DEVELOPING HUMAN CAPITAL ON ENVIRONMENT THROUGH ONLINE LEARNING

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ABSTRACT – The recent global environmental disasters have emphasized the need to build the capacity of various sectors of our society on environmental management. Through open and distance e-learning (ODeL) and the use of various technologies, universities are able to educate the various sectors about environment and natural resource management thus eventually building the human capital of the country. The development of human capital on environment through ODeL will not only lead to advances in knowledge but will contribute as well to the growth and survival of a country. This paper revisits the Master of Environment and Natural Resources Management (MENRM) program of UP Open University (UPOU). It examines how this program contributes to the development of our country's human capital on environment. The outcomes of this study provide a systematic analysis of the reasons for applying in the MENRM program as well as the skills they acquired from the program. The offering of an environmental graduate program through online learning widens access to information and education on environmental issues and challenges as well as on sustainable environmental solution. This paper helps the UPOU in strengthening its program on environment and how to further utilize ODeL in human capacity building to help address environmental issues and challenges.

Keywords: human capital; open and distance learning (ODL); human capacity building; environment

INTRODUCTION

The recent global environmental disasters and catastrophes have emphasized the need to build the capacity of the various sectors of our society on environmental management and educate them about the volatile state of our environment. The education sector, including universities and colleges, now plays a major role in sharing knowledge about environmental issues, training relevant skills related to environmental preparedness, and advocating for sustainable environmental practices. With the advances in technologies, universities are able to reach more people and educate the various sectors about environment and natural resource management, disaster risk management, climate change mitigation, and dealing with other environmental issues.

Online learning and the use of Information and Communication Technologies (ICT) in education have re-shaped the learning environment and have made learning truly ubiquitous and borderless. With the transition from Industrial age to Information age to the Knowledge-based society, online and e-learning have become indispensable parts of many countries' growth and development. The knowledge society and the globalization of economy put human capital at the center of the economy. Knowledge has become an important element of production along with capital and

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labor, and thus, has significantly transformed many nations' economy. The Asian Development Bank (2005) defined human capital as the skill, knowledge and good health that together allows people to work and earn a living. As such, there is a pressing need for the continuous learning and knowledge acquisition of people who are widely distributed in terms of profession, geographical location, and knowledge need. With the problem of shortage of trained manpower being faced by many industries worldwide, organizations are striving to become a "learning organization" (Chadha and Kumail 2002). Olakulehin (2008) reviewed several studies that showed the strong positive correlation between the human capital (skills, abilities, and competencies) and the levels of social and economic performance of individuals, communities and nations.

One major area in the Philippines that needs attention is the human capital on environment. The current environmental threats and imbalances demand for stronger and more equipped human resources on environment. In the National Capacity Self-Assessment (NCAA) document (UNDP and GEF 2005), it was reported that field offices of the Department of Environment and Natural Resources Management (DENR) generally lack human expertise to ensure high quality performance and effectiveness of their work. They have low capacity levels in terms of addressing environmental matters on climate change, biodiversity conservation, land degradation and drought. It was also reported that environment is one of the low budget priority among public sector agencies which affects their ability to rally programs to address environmental concerns.

According to Chadha and Kumail (2002), "more than 70% of the economy is covered by the services sector, which is not only largely driven by knowledge, but demands knowledge workers to be in touch with the latest technology." Innovations in technologies definitely offer promise of delivering courses anytime, anywhere, and the prominence of truly international courses, fully inter-cultural, with students and teachers coming from the different parts of the world (Bates, 1996). He further added that technology does promise greater learning effectiveness, more learner centered approaches, and better quality of interaction. As a result of these new technological innovations, more and more universities all over the world are delivering their courses online. According to Fillion, et al (2009), the past two decades showed how ICT have transformed knowledge acquisition and dissemination and new methods developed to satisfy the rapidly evolving needs of people. They further added that in order to survive in today's global economy, organizations including universities must continually innovate at the human, materials, and technological levels. According to Noble (1998), there has been a push on universities towards developing and delivering online courses because of the fear of getting left behind and the incessant pressures of "progress."

This is where Open Universities come in to address this growing need of the economy and industry, including that of the sectors engaged in environment and natural resource management. UP Open University (UPOU) is the cyber campus of the University of the Philippines System. It utilizes open and distance e-learning (ODeL) as its main mode of instructional delivery. UPOU recognizes the need to continuously develop its system of course development and delivery to meet the rapidly evolving needs of people in this digital age. UPOU introduced its first online tutorial as an alternative mode to face-to-face tutorial in 2001. The Master of Environment and Natural Resource Management (MENRM) immediately adopted the online tutorial.

This study revisited the MENRM program and examined how UPOU through this program is able to contribute to the development of our country's human capital on environment. This study was framed with the following research questions:

- What are the reasons for enrolling in the MENRM program of UPOU?
- What are the students' plans about the knowledge and skills they acquired from MENRM programs of UPOU?
- How are the MERM students of UPOU situated in terms of environmental

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policymaking, planning and management for our country?

Methodology

The data from the application forms of students for admission to Environment and Natural Resources Management (ENRM) program were reviewed and analyzed to locate and situate them as part of the human capital on environment of our country. A total of 62 applications for admission for school year 2007-2008 to 2009-2010 were content analyzed for the study. A qualitative content analysis of the written documents was done to identify themes. This study made use of Owens' (2002) as cited by Perry, et al (2008) three points of reference in data analysis: recurrence of ideas with the data (ideas that have the same meaning but different wording), repetition (the existence of the same ideas using the same wording), and forcefulness (cues that reinforce a concept).

Results and Discussions

Reasons for applying in ENRM program

The study revealed that there were different reasons for enrolling in the ENRM program of UPOU. Table 1 shows these three major categories and the sub categories.

Table 1. Thematic reasons for applying in ENRM program

Personal Reasons	Environmental Reasons	Mode of Learning/ Institution Preference
1. Gain knowledge and skills to carry out environmental role	1. Environmental Advocacy and Education	1. Prefer distance mode
2. Career advancement	2. Environmental Solution	2. Prefer UP education

Personal Reasons

Gain knowledge and skills. The most common reason given by the students for applying to the ENRM program is to gain additional knowledge and skills on environment and natural resources management. They want to be equipped with the theoretical foundation and technical knowledge in dealing with various environmental issues. One student wrote, "I want to gain better understanding on the theoretical foundation of my work, specifically the interrelationship of the various natural subsystems as it relates to people and the environment in general." Another said, "I want to further my knowledge on environmental studies even in the confines of the prison walls." Another student wrote, "I want to gain additional knowledge in environmental management while working abroad." Another student wrote, "I would like to enroll under the DENRM program to gain a substantial background regarding environmental management, acquire essential knowledge regarding the subjects, and gain necessary skills and correct attitude needed to become an effective environmental manager." One student concluded by saying, "This course will equip me with necessary skills and scientific knowledge in helping conserve and protect nature in an effective and efficient way." Generally, this subcategory shows that students apply in ENRM program to satisfy their individual need to obtain more knowledge and skills for various purposes.

Career Advancement. This subcategory takes off from the need to gain additional knowledge and skills. Students want to expand what they know in order to advance their respective careers. As one student who works in the Local Government Unit put it, "I want to gain more knowledge and information on the management of environment and natural resources as it is very useful in my present work as Council Member of the Municipality of (x)." One student who wants to shift to a career in environment wrote, "I believe that through this program, I will be well equipped to pursue my career in environmental education."

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Environmental Reasons

Environmental Advocacy and Education. A much deeper reason for applying in the ENRM program is the concern for the environment. Aside from the personal reasons given, students have applied in MERNM because of their deep concern and care for the environment. One student wrote, "I want to help ensure environmental sustainability for future Filipino generations and build awareness through environmental education and advocacy." Another student who wants to be environmentally responsible wrote, "I realize the importance of environmental management in ensuring continuous supply of geothermal steam for energy production…. I want to become more aware of the responsibilities as a chemist." There are students who applied because they experienced and developed a deeper environmental consciousness. One student put it, "… my experiences with the fisher folks and farmers in preserving their ecosystem particularly the project in mangrove reforestation inspired me in pursuing a degree that will enrich my knowledge and be able to impart this acquired knowledge to the community."

Environmental Solution. Another subcategory that emerged is that of being able to address environmental challenges and find a sustainable solution. One student wrote, "Taking this Master's degree will enable me to better understand the problems occurring in our environment and finding alternative solutions." Another student wrote, "Applying in the MENRM program will help me find a means in understanding the status of nature and help find a lasting solution on environmental concerns for the benefit of the people." Looking at the environmental issues holistically, one student wrote, "I applied in the program in order to be able to examine more closely all the issues attending to the coastal resources in the country and see how it can be harnessed more effectively towards food security to help the plight of the poor."

Mode of Learning/Institution Preference

Prefer distance mode. One of the major reasons for applying to the ENRM program of UPOU is the preference of the distance mode of learning. The UPOU offers all programs online and provides opportunities for working people to further their education. As one student put it, "I choose distance education program because it would be easier for me to continue my studies at the same time performing my duties and responsibilities as instructor." Another student wrote, "I decided to apply to MENRM since I do not need to sacrifice my work as it is the source of my family's income."

Prefer UP education. Another subcategory of reasons given is the quality of education that UPOU offers. Being part of the UP system, UPOU maintains academic excellence in all its program offerings. One student wrote, "The reason why I am applying with UPOU is the assurance that I would be provided with quality and higher standards of education." Another student wrote, "I honestly feel that the UPOU is exactly what I have been waiting for in answer to my quest for better educational opportunity and in my yearning for quality educational experience."

Future Plans

The students' plans about the knowledge and skills they will acquire from the program fall into two categories – personal advancement and environmental development. Table 2 shows these two major categories and the sub categories.

Table 2. Thematic reasons of the students' plans

Personal Advancement	Environmental Development
1. Pursue further studies	1. Environmental Advocacy and Education
2. Career shift and advancement	2. Environmental Solution

Personal Advancement

Pursue further studies. One major plan of some students is to pursue further studies. One student wrote, "Upon finishing the program – MENRM, I will again intend, God willing, to study a PhD program wherein I will specialize in environmental toxicology and pollution

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monitoring." One student expects and wrote, "Aside from being promoted after graduation, I plan to study environmental law and to acquire PhD scholarships on environment."

Career shift and advancement. Another major plan that emerged is to advance their careers in the field of environmental management. One student wrote, "I plan to be able to build a promising and challenging career in the field of environment and natural resources management." There are students who want to shift career. One student said, "After completing this program, I would like to work with a non-profit organization that will help Philippine communities adopt the principles of *reduce, reuse and recyle.*"

Environmental Development

Environmental Advocacy and Education. For the students who applied because of their deeper sense of environmental consciousness and responsibility, their future plans still involve environmental advocacy. One student wrote, "There is a shortage of experts in the field of environmental science and allied fields and encouraging others to enroll in the MENRM program would somehow reduce the shortage in these fields of expertise." One student who won the title Ms. Earth concluded, "As a beauty queen and a concerned citizen, I want to continue my cause and have an active participation in raising environmental sustainability awareness among the Filipino people."

Environmental Solution. Finding solutions to the environmental challenges does not end in their reason to apply. It continues to their future plans as well. One student wrote, "I will utilize acquired knowledge in the critical analysis of various environment management programs being implemented by the government – its efficiency and effectiveness and if it is beneficial to the Filipino people. Some students have specific plans. One wrote, "I plan to network with the small fishermen so that they can have access to other market outlets other than their local community; which may increase the productivity and better leverage; I will introduce appropriate

coastal and land-based livelihood projects to augment productivity in the area."
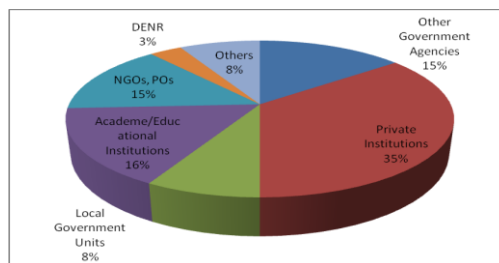
Sectoral Representation of ENRM Students

Figure 1. Distribution of D/MENRM students per sector for SY 2008-2010

The students of ENRM are strategically situated in various sectors of our country. Majority (35%) are connected with private institutions, others are in government agencies, including DENR (18%), some are in the academe (16%), others are working Non-government Organizations (NGOs) (Fig 1).

Conclusion and Recommendation

The outcomes of this study provided a systematic analysis of the reasons for applying in the MENRM program of UPOU as well as their future plans. The offering of an environmental graduate program through ODeL widens access to information and education on environmental issues and challenges as well as on sustainable environmental solution. It provides opportunities for professionals involved in environment-related works and advocacies to pursue higher education and further their knowledge and skills on environment and natural resource management. UPOU's use of ICT in education is an example of developing a country's human capital on environment. This paper helps the UPOU in strengthening its program on environment and how to further utilize ODeL in human capacity

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building to help address environmental issues and challenges.

However, there are still issues and challenges that need to be addressed in terms of offering environmental courses through online learning. One important issue is the lesser funds allocated to higher education. Offering of online courses requires additional costs as well, even though the learning management system is free. According to Bates (2000), institutions must comprehend the cost of using new technologies, such as purchase of new technology (hardware and software), cost of training staff so they can acquire the needed skills and knowledge to use these technologies, or if this is not feasible, secure funds to hire additional staff that possess the needed skills and knowledge. Equally important issue is the shift to a new learning paradigm. In distance education and online learning, interactivity and collaborative learning is essential. A learner-centered paradigm goes hand in hand with the use of new technologies in education and learning.

REFERENCES

Asirvatham, D. Borderless education through E-learning. Retrieved from https://mmlscyber.mmu.edu.my/*articles*/article2.html

Bates, A.W. (1996). *The Impact of technological change on open and distance learning.* Canada: University of British Columbia. Retrieved from http://bates.cstudies.ubc.ca/brisbane.html

Chadha, G. & Kumail, S.N. M (2002). *e-Learning an expression of the knowledge economy.* New Delhi, India: Tata McGraw-Hill Publishing Co. Ltd.

Escubio, M. N. & Suplido, M. L. (July 2001). *Open IVLE at the UP Open University.* Retrieved on May 2010 from http://www.cit.nus.edu.sg/ideas_back2/DistLearn_IVLE.htm

Fillion, G., Limayem, M., Laferriere, T., Mantha, R. (2009). Integrating ICT into higher education: Investigating onsite and online

professors' points of view. *International Journal on E-Learning, 8,* 17-55.

Noble, D. (1998). Digital diploma mills: The automation of higher education. Retrieved from http://www.firstmonday.dk/issues/issue3_1/noble/

Olakulehin, F. (2008). Open and distance education as a strategy for human capital development in Nigeria. *Open Learning,* 23.(2)

Peters, O. (2003). Distance education in transition. *New trends and challenges (3rd ed).* Bibliotheks-und Informationssystem der Unversität Oldenburg

Suplido, M.L. (2006). Moodle and student-centered learning. Retrieved from http://www.fit-ed.org/congress2006/concurrent_demonstrations.htm#Moodle_and_Student-centered_Learning

United Nations Development Programme, and Global Environment Fund. 2005. *The national capacity self-assessment project of the Philippines. (GOP-UNDP-GEF).* Retrieve on 20 August 2009 from http://ncsa.undp.org/docs/276.pdf.

World Bank and Asian Development Bank. March 3, 2005. *Decentralization in the Philippines: Strengthening local government financing and Resource management in the short term.* Poverty Reduction and Economic Management Sector Unit, East Asia and Pacific Region, Philippines Country Office and South East Asia Region, The World Bank and Asian Development Bank. http://www.adb.org/Documents/Reports/PHCO/decentralization-reportphi.pdf.