

## I.T. Education Need in Cambodia

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### 1. ABSTRACT AND KEYWORDS

The future of I.T. relies on the next generation and the knowledge of the next generation is built up today. However, the current I.T. education in Cambodia is often based on not properly trained teachers. There are also very few well-trained I.T. people working in the education field or I.T. industry in Cambodia. This will form an adverse cycle and the situation will never improve if no revolution is brought to I.T. education in this country. In this regard, it is proposed to offer a service-learning subject that helps reduce the gap of I.T. education between Cambodia and the developed countries. The objectives are to train the students, teachers and technical staff in Cambodia with proper I.T. knowledge. It is aimed to produce more well-trained I.T. people in Cambodian workforce so that Cambodian can help themselves for sustainable I.T. education in future.

Keywords: Information Technology, I.T., Education, Cambodia

### 2. INTRODUCTION

Nowadays, Information Technology (I.T.) is an essential and indispensable necessity. Without I.T., people will be disconnected from the world outside. The future of I.T. relies on the next generation and the knowledge of the next generation is built up today. There will be no bright future if we do not supply proper knowledge to children of today. However, the current I.T. education in Cambodia is often based on not properly trained teachers. One may imagine how worse the situation is if the I.T. knowledge is delivered by the teachers whose I.T. knowledge is inadequately educated. Electricity and I.T. infrastructure are the other issues. Though schools in Cambodia are equipped with computers, teachers in most schools can use computers only during lessons because of the need to save electricity. Students in the vast majority of schools do not have access to the Internet. These reasons make the development of teachers' and students' I.T. skills very hard to achieve. It is also difficult to develop learning infrastructure due to lack of funds. There are also very few well-trained I.T. people working in the education field or I.T. industry. This will form an adverse cycle and the situation will never improve if no revolution is brought to I.T. education in this country. In this regard, it is proposed to offer a service-learning subject that helps reduce the gap of I.T. education between

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### **3. LITERATURE REVIEW**

Richardson, Nash and Kevin (2014) performed a study to understand how upper secondary school students in Cambodia perceive the use of computers and the Internet. The data indicate that the more exposure a Cambodian student had to computers and the Internet, the more favourable their attitudes were towards these technologies. Unfortunately, less developed countries often experience difficulty with incorporating ICTs (Information, Communication and Technologies) into their education system. Even though computer lab is present, they lack skilled persons to incorporate ICTs into the formal learning environment.

Elwood and MacLean (2009) conducted a comparison of ICT usage and student perceptions in Cambodia and Japan. The result indicates that only in word processing did Cambodian students rate themselves as proficient. Similar to Japanese students, Hong Kong students would be more competent in terms of many computer and Internet skills, and they should be capable of teaching Cambodian students of these I.T. skills.

As early as in 2004, the Ministry of Education, Youth and Sport (MoEYS, 2004) had set policy to provide the workforce with the ICT skills needed for employment and use in a knowledge-based society. Richardson (2008) commented that the goals set by the MoEYS were ambitious. Despite the Master Plan for information and communication technology in education 2009-2013 (MoEYS, 2010) had set objective to develop the ICT-based professional skills needed by graduates for employment, the business was still not satisfied with the outcome in 2017. The Phnom Penh Post reported in 2017 that Cambodia's I.T. sector faces an enormous skills gap. 75% of businesses interviewed were unable to hire competent I.T. staff. The I.T. skills expected by the majority of businesses were not being delivered by the education establishments (Gaudemar, 2017). This calls for urgency that the Cambodian education system should incorporate the teaching of I.T. skills that satisfy the business needs.

### **4. METHODS**

To reduce the I.T. gap between Cambodia and other developed countries, it is proposed to offer a service-learning subject titled "Serving the Community through Disseminating knowledge of Information Technology". In this section, the academic focus, intended learning outcomes and the service components of this subject would be discussed.

#### 4.1 Academic Focus

There are three areas of academic focus:

1. Acquiring basic I.T. knowledge  
Before rendering service on site, students learn all the required I.T. knowledge such as networking concepts, simple web and mobile app development regardless of their academic background.
2. Writing skills for preparing instruction manual and training kit  
The students are divided into three groups based on their levels of I.T. knowledge. One group will train the Cambodian students, one group will train the Cambodian teachers and the other group will train the Cambodian technical staff. Students will develop different sets of instruction manual and training kit with respect to their assigned group. They will need to sell their packages through presentation and the best one will be selected for use.
3. Communication skills for presentation and training demonstration  
Before going to Cambodia, they need to give a presentation to sell their training kits. After selecting the best one for use, all students need to do a training demonstration for quality assurance.

#### 4.2 Intended Learning Outcomes

Upon completion of the subject, students will be able to:

1. link their service-learning activities and experiences with the academic content of the subject
2. plan, structure and deliver presentations that meet different audience' needs and speaking purposes
3. apply the knowledge and skills they have acquired in university education to deal with complex issues in the service setting
4. work effectively in teams to solve problems encountered in planning and delivering the service
5. communicate effectively with clients and/or other stakeholders
6. demonstrate empathy for people in need and reflect on their roles and responsibilities as a responsible citizen

#### 4.3 Service Component

The service recipient is the needy school that lacks proficient I.T. staff, both technical and teaching, from the underprivileged community such as Cambodia.

Different schools may have different needs. Therefore, it is necessary to interview with target service recipients for their specific needs in terms of I.T. education and support. Since I have visited Emmanuel Community School in Cambodia, I will take this school as an example for illustration.

Emmanuel Community School has the vision to educate a new generation of leaders that will transform Cambodia. I had a site visit to this school and found that this

school was equipped with a good computer Lab, but the students were just taught to use Microsoft Office. This may be wasteful of the available facilities. Having interviewed with the Principal Mr. Heng Samphors, his response was that “Referring to I.T. concerning and planning, we wish to help and build up our students with an advanced level of I.T. to help them become advanced learners and be ready for the I.T. upgrading. As of now, our students are learning with Microsoft Office but we wish to deliver to them more than that. Hopefully you can help us.” This reflects the need of this school from the exterior to help them with advanced I.T. education.

In response to Principal Samphors’s suggestion, the service components of this subject would be:

- teaching the students of up-to-date I.T. knowledge such as simple webpage and mobile app development
- training the teachers to teach up-to-date I.T. knowledge
- training the technical staff to maintain network, web server, basic troubleshooting techniques, etc.

To prepare students for the above service components, there would be lectures for teaching required I.T. knowledge, and workshops for hands-on practice. For assessment, quiz/Lab/assignment are used to assess academic focus 1. Training kits or instruction manual are used to assess academic focus 2. Presentation and demonstration are used to assess academic focus 3. For the main part of service component, it is assessed by the on- site performance of rendering service and reflection. Reflection is an essential component in service-learning since it is the link between the service and the learning. The reflective activities could include individual reflective journal, group discussion during the service period, and student forum after the service.

## **5. IMPACTS AND CHALLENGES**

The service aims at benefiting three groups of service-recipients: students, teachers and technical staff in the underprivileged community. For students, their horizons are broadened through learning new I.T. knowledge. Hopefully, this could arouse their interests in I.T. development and initiate their desire to become an I.T. educator or I.T. professional in future. With long-term effect, teachers receive training so that the teaching of updated technology can be sustained after service ends. Also, technical staff is trained to set up and maintain I.T. infrastructure which contributes substantially to the sustainability of I.T. learning environment.

Findings reveal that the biggest challenges to adopting the use of new technologies in Cambodia were hardware incompatibility; complexity; language barriers; the lack of electricity, computers, Internet access, and of practice for trainees; and the

inability to understand the advantages of these technologies (Richardson, 2011). Though not all challenges could be catered for, teachers and students who provide service should be well prepared for addressing these challenges.

## 6. CONCLUSION

Unless actions are taken soon, Cambodia will fall further behind its neighbours and its young people will lack the skills they need for life in the digital age (Richardson, 2008). It is hoped that by bringing the knowledge of up-to-date technology from the outside world to Cambodia, the I.T. gap could be reduced, more I.T. people could enter the workforce and the Cambodian could enter a new cycle of training the next generation by themselves.

## REFERENCES

- Elwood, J., & MacLean, G. (2009). ICT usage and student perceptions in Cambodia and Japan. *International Journal of Emerging Technologies & Society*, 7(2), 65-82.
- Gaudemar, M. (2017). IT sector stumbles on skills gap, *The Phnom Penh Post*. Retrieved from <https://www.phnompenhpost.com/business/it-sector-stumbles-skills-gap>
- MoEYS (2004). Policy and Strategies on Information and Communication Technology in Education in Cambodia, Ministry of Education, Youth and Sport of Kingdom of Cambodia.
- MoEYS (2010). Master plan for information and communication technology in education 2009- 2013, Cambodia. Retrieved from <http://www.moeys.gov.kh/images/moeys/policies-and-strategies/145/master-plan-ict-in-education-en.pdf>
- Richardson, J. (2008). ICT in Education Reform in Cambodia: Problems, Politics and Policies Impacting Implementation, *Information Technologies and International Development*, MIT Press, vol. 4(4), pages 67-82.
- Richardson, J. (2011). Challenges of Adopting the Use of Technology in Less Developed Countries: The Case of Cambodia, *Comparative and International Education Society*
- Richardson, J., Nash, J. & Flora, K. (2014). Unsystematic Technology Adoption in Cambodia: Students' Perceptions of Computer and Internet Use. *International Journal of Education and Development using ICT*. 10 (2), pp. 63-76. Open Campus, The University of the West Indies, West Indies.