E-learning roadmap for open distance learning in Cordillera Administrative Region

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Abstract. The eLearning technology and its integration in higher education’s open and distance learning is generally claimed as matured, however actual information gathered on the ground states otherwise. This descriptive research investigated its implementation status in the Cordillera Administrative Region. It explored into the competency of faculty in course content development skills, their engagement and involvement in professional development activities, their integration of ICT in the curriculum and their eLearning culture particularly on their access of eLearning resources. The management support particularly on leadership and planning, support to ICT infrastructure, professional development, eLearning culture, and ICT in the Curriculum were also part of the investigation. Data analysis revealed that generally, faculty are ready to implement eLearning however, management should look into retooling its leadership to support the program in terms of leadership and planning, eLearning culture, and ICT infrastructure support. A roadmap was developed to serve as an implementation plan in addressing the identified issues in eLearning adoption to open and distance education. This roadmap may also service as guide for academic institutions, researchers, administrators and leaderships in implementing similar programs.

1. Introduction

1.1 Definition, Background and Application

E-learning is a teaching-learning engagement using electronic devices such computers, mobile devices, content management systems, internet and other information and communications technology (ICT) based technologies. ICT has always been beneficial to all aspects of human engagement. Academics is as one of the major beneficiaries with ICT being integrated ICT especially in open and distance education (ODE) to bridge the time and place barriers of learners and teachers. E-learning flourished in the beginning of the 20th century with the introduction of online and virtual learning systems [1] integrating various types of media including images, user interfaces, text, videos, hypertext, hypermedia, animations. Today, social media, video conferencing, collaboration tools, discussion tools, mobile applications and other related technologies are now important component of e-learning.

In the Philippines, e-learning started to popularized in early 2000 in parallel with the growing popularity of ICT in government and education. The implementation then has been a challenge with the absence of considerable ICT infrastructure to support the service was the greatest challenge to its early
adoption. Today, the improvement of ICT infrastructure and the increased penetration of internet access in the country including remote areas is seen as an advantage to support and strengthen e-learning in open and distance learning (ODL). A January 2018 report [2] revealed that there are already 68 million internet/social media users out of the 105.7 million population, which is equivalent to 63% penetration.

1.2 eLearning Adoption and Open and Distance Learning
ODL existed in the Cordillera Administrative Region (CAR) since 1997 in fulfilment of article XIV (Education) of the 1987 Philippine Constitution and republic act number 7722[3]. Republic act 10650[4] was just enacted in 2014 to support public and private higher educational institutions to offer traditional and nonconventional open distance learning. This aims to address the educational needs of individuals who are deprived of time and distance to attend regular room-based lectures such as employed or working individuals, parents and the likes. With almost 2 decades of e-learning implementation, the integration of ICT in ODL seems not yet well embraced despite initial support provided by the government [5]. Directed to a quality e-learning, the national government through the Department of Information and Communications Technology (DICT) have initiated a free e-learning platform program called Gabay Aral for government agencies; it is accessible at http://i.gov.ph/gabay-aral/. While the government have these initiatives in place, the school e-learning administration should make a directive mandating the use of the e-learning platform and should not be used as an option [6] to support blended learning.

1.3 Related Studies
While proceeding onward to "hybrid" classes employing teleconferencing in the near future [7], the distance education industry needs to consider the most essential hindrances that affect quality and subsequently learning outcomes of ODE especially technological infrastructure as the main reason behind the slow progress of e-learning adoption in most third world countries[8], [9], [10], [11] and issues on lack of leadership[12], [13] as well. While some course specialists in the Philippines are fully confident in handling Open University System classes[14], there is still a need to stimulate innovative practice among faculties who stay unengaged in ODL[13], increase teacher’s ICT competency[15], [16], support and sustain innovative practice among the innovators[13], and stimulate the support of the business area in creating competency measures and curricula[17]. While Higher Education (HE) are confronting real difficulties including faculty acceptance in an international perspective[18], faculty members are involved in numerous instructional design exercises without formal training in learning theories and the science of instruction[19], and studies shows that several countries[9], [10], [12] do not have the necessary conditions for the development of quality educational contents, an IT teaching-learning program for faculty development preferred by the faculty[20] that integrates course design[1], [21] and preferably conducted online[22], [23] should be in place as the focus of an e-learning program[24] followed by a performance assessment for quality assurance and continuous improvement[25]. Among other solutions for these barriers are: standardization; strategies; funding; integration of e-learning into the curriculum; blended teaching; user friendly packages; access to technology; skills training; support; employers paying e-learning costs; partnership with other sector, international organizations, and multinational companies[9] and prioritizing skills training and management support[26].

2. Methodology
This study used a descriptive research and unstructured survey method to understand the limited success to e-learning in the CAR. It focuses and investigated on the factors of lack of human resources with sufficient competence and motivation, technological infrastructure, and lack of leadership in providing adequate and appropriate support as inputs to coming up with an e-learning roadmap (see Figure 1). Based on a comprehensive faculty development framework for ODL[1], the competency level in e-learning course development of faculty deliberating their e-learning course development skills, engagement and involvement in professional development activities, their integration of ICT in the
curriculum and their e-learning culture particularly on access of e-learning resources in the ODE was assessed. The level of support from the e-learning administration was also assessed using an e-learning framework by NCTE [27] with e-learning support categories of leadership and planning, ICT infrastructure, professional development, e-learning culture, and ICT in the curriculum. Fifty-three participants composed of the ODE teachers, the ODE’s academic management and the ICT units’ staff of state-run universities in the CAR particularly Benguet State University and Ifugao State University; and who have an access to the Internet (100%) for 2-5 hours a day (68%) from their homes (87.45%) and offices (87.5%) primarily for social networking (90%) and research (80%) activities were selected using convenience sampling and were able to and provide data for analysis. These teachers are from various private/public agencies in Baguio/Benguet thus representing the region-wide academics. The data was analyzed with the use of office productivity tools and Statistical Package for the Social Sciences.

3. Findings and Discussion

3.1 Level of instructional development competency of faculty

Figure 2 shows the consolidated view of responses for the level of competency of faculty in e-learning course development. 2 out of 4 (50%) of the competency areas is reported competent level by the participants. It is evident from this study that almost majority of the faculty members are capable of completing tasks in developing e-learning courses without assistance.

![Figure 1. The Conceptual Framework](image)

![Figure 2. Questionnaire Responses for Level of Instructional Development Competency of Faculty](image)
3.2 Level of management support in the implementation of ODE

This section presents a consolidated view of all findings for the level of management support in ODE. Figure 3 shows the percentage of management support reported initial stage by more than 50% of respondents. A baseline value of 50% is taken to portray the majority opinion against each management support. Any management support reported confident and mature by more than 50% of the respondents is not accounted for here. Research findings show the following overall management support results:

- Leadership and planning: 4 out of 5 (80%) supports was reported initial stage.
- ICT infrastructure: 2 out of 6 (33%) supports was reported initial stage.
- Professional development: 1 out of 6 (17%) supports was reported initial stage.
- E-learning culture: 2 out of 5 (40%) supports was reported initial stage.
- ICT in the Curriculum: 1 out of 4 (25%) supports was reported initial stage.

![Overall view: % of management supports reported initial stage by more than 50% of respondents](image)

**Figure 3.** Overall View of Questionnaire Responses

From this study, it became evident that leadership and planning has majority of its management supports (80%) are in initial stage. Detail shows that the following management support in various categories are reported in initial stage: development of an e-learning vision, an e-learning plan and an Acceptable Use Policy (AUP) for Internet and ICT use and the support to Special Educational Needs (SEN) under leadership and planning; online presence and engagement to e-learning projects under the e-learning culture; school network and software and digital content under ICT infrastructure; integration of ICT to all aspects of SEN teaching and learning under ICT in the curriculum; and confidence and acquisition of skills by the faculty to use a wide range of technologies to facilitate the inclusion of students with SEN under professional development.

The fact that most management supports are at enabled stage, the administration needs to provide more support in advancing their e-learning engagement to confident and mature stages. The findings suggest the priorities in developing solutions for the advancement and for a more quality e-learning strategy.

3.3 An eLearning Roadmap for ODE

To go well with “hybrid” classes in the near future, the e-learning strategy must be well established the soonest possible time. Considering the findings discussed above in priority to the areas that needs improvement, an e-learning roadmap (see Figure 4) is developed to communicate direction and progress to stakeholders engaged in the e-learning. This tool which integrates the limitations of the faculty in instructional development to professional development matches the four-year long-term e-learning goals with specific objectives as milestones to help meet these goals. The goals in the roadmap are categorized as leadership and planning, e-learning culture, ICT infrastructure,
professional development and ICT in the curriculum as adopted from the Digital Learning Framework of the NCTE which is a planning tool in effectively embedding digital technologies into teaching, learning and assessment and in lined with the objectives of the Ireland’s Digital Strategy for Schools (2015-2020) [27]. While majority of the management supports are in enabled stage and after a deliberation by the e-learning administration heads from the participants on their e-learning engagement capability, achieving the confident stage in e-learning maturity takes the university a two years’ time and two years more to complete the mature stage.

| 2 YEARS | 4 YEARS |
|---------|---------|
| **Leadership and Planning** |
| Goal 1: A school with a wide-ranging e-learning vision shared by all stakeholders; an e-learning plan exemplary practiced by all stakeholders; and with an AUP which accommodates innovative use of new technologies. |
| - Develop and ratify an AUP for ICT and Internet use following consultation with all stakeholders |
| **e-Learning Culture** |
| Goal 2: Students and teachers regularly develop small-scale projects for external collaboration; and with a Content Management System which creates a communicative space where the school community publishes content that is available to a wider school community outside of school time. |
| - Deploy an active and up-to-date website that conforms to accessibility guidelines |
| - School is involved in projects that integrate e-learning (national and/or international) |
| **ICT Infrastructure** |
| Goal 3: A school with all learning areas having an access to a range of ICT equipment and with resources accessible from a central server. |
| - Extend a high speed and reliable network to all areas of the school |
| - The school creates its own customised digital content which is accessible from home and school |
| **Professional Development** |
| Goal 4: Teachers are confident and have acquired the skills to use a wide range of technologies to facilitate the inclusion of students with SEN while sharing their experiences and innovative practice with other schools. |
| - Teachers engage to professional development in ICT and SEN |
| - Teachers design online collaborative knowledge generation learning activities and adapt their teaching methodologies to use ICT in SEN |
| - Teachers confidently share their experiences and innovative practice with other schools |
| **ICT in the Curriculum** |
| Goal 5: ICT is integral to all aspects of SEN teaching and learning. |
| - Teachers use ICT diagnostic tools, assistive technologies and ICT resources to address curriculum objectives with students with SEN |

**Figure 4.** A roadmap to a matured e-learning in four years

4. Conclusion
This research investigated the adoption of e-learning in ODE in the CAR and confirmed its low actual adoption despite of the concerted efforts of various stakeholders such as the national level government, the academic institutions, the faculty and also the learners. Generally, the ICT infrastructure in CAR has at least improved however, various elements should be given attention to. The faculty should invest in their e-learning course development skills, their engagement and involvement in professional development activities, their integration of ICT in the curriculum and e-learning culture particularly on their access of e-learning resources. The management has to institutionalize the integration of e-learning by retooling its leadership to support the program in terms of leadership and planning, e-learning culture, and ICT infrastructure support. The implementation plan was presented in the e-learning roadmap, which is being recommended for implementation or adoption by the concerned universities and similar organizations involved in academics or similar programs.

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