are daunting, and indeed they do demand that an institution get serious about managing and protecting copyrighted content. As Crews (2002) concludes, "The TEACH Act is an opportunity, but it is also a responsibility. The new law is a benefit, but also a burden. Implementing the law and enjoying its benefits will be possible only with concerted action by many parties within the educational institution."

Fortunately, there is available and emerging technology that can help. Course management, learning management and content management systems already have features that support some of the TEACH Act requirements, and some of the requirements are simply policy requirements. The rest fall under the general classification of *digital rights management*, an area that is being rapidly advanced by commercial interests and is of clear interest to educational and research interests as well (Martin et. al., 2002).

One of the key technologies in digital rights management is that of a *rights expression language.* Rights expression languages describe the allowable uses of digital content in a language that can be interpreted by software. This capability is crucial for automated management and enforcement of copyright and other intellectual property rights.

3.1 Standardization Efforts

Content comes in many different formats and is processed by many different types of systems. Any viable means of managing digital rights must work for all of these, which means that it must be based on universally accepted standards. As stated in (European Commission, 2002, Views of Stakeholders 17), "The lack of a DRM standard was identified as the main issue hindering the acceptability and uptake of DRM systems." It is not surprising, therefore, to find many digital rights management standardization efforts around the globe (OASIS, 2002).

The most prominent such effort is an activity that is taking place within an organization whose official designation is "ISO/IEC JTC1 SC29" (SC29, 2002) but which calls itself the "Moving Picture Experts Group" and is more commonly known simply as "MPEG"

(MPEG, 2002). The MPEG standards are being developed under the auspices of the International Organization for Standardization (ISO, 2002), which is supported by over 140 countries and whose standards are often taken as the basis for national and international laws and regulations. Furthermore, the MPEG effort is supported by many companies involved in the production and delivery of multimedia content. This is significant because the TEACH Act applies to displays and performances.

Progress towards an international standard makes it likely that products will be able to interpret and enforce usage licenses written in rights expression languages in the relatively near future. It is therefore appropriate to start asking product development staffs and product vendors to incorporate the capabilities to create, interpret, and enforce rights expressions into the systems that support online learning. Since expressions can be created and understood independent of any technology, it is possible to become familiar with rights expression languages now, and this is good preparation for the evolutionary changes that will be engendered by the TEACH Act and related developments.

4 RIGHTS MANAGEMENT, RIGHTS LANGUAGES AND TECHNOLOGY

The TEACH Act increases an institution's responsibility to manage copyrights and to safeguard content from unauthorized use. As we turn to examining *how* content and associated property rights can be managed technologically, it is necessary to clarify some associated basic concepts.

4.1 Digital Rights

Digital rights refer to what is permitted to be done with digital files. The words "rights" and "permissions" are used interchangeably in the digital rights management context. Digital rights are usually accompanied by conditions under which they apply. For example, you may have permission to install and use a piece of software (the right) provided you have paid a fee for it (the condition). Or, according to the TEACH Act, you may have permission to transmit an MP3 file (the right) provided you are using it as part of a class offered by a non-profit educational institution that has instituted appropriate policies and taken appropriate precautions to prevent unauthorized use of the file (the conditions).

Simply put,

> ***Rights*** *define what you are permitted to do with digital content*
> ***Conditions*** *define when and under what circumstances you can do it*

Permissions and conditions can arise directly from copyright and other laws (as in the case of the TEACH Act), can be determined by copyright holders (as in the case of a licensing agreement), or can come about as part of institutional policies and procedures (as in the case of an institution managing confidential documentation).

4.2 Digital Rights Management

Digital Rights Management (DRM) refers to technology that restricts or prevents the unauthorized use of digital content in accordance with defined rights and conditions. This technology could involve physical copy protection, encryption, or software that prevents unauthorized use. Examples of digital rights management include schemes that prevent software from running if the user fails to provide a proper key or that prevent files from being opened, edited or printed without a password.

> ***Digital Rights Management*** *is the process of defining, tracking and enforcing permissions and conditions through electronic means.*

There are two important remarks to make about this definition. First, as Downes points out (Downes, 2002), "in many implementations, digital rights management has been conflated with the idea of digital rights enforcement." In fact, most definitions available on the Web focus fully on the prevention of unauthorized use through technology (Microsoft, 2002) (SearchSystemsManagement.com, 2002) (Webpedia 2002). This is unfortunate since it misses the important definitional and record-keeping aspects of digital rights management that are captured in the definition given here.

Second, an even more natural and broader interpretation of the term "rights management" would include the legal and business processes of establishing, negotiating, and recording rights as well as enforcing them. In current terminology, digital rights management is limited to those areas that can be managed technologically. These areas include issuing rights in a machine-readable format and enforcing these rights through software and hardware but do not include legislation and contract negotiation.

4.3 Rights Expressions and Rights Definitions

Rights are established by law, by contractual arrangements and by institutional policies. To enforce rights through technological means, software applications need to know what the rights are. The first step in digital rights management, therefore, is translating permissions and conditions into a language that can be interpreted by a machine. In practice, this is done via two mechanisms, a *rights expression language* (REL) and a *rights data dictionary* (RDD).

> *A* ***Rights Expression Language*** *is a grammar in which permissions and conditions can be expressed in a machine (and human) readable form*
>
> *A* ***Rights Data Dictionary*** *is a standardized vocabulary for expressing rights and conditions in a rights expression language*

A rights expression language defines a structure for expressing permissions and conditions, while a rights data dictionary precisely defines the meaning of the permissions and conditions expressed.

4.3.1 The MPEG Rights Expression Language

The rights expression examples in this white paper are written using the MPEG Rights Expression Language, called "the MPEG REL." According to the committee producing it, the MPEG REL is scheduled to become an International Standard in 2003 (SC29, Work Program, WG 11, MPEG-21).

The MPEG REL uses XML (*extensible markup language*) (W3C, 2002). An XML expression encloses data in "tags" that indicate how data should be interpreted. For example, by enclosing a number and a currency in a <paymentFlat> tag, a software system that understands that MPEG REL knows that the number and currency refer to a flat fee that must be paid as a condition for using a digital resource. As another example, the expression shown here grants permission to access a work after the 31st of December, 2002.

```
<validityInterval>
  <notBefore>
    2002-12-31
  </notBefore>
</validityInterval>
```

4.3.2 Grants and Licenses

In the MPEG REL, the basic unit of "rights" is a *grant.* A grant contains

- a single permission (e.g., view, print, copy, execute)
- a set of conditions under which this permission applies
- a means to identify the resource (e.g. movie, song, article) to which the grant applies
- a means to identify the entity (e.g., person, role, organization) to which permission is being granted

A collection of grants is called a *license.* Licenses serve not only to record rights but also to manage and validate transactions. For example, a license might be linked to a digitized film that allows a second license to be issued if a payment is paid. (Such licenses are called *offers.*) When someone wants to download the film, the second license is issued after payment is made. Therefore the second license serves as a "proof of purchase."

Every time content changes hands, a new license is needed to express the rights of the recipient. As the content is passed along, new sets of conditions and permissions may come into play. For example, a publisher might attach a license to a course pack for use on a PC that grants a school district the right to distribute the course pack, provided they pay a license fee and that no more than one thousand copies are made in total. When the district distributes the course packs to individual schools or classes, it might create new licenses that allow a fixed number of copies to be made but that does not have a payment condition. When a copy is downloaded to a student's computer, the right to make a copy might be removed completely.

4.3.3 Thinking Positively

When expressing rights, it is tempting to prohibit actions as well as to allow them. A typical printed statement might read "copying is prohibited without permission of the publisher." Most rights expression languages, however, can only grant permissions and cannot explicitly deny them. Thus the above statement must be expressed as "copying is allowed with permission of the publisher" (if that is indeed what is meant). The lack of explicit permission to make copies under any other conditions means that no other permissions will be granted by a system that enforces digital rights.

This approach avoids the need for resolving conflicts among potentially contradictory statements. Suppose, for example, that one statement in a grant said that copying was prohibited without permission of the publisher and a second statement said that copying was allowed with permission of the author. Keeping in mind that a computer has no ability to exercise judgment and no knowledge of society, how would a rights enforcement algorithm handle the situation where the user had obtained permission from the author but not from the publisher? With the positive rights granting approach, the conflict would be resolved in advance by expressing the condition for copying either as "permission from the publisher *or* permission from the author," as "permission from the publisher *and* permission from the author," or solely as "permission from the publisher," whichever applies.

4.4 Rights Enforcement

Once rights have been expressed in terms of permissions and conditions, software must check whether conditions apply and prevent users from performing actions which are not permitted. For example, a rights expression associated with an MP3 file may not include the right to make a copy. A student viewing the file as part of an online course must therefore be prevented from making a local copy of the file.

The ability to interpret rights expressions is rare in software applications today but there are reasons to believe it will become increasingly commonplace:

- Technologies for preventing unauthorized users to access, print, duplicate or otherwise manipulate files are common and are being built into applications like Microsoft's Windows Media Player (Boulton, 2001) and Adobe's PDF technology.
- Rights expression language standardization efforts are supported by a large majority of the leading companies involved in the production and delivery of multimedia, see for example (DREL Meeting, 2001, Appendix A). This is a strong indicator that digital rights management based on standardized rights expressions will soon appear in products.
- There are existing demonstration projects and product prototypes of learning platforms that manipulate and interpret rights expressions, for example (COLIS, 2002), (Mourad, 2002). Although prototypes do not always lead to products, they are another indicator that the learning technology industry is taking this new technology seriously.

- Overall, XML technologies are maturing at a very rapid pace and XML is becoming the standard syntax for encoding networked transactions.

- Finally, the TEACH Act and other legislation create incentives and requirements for incorporating digital rights management into products. Software vendors will not be able to make sales into markets controlled by this legislation unless they provide the required digital rights management features.

4.5 Content Management

Rights management for content can be incorporated into the general process of *content management*. This process includes authoring content, tracking the use of content, authorizing access to content, keeping track of versions as content is developed and deployed, warranting the authenticity of content, searching for content, describing attributes of content through metadata and classifications, publishing content (making it available), and disseminating content (Jennings, 2002). In the commercial world these functions are supported by a range of products, including ones that go by the names of authoring systems, content management systems, digital asset management systems, document management systems, learning content management systems, and knowledge management systems. Even if the product picture for content management is muddied (Long, 2001) there is a clear need to support content management processes and for standards-based interoperability among the systems that support these processes.

Part of an overall content management strategy involves ensuring that the needed content is found and used in a proper fashion by the proper persons. Copyright enforcement is just one example. An authoring system might route a document through a review process and a content management system might be configured to require that usage be tracked when content is delivered to the public. Many such content management functions can be expressed as permissions and conditions and therefore can be expressed in a rights expression language.

4.5.1 Content Management in Practice

Relatively little content management practice has been evolved around the development and delivery of online educational content. In the future, the need for a more centralized institutional strategy will provide this market with an impetus for adopting content management practices and technology. The following content management requirements must be addressed by education institutions:

- The TEACH Act requires authentication and authorization schemes as well as schemes that allow access to content to be limited to specific groups for specific time periods.
- Copyright must be managed and safeguards against unauthorized use of content must be put into place.
- Significant savings of time and effort are available by creating repositories of content that can be easily and quickly searched for material that is relevant to a particular

class. Such repositories, however, demand more sophisticated ways of cataloging, searching and discovering content.

- Institutions need to support the collaborative development of content both by institutional Web developers and by students, teachers, and others who may have limited knowledge of content authoring and development techniques.
- Colleges and Universities are starting to integrate library information systems with course management systems (Cohen, 2002). This brings both of them under the umbrella of institutional enterprise software that is maintained by central IT departments. IT departments will naturally strive to support a single common infrastructure for both library information and course management systems, leading to an increased interest in content management.

5 A TEACH ACT SCENARIO

Consider the following scenario, which we will use to illustrate some concrete implications of the TEACH Act:

> *A History professor at an accredited college wishes to make a portion of a copyrighted film available to students online. The professor's institution owns a copy of the film on videotape. The material being shown illustrates an important concept in the class and will be used as the basis for further assignment and class discussion.*

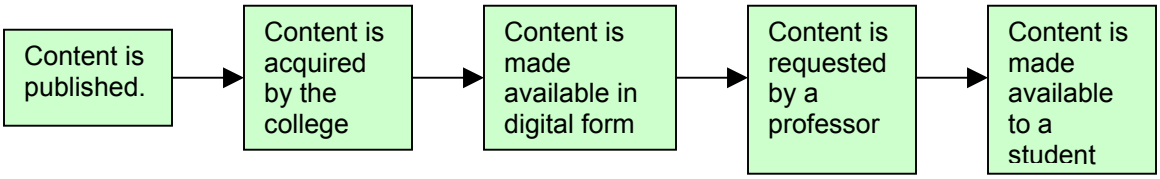
5.1 Requirements Imposed

In order for this to happen the TEACH Act requires that:

- The college must either legally obtain a digitized copy of the film that can be placed on the college's server or, if none such exists, digitize part of the film itself.
- The college must have copyright policy in place, and must have educated its faculty and appropriate staff about copyright law and the need to comply with it.
- The professor (or other instructor) must determine a reasonable period during which the portion of the film will be available for online viewing. A typical period might be one week starting on a particular date.
- The portion of the film selected by the professor must be made available to the students, presumably through a class Web site, in such a way that it can be accessed only by members of the class during the authorized access period.
- A copyright notice must be displayed on the material, and safeguards must be put in place to prevent students from retaining viewable local copies of the material past the end of its authorized access period, and also to prevent students from re-distributing the material in a form that could be viewed by others.

5.2 Meeting Requirements Using Licenses

To see how these requirements can be met, it helps to examine the path that content takes from the time it is published to the time it is delivered to a student:



As explained in Section 4.3.2, at each stage that content changes hands a new license is issued and each issuance requires conditions to be met. In this way,

- Acquisition can be made dependent on the status of the institution as an accredited non-profit educational institution.
- Digitization rights may depend on a "proof of purchase" as explained in Section 4.3.2.
- At the digitization stage new conditions might be added that prevent distribution to anyone but an instructor who has read a set of institutional policies and procedures.
- When an instructor requests the content, the resulting license might only grant use permission to students.
- Finally, conditions of student access can express periods for which the content is accessible and contain no distribution rights.

5.3 Enforcement through Technology

At each stage of this digital rights management scenario, the rights and conditions inherent in the TEACH Act can be expressed using a rights expression language. Enforcement is a separate issue. Rights may be enforced in a number of different ways, some of which have nothing to do with technology and some of which use technology but don't necessarily rely on standardized rights expressions. Here are some possible technological means of enforcement.

- **Legal acquisition:** E-commerce systems are already designed to handle the requirement that content be purchased before it can be used, and modern content management systems can store and retrieve licenses associated with content
- **Verifying that a policy has been read:** This could be done either on the honor system through a check-box. Alternately, instructors and staff might be required to participate in an online event or to pass an assessment whose results are recorded. Although uncommon in the educational arena, such certification is prevalent in regulated industries like the pharmaceutical or aviation industries.
- **Restricting distribution by role:** Course management, content management, and learning management systems all have notions of user authentication and user roles. Most of them can restrict access according to these roles so that, for example, only an instructor can add content to a course and only students enrolled in a class can view the content associated with that class.

With regard to class lists, some course management systems are integrated with student information systems so that class lists are under institutional control. In other cases instructors can manually enroll students in classes, and it is therefore possible to give non-students access to course materials. Institutional policies and informational materials (required by the TEACH Act) should make it clear that adding non-students to the course could lead to copyright violations.

- **Restricting access by time:** Many course management systems have features that allow content to be made available only during certain time windows. Institutions who wish to use the TEACH Act exemption should insist on this feature from a course management system. If this feature is available, there is still a question as to whether it should be totally left up to an instructor to set the time limits in the system, or whether systems should respond to a default time limit set by a rights expression statement associated with the content. Existing course management systems are not yet able to interpret and respond to rights expression statements such as this, but the TEACH Act raises the question as to whether future systems should have this ability.

  Another approach to restricting accessibility is by using existing digital rights management capabilities in software such as Windows Media Player 9. This software already has the ability to set time periods during which content can be played as well as the length of time for which it can be played during any one session.

- **Preventing Copying and Re-distribution:** This is the substance of modern digital rights management. The same technology used in general cases such as for e-books (Open eBook Forum, 2002) and music videos applies in the educational case. The Digital Millennium Copyright Act makes it illegal to defeat protection schemes and applies to all users in an educational setting as well.

All of the above enforcement techniques exist today, meaning that the TEACH Act can actually be implemented. But few of the techniques discussed currently read and record rights in a standardized way.

Relying on proprietary implementations in existing products is a piecemeal approach to digital rights management. Over the long run, it is untenable. A standardized approach to expressing rights and conditions is more efficient. If licenses are to serve as "proofs of purchase" they will have to be based on standards and on technology that is known to conform to the standards. Without standardized rights expressions it will be very hard (and far more costly) to integrate existing technology (for example a course management system) with new technology (for example, a centralized content management system). The call for standardization is clear and there have already been demonstrations of prototype course management technology that use and interpret rights expressions (COLIS,Project) (Mourad, 2002).

6 OTHER ONLINE EDUCATION SCENARIOS

There are many online educational activities that move beyond the basic act of delivering a display or performance to an online class. Some of these are clearly outside the scope of the TEACH Act, including the delivery of supplementary class materials, online use of e-reserves, and the entire world of self-paced on-line instruction. But some activities are quite relevant to the context of the TEACH Act even if they are not covered by the TEACH Act itself. The scenarios in this section illustrate these and discuss their implications.

6.1 Testing and Grading

Displays and performances may be used in testing as well as for exposition. This may require that limits be imposed on the total time and total number of times a student may view a piece of content. Although these types of restrictions are not TEACH Act requirements, the same principles and solutions apply.

In addition, teaching assistants and graders may need to access class materials after they are no longer available to students. Although roles other than instructors and students are not discussed, presumably this use falls under the TEACH Act. In any case existing course management systems have the ability to define roles like "teaching assistant" and to selectively make content available by role as well as by time.

6.2 A Digital Library Scenario

The TEACH Act focuses on the equivalent of classroom use of copyrighted material. But before such material can be used, it must be acquired, stored, and selected for use. Consider the following scenario:

> *A large school district notices that portions of the same films and the same music recordings are used in many classes in the district. In response to this, the district creates a digital library of films, news clips, and music so that only one copy need be maintained. Teachers may select material to be used in class and make it further available to distance students via a class Web site.*

To do this, the district must ensure that the TEACH act requirement are met just as in the scenario in Section 5. However, there are some additional challenges.

- The district may be held responsible for ensuring that content is legally and properly obtained. The responsibility for doing so should lie with the district digital library, not with the teachers.
- The technology used to create class Web sites or the digital library must require students to authenticate and be authorized to use copyrighted material. It must also require that teachers are properly authenticated and authorized before they select and "publish" content to their class Web sites.

These requirements can be met in the same way as those in Section 5 but they intensify the need for good content management practices.

In an interesting variation, the district may wish to go further and include educational materials for self-use by students or by the general public, and obtain these materials from external sources, e.g. from the Web. Or, the district may simply want to publish fully online courses, as is being done by the MIT Open Course Ware project (MIT, 2002) (Olsen, 2002). These uses are explicitly not covered by the TEACH Act, but even more care must therefore be taken to prevent unauthorized use of copyrighted material, for failing to do so could jeopardize uses that are covered. It is essential to have technological means to check that content can legitimately be included in the district digital library. The alternative is to check every resource by hand, which is labor intensive. Since the material will come from multiple sources and in multiple formats, standardized rights expressions are an essential part of the long term solution.

6.3 A Scenario Involving the Generation of Content

The typical educational experience is far more interactive than viewing a performance or display, or making use of online reference material. Students are often involved in *creating* content. The following scenario illustrates this activity and brings the need for managing digital rights under Fair Use as well as under the TEACH Act into play:

> *A foreign language class is given the assignment of creating a fictional news report on a day in the life of a small city where the language is spoken. The class draws material from a variety of sources and creates a new work. The teacher wishes to make this new work available online and retain it for use by future classes.*

The new issues raised by this scenario include:

- External sources may be copyrighted. Students may be allowed to use them under the Fair Use doctrine, but this needs to be checked on a case-by-case basis
- A variety of laws and policies may apply to the use of student-generated work in future classes.
- The TEACH Act requires institutions to institute copyright policies. These policies may need to extend to situations like this one

These issues point out that copyrights and usage rights must be managed even without the impetus of the TEACH Act.

7 EXAMPLES OF RIGHTS EXPRESSIONS AND LICENSES

Examples of the use of the MPEG Rights Expression Language can be found at http://www.contentguard.com/reference.asp. These examples illustrate the basic features of the language, and show rights expressions for General Use Cases, Entertainment & Media, and Publishing.

8 CONCLUSION

Many in the educational community are happy to have the copyright exemption provided by the TEACH Act but at the same time feel it is too limited in its application and places an inordinate number of requirements on an institution. Regardless of whether this view is justified, it certainly is true that the TEACH Act will raise the copyright consciousness of educational institutions and will have the effect of causing them to look at technology and policies for intellectual property management. These are issues that must inevitably be faced sooner or later independent of the TEACH Act.

Change in current practice will be required and the risks of not changing may be significant. It is possible to meet the TEACH Act requirements today by implementing appropriate policies, using digital formats that include reasonable copy protection, and deploying a course management or learning content management system that can restrict access by roles and by time. But more is needed.

As the usage and diversity of content increase, existing piecemeal approaches will not be sustainable. Standardized rights expressions are needed to define track and enforce the rights and use conditions associated with content that comes in multiple formats and is handled by multiple software applications. Institutional content management strategies are needed to handle increased volume and to deal with more sophisticated intellectual property requirements such as those in the TEACH Act.

Now is the time to understand digital rights expressions, to think about organizational content strategies, and to demand that technology support digital rights management standards.

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