

A unified asset development strategy – a case of a business school

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For the past decade, many educational institutions have adopted the use of online learning. The level of adoption ranges from delivering a portion of single subject content to conducting a whole subject in a program. A small number of institutions of higher learning have adopted a completely online approach. Established in 2001, U21Global provides a completely online learning environment for students taking post-graduate programs in its business school. Development of online multi-media content is a lengthy and expensive process. A large repository of content has been developed over the past 5 years. These content are not only used often for different classes of students but are also re-used to develop new programs. Careful planning and painstaking effort to ensure reusability of the content for multi-uses and multi-users since the beginning of product development is bearing fruit. The content designed for the learners in award programs are now finding ways into customised programs for other groups of learners. This paper shares with readers the story behind the success of asset development and usage using a unified approach. Of particular emphasis is the upstream strategizing stage before embarking on asset development. This paper will also share with the readers some best practices that provide fruits from initial discipline and direction taken five years ago.

Keywords: content development, re-usable content, development strategy

Introduction

U21Global provides a completely online learning environment for students taking post-graduate programs in its business school. The graduate school is backed by an international network of leading research-intensive universities in 11 countries. U21Global combines the traditional quality of its founders with innovative modes of delivery on the Internet, providing students with substantial learning advantages, while balancing work, travel and family life. U21Global has successfully enrolled students from 60 countries around the world including those from Asia, Australia, Africa, Europe and the Americas. The graduate programmes draw upon the best practices in online learning and pedagogy and have been approved by U21pedagogica, an independent quality assurance body which ensures that the curriculum meets the rigorous academic standards of all the affiliated universities.

Development of online multi-media content is a lengthy and expensive process. Many universities and schools are developing content on an ad-hoc basis. Online delivery option is left very much to the professors, sometimes with the help of outsourced developers. This generally results in many different styles of content presentation, usually based on the learning strategies adopted by the individual professor, or even the outsourced developer of the content. To that end, re-using the content by another instructor and for development of a new program is usually a very difficult task.

In U21Global, a large repository of content has been developed over the past 5 years. These content are not only used often for different classes of students but are also re-used to develop new programs. Careful planning and painstaking effort to ensure reusability of the content for multi-uses and multi-users since the beginning of product development is bearing fruit. The content designed for the learners in award programs are now finding ways into customised programs for other groups of learners. This paper shares with readers the story behind the success of asset development and usage using a unified approach. Of particular emphasis is the upstream strategizing stage before embarking on asset development. This paper will also share with the

readers some best practices that provide fruits from initial discipline and direction taken five years ago.

Content and the development process

The content development process requires strict adherence to a set of specifications and guidelines in every phase of the process to ensure the required quality of the product – an online course. Quality of a product is dependent on the quality of the subject matter, the learning design and the delivery of the program. The quality of these components is in turn dependent upon the development process of each component, the people, the activities and the tools supporting it. Evaluation of the quality of the product is carried out by different groups of people at different phases of the development and implementation process. Evaluation of the learning environment takes place from the beginning and at various stages of the implementation process: at the pre-class phase, in-class phase and post-class phase. The evaluators include content authors, academic reviewers, learning designers, courseware developers, and the university's accreditation body. Learning design and selection of strategy is closely tied with the required learning outcome and the learning type of the content, for the specific group of target learners.

The pre-class phase consists of content-writing, courseware development and the evaluation phase. Content writing starts with the selection of content author based on a strict selection criteria list. The works of the content author is blind-reviewed by another professor who is of the same if not higher academic standing. This was done to allow frank, honest and free critique without reservation. The content is then revised based on the academic review. The contents are finally approved by the reviewer. This iterative process is carried out segment by segment for a subject. When all the segments are reviewed and approved by the reviewer, they are put together and delivered for the next round of evaluation. This evaluation is carried out by an accreditation body, which sets up a review panel to review the content and provide feedback. When the subject content is not approved, the content author will work on the content until it is finally approved by the accreditation body.

After the approval by the accreditation body, the learning design and development of the courseware takes place. The learning design team in the business school is made up of qualified and experienced learning designers and developers. They developed design principles and guidelines and development specifications which are communicated to all the designers and developers. The learning design team also develops learning object templates to ensure consistency across all subjects, developed by different developers. Some of the specifications are incorporated into these learning object templates. As the target audience is adult learners, the learning designer incorporates adult learning principles in designing the online subject. The learning designer ensures that the objectives written are specific, measurable, achievable and relevant. Since adult learners are goal-oriented, the content and learning activities provided must equip them with job-relevant competencies. Thus, the learning outcomes to be achieved upon completion of each subject are of higher cognitive levels in Bloom's taxonomy – i.e. to be able to apply, analyse, synthesise and evaluate, as opposed to just 'knowing the content' at knowledge and comprehension levels.

In the design process, the learning designer looks into content presentation methods and learning strategies. The aim is to make good use of limited screen space and multi-media elements. Both static and dynamic presentation methods are considered and designed appropriately. Learning activities are added for effective learning. These activities provide an opportunity for learners to perform authentic tasks that require critical thinking.

A detailed design document is produced at the end of storyboarding. This is signed off with the learning design evaluators in the business school before actual development starts. A prototype,

using a typical segment, is built and evaluated before the rest of the subject is developed. Areas of evaluation include checks on objective-writing, content adequacy for achievement of learning objectives, assessment adequacy for testing the attainment of objectives, appropriateness of content presentation methods, appropriateness of instructional strategies and tactics and tools used.

The courseware is developed segment by segment. Each segment goes through stringent quality checks by design evaluators. Content authors are involved at this stage to ensure the accuracy and integrity of the content, after it has been treated with instructional and design strategies and techniques for an engaging learning experience. All courseware goes through a thorough technical check to ensure that all features and functionalities work as designed. All contents are also designed to ensure that the contents are strategically re-usable at the topic level. To date, there are a total of 30 subjects with no less than 1200 reusable topics. Each topic comprises objectives, learning activities namely, reading, exercises, discussions, projects, self-assessment questions and summary. Each topic can be used independently. Assignments and projects vary from class to class.

When the online content of the subject is ready, it is delivered again to the accreditation body for review. If the changes required are minor, they will be made and the subject prepared for launch.

Feedback from students and faculty are periodically received and taken into consideration for further enhancement of the learning content and the learning environment.

Catering for a Wider Audience

The high quality content produced for the business school's certified courses and the success of the online program was quickly noticed by corporate organisations. These organisations have offices and branches in various countries. They want to provide their employees executive leadership and management training without having them leave their workplace. A solution is to provide them with online program delivered to wherever they are located. U21Global is able to provide this service with the holistic online learning environment which was already set up for her international students in the certified courses. The objective of learning for the application in the workplace is also congruent with the motto of the school to provide global leadership at the workplace. Students pursuing the business school certified courses share similar characteristics with those of corporate leaders. Essentially these two groups of learners are busy executives working towards achieving similar learning outcomes.

However, since corporation learners cannot afford to spend 13 weeks on a complete single subject, the practical approach is to customise a programme that culls content from different disciplines. How this is achieved is explained in the process of customisation. The resulting corporate program offered will be of appropriate depth and breadth for this group of learners.

Using academic content for corporate learning is an avenue to impart the theoretical frameworks and their underlying principles that guide decision-making. This theoretical dimension is usually not adequately provided for in most traditional corporate training programs.

To enable learners to 'act' on what they have learned, industry-specific or even corporate-specific cases are used for discussions and projects in a corporate program. These focused discussions and work-based projects are valuable learning experiences as they maintain the integrity of workplace authenticity, and they address corporate defined competencies to be bridged and the specific training and development objectives to be achieved by the organisation. Such an approach also serves as a good platform for action research and action learning where learners are provided

with ample opportunities to identify and solve real workplace issues and problems. For this to work, it is important to involve the learner's workplace supervisor so that the latter can provide the necessary support to the learner. It also provides excellent evidence pointing to the transfer of learning and not just textbook knowledge, leading to an immediate positive and tangible return on investment!

Since corporate learners are from the same organisation, there is already an initial familiarity with each other as they share a common organisational culture and language. This is beneficial as they start to work on real workplace projects.

Clearly, a customised corporate program provides more than content. It is in fact the implementation of a unified organisational development strategy where learners learn about relevant and actionable knowledge with support from their colleagues and supervisors.

Process of Customisation

The competitive advantage that the business school provides to the organisation is the quality of the program and the speed that it takes to be ready for the launch of the program. The quality of the content is ensured through the development process as described in earlier paragraphs. In the implementation of the program, highly qualified and accredited academic faculty is engaged to facilitate the class with the support of a dedicated team of Student Services staff.

The business school is able to 'mix-and-match' its 1200 reusable topics to assemble a customised corporate program quickly and efficiently. This is largely attributable to its content strategy that places emphasis on the creation, development, packaging and growth of reusable content. This is described in the next section.

Development of the customised program follows the logical procedure of understanding the organisational needs, the competency gaps that need to be filled, the learning goals and the specific target audience.

While some organisations require the employees to attend the full subject (13 weeks per subject) of the course, it is common that the corporate client does not use a subject in its entirety. Time to complete the course is often a constraint. There is often a requirement to accomplish the learning objectives of various disciplines over a shorter period of time. That is, rather than taking the complete subject, only some parts of each subject will be used (refer to the figure below). The usual approach is to first identify the subjects that will make up the customised program. This is then followed by selecting relevant segments from each subject. Similarly, the entire segment may not be used as some topics are left out because they are not relevant. This process is called mapping content to the learning objectives. When there are no content specifically for a particular objective, new content is written and developed. The new content is developed on the same template as the existing content, to ensure consistency in all the content.

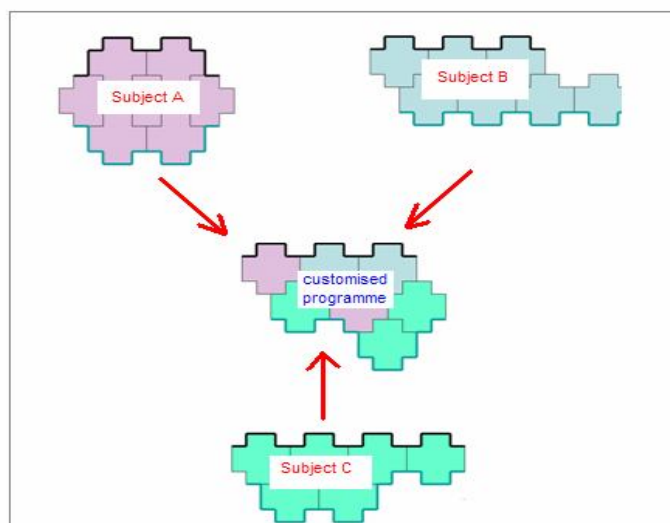


Figure 1: The Customisation Process

Additional learning activities such as additional readings, discussions and work-based projects are then incorporated to further address the bridging of specific organisational needs and objectives. Often, specific industry or organisation cases are sourced and used for these additional learning opportunities. Industry-specific examples are also included to contextualise learning. Podcast on specific topics are also developed to address work-related issues. Webinars (online seminars) by industry experts are also included to add to the variety of learning methods.

These selected content materials and activities are put together in a proper sequence, very much like jigsaw puzzles. To complete the picture, the overall introduction, objectives and summary are then written appropriately for the new program. A new study schedule is also prepared for the structured program.

The total set-up time to prepare the content for such programs has been a pleasant surprise to many clients. This is in comparison with other set-up which requires long development time.

In the process of customisation, it is inevitable that third party contents are used. Though permission has been sought and given for the regular subjects, there is a need to obtain the necessary permission to use this same content for a different group of learners. The Licensing Executive in the business school works on this aspect of program development. He liaises with the owners/publishers to seek permission for the use of third party content by the business school for a specific corporate client.

The work hitherto

It is not by pure coincidence that the business school is able to leverage its more than 1200 content topics in the creation of customised corporate programs. It is the result of a carefully crafted organisational content creation and management strategy with the objective of leveraging its intellectual property to support learning and performance of organisations. At the business school, a learning management system (LMS) is used to plan, deliver and manage the programs. In addition, a learning content management system (LCMS) is acquired at the same time to create and manage proprietary learning content and development processes. Indeed, these two systems have been critical in enabling the school to offer programs (including customised programs) in an efficient and effective fashion.

The LCMS selected allows the creation of learning object templates which the content can reside. The overall look and feel is designed and adopted for all the subjects developed in the school. For example, a color palette was selected to match with the company corporate colors.

As in all templating works, the latitude to be creative or to allow for differences is compromised to a certain extent. Decisions in many aspects were made to ensure a balance in the degree of consistency and individual differences in design creativity. Learning activities that are useful for the learners are identified. Common types of content are also identified. Each of these has a specific color from the main color palette. Each has an icon of its own. Each of these activities also has standard features specifically relevant for it. For example, there is always an instruction that follows each reflection activity. All learning objects also have standard features such as meta-tagging features. Items such as graphics and animation come with the alternate text entry features. Interactive learning elements are design with similar functionality and exhibit the same general behaviour. For instance, in all the self-assessment questions, learners are given unlimited tries; there is an option to reveal the answers and feedback is provided for all options. This is critical to avoid burdening learners with unnecessary cognitive load which is totally unproductive, and indeed may infuriate the learners as they have to re-learn the laws of learning engagement constantly! In this case, consistency means predictable outcomes, translating to learning efficiency. This is made possible with the use of the templates in the LCMS which brings about a high level of consistency in content development, leading to a final product that is uniform in look and feel, functionalities, as well as the underlying programming codes. All these contents can be assembled together quickly in the packaging component of the LCMS.

Decision was also required on the size of the reusable unit. Each subject is made up of several segments, which are made up of topics, with each topic consisting of sub-topics. So, at which level should the re-usable units be created? Decision was made based on the frequency the unit would be re-used and ease of maintenance. There is an average of 7 segments and 6 topics in each segment, totaling an average of 40 topics in one subject. It is ideal to use a segment as the re-usable unit, but realistically, not all topics in each segment are re-used. It was then decided to create the topic as the re-usable unit. This means that the smallest unit for re-use, for mix and match is at topic level.

This decision has great implication on the design of the subject. For each online topic to be truly a sharable content object (SCO), it should be a standalone unit with its own learning objectives, learning activities, self-assessment questions and a summary. There should be no links from the re-usable unit to another unit. Metadata are entered at this level of content as the minimum requirement. Illustrations that span over many segments in each subject are also carefully worded to ensure that each illustration in each topic can still be used on its own without referring to the illustration in other topics. An example is the use of a rolling case that brings up situations in the same organisation over several segments and topics to illustrate real-life problems. The background information of the case should be available in each topic.

There should not be cross-references made to content found elsewhere outside of the topic. For instance, we should not have such a sentence, *“In an earlier segment, you learnt about the characteristics of the Waterfall software development process.”* Instead the characteristics should be repeated and summarised in this topic.

With the decision made on the re-usable level and all the content are developed to this level, the selection of content for the customised programs are thus made at the topic level or above, that is at the segment level.

Once the required content has been identified for the customised program, the development team at the business school is able to assemble it for deployment in a short period of time using the LCMS. This is because there is no need to design and develop any online content from scratch. Contents that are required can be retrieved from the LCMS for reuse. With this repository, reusable content chunks (topics and segments) can be assembled quickly for content customisation according to the target audience, avoiding duplication of development efforts. Thus, the client is able to offer its employees a highly relevant, personalised and valuable learning program. As can be seen above, the use of the LCMS has been pivotal in realising the school's objective of leverage its high quality content for different target audience.

Conclusions

The successful development and the re-use of the knowledge assets in U21Global has resulted in satisfaction from many corporate organizations in the short set-up time from design to implementation of customized programs catered to specific needs of the organizations. Indeed the university is witnessing a timely harvest of early discipline in content development. More programs are in the development as this paper is written.

The effective use of content has also added confidence to the school and particularly the learning design team who have painstakingly and faithfully followed some best practices to ensure that this sustainable use of the content is met.

This has also propelled other partner universities to start considering using the suite of existing U21Global content and building new content which can also be mix-and-matched with the existing content. When that happens, true sharing of quality online content leading to sustainability happens.

As with any organisation, there is always a need to continue to stay ahead of competition. It is therefore important for the school to be aware of trends and learning technologies that have an impact on eLearning. Further research is required in new learning opportunities in the short and medium term in the following areas.

In a knowledge economy, employees are increasingly empowered to make business decisions. This competency can be developed through the use of real-life business scenarios in an online course. Specific scenarios can be developed where learners are required to identify the issues to be resolved. They will decide the appropriate action to be taken at different decision point. Use of such branching scenarios provides opportunities for learners to make business decisions in a risk-free environment. They are also able to learn valuable lessons from the consequences of each decision taken. Such learning activities add realism and relevance to what is being taught. Indeed, the complexity of the scenario is limited to the number of parameters and variables that are to be considered.

With the vast amount of information within easy access, the professor is no longer the person who has all the answers. As the learners are from different background and culture, it is even more logical to leverage on this diversity for a richer learning experience. Thus at the business school, a learners' participatory approach is advocated at the school. Learners are encouraged to share their views and opinions on a wide range of issues using various podcasts, vodcasts, blogs and wikis. Before expecting the learners to use each new learning tool, students will be first provided the necessary help and guidelines. To make use good use of this user-generated content, the professor will be required to evaluate the content for accuracy integrity and appropriateness. The selected content may then be considered for use in a subject. This will help to grow the content and at the same time ensuring that it is 'fresh' content that is of value to learners.

With the boom in the mobile device industry, it presents an opportunity for us to make use of these handheld devices to support learning. Content should be presentable in different platforms other than just the desktop, laptop and CD-Rom. It should include platforms such as that of hand-held device. Mobile learning (m-Learning) may be simply described as e-Learning on a mobile device, combining mobile computing and e-Learning. It makes sense for the school to enable its students who are busy executives to have access to useful content when they have pockets of free time – such as when they are travelling in the cab or while waiting for their flight at the airport. Thus, learning can occur on demand, at anytime and any place!

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Biographical notes

Sarah Teo and Peggy Pang are senior managers in Universitas 21 Global (U21Global), a leading online business school. They provide leadership in learning design and courseware development. They oversee the process of content development, from establishing design guidelines and specifications to the selection of developers to quality checks in design and development and the evaluation of online subjects. Ms Teo and Ms Pang lead in setting standards and provide consultancy in areas of learning environment, learning activities and use of learning tools, including learning management system, learning content management system, synchronous and asynchronous tools for online learning.

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