A Design Based Research Framework for Implementing a Transnational Mobile and Blended Learning Solution

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ABSTRACT

The article proposes a modified Design-Based Research (DBR) framework which accommodates the various socio-cultural factors that emerged in the longitudinal PA-HELP research study at Central University College (CUC) in Ghana, Africa. A transnational team of stakeholders from Ghana, Canada, and the USA collaborated on the development, implementation, and subsequent modification of the DBR framework. The recommended framework is a result of lessons learned during this project in Ghana and as such, it is shaped by the need to be responsive to the local cultural and contextual contingencies. The article offers practical recommendations on the implementation of a mobile learning project in a cross-cultural setting, and provides a discussion of the salient cultural factors and the corresponding culturally-sensitive adaptations needed in the design research process. The Cross-Culture Design-Based Research (CC-DBR) framework is proposed to inform future transcultural m-learning studies.

Keywords: Cross-Culture Design-Based Research (CC-DBR) Framework, DBR Framework, Diverse Cultures, M-Learning Implementation, Mobile Learning Strategy, National Culture, Organizational Culture

INTRODUCTION

Mobile and blended learning solutions, when designed and implemented successfully, have a capacity to respond to educational needs of learners dispersed across vast regions and cultures. Learning at a distance using mobiles, or a combination of modes, has been accepted as beneficial
both in developed and developing countries, particularly in settings where potential learners do
not have direct access to education. The majority of sub-Saharan African countries, including
Ghana, which is the focus of this discussion, have recognized the benefits of distance learning
with ICT and seek to develop programs to meet their specific educational goals (Onwe, 2013;
Uneke et al., 2014). Lately, there have been more initiatives to build local expertise and involve
home-grown professionals in the co-creation of innovative technology-assisted learning solutions
in new educational environments. Effective learning artifacts, courses, and programs necessitate a
design-development-evaluation-implementation framework that fits the needs and characteristics
of the specific educational and socio-cultural context. An appropriate framework, embraced by
all participants, is needed for successful transcultural projects, including collaborative research
studies. That common frame of reference should underpin the decisions and activities of any
transnational team effort as it provides a starting point for the discourse around differences in
perspectives, assumptions, concepts, values and practices. It is also crucial that the framework
evolves to respond to the changing understanding of the context and needs, as well as emerging
requirements and future scenarios. For that reason, the reported Design-Based Research (DBR)
project adopted the Integrative Learning Design Framework (ILDF) (Bannan, 2009; Palalas,
2012) to guide the design of a Physician Assistant (PA) program delivered at a distance by the
Central University College (CUC) in Ghana. This educational intervention, if successful, will
address the need for health care personnel in rural regions, in Ghana, by educating physician
assistants in their home communities.

The doctor-patient ratio in Ghana and in many parts of Africa is at an all-time low. The
severity of these statistics was corroborated by the Director of Health Service for the Greater
Accra region, Dr. Linda Van Otoo (Ansah, 2014), who confirmed that a doctor in Ghana attends
to approximately 15,259 patients a year, a Physician Assistant sees about 38,000 patients in a
year and midwives and nurses - about 6,000 and 1,400 patients respectively. In response to this
urgency, members of the PA Program at the Central University College partnered with the Uni-
versity of New Mexico and Athabasca University to address these healthcare needs by training
more PAs using mobile technology and blended learning. The transnational team comprised a
Primary Investigator, Financial Officer, Program Manager and IT Officer from CUC, as well as
instructional design and m-learning consultants from Canada and the USA. The team received
support from a Grand Challenges Canada grant award which enabled the launch of the DBR
study in May 2013. This ongoing project has leveraged mobile and e-learning technologies to
support knowledge building and skill acquisition amongst PA practitioners in remote areas in
Ghana. The educational intervention designed in the study blends innovative distance learning
approaches, including e-learning and mobile learning content, resources, strategies and tools,
with occasional face-to-face (f2f) clinical sessions to provide a hybrid PA program. The project
has been nicknamed Physician Assistant Hybrid E-Learning Program (PA-HELP) to cohere the
blend of mobile and f2f with more traditional e-learning approaches. The collaborative process
of the design and implementation of the PA-HELP solution has been guided by the previously
mentioned ILDF model - a DBR framework that has been progressively modified to reflect the
real-life application of the transcultural research project. The effectiveness of the framework
has been examined across all stages of its implementation, as part of the Evaluation Phase of
the project, as well as retrospectively, resulting in refinements to the original framework and
the conclusions presented hereby.

Hence, the main purpose of this article is to share and discuss the modified DBR framework,
namely the Cross-Cultural Design-Based Research (CC-DBR) framework, which encapsulates
lessons learned during this longitudinal study and the close collaboration of the international
team from Ghana, Canada, and the USA as they designed and developed the blended learning
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