Vol. 22 · October 2015
Print ISSN 2012-3981 • Online ISSN 2244-0445
doi: http://dx.doi.org/10.7719/jpair.v22i1.341
Journal Impact: H Index = 2 from Publish or Perish

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by AJA Registrars, Inc.

Blended Learning Approach: A Case Study

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ABSTRACT

The computer era has come to integrate and assimilate in the academic curriculum and instruction. The Blended Learning adaptation further added to the teaching and learning experience in the classroom. The study investigated the factors on the use of ICT in terms of Computer usage, Internet usage, Multimedia usage and Mobile usage in Blended Learning Approach among the faculty. It analyzed the SWOT (strengths, weaknesses, opportunities and threats) of blended learning for a Proposed 5-year Instructional Design Strategic Plan. The study used quantitative research design by the use of the constructed questionnaire and qualitative through the conducted focus group discussions within the four campuses of CHMSC. The study revealed that CHMSC faculty exhibited low extent of use of blended learning. The result also showed a significant difference in the extent of use of ICT in terms of age, sex, and workplace whereas civil status, subject taught, and educational qualification do not significantly differ. The identified factors that affect blended learning were used as a basis for a Proposed Instructional Design Strategic Plan and projected after five years. The development and package of learning materials will be realized to the clients of the institutions and other stakeholders.

Keywords - ICT, blended learning, SWOT, FGD, Instructional Design Strategic Plan, computer, internet, multimedia, mobile, descriptive design, Philippines

INTRODUCTION

Blended learning considered as the unrecognized trend in higher education method of delivery (Young, 2002). The Internet opportunities and investing to Filipinos in using ICT as a way of life are some of the thrusts of 2011 Philippine Digital Strategy of the Commission on Information and Communication Technology. According to Laurillard (1999), an electronic network has revolutionized thinking and activity about learning and information transfer. The internet becomes the infrastructure and channel of the e-learning element of blended learning.

Bersin (2004) described the emergence of blended learning as the 'natural evolution of e-learning into an integrated program of multiple media types' which can solve training and learning problems in the corporate world. Thus, this new concept- blended learning has adopted in some universities and colleges where face-to-face instruction and ICT-enabled are combined and fueled on a greater need of experiences in the learning environment. On the other hand, many studies show that blended learning takes an active model and a popular choice among students.

According to McDowell (2002), blended learning focuses a multi-faceted phenomenon that combines ICT and traditional ways of learning experiences. Hence, the immersion of every student in this pedagogy of new electronic resources is very timely in the industry.

Millions of learners around the world are learning this fashion each day and blended learning continues to climb and considered as the top ten trends to emerge in the knowledge delivery (Rooney, 2003). According to the survey conducted in the United States in 2004, the use of blended learning has doubled. In 2006, a 30% increase has been noted in all training. Furthermore, more than 1 billion learners around the world would be advancing these skills as indicated in the survey that 80 to 90% of college and industry shall be blended (Bonk, Kim & Zeng, 2005).

For some years now, the researcher saw and experienced the demand through education in the 21st century. She considered blended learning as the stepping stone for the future that reminds faculty to look at learning challenges from many directions. It is a high time that the college should maximize its resources and accommodate the learning needs of students. The instructional strategic design was planned by the school (CHMSC) through the investigation of Blended Learning Approach.

FRAMEWORK

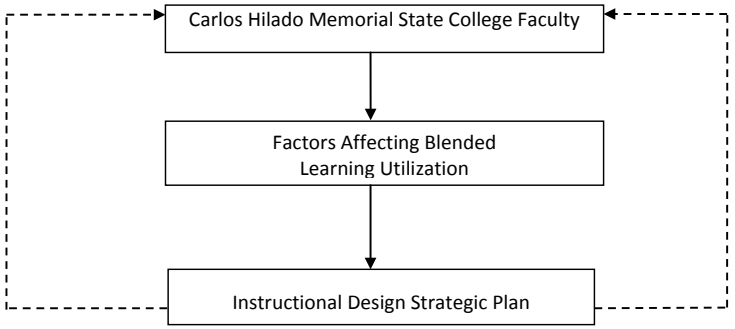

Figure 1. Framework of the study

OBJECTIVE OF THE STUDY

The study aimed to determine the factors affecting blended learning among faculty members of Carlos Hilado Memorial State College as basis for a Proposed Instructional Design Strategic Plan.

METHODOLOGY

Participants

The participants of the study were the faculty members of four campuses of Carlos Hilado Memorial State College for the academic year 2010-2011. They were chosen through stratified sampling method regardless of gender, age, location, subject(s) taught, and educational qualification.

Table 1. Distribution of respondents

Campus/Branch	N	n	%
CHMSC- Alijis	30	20	15%
CHMSC-Binalbagan	51	34	25%
CHMSC-Fortune Towne	20	13	10%
CHMSC-Talisay	102	68	50%
Total	**203**	**135**	**100%**

The quantitative and qualitative research methods were utilized to gather information regarding the factors that affect the use of ICT in preparing and delivering of instructions of faculty members of the four campuses of Carlos Hilado Memorial State College. The researcher conducted a Focus Group Discussion (FGD) and made a survey questionnaire to gather information related to the study. The first part contained the basic personal information about the respondents (age, sex, civil status, workplace, educational qualification, subject/s taught, and ownership of technology resources). The second part contained 27-question about the extent use of information and communication technology in instruction affecting blended learning.

Data Gathering Procedure

After subjecting the constructed questionnaire for validation and reliability testing, a letter of request to the Office of the President was properly secured in the conduct of the study. All of the data gathered was collated, treated and analyzed in consonance to the research design and the aforementioned hypothesis of the study. A spreadsheet software was used for more efficient, effective and accurate treatment of data.

In the conduct of Focus Group Discussion (FGD), participants were identified and digitally recorded with the permission from the participants. Furthermore, the data gathered were transcribed, analyzed, and interpreted.

Validity and Reliability of the Data-gathering Instrument

The questionnaire was submitted for face and content validation by the Information and Communication Technology and Education experts which composed of four ICT faculty members of the University of Negros Occidental-Recoletos; two in West Negros University; and three professors from College of Education and one ICT faculty of the University of St. La Salle. They checked on the appropriateness, meaningfulness, and usefulness of the inferences of the questionnaire.

The content and face validity of the questionnaire was rated by the experts using the following scale:

Number Code	Verbal Interpretation
5	Outstanding
4	Very Satisfactory
3	Satisfactory

2	Fair
1	Poor

The mean rating of the experts were computed and interpreted using the following scale:

Range			Verbal Interpretation
4.20	-	5.00	Outstanding
3.40	-	4.19	Very Satisfactory
2.60	-	3.39	Satisfactory
1.80	-	2.59	Fair
1.00	-	1.79	Poor

The result of the computed mean of the technical experts was 4.4 interpreted as "Outstanding". After the validation of the instrument, reliability testing was established. Subong (2005) defines reliability as "the consistency of the scores using the instrument measuring the same thing with similar research. It also measures how well the instrument agrees with itself." In this study, the Test-Retest Method was used to examine the reliability of the questionnaire. The validated questionnaire had undergone pilot testing to the 26 instructors of Technological University of the Philippines- Visayas. After 15 days, the same questionnaire was administered to the same group. Pearson-Product Moment (PPM) was used to correlate data for this method. The coefficient of correlation should be high or very high for the questionnaire to be reliable. The result was interpreted based on the following:

Correlation Coefficient			Interpretation
Perfect			
0.81	-	0.99	Very High
0.61	-	0.80	High
0.41	-	0.60	Moderate
0.21	-	0.40	Low
0.01	-	0.20	Negligible correlation

The computed correlation mean was 0.88 indicated as Very High.

RESULTS AND DISCUSSION

Table 1. Computer usage, Internet usage, Multimedia usage and Mobile usage in the preparation and delivery of instructions

	Computer Usage				Internet Usage				Multimedia Usage				Mobile Usage			
Variable	Preparation		Delivery		Preparation		Delivery		Preparation		Delivery		Prepara-tion		Delivery	
	$\overline{X}$	VI	$\overline{X}$	VI	$\overline{X}$	VI	$\overline{X}$	VI	$\overline{X}$	VI	$\overline{X}$	VI	$\overline{X}$	VI	$\overline{X}$	VI
A. As a whole	3.09	H	2.44	L	2.80	H	2.25	L	2.78	H	2.44	L	1.52	L	1.41	VL
B. Age																
21-30	3.75	VH	3.17	H	3.69	VH	3.08	H	3.56	VH	3.29	H	1.88	L	1.92	L
31-40	3.48	H	2.86	H	3.28	H	2.51	H	3.03	H	2.75	H	1.74	L	1.59	L
41-50	2.94	H	2.37	L	2.43	L	2.24	L	2.68	H	2.34	L	1.48	VL	1.41	VL
51-60	2.84	H	2.00	L	2.50	H	1.83	L	2.60	H	2.12	L	1.20	VL	1.04	VL
61 up	2.46	L	1.82	L	2.47	L	1.88	L	2.14	L	2.03	L	1.46	VL	1.36	VL
C. Sex																
Male	3.20	H	2.63	H	3.00	H	2.49	L	2.97	H	2.71	H	1.71	L	1.67	L
Female	3.03	H	2.33	L	2.68	H	2.11	L	2.67	H	2.29	L	1.42	VL	1.27	VL
D. Civil Status																
Single	3.43	H	2.57	H	3.18	H	2.48	L	3.15	H	2.55	H	1.60	L	1.48	VL
Married	3.03	H	2.42	L	2.73	H	2.21	L	2.71	H	2.42	L	1.51	L	1.40	VL
E. Workplace																
Alijis	3.18	H	2.65	H	2.71	H	2.41	L	2.74	H	2.69	H	1.53	L	1.69	L
Binal-bagan	2.58	H	1.81	L	2.18	L	1.72	L	2.11	L	1.73	L	1.78	L	1.64	L
Fortune Towne	2.96	H	2.64	H	2.46	L	2.46	L	2.69	H	2.25	L	1.89	L	1.87	L
Talisay	3.35	H	2.66	H	3.20	H	2.44	L	3.14	H	2.78	H	1.32	VL	1.15	VL
F. Subject Taught																
Academic	3.12	H	2.38	L	2.77	H	2.20	L	2.78	H	2.44	L	1.52	L	1.36	VL
Voca-tional	2.85	H	2.44	L	2.75	H	2.26	L	2.71	H	2.38	L	1.46	VL	1.42	VL
Both	3.65	VH	2.97	H	3.20	H	2.67	H	3.00	H	2.67	H	1.80	L	1.83	L

G. Educational Qualification

Doctoral	2.75	H	2.83	H	3.00	H	2.67	H	3.00	H	2.83	H	2.00	L	2.00	L
With doctoral units	3.06	H	2.35	L	2.72	H	2.17	L	2.62	H	2.31	L	1.55	L	1.46	VL
Masteral	2.69	H	2.60	H	3.00	H	2.33	L	3.05	H	2.63	H	1.31	VL	1.20	VL
With masteral units	3.47	H	2.59	H	3.07	H	2.45	L	3.14	H	2.88	H	1.90	L	1.91	L
Baccalaureate	2.81	H	2.30	L	2.53	H	2.20	L	2.59	H	2.22	L	1.48	VL	1.18	VL

Legend: 3.50 - 4.00 =Very High (VH), 2.5 – 3.49 = High (H), 1.5 – 2.49 = Low (L), 0.50-1.49 = Very Low (VL)

Computer Usage in Instruction

The data showed that faculty between the ages of 21 to 30, teaching both academic and vocational courses had a very high extent of use of computer in the preparation of learning materials. However, only faculty members with ages 61 and up considered having a low extent of use of computer in preparation of instruction. As a whole, the extent of computer usage in Instruction to the preparation of learning materials is therefore, broadly used by teachers at CHMSC.

In terms of computer usage in the delivery of lessons, faculty with the ages of 41 and up, female, married, working in CHMSC Binalbagan Campus, teaching academics and vocational, with doctoral units, and those who were a baccalaureate degree showed a low extent of use. Meanwhile, faculty between the ages of 21 to 40, teaching both academic and vocational courses, working in Alijis Campus, Fortune Towne Campus and Talisay Main Campus having doctoral and master's degree had a high extent of use of computer in the delivery of instruction.

Ferrero (2002) also concluded in his study that age has a significant difference in the use of ICT in favor of young teachers. Further, Muir-Herzig (2004) implies that teachers should have an access to computers to integrate ICT with instruction.

Therefore, in terms of computer usage in instructions, CHMSC faculty broadly used the computer in the preparation of learning materials, while slightly used the computer in terms of delivery of lessons. Hargittai (2003) explained that a person's level of education provides a strong indication on how he will benefit from the tools through the internet.

Internet usage in instruction.

The study revealed that faculty members ages 41 to 50 and 61 and above teaching in Binalbagan and Fortune Towne Campus seldom used the internet in the preparation of their lessons and learning materials. However, faculty ages 21-30 always used the internet in the preparation of learning materials. In terms of the internet usage in the delivery of lessons, faculty between the ages of 21 to 40 had a high extent of use of the internet as a medium in the lesson presentation. Similarly, those teaching both academic and vocational and with doctoral degree had a high extent of use of the internet.

In general, the internet technology plays a very important role in CHMSC to their lesson plans and learning materials. Nonetheless, the use of the internet in instruction in the delivery of lessons of the faculty members were rarely evident.

The study of Hernes, Hestman and Haaland (2000) mentioned the use of the Internet in teaching in correlation to the age of teachers. The teachers who are 25 years or younger have a good command on the use of the Internet compared to the teachers who are 56 years or older. This is also consistent with the findings of Liang and Chao (2002) as they concluded the Taiwan younger teachers as more literate on Internet than older ones.

Multimedia usage in instruction.

The faculty members between the ages of 21-30 obtained a very high extent of use of multimedia in the preparation of instructions while faculty members with ages ranging 61 and above and teaching in Binalbagan indicated a low extent of usage.

Nevertheless, faculty members between ages 21-40 had a high extent of use of multimedia in the delivery of instructions. Likewise, faculty members who were female, married, teaching academics and vocational in Binalbagan and Fortune Towne Campus, with doctoral units and with baccalaureate degree exhibit a low extent usage of multimedia in the delivery of instructions.

Moore (2007) explains how teachers are letting go of responsibilities in their traditional face-to-face role and integrating the pedagogical of distance learning that can actually give better learning through blended test, recorded or interactive audio or visual media with face-to-face interaction. All these provide diversity of learning styles of students.

Overall, the use of multimedia in instruction concerning the preparation of instruction were highly used. On the other hand, the use of multimedia in the delivery of instruction were used infrequently.

Mobile usage in instruction.

In terms of preparation of instructions in the blended learning approach, the result showed that faculty members within the age range of 21 to 40, single and married, male, and faculty teaching in Alijis, Binalbagan and Fortune Towne campus had a low extent of mobile usage in the preparation of instruction. Likewise, faculty teaching academic and vocational courses represented an occasional use of mobile technology in the preparation of instruction. Those with doctoral degree and with units in doctoral and masteral showed a low extent of mobile usage in the preparation of learning materials.

The extent of use of mobile usage in terms of delivery of instructions in the blended learning approach showed that faculty members within the age range of 21 to 40 had a low usage of mobile technology in delivering their topic lesson. It also revealed that male faculty in Alijis, Binalbagan and Fortune Towne campus teaching both academic and vocational courses, with doctoral degree and with masteral units had the same result for those between the ages of 21 to 40.

Table 2. The Difference among CHMSC Faculty in the Use of Blended Learning

VARIABLE	p-value	Interpretation
Age	0.00	S
Sex	0.02	S
civil status	0.11	NS
Workplace	0.01	S
subject taught	0.27	NS
educational qualification	0.35	NS

Legend: S – Significant; NS – Not Significant

As to age, the obtained p-value was .000053 which interpreted as significant. It implies that those between the ages of 21-30 have a very high extent of use of ICT in blended learning in terms of computer, internet, multimedia, and mobile usage in preparation and delivery of instructions.

As to sex, the obtained p-value was 0.017 which is significant. It implies that the male participants have a very high extent of use of ICT in blended learning in terms of computer, internet, multimedia, and mobile usage in preparation and delivery of instructions.

The same is true in the studies of Volman and van Eck (2001) concerning teachers' gender and ICT use that female teachers' have low level of computer use due to the reasons of limited technology access, skill, and interest. Moreover, research studies revealed that male teachers used more ICT in their teaching and learning processes compared to female teachers (Kay, 2006).

As to civil status, the obtained p-value was 0.112 which is not significant. It means that the single or married faculty members have the same extent of use of ICT in blended learning. As to the workplace, the obtained p-value was 0.005 which is significant. It implies that the faculty members in CHMSC-Talisay Campus had a high extent of use of ICT in blended learning in terms of computer and multimedia technology. It also implies that the campus has a high extent of use in the preparation of lesson plan and learning material. Meanwhile, the faculty members of CHMSC-Fortune Towne Campus had a high extent of use of ICT in blended learning particularly in computer usage in the preparation and delivery of instruction and multimedia usage in the preparation of instruction.

As to subject taught, the obtained p-value was 0.273 which is not significant. It means that the faculty teaching academic and vocational or both have the same extent of use of ICT in blended learning. As to the educational attainment, the obtained p-value was 0.350 which interpreted as not significant (NS). It means that any educational degree of the faculty members have the same extent of use of ICT in blended learning.

The third problem was about the factors affecting blended learning in terms of SWOT using Focus Group Discussion (FGD) approach on how the faculty members think and feel. This was the other way to collect information to improve the planning and developing of Instructional Design Strategic Plan of CHMSC. The purpose of the external analysis was to identify opportunities and threats in the organization's operating environment, while the internal analysis seeks to pinpoint the organization's strengths and weaknesses.

The result showed that the faculty members who adopted blended learning in instruction increases the students' interest in the class learning attitude and creativity. It also reflected that the faculty members who were willing to use ICT in instruction easily embrace new technology. Thus, through the use of ICT of faculty, learning objectives are reachable. It also revealed that the blended learning was an operational method in instruction which modernizes the teaching and learning in the 21st century learning experience and that the availability of classroom is no longer a problem. Furthermore, one of the assets is the computer course or subject which is already embedded in the higher education curricula.

Moreover, during the discussion with the faculty members in different campuses of CHMSC, the analysis showed that there was inadequacy in ICT resources in teaching of the faculty members' training which impeded the integration of ICT tools in teaching. The ICT resources in CHMSC in terms of instruction were still bare minimum. It also noted that many faculty members were not maximizing the use of ICT resources due to lack of knowledge in terms of hardware operating procedure.

On the other hand, the electrical power failure was also noted as there was no backup power supply to support the non-stop activity in the classrooms. These were all the product of poor budget prioritization of the institution in terms of instructions. Some faculty members think that when they adopt blended learning, this may only bring delay to their work or they will become unproductive.

In terms of external barriers, opportunities in the adoption of blended learning could be one of the investing ideas that the administration needs to ponder and commit for development and profit-benefit of the institution. These opportunities were summarized as follows: a) Possibility for online presence to access online resources and Content Management Systems; b) Increase of enrollment since the clientele finds the institution as globally competitive which the graduates can compete worldwide; c) Increase in research development; d) Improvement of physical infrastructure and facilities; and most of all, e) Methodologies and strategies of faculty in instruction will be broadened.

The changes in the external environment may present threat to the institution. There were three identified threats in the adoption of blended learning in instruction during the analysis of the discussion. One of the threats was that the graduates will be left behind in operating various ICT facilities in the industry since faculty members have no industry related experiences to various ICT media resources during college. It also reflected that not all faculty members were as "tech savvy" as the students nowadays, and there was reluctance on the part of faculty to utilize and integrate ICT tools in instructional activities. Therefore, carrying out this analysis will be illuminating - both in terms of pointing out what needs to be done, and in putting problems into perspective rather than turning threats into opportunities and strengths.

CONCLUSIONS

The researcher concludes that based on the first findings, CHMSC faculty exhibited a very limited use of the ICT in the Blended Learning Approach

in terms of preparation and delivery of instruction. Hence, CHMSC faculty members significantly differed in the extent of use of ICT in the Blended Learning Approach in terms of age, sex, and workplace.

Specifically, on the Computer Usage in Instruction showed that faculty both teaching academic and vocational courses had a very high extent of use of computer in preparation of instruction. It revealed that a young faculty was mostly dependent to the Internet technology in terms of preparation of the lessons and materials. On the Multimedia Usage in Instruction showed that preparation of lesson plans and learning materials were significantly high for the young generation faculty members. However, on Mobile Usability in Instruction, it showed significantly low extent.

Based on the SWOT analysis, Strengths and Opportunities provide CHMSC the capabilities to engage in Blended Learning for a chance to improve College' performance for its competitive advantage, while there were prevalent weaknesses and threats that could be considered in the design of the Strategic Plan.

It is recommended that the college should have a separate plan for Blended Learning Approach in teaching especially in the Curriculum and Instruction Development Unit of the college in response to the findings of the current status and future direction of faculty in the teaching arena. It is categorized into five key factors: strategy, structure, technology, management, and roles / skills. All five factors must be addressed for future projection of blended learning and expected dramatic rise of the use of ICT in teaching and learning in the coming years.

TRANSLATIONAL RESEARCH

The findings of the study may be best translated to the classroom settings in all campuses of Carlos Hilado Memorial State College by adopting the new technologies in teaching through revising its curriculum, updating facilities and laboratories and continuing training for the faculty members in blended learning utilization to become more competitive and meeting the demands of the industries and also preparing the ASEAN integration in the academic arena.

Specifically, this teaching and learning through Blended Learning is a tool in improving efficiency and effectiveness as an educator. As a whole, the study provides relevant and significant inputs concerning the use of Blended Learning in the College among CHMSC faculty members which could serve as a basis and consideration in the formulation of a proposed Five-Year Instructional Design Strategic Plan.

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