Empowering Instructors to Become Effective Content Curators

Using the Building Blocks of Today to Manage Dynamic Curriculums for the Education Space

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ABSTRACT

This paper will examine key technologies that exist in the market today which can be used to enable instructor content curation and idea growth through direct student collaboration. Existing tools can be used to not only recreate the in-class collaborative experience in a distance-learning environment, but can also be used to support growing collections of knowledge on topics/subjects than just what can be gained from a single class or semester.

This paper envisions a method for both instructors and students to help them effectively curate content and helps empower them to communicate through references to a combination of text and digital media. These references originate from multiple platforms across the Web, but relate to a single topic or idea. This "compilation" of material can then be treated as its own form of content and can be assignable, consumable, and gradable in the well-established pedagogy of standard learning management systems.

This form of content would allow instructors or students to present ideas that are greater than the sum of their individual parts and provide a platform for further discussion and learning, ultimately, growing the value of the content itself.

KEYWORDS

Content curation, learning management, content management, social media, content compilation, collaborative learning, multi-dimensional content growth

1. INTRODUCTION

Don't reinvent the wheel. The key systems that can be used as the building blocks for effective content curation have existed in multiple forms for many years. The key systems are the Content Management (CMS), Learning Management (LMS), and Social Media platforms.

In standard implementations, each one of these solutions caters to the specific needs of the corporate, educational, and consumer communities. They can be implemented by themselves, or in combination to support the various needs of enterprise organizations. Together, these systems can provide the specific features for the creation, management and distribution of content, as well as an increased depth of conversation and detail through social collaboration. Through proper configuration, these systems can be focused to support educational needs by providing instructors with an easily accessible library with which they can identify areas of interest and build "compilations" of content for their students to consume and collaborate on.

In a web-based world content can be identified as any digital resource, including text, video, audio, visual activities, quizzes, assignments, and assessments. As a content curator, the instructor's responsibility would be to identify the selections that they wished to combine and build them into a new type of content, a Compilation. Like all educational content, Compilations would be distributable, consumable, gradable and a starting point for collaboration, but each Compilation would hold a depth of information greater than any one item, representing an idea, greater than the sum of its parts.

This paper includes a breakdown of the technologies involved, their capabilities, and the opportunities for integration with each other. While the goal is to introduce the concept of the Compilation content type, the principles of content curation, and user-driven content growth, it is not the aim of this paper to suggest a single software product or even a collection of tools that easily integrate. Instead, the goal is to highlight the opportunities that are available using existing software solutions to enhance the instructor's and the student's educational experiences.

2. CONTENT MANAGEMENT SYSTEMS

The Content Management Systems (CMS) that exist today are descendants of Document Management Systems (DMS) that were introduced to the market in the late 1980s and early 1990s. These systems were typically standalone solutions that were created and used mainly to manage imaging, storage, and workflow of corporate document assets.

With the introduction and rapid growth of the Internet in the mid- to late-1990s, these document management systems were pushed to become more web-centric, which allowed for wider access to what were still primarily internal corporate assets. With this growth, the need for external user and client access to corporate information increased, and web-accessibility and an increasingly granular structure for content became a necessity. Over time, key features of collaboration and categorization were introduced to support an even broader, web-centric environment. Using these building blocks, content management systems were then capable of supporting both the business and marketing needs of individuals and corporations, and had effectively established a standard set of methodologies and terminologies used to establish business practices and solve problems.

Currently, Real Story Group (formally CMS Watch) tracks and evaluates forty two unique, enterprise-level Web CMS solutions. These products range across technology platforms and each solution either attempts to present a single generic approach to all CMS needs or to provide specialized support for individual business types (including education-focused models). While these products vary in both cost and effectiveness, ranging from free open-source solutions to those that cost millions of dollars in licensing, at the core, they all support the following four key elements:

1. **Structured Content** that allows for the version-based storage of a list of well-defined content types – each with their own set of fields enabling differentiation between various "types" of information that may be managed within the organization
2. **Hierarchal Categorization (Taxonomy)** structures which support the definition of multi-level topics and ideas, across which content can be linked and interrelated
3. **Users** who can be defined as not only those that create and manage content, but also those that consume content
4. **User Groups** who represent the different ways that different types of users will interact with the content or sub-sets of users that need to collaborate on a smaller set of content

The above elements of a CMS allow this type of product to be configured to support an organization's educational needs effectively. Using structured content, educational material can be broken down to its most granular level. Granularity is of upmost importance to effective content use. The more individual parts a content item can be broken into, the more effectively it can be linked to all the unique ideas it may present. The better the breakdown of content, the better the system will be able to understand its value.

With hierarchical categorization (taxonomy), content can be interrelated not only in common ways like a book's table of contents, topics, or state standards but also in less obvious ways like difficulty and learning objectives. Since any content item can be linked to any number of taxonomies, this information can be presented to consumers, searched, or browsed against in any number of ways at the same time. The better the content structure and the better the categorization, the more effective the user experience will be.

In advanced CMS solutions, the definition of these structures can be made not only at the original content publisher level, but also at the consumer level. This allows the individual users (be it the instructor or student in an educational environment) to not only consume the structures provided to them, but to also introduce new content and taxonomy structures as they see fit. This allows the user to enhance their own experience, albeit not always the experiences of others. It is this feature of CMS that most specifically supports the concept of a Compilation content type, and its creation through user content curation.

CMSs provide content producers with an easily repeatable and maintainable process for creating, relating, and distributing the content, and if properly configured, allowing users to consume and enhance that content in the way that works best for them.

While CMSs do support the sharing of user-generated content and configuration, they typically view all users as equals. This makes Content Management Systems by themselves not particularly well-suited for the educational environment, where a well-controlled, well-structured instructor-to-student relationship is necessary to support educational progress.

3. LEARNING MANAGEMENT SYSTEMS

Learning Management Systems (LMS) and Learning Content Management Systems (LCMS) support the core instructor-to-student workflow elements that are not found in a CMS. The primary focus of these solutions is to provide the functionality for the assignment, consumption, grading and tracking of Learning Objects (LO).

Learning Management Solutions have also evolved significantly from their early forms in the 1980s. However, unlike CMSs, LMSs' core tenants have

remained consistent since the time of their inception, as they were based on the real-world classroom experience. Currently, similar to the CMSs, there are approximately forty significant LMS platforms supported at the enterprise-level. These solutions typically have been developed to support content consumption and work-flow through key standards of structure and e-learning methodologies like SCORM. While several such products support generic LMS implementations, many focus their toolsets on key areas of education, such as K-12, higher-ed, or corporate models.

While individual toolsets may vary, current LMS functionality standards have expanded beyond its core tenants in several ways in order to support its wider use. Thanks to an increased reliance on automation, LMS has become far more effective in distributing dynamic sets of requirements, randomized tests, auto-generated algorithmic questions, etc. This functionality has vastly expanded the instructor's ability to not only distribute unique assessments, but also continue to track a student's progress against learning objectives in a standardized, non-subjective manner.

Learning Content Management Systems (LCMS) have taken the Learning Management workflow and added elements of Content Management, enabling not only the distribution of learning objects to students, but also their authoring within the same system.

While many LCMS solutions available represent a good integration of these two technologies, they typically do so in a way tailored to current educational needs and limitations. Instructors, for example, may be the only ones who can create content, or users may be limited to the creation of only very specific content types. For that reason, such systems may not allow for the broader requirements of Complication creation available using the capabilities of free standing, best of breed, CMS, LMS, and Social Media solutions.

The key functionality that LMS brings to the table is its dynamic representation of the core interaction of education: the distribution of information from an instructor to a student and the student's subsequent interaction with that information. Both LMS and LCMS solutions may be capable of supporting this requirement for any given implementation's needs. While these solutions provide effective mechanisms for the interaction between instructors and students, they do not typically support broad levels of student communication or collaboration. This functionality is best supported using existing Social Media platforms.

4. SOCIAL MEDIA PLATFORMS

Social Media platforms are ubiquitous in today's society, both online and off. Like CMSs and LMSs, they got their start in the early 1980s with the creation of Usenets and Bulletin Boards as areas for discussion of specific topics. Those technologies, like the Facebooks of today, interconnect people with like-minded ideas. Social Media platforms like Learning Management Systems were born from real-world scenarios of social interaction taken digital. Unlike LMS however, where the relationships supported are directed and small (between an instructor and his/her student), Social Media platforms focus on the support of the larger community, believing that ideas, updates, images, etc. should be shared widely, and not require one-on-one interaction. To complete the functional picture the Compilation content type, this tenant of social media is required.

Social Media platforms are primarily solutions developed to support two key types of user interaction:

1. **Direct communication** between individual users or specifically managed groups of users
2. **Broadcast communication** from an individual user to whomever might be listening

These types of interaction take the forms of direct asynchronous messing (email), direct synchronous messaging (chat), broadcasting of individual ideas (feed updates or tweets), or broadcasting of larger ideas (blogging).

While today much of the popularity of these tools relates to the recording and tracking of an individual's everyday life, the key strength in their ability to support extensive discussion and debate over specific individual topics remains the same as that contained in the original Usenets and Bulletin Boards.

The mechanisms for discussion in standard Social Media platforms are the foundation for our online communications, and while useful to Education in a communicative sense, are not particularly "revolutionary." However, recent advancements in key Social Media platforms can be viewed as being significant specifically in the capacity for discussions to grow *multi-dimensionally* (See Figure 1).

Discussions are no longer limited to a stream of comments going back and forth between a group of users, and no longer need to be comments at all. Current Social Media platforms support the integration of additional content into conversations and the spawning of additional layers of discussion from that content. By understanding

this point, instructors/students can enable the growth of conversation around any specific topic to go well beyond a simple class discussion. Social Media platforms encourage the start of a class conversation, allow the students to break off into groups to discuss sub-topics, and then provide them with the ability to rejoin the class to present (and further discuss) the multiple outcomes.
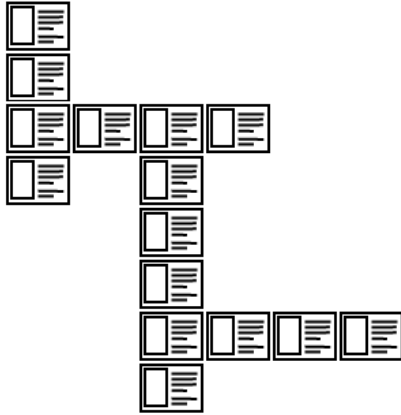

Figure 1 – Multi-Dimensional Conversation

The educational challenge with existing generic Social Media platforms is that without specific guidance, they are incapable of identifying the important elements of that conversation. Existing platforms typically base a discussion or a comment's relevance on how old it is or how popular it is to the entire group – an understandable method of automated management considering that not all information could or should be shown.

For its proper use in education, however, the rules of social media management must be different and they must be configured to support the possibility that an idea achieved many months ago may still be more valid than any idea recently identified. In order to support this idea, educated management must become the user's responsibility to identify the most relevant discussions and highlight them for future use.

5. INSTRUCTORS AS CONTENT CURATORS

Now that one has a sense of the different functionalities available through existing CMS, LMS, and Social Media platforms, it is important to realize that any system populated with information cannot by itself identify the correct subset of information that should be used to educate a class of students on any given topic.

The Internet, for example, with all its wealth of information and search algorithms, cannot manage exactly how a specific topic or idea should be presented. The instructors therefore are responsible for identifying

the appropriate information, ordering the content, and providing the context for the information that they highlight and choose to present.

By effectively implementing the structured content and categorization model of a CMS, instructors can use this platform to identify and combine the content that they deem relevant to the topic.

With the appropriate solution and adequate resources, an instructor can identify key elements of content across the breadth of the Web and use these elements to create a Compilation for future consumption (See Figure 2).

Figure 2 – Creating a Content Compilation

The system supporting such an action would enable instructors to select pieces of content they desire and let them perform various actions to it like highlight a particular paragraph in a page of information or identify a 30-second segment of a 15-minute video. The system enabling content curation would keep track of these selections and present these related pieces together as the primary information source. Students would always have the ability to view the content items referenced in entirety. But the content curated by the instructor would continue to act as the key information vehicle. In this manner, the Compilation becomes an entirely new content artifact, helping explain a topic or an idea with further information that makes it greater than the sum of its parts.

6. DISTRIBUTING AND GRADING CONTENT COMPILATIONS

Considering the educational goal of this solution, the content Compilation created by the instructor can be distributed within the instructor-student workflow supported by the integrated LMS. As LMS solutions typically depend on grading methods being implemented for student response, assessments could be included as part of the compilation and a student's combined grades on those assessments could be used as the overall grade for the student on that assignment. Alternatively, a student's success on the assigned Compilation could be entirely dependent on their social interaction with the content itself and their collaboration with other students in the class about the curated content.

Ultimately, the LMS would be responsible for tracking a student's progress on the Compilation and providing the student with the ability to submit their progress for review by the instructor. Depending on the design of the application and the contents of the Compilation, grading methods would need to vary and in many cases would need to be subjective instead of automated. Using core LMS functionalities, rubrics could be introduced to the assignment of these content Compilations so that subjective grading could be standardized as much as possible across an instructor's course.

7. ENHANCING COMPILATIONS WITH SOCIAL MEDIA SOLUTIONS

As suggested above, the core features of a social media platform can be used to provide students and instructors with the ability to expand upon any content item in a multi-dimensional way. This feature can provide instructors with an effective method for tracking and grading student interaction on assigned Compilations. If alternative grading methods are not defined, an instructor could view this collaboration as being similar to class participation on a given topic. Students not only would have the ability to simply comment on any given idea, but also to contribute new content to the discussion, which could in turn kick off further discussion.

In addition to grading methods and unlike the standard LMS approach of a single request and response, the breadth of student contribution on specific Compilations could actually become part of the Compilation itself – enabling further learning. A Compilation of content curated by an instructor would no longer be limited to only what the instructor found and selected, but could be expanded to include the entire depth of student discussion held on the subject. This deeper Compilation of content

could then be used as the original/base assignment for instructor's courses going forward.

8. TOOLS FOR CONTENT CURATION

CMS, LMS, and Social Media platforms provide the infrastructure, workflow, processing, and storage necessary to support content curation, but they do not provide the web-centric tools needed to properly select the desired content.

Bookmarking, highlighting, video cropping, audio cropping, and image tagging are all techniques that are becoming widely available against standard web content. These techniques provide the user with the ability to single-out specific pages, paragraphs, video/audio segments, or even elements of images for specific review further enhancing the user's experience with the content. The suggested content curation platform would provide users with the ability to perform all these actions through a centralized interface and use them to specifically identify parts of existing content that they wanted to curate into a Compilation.

The end goal is for the user to be able to access and integrate content from any source on the Web. Certain sources (especially multimedia sources) may be more highly favored than others as they would provide the necessary video, audio, or image formats that would be required to properly crop and tag information.

Once selected for use in a Compilation, the content itself would remain served from that original source. The CMS solution would simply be responsible for managing the structure and details of the content Compilation itself. The LMS would enable the assignment, consumption, submission, and grading of the content Compilation. The Social Media platform would manage all communication, comments, and collaboration that may occur on any Compilation or element of the content that it is made of. In this manner, each platform and tool implemented to support the individual action that it is known for, would when implemented together, supply an integrated experience which would allow instructors to build out significant foundations of knowledge and learning on the topics that are pertinent to them and their classes.

9. ADDITIONAL USES FOR THE CONTENT CURATION PROCESS

As an alternative, instead of distributing content Compilations to students for collaborative review, instructors could simply assign a topic to which each student would be responsible for developing their own content Compilation. This methodology would provide

instructors with the capacity to assess a student's abilities to not only consume and contribute information on a specific topic, but also to use standard technological tools to find and highlight pertinent information across the Web.

10. EDUCATIONAL PUBLISHER CASE STUDY

In 2010, NorthPoint Solutions, LLC (NorthPoint) was engaged by a leading educational publisher to develop a system to deliver and enhance the usability of its "For Print" educational content. This content was already available in electronic form, but this feature did nothing to provide the reader with any additional functional capabilities. While additional media assets were offered as part of the existing solution, this material was not well integrated into the overall presentation of the publisher's material, and was not widely used by the instructors or students.

Through a collaborative effort, NorthPoint and the publisher developed a content distribution platform that supports not only the effective display of their published media, but the creation of new content by site users, the curation and assignment of site's content by instructors to students, and the full assessment of student activity based both on standard testing practices and subjective grading of the student collaboration.

The platform's original goal was to increase the level of standard online communication and interactivity between students and their instructors surrounding the publisher's editorial content, but eventually, reviews and class testing lead to the implementation of more advanced features that became part of the core system.

The platform supports both the creation and management of well-defined educational content types such as quizzes, homework, writing assignments, peer reviews, etc. and also more dynamically-defined content that enables the introduction of specific tools and functionality to the platform to meet individual educational discipline needs.

A key element of the platform is the ability for an individual instructor or student to add content to the system from any desired external source and use that information as part of a lesson plan, topic discussion, or assignment. The content added can be then shared during and after the course, commented on, and consumed by both the instructor and other students.

This new platform will be launched along with a specific set of the educational publisher's content in 2012 and will be the platform for the delivery of all their educational content going forward.

11. CONCLUSION

As instructors or students try to get their heads around the massive amount of digital information they are confronted with, they will look to a framework that provides them with the tools to easily curate that content into a more consumable idea or message. The act of curation around a specific topic or idea represents a valuable step in education, and can, in fact, be perceived as "content creation".

To this purpose, the building blocks from content management, learning management, and social media systems can be used to provide instructors with an educational "toolset" that enable this curation into content Compilations. Interaction on Compilations by both instructors and students can support greater learning and expansion of ideas – a process which has not yet been fully taken advantage of in today's marketplace.

The technology frameworks, used in conjunction with web-based tools, provide the ability for today's instructors to demonstrate expertise, gain visibility, and build thought leadership. The single content Compilation can provide instructors with new techniques for the collection and creation of information on educational topics – thereby making the aggregated content's overall value greater than its individual parts.

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