

Designing Course Management Systems for ESL Instruction in Institutions of Higher Learning: A Needs Analysis

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Abstract: Course Management Systems (CMSs) are becoming more important within the higher education scenario. However, the main weakness of these systems is that they are built for general use without taking into consideration the peculiarities of each discipline. This research describes a study on the needs of ESL instructors in selected Malaysian institutions of higher learning when it comes to course management systems. The findings indicate that it is very important to cater to the needs of the target users of CMSs especially the requirements for the discipline or subject. The respondents also rate communications and collaboration as important as well. This study finally present some design features based on the findings of the study.

Key words: Course management systems, learning management systems, language learning, learning-driven design, discipline, Malaysia

INTRODUCTION

Course Management Systems (CMSs) are systems that provide facilities for teachers and students to engage in teaching and learning activities online by helping to manage various functions like course content preparation and delivery, communication, assessment, administrative functions and collaboration (Ellis, 2001). Other terms have also been used to describe CMSs: online learning environment, virtual learning environment and course in a box (Collis and De Boer, 2004).

One of the more systematic and better known investigations of the use of E-learning in higher education is by Zemsky and Massy (2004). Although criticised for its methodology (Sausner, 2004; Twigg, 2004), the research points out that the way forward after putting materials into a CMS is to make use of subject-specific, interactive learning objects within a course. Costabile *et al.* (2005) says that some characteristics of didactic modules (Materials) are bound to the functionalities of the E-learning platform used to create it. Taking this in mind with Zemsky and Massy (2004) suggestion that materials be subject specific, one need to ask whether a CMS designed for general use would be good for a specific subject?

Kuriloff (2001) does not think so and in the aptly titled article One Size Will Not Fit All, suggests that CMS better designed to handle specific subjects are needed. This a need recognized by blackboard as well

(Finkelstein and Pittinsky, 2003) which offers the so called building blocks to cater for different disciplines and subjects. A visit to their catalog page for building blocks (<http://www.blackboard.com/extend/b2/>) on 5th November 2009 however, shows a glaring absence of blocks for language learning or any other learning for that matter just a plethora of categorized tools. In fact, no CMS reviewed using the tools provided by the Edutools website at www.edutools.info claims to be designed for language learning.

Purpose of the study: In Malaysia, a number of Institutions of Higher Learning (IHL) have implemented E-learning initiatives typically by adopting a CMS package (Poon *et al.*, 2004). However, as yet there has been no investigation into the needs of ESL instructors when it comes to CMS and language teaching in Malaysian institutions of higher learning. With the acknowledgement of English as of a strategic importance to the nation such an investigation would be very timely. It would help to guide development on a CMSs geared for language teaching for use in Malaysian IHLs. This study describes an investigation on the needs of ESL instructors at selected Malaysian IHLs when it comes to course management systems for language instruction.

Review of related literature: The available literature on the use of CMSs for language learning and instruction is also largely promotional in nature such as by Brandl

(2005), Robb (2004) and Siekmann (1998, 2000). Research and reports that deal with CMSs in language learning environments include Masuyama and Shea (2003), Masuyama (2005), Zhang (2004), Zhang and Mu (2003) and Da (2003).

The paucity of research related to the use of CMS for language learning could very well lie in its so called strength, a one size fits all philosophy (Kuriloff, 2001) that casts the learning of all subjects in the same manner (Lamberson and Lamb, 2003). Language learning is vastly different from the learning of any other subjects (Moffett and Wagner, 1983) yet CMSs are designed with uniformity of tools and features.

This gave rise to calls for CMSs to provide more flexibility to better allow language teaching and learning to take place. Kuriloff (2001) argues that CMSs cater to the lowest denominator as it treats the teaching of all disciplines in the same manner. Sanchez-Villalon and Ortega (2004) and Kuriloff (2001) describe the lack of functionalities for writing and composition in the current crop of CMS. Corda and Jager (2004) claim that CMSs currently offer more assessment features rather than language practice features commonly associated with language learning.

Having recognized the lack of language learning support in available CMSs, Sawatpanit *et al.* (2003) developed BRIX, a course management system for language learning based on the needs of language teachers at National Foreign Language Resource Center (NFLRC) at the University of Hawaii. In their analysis, the researchers identified several weaknesses with two leading course management systems used: Blackboard and WebCT. The most critical weakness is the obvious, glaring fact that both CMSs were not designed with language learning in mind. The researchers detailed the development of their platform that focused on support for writing, reading and listening activities with the system.

The lack of support for language instruction and learning in current CMSs points to the need for an investigation on how to integrate such support into a CMS design. The method employed by Sawatpanit *et al.* (2003) is the most relevant for this study. Sawatpani *et al.* (2003) uses informal needs analysis and design guidelines from Plass in 1998 (Sawatpanit *et al.*, 2003) to create BRIX. The design of the CMS is driven by the pedagogical practices and needs of the language instructors at the University of Hawaii. This study adopted a similar approach and the methodology.

MATERIALS AND METHODS

The study uses a survey in order to investigate the needs of ESL instructors at selected institutions of higher learning. The study aimed to answer the following

question: What are the needs of the instructors when it comes to a CMS for language instruction? A study that intends to look at the needs of a fairly large population would be better served by the use of surveys (Ary *et al.*, 2002) this is the reason for choosing this method over others like focus groups for example.

The sampling method used is purposive sampling meaning that the sample and population are drawn with specific predefined criteria. The population for this study is made up of ESL instructors at Malaysian IHLs that use course management systems which comes to twelve institutions (Poon *et al.*, 2004). The reason for including only institutions that use course management systems is the researcher's assumption that instructors at such institutions either make use of the CMS or at least have been exposed through training and introductory sessions. The total number of ESL instructors at these institutions are above 500.

However, due to logistical and financial constraints, the survey could not be carried out in all the institutions. More importantly as the questionnaire contains significant qualitative responses, the task of managing, coding and analyzing the data from all institutions was not be possible within the constraints of the current study. Based on these factors, it was therefore decided that the survey will be carried out at four selected institutions. Together the total number of ESL instructors at these institutions are 70. The universities are also suitable for the purpose as they have implemented the use of CMSs for a number of years. This means that the instructors are well-versed in issues regarding their usage of CMSs. Equally important is the fact that the universities have robust policies on the use of course management systems. Purposeful sampling is a form of nonprobability sampling and therefore, cannot depend on the rationale of probability theory.

The instrument used is a 41 item questionnaire developed by the researcher. The questionnaire is divided into three sections: background information, CMS tools and tools for the four reading skills. It is designed to elicit both quantitative data and qualitative data by including open-ended questions as well. It went through a piloting process to determine content validity and usability by having it checked by three lecturers and four language teachers at two institutions of higher learning.

The instrument was developed based on several sources. The first is the COVCELL survey that is ongoing at the time of the study. COVCELL is an EU funded project to create an online learning environment using Moodle. The objective of the COVCELL survey and this study's are similar i.e., needs assessment of language instructors. Another set of sources of reference is the literature on the use of CMSs for language teaching as

Table 1: References for questionnaire's sections

Questionnaire sections	Source/references
Background information	Hamat and Embi, 2005
CMS tools-Content development and sharing	Edutools (2008), Covcell (2006)
CMS tools-Communication	Edutools (2008), Covcell (2006)
CMS tools-Collaboration	Edutools (2008), Covcell (2006)
Tools for writing	Covcell (2006), Kuriloff (2001), Sanchez-Villalon and Ortega (2004)
Tools for reading	Covcell (2006), Chun and Plass (2000), Lomicka (1998)
Tools for speaking	Covcell (2006), Volle (2005)
Tools for listening	Covcell (2006), Hoven (1999)

some of them provide clue to the sort of needs that require investigation or assessment. Finally, information from Edutools was used for classification and categorization of tools (Table 1).

The study is intended to discover the needs of language instructors at selected Malaysia IHLs. It deals primarily with the what and not the why and according to Llyod (2005) is best dealt with using descriptive analysis in order to identify a pattern of needs. Descriptive analysis for this research question could be met easily with statistical software like SPSS which was in fact used in this study. The questionnaires were distributed to instructors at selected IHLs and the return rate is 52.8% (37 out of 70). However, only 31 elected to respond fully to the questionnaire, the remaining six returned the questionnaires with notes saying that their lack of experience with CMS preclude them from responding to the questionnaires. Therefore, the actual and workable return rate is 44.28%. This is despite the researcher employing a standard procedure in surveys using follow up calls to ensure better return rate.

The form of descriptive statistics that are used for data analysis is primarily frequency analysis. The instrument's qualitative portion were analyzed and coded for presentation. The patterns gleaned from the analysis of the data are used as indicators for areas within a CMS that needs to be given focus within the Malaysian IHL context. A discussion on translating these needs into possible design guidelines for a course management system for ESL instruction is also presented.

RESULTS AND DISCUSSION

The most significant finding based on the data is that the respondents overwhelmingly want a CMS that specifically caters to their needs as language teachers. This can be seen from the responses on the whether they would like to have templates for teaching the language skills in the CMS. The Yes is in the 80s or 90 percentages with the exception of writing which is only 51.6%. Significantly too, very few answered No, opting for Not

Table 2: Responses to templates for online language activities

Templates	Yes (%)	No (%)	Not sure (%)
Writing templates	51.6	25.8	22.5
Willing to learn more to make use of the templates?	74.2	0.0	26.8
Reading templates	83.9	0.0	16.1
Willing to learn more to make use of the templates?	80.6	0.0	19.4
Listening templates	90.3	0.0	9.7
Willing to learn more to make use of the templates?	87.1	0.0	12.9
Speaking templates	93.5	0.0	6.5
Willing to learn more to make use of the templates?	80.6	0.0	19.4

Table 3: Tools ranked by respondents

Rank and tools	Count	Total
Online dictionary	Useful = 5, Most useful = 22	27
Web forum	Needed = 14, Most needed = 12	26
E-journal	Useful = 19, Most useful = 6	25
Document collaboration	Needed = 15, Most needed = 9	24
Blogging	Useful = 17, Most useful = 6	23
Online marking tools	Useful = 16, Most useful = 17	23
Assignment dropbox	Needed = 16, Most needed = 5	21
Online multimedia glossary	Useful = 14, Most useful = 7	21
File sharing and management	Needed = 18, Most needed = 2	20
Peer review and assessment	Useful = 16, Most useful = 4	20
Online whiteboard	Needed = 9, Most needed = 10	19
Private messaging	Needed = 12, Most needed = 6	18
Voice/text chat	Needed = 11, Most needed = 5	16
Collaborative writing	Useful = 12, Most useful = 4	16
Content editors	Needed = 11, Most needed = 4	15

Sure in most cases. This supports the argument made by Kuriloff (2001) who says that one size does not fit all. Table 2 shows the respondents' view of the use of templates to conduct online language activities.

Another salient finding is that the respondents consider communication and to a slightly lesser extent, collaboration to be very important in a CMS. One reason for this may be that effective language learning requires practice in and understanding of communications.

The respondents also seem to be more used to the idea of their online interactions to be textual in nature. This can be seen from the lower number of respondents who use CMSs for speaking and listening. This could be explained by the fact that the web is traditionally textual. It is however, changing as there are more multimedia contents and facilities available. The prototype developed for this study, for example has the ability to handle multimedia contents and allows for teaching of listening and speaking in a limited fashion.

Table 3 shows the most highly ranked tools (Ordered by rank) in the survey based on their count of the two positive markers (Most Important/Important or Most Needed/Needed). The tools mentioned in the survey should be taken as suggestions and possibilities instead of as written in stone. The respondents are a small part of the population and their views of the tools are representative of only them and possibly others in their

Table 4: Possible templates in a CMS for ESL instruction

Templates	Discription
Reading	Read-answer comprehension quiz
	Read-record answer in audio
	Read-discuss-write blog
Writing	Listen-then write essay
	Write-then discuss writing (Peer review)
	Surf-discuss-then write blog
Speaking	Read-then record audio
	Discuss-then record audio
Listening	Listen-answer comprehension quiz
	Watch movie-answer quiz
	Listen-discuss

institutions. In order to be effective, a CMS should be designed to meet the needs of the target users and of the various educational settings it would be used in.

Design implications of main findings: The overwhelming response is for a CMS that provides for their language teaching needs in the form of template-based activities for the four language skills. These templates should aim to make it easy for instructors to create, deliver, manage and evaluate activities or tasks related to the language skills. The exact nature of the templates available would of course vary but the objective is to keep things simple and manageable.

A simple example would be a reading comprehension template that follows the format of read-then-answer-multiple-choice-questions. The template would present two sub-containers to the instructor. The first one is to let the instructor input the reading text which could be supported by additional embedded multimedia materials. When it is done, the instructor will be presented with the second sub-container for the quiz where the comprehension questions are input. The final stage would be to add other parameters such as time to do questions whether the feedbacks are displayed immediately after the responses, etc. The Table 4 shows some possible templates for each of the language skills.

The templates listed in the table are only a part of what is possible if a CMS has such template system in place for language activities. What is equally important is that the respondents indicate a high level of willingness to create their own templates. This means that the designers and developers of a CMS will have to make the building blocks available in a flexible and easy to use manner. Programmatically, it would be quite a challenge but it is not beyond the realm of possibility.

Ronkowski (2006) argues that the inclusion of pedagogical tools such as templates can serve to promote faculty development and student learning. She also argues that using a CMS for normal course management tasks leaves the potential of such systems unrealized. A template system for creating online language learning activities within a CMS would help to push the usefulness of the CMS to the teaching and learning of language.

Table 5: Integration of tools and communication principles

Hamat and Embi (2005)	Findings of this study
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<u>Guiding principles</u>	<u>Specific tools based on needs</u>
Integrated communications	Forum/web board
Conversational design	Internal/private messaging
Social communications	Text/voice chats
<u>Multimedia communications</u>	

The findings also indicate that the instructors surveyed place an important role for communications within a CMS. It is necessary to not just include communicative tools within a CMS but also to make them cohesive and effective. Hamat and Embi (2005) suggested four principles for effective design of communications within a CMS based on the principles of Communicative Language Teaching (CLT). These are Integrated Communications, Conversational Design, Social Communications and Multimedia Communications. Table 5 shows how the findings from study and the principles might be used to frame development for communications within a CMS.

The tools and applications mentioned in this study should not be taken as written in stone but rather as research-based suggestions and guides. Table 5 shows this point clearly. One of the specific tools mentioned is a private messaging system for one to one or one to many communications. Any CMS could include such a tool if deemed desired or necessary by its designers. However, if this tool is included and if the principle of integrated communications is taken into account, one of the possible enhancements to the messaging system is to extend its reach to mobile devices of learners and instructors.

Similarly, a web forum that is developed based on the principles shown in Table 5 could be more than text based. It could offer voice and video modes of communication if the principle of multimedia communications is taken as a guide. However, the technology needed to achieve this is not something within the scope of the framework. The framework should remain neutral in terms of specific technology or platforms in order to give the most flexibility to designers and developers.

CONCLUSION

This study has presented the findings of a survey carried out to determine the needs of ESL instructors at selected Malaysian institutions of higher learning when it comes to course management systems for language instruction. The findings indicate that the respondents want a system that caters to their needs as ESL instructors specifically for templates that allow them to

carry out language-specific activities online. The respondents also place high importance in communications and collaboration; it can be concluded that a CMS for language instruction should give priority to these types of applications. The study also presented some possible design features based on the findings of the study.

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