

Course Management System (CMS) Utilization and Effectiveness for Teaching: Higher Education Teachers' Perspective

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Abstract: This study investigates the utilization and effectiveness of Course Management System (CMS) as perceived by higher education teachers at the university level in Bahrain. As this technological breakthrough creates impact to tertiary education, the researchers prompted to conduct this study to ascertain the extent of utilization and level of effectiveness CMS. Specifically, this study sought answers to the following questions: What is the level of utilization of CMS for teaching?; What is the level of effectiveness of CMS for teaching?; and Is the level of utilization of CMS significantly related to the level of effectiveness of CMS for teaching? A total of fifty five college professors from five different colleges actively participated in this research. The respondents were classified according to college and department affiliation. The data were gathered through a duly-validated researchers-made questionnaire-checklist which was communicated to the respondents via the university Moodle. The researchers noted the following findings: As to extent of utilization, the results revealed that college professors occasionally utilized CMS for teaching. As to the level of effectiveness, the results underscored that there was highly effective use of CMS for teaching. Furthermore, the results typify that the level of utilization of CMS is significantly related to the level effectiveness of CMS for teaching. The results have been corroborated by several related researches and the participants' responses obtained from interviews and focused group discussions or FGDs.

Keywords: Course Management System, CMS, extent of utilization, level of effectiveness, higher education teachers, perspective

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Introduction

Course Management Systems has now become prevalent and accessible among professors in colleges and universities. This educational infrastructure emerges significant like other breakthroughs in technology. Its relevance and utilization of course management system to higher education is indisputable (Morgan, 2003). For most faculty members, course management systems have been the most important entry point into using technology in

instructions. Medford Campus defines course management system or CMS as “an Internet-based software that produces and allocates course content, handles student enrollment and follows student accomplishment.” According to him, “the CMS allows instructors to broaden the classroom past its conventional restrictions of time and space.” He further exemplifies “that with the introduction of digital libraries, the term CMS is being replaced by Learning Management System or LMS. This term extends the previous CMS concept to include tools that allow simple entrée to digital assets and permit a wide range of teamwork activities.”

There are many CMS’s that can be utilized in college instructions. Walsh (2011) listed the best hosted course management systems, namely: Moodle, Sakai, Blackboard, SchoolRack, Schoology, Rcampus, AdrennaLearn, MyIcourse, Nfomedia, Edu20.org, LatitudeLearning, CourseSites, and EctoLearning.

Campus *et al.*, (2012) explain that “course management systems allow the instructor to publish files to a section of the CMS for students to download, or simply publish a list of hyperlinks that students can click through to read additional materials online. Some CMS also allow students to upload files into their personal space.”

Through CMS tools like online discussions and chat, the instructors and students can carry on with conversations past the four corners of the classroom. In this way, the teachers can further ask the students to exemplify their thoughts in the lessons discussed in the class. The teachers may also consider students’ responses as parts and parcel of their classroom involvement and marks accordingly. Furthermore, teachers can use CMS facilities or features for instructions, data collections, online submission of homework, online assessment, online feedbacking, amongst others.”

Lane (2009) elucidates that “CMS, like any other technology, has an inherent purpose directed in their blueprint, and therefore a built-in pedagogy.” She further emphasizes that “although these pedagogies are based on instructivist principles, today’s large CMS’s have many features suitable for applying more constructivist pedagogies.”

The researchers convey affirmation with Lane on the popularity of CMS or LMS as a built-in pedagogy. However, as commonly observed, many educators are still unaware of its importance to teaching and its impact to learning process. In fact, few college faculties in colleges and universities use “CMS features, or even adapt their CMS very much, despite the several customization options, as described by Morgan (2003).

Morgan’s assumption holds that most college teachers do not work or play much on the Web. More often they utilize Web-based systems mainly at their basic level. He articulates that “the CMS can establish the way Web-novice teachers instruct online, promoting scheme based on embedding of materials and stimulate procedures that center on organizational responsibilities.” He avers that the answer to this ‘underutilization of the CMS’ is to focus on pedagogy for Web-novice faculty and allow a choice of CMS.

According to Lane (2009), “many instructors teaching online today are not ‘Web heads’; most are not initial adopters or faculty innovators who created their own courses years before course management systems existed.” Lane asserts that “faculty members don’t work online or using CMS because they waste their time twittering, chatting, blogging, and reading feeds.” Furthermore, this contention was either because they felt their market value would slip if they don’t use online, or because their department or dean told them they must.

Samarawickrema and Stacey (2007) quoted by Lane (2009) corroborated stating that “teacher’s implementation of technology is based on top–down orders rather than curiosity or talent.”

As to Reid (2006), “instructors do not possess the ‘information literacy’ skills now required of many undergraduates despite an assumption that professors are all computer–savvy. Dykman and Davis (2008) back up Reid’s statement confirming that “some of these teachers have been teaching in the classroom for many years, and have developed successful instructional formats for themselves, be they traditional or more collaborative. Then these teachers are assigned to work with CMS. When this happens teachers need pedagogical guidance to work effectively with technology.”

Anchored on the foregoing concepts and researches, this study takes an important step toward in-depth research investigating how higher education teachers at the university level in Bahrain currently use course management systems, to what level of effectiveness and to what extent they use them.

Material and Methods

This study was conducted in order to determine the extent of utilization of Course Management System (CMS) for teaching among the higher education teachers at the university level in Bahrain and to find out the significant relationship between the extent of utilization and the level of effectiveness of CMS.

To realize these objectives, the descriptive survey method of research was used. A questionnaire-checklist was utilized for this study. It was constructed by the researchers, underwent validation by experts, tested its reliability, and administered for the purpose of gathering the quantitative data. The researchers communicated the survey questionnaires to the respondents via Moodle, university’s active CMS. Printed forms were given to those who could hardly make it online. Retrieval of printed questionnaires was done personally by the researchers. Semi-structured interview and focused group discussions were also used to corroborate and substantiate the results of the study.

The pilot-tested research instrument had three (3) parts: Part I gathered data about personal information about the respondents, college and department affiliation and computer usage habit. Part II obtained the data on the extent of utilization of CMS in academic tasks while Part III collected the data on the level of effectiveness of CMS for teaching.

As to respondents of the study, the researchers came up with fifty five college professors currently working in the university. The participants were chosen through convenient random sampling and were classified according to college and department. Out of the 102 survey forms floated, 55 or 50.98% responded wherein 3 of them indicated that they are not using the CMS, hence was excluded in the survey.

This study used five-point Likerts' scale items pertaining to extent of utilization of CMS: 5- Always (4 to 5 times or more per week); 4-Frequently (2 to 4 times per month); 3- Occasionally (2 to 3 times per week); 2- Rarely (up to 6 times per trimester); and 1–Never (0 times per trimester). A criterion which served as the basis for the interpretation of the mean ratings is as follows: 4.51–5.00 (Always); 3.51–4.50 (Frequently); 2.51–3.50 (Occasionally); 1.51 – 2.50 (Rarely); 1.00–1.50 (Never). For items in finding the level of effectiveness of CMS, the following scales were used: 5– Very highly effective; 4–Highly effective; 3–

Moderately effective; 2–Minimally effective; 1 –Not effective; 0–Not applicable. A criterion which served as the basis for the interpretation of the mean ratings is as follows: 4.51–5.00 (Very highly effective); 3.51–4.50 (Highly effective); 2.51–3.50 (Moderately effective); 1.51–2.50 (Minimally effective); 1.00–1.50 (Not effective).

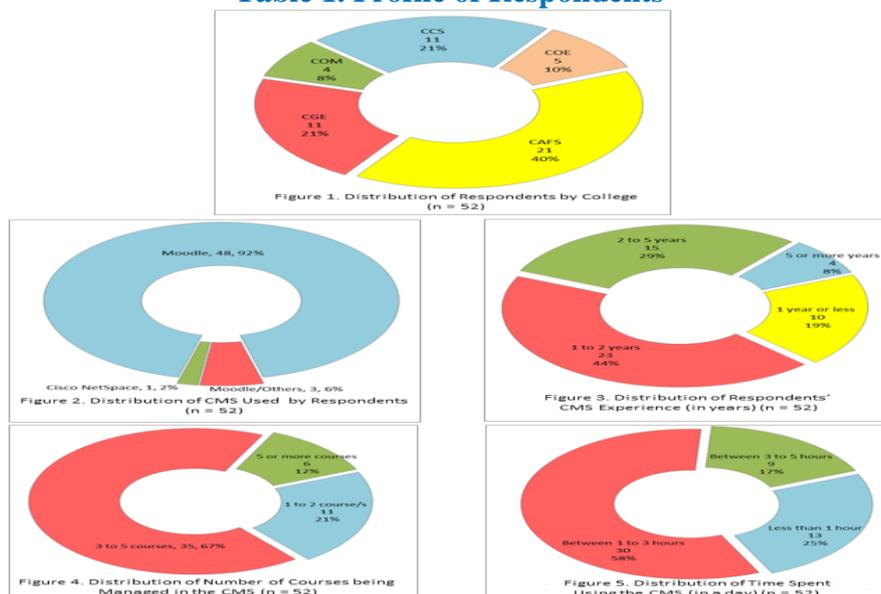
The data gathered were subjected to the following statistics: for descriptive statistics, the frequency count, mean, and standard deviation were used; for inferential statistics, the t test and the Analysis of Variance were used. The data were computer-processed through the Statistical Packages for the Social Sciences (SPSS) software. Level of significance was set at .05 level.

Results and Discussion

This section discusses results on the extent of utilization and level of effectiveness of CMS among the higher education teachers at the university level in Bahrain. This segment has three important parts: first, the profile of the respondent in terms of college affiliation, CMS used by the respondents, experience in using CMS, number of courses managed by CMS and time spent using CMS; second, the extent of CMS utilization; and third, the level of CMS effectiveness. The current data were obtained through the use of a researchers-made, duly-validated and pilot-tested survey questionnaire which was floated into the Moodle.

Respondents' Background Profile

Table 1. Profile of Respondents



Presented in the foregoing figures in Table 1 are distributions of respondents in terms of college affiliation, CMS used by respondents, CMS experience, number of courses being managed in the CMS and time spent in using CMS.

Figure 1 shows the number of respondents for each college. College of Administrative and Financial Sciences (CAFS) revealed the highest number of responses, 21 or 40%. College of Computer Science (CCS) and Center for General Education (CGE) have the equal number of participations, both having 11 or 21 %.

College of Engineering and College of Medicine, 5 or 10% and 4 or 8% respectively, have the minimal number of respondents. On the distribution of CMS as used by the respondents, Figure 2 indicates that 48 or 92% of the respondents used Moodle, while only 1 or 2% reported to using Cisco. Three or 6% of the respondents revealed that they used Moodle and other CMS. As to the distribution of respondent’s CMS experience, Figure 3 specifies that 23 or 44% respondents have already used CMS 1 to 2 years. Twenty nine or 29% indicates that they have used CMS from 2 to 5 years now. There are 4 or 8% stipulates that they have used CMS for 5 years or more years contrary to the 10 or 19% that reveals CMS has been used for 1 or less 10 months.

In Figure 4, the distribution of number of courses being managed in the CMS is shown. Thirty or 67% of the respondents admitted that they use 3 to 5 courses in CMS. Six or 2% represents the number of respondents who manage 5 or more courses in CMS while there are 11 or 21% specified 1 to 2 courses only. When surveyed on the time spent using CMS, respondents indicated that 30 or 58% of them use CMS between 1 to 3 hours. There are 9 or 17% disclosed that they use CMS between 3 to 5 hours while the 13 or 29% have indicated that they use CMS less than 1 hour in a day.

In summary, there are 52 college teachers participated in the survey. Most of them revealed that they used Moodle as CMS as indicated by frequency of 48 or 92%. The figures showed that most of the respondents were using CMS very lately, 1 to 2 years, as specified by the frequency of 23 or 44%. The data disclosed that respondents managed only 3 to 5 courses in the CMS and most of the respondents used CMS just for few hours in a day, as indicated by the frequency of 30 or 58%.

On the level of utilization of CMS for teaching

Table 2. Mean and Percentage Distribution of Respondents’ Utilization of CMS for Teaching

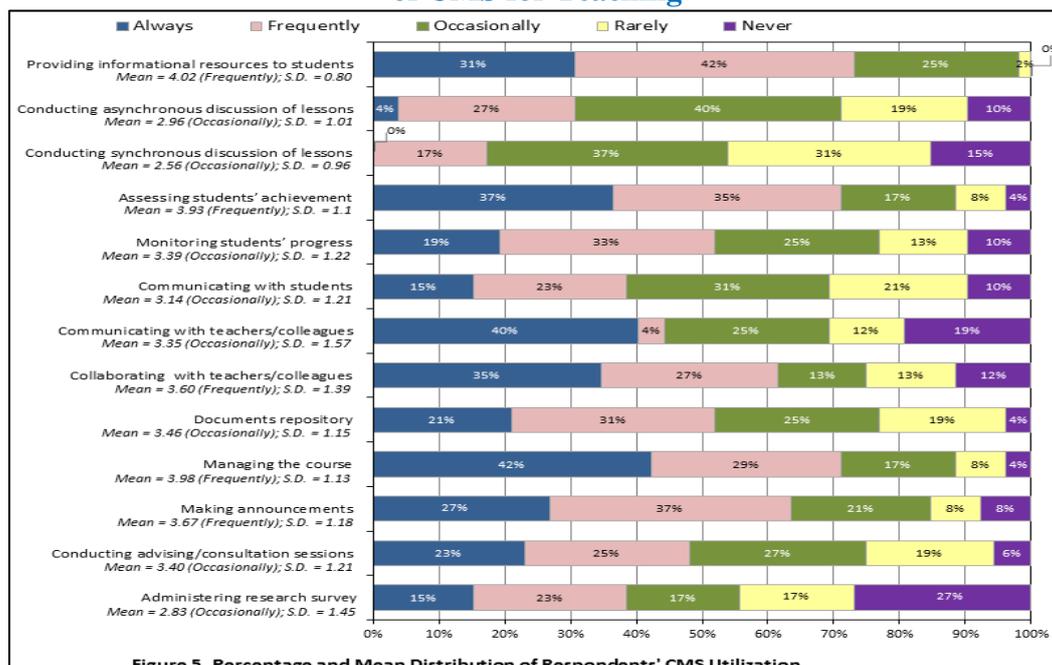


Figure 5. Percentage and Mean Distribution of Respondents’ CMS Utilization

Presented in Table 2 are the mean scores of respondents’ perception on the level of utilization of CMS for teaching. As gleaned from the table, it is apparent that respondents frequently

used CMS in providing information resources as indicated by average mean, 4.02. It means that they regularly used video lectures, podcast, audio files, e-books and pdf files in teaching, at least 2 to 4 times per month.

College teachers conveyed that they occasionally utilized CMS in conducting asynchronous and synchronous discussion of lessons as revealed by mean scores of 2.96 and 2.56 respectively. The results revealed that participants only apply wikis, blogs, forum, message boards, instant messaging, chatting on instances they were applicable. Assessing students' achievement obtained 3.93, verbally interpreted, frequently. This implies that college professors considered CMS a good channel for their quizzes, assignments and exercises, tools to evaluate students learning.

As indicated in Table 2, college professors held that CMS was used occasionally in "monitoring students' progress", as indicated by mean score of 3.39. With 3.14 mean, the respondents maintained that by using CMS (e.g. chat, instant messaging, and forum) they could "communicate with students."

In "communicating with teachers/colleagues" the mean score of 3.35 indicated that CMS (e.g. chat, instant messaging, and forum) was used occasionally. "Collaborating with teachers/colleagues" was evidently used on a frequently bases as revealed by mean score of 3.60. As explained, sharing of resources and academic discussion among professors could be done via CMS.

On "documents repository", the participants agreed that CMS help keep their files, test banks, course archives); this was proved by mean score of 3.46, described occasionally. "Managing the course" (e.g. organizing tasks using the calendar, grouping lessons/resources) with mean score of 3.98 and verbally described as frequently, was evident in Table 2.

The result also revealed that CMS was used frequently in "making announcements" (3.67, frequently) such as news, forum, labels. On "conducting advising/consultation session" and "administering research survey", surveys showed that respondents were using CMS on occasional basis as revealed by mean scores of 3.40 and 2.83 respectively.

The foregoing findings unveiled the certainty that CMS had occasionally been utilized by college professors in the university where this study was conducted. This also implies the fact that the utilization of CMS in college was deemed important in teaching-learning activities among the teachers and students at the university level as revealed by other variables.

However, there were some respondents disclosed that they used CMS due to instructions given from the top management. Hence, they used CMS occasionally as unveiled by the result of most variables. This contention was corroborated by a recent research such as Samarawickrema and Stacey (2007) stating that "instructor's adoption of technology is based on top-down directives rather than interest or aptitude."

Furthermore, Lane (2009) substantiated the argument by saying directly that "most were drafted, either because they felt their market value would slip if they didn't teach online, or because their department or dean told them they must."

On The level of effectiveness of CMS for teaching

Table 3. Mean and Percentage Distribution of Respondents' Perception on the Effectiveness of CMS

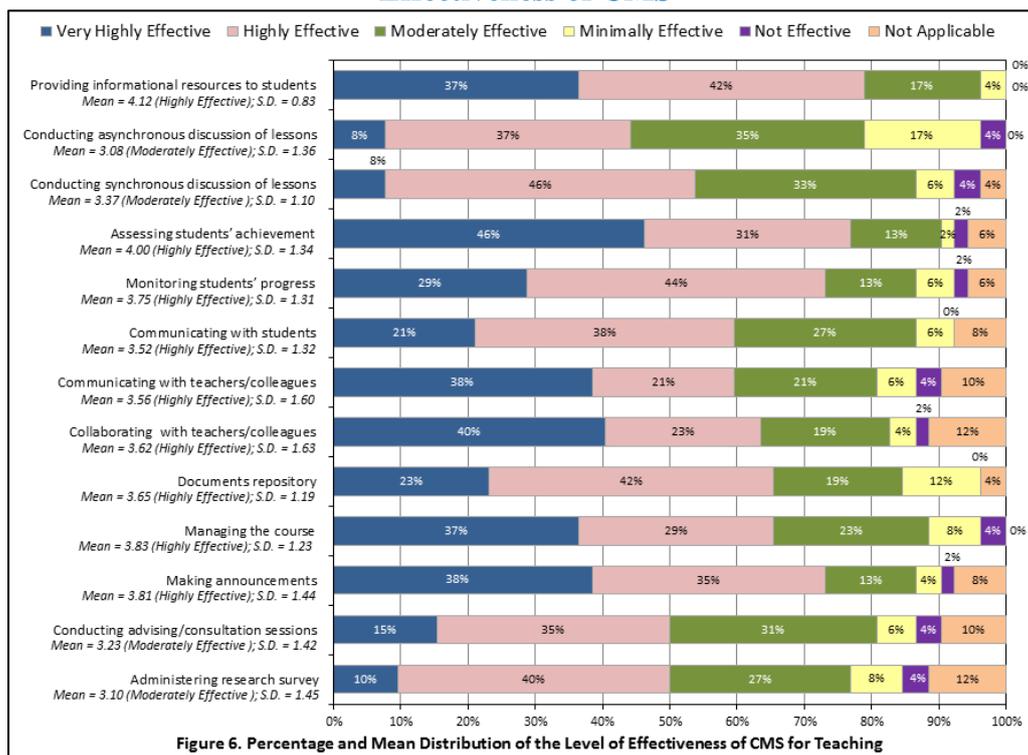


Table 3 above presents the mean and percentage distribution of respondents' perception on the effectiveness of CMS for teaching.

As indicated in Table 3, it is discernible that CMS can provide information resources to students as perceived by the respondents, indicated by average mean, 4.12, verbally described as highly effective. It typifies that video lectures, podcast, audio files, e-books and pdf files are very effective in class instruction. The respondents held, based on the mean scores, that using CMS in conducting asynchronous and synchronous discussion of lessons was moderately effective. The results reveal that college teachers considered the application of wikis, blogs, forum, message boards, instant messaging, chatting were useful. Assessing students' achievement was perceived the teacher respondents as very effective, signified by mean score of 4.00, verbally interpreted as highly effective. This only means that CMS, like Moodle and Cisco, being used in assessing student's learning tasks is extremely valuable.

As revealed in the table the following variables obtained 'highly effective' classification: Monitoring students' progress (3.75); Communicating with students (3.352); Communicating with teachers/colleagues (3.56); Collaborating with teachers/colleagues (3.62); Documents repository (3.65); Managing the course (3.83); Making announcements (3.81). The result also unveiled that respondents found the following variables to be moderately effective: Conducting advising/consultation session (3.40) and administering research survey (2.83).

The abovementioned findings confirmed that respondents held CMS to be an effective means for teaching in college, as revealed by the results of nine variables. However, some

respondents disclosed that they found CMS like Moodle effective yet there are options or customization options that were not fully utilized; hence, they could not say the real extent of its effectiveness in teaching, as unveiled by the results of three variables. Morgan (2003) supported this contention by stating that “few college faculties in colleges and universities use CMS features, or even adapt their CMS very much, despite the several customization options, because most college teachers do not work or play much on the Web, and thus utilize Web-based systems primarily at their basic level.” Three of the respondents conveyed affirmation with the abovementioned arguments, stating that they have not fully explored the important options or features of CMS, especially the one they are using in the university.

On the level of utilization and the level of effectiveness of CMS for teaching

Table 4. The Relationship between the Extent of Utilization and the Level of Effectiveness

IV: Extent of Utilization of CMS	DV: Level of Effectiveness of CMS	
	Pearson Correlation	0.849*
	Sig. (2-tailed)	0.000
	N = 52	
*Correlation is significant at the 0.01 level (2-tailed)		

Presented in the table is the relationship between the extent of the teachers’ CMS utilization and its level of effectiveness for teaching. As can be gleaned from the table, the two variables have a correlation coefficient of 0.849 and a p-value of < 0.001. This indicates a strong significant positive relationship between the teachers’ utilization of CMS and its effectiveness for teaching. The result signifies that higher education teachers understood the impact and value of CMS in teaching.

Apparently, utilization of CMS has been very effective means in providing information resources to students. The effectiveness of CMS was evident in assessing students’ achievement, monitoring students’ progress, communicating with students and fellow teachers, managing the course, making announcements, and documents depository. The result further implies that constant and brilliant utilizations of CMS are tantamount to effectual teaching, resulting to quality learning among the students.

Conclusions and Recommendations

In view of the findings revealed earlier in this study, the following conclusions were drawn: Due to the certainty that CMS has occasionally been utilized by college professors in the university where this study was conducted, many teachers are still unaware of its importance to teaching and its impact to learning process. This contention was supported by the respondents themselves and several researches and theories. Morgan (2003) underscored that “few college faculties in colleges and universities use CMS features, or even adapt their CMS very much, despite the several customization options.”

Although some respondents disclosed the fact that the utilization of CMS in college was important in teaching-learning activities as revealed by other variables, there were some respondents related that they used CMS due to instructions given from the top management. Thereby, CMS was occasionally utilized as divulged by the result of most variables. Samarawickrema and Stacey (2007) likewise, supported it, stating that “instructor’s adoption of technology is based on top-down directives rather than interest or aptitude. Lane (2009) also substantiated this contention by directly stating that “most were drafted, either because

they felt their market value would slip if they didn't teach online, or because their department or dean told them they must."

CMS was found to be an effective means for teaching in college, as revealed by the results of most variables. Hence, the researchers infer the belief that CMS was very effective. Furthermore, some respondents disclosed that they found CMS like Moodle effective; however, there are options or customization options that were not fully utilized. Thus, extent or degree of its effectiveness in teaching could not be inferred.

Morgan (2003) supported this contention by stating that "few college faculties in colleges and universities use CMS features, or even adapt their CMS very much, despite the several customization options, because most college teachers do not work or play much on the Web, and thus utilize Web-based systems primarily at their basic level." Some respondents conveyed affirmation with the abovementioned arguments.

As clearly revealed in the findings, there was a strong, significant and positive relationship between the teachers' utilization of CMS and its effectiveness for teaching. The study may infer that higher education teachers were fully convinced that CMS facilities have strong impact in college teaching.

The study may also assume that utilization of CMS may intensify learning among students and effect on the effectiveness when assessing students' achievement, monitoring students' progress, communicating with students and fellow teachers, managing the course, making announcements, and keeping documents. This further implies that steady and prudent utilizations of CMS are identical to efficient teaching, impacting to students' world class learning.

Based on the findings and conclusions of the study, the following statements are recommended:

Since CMS was important in college teaching-learning activities, constant and utmost utilization of CMS like Moodle, Cisco, among other LMS in the university, is highly desired. Although "teachers' adoption of CMS is based on top-down directives," the utilization of CMS should rather be based on awareness, curiosity, interest, aptitude, adaptability, effectiveness and success.

Since CMS like Moodle and Cisco had been found effective in teaching, college instructors may resort to using other CMS or LMS like AdrenaLearn, Blackboard, Sakai, SchoolRack, Schoology, Rcampus, MyIcourse, Nfomedia, Edu20.org, LatitudeLearning, CourseSites, and EctoLearning, as alternatives, since most of them are free and downloadable from the web (Walsk, 2011).

CMS has several customization options to employ in teaching. Hence, college teachers have to spend more time exploring CMS's facilities and features that could be adapted in facilitating online learning among the students.

Further research may be initiated using other pertinent variables to map out what must have influenced in the possible higher learning of teachers using CMS or LMS.

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