Advances in Communications and Media Research

Volume 11

Contributors

Damian Maher

Jason D. Lucas

Lina Mroueh

Lolie Makhubu

Deirdre Pratt

Abdul Haq Mahomed Bhorat

Vyacheslav Tuzlukov

Anthony V. Stavros
Editor

NOVA

ADVANCES IN COMMUNICATIONS AND MEDIA RESEARCH

VOLUME 11

Anthony V. Stavros
Editor

nova publishers
www.novapublishers.com

ISBN 978-1-63483-283-0

ADVANCES IN COMMUNICATIONS AND MEDIA RESEARCH

VOLUME 11

ANTHONY V. STAVROS
EDITOR

常州大学图书馆
藏书章

nova publishers
New York

Copyright © 2015 by Nova Science Publishers, Inc.

All rights reserved. No part of this book may be reproduced, stored in a retrieval system or transmitted in any form or by any means: electronic, electrostatic, magnetic, tape, mechanical photocopying, recording or otherwise without the written permission of the Publisher.

We have partnered with Copyright Clearance Center to make it easy for you to obtain permissions to reuse content from this publication. Simply navigate to this publication's page on Nova's website and locate the "Get Permission" button below the title description. This button is linked directly to the title's permission page on copyright.com. Alternatively, you can visit copyright.com and search by title, ISBN, or ISSN.

For further questions about using the service on copyright.com, please contact:
Copyright Clearance Center
Phone: +1-(978) 750-8400 Fax: +1-(978) 750-4470 E-mail: info@copyright.com.

NOTICE TO THE READER

The Publisher has taken reasonable care in the preparation of this book, but makes no expressed or implied warranty of any kind and assumes no responsibility for any errors or omissions. No liability is assumed for incidental or consequential damages in connection with or arising out of information contained in this book. The Publisher shall not be liable for any special, consequential, or exemplary damages resulting, in whole or in part, from the readers' use of, or reliance upon, this material. Any parts of this book based on government reports are so indicated and copyright is claimed for those parts to the extent applicable to compilations of such works.

Independent verification should be sought for any data, advice or recommendations contained in this book. In addition, no responsibility is assumed by the publisher for any injury and/or damage to persons or property arising from any methods, products, instructions, ideas or otherwise contained in this publication.

This publication is designed to provide accurate and authoritative information with regard to the subject matter covered herein. It is sold with the clear understanding that the Publisher is not engaged in rendering legal or any other professional services. If legal or any other expert assistance is required, the services of a competent person should be sought. FROM A DECLARATION OF PARTICIPANTS JOINTLY ADOPTED BY A COMMITTEE OF THE AMERICAN BAR ASSOCIATION AND A COMMITTEE OF PUBLISHERS.

Additional color graphics may be available in the e-book version of this book.

Library of Congress Cataloging-in-Publication Data

ISBN: 978-1-63483-283-0

ISSN: 2159-1695

Published by Nova Science Publishers, Inc. † New York

此为试读，需要完整PDF请访问：www.ertongbook.com

ADVANCES IN COMMUNICATIONS AND MEDIA RESEARCH

VOLUME 11

ADVANCES IN COMMUNICATIONS AND MEDIA RESEARCH

Additional books in this series can be found on Nova's website
under the Series tab.

Additional e-books in this series can be found on Nova's website
under the e-books tab.

PREFACE

In a society predicated on information, the media has a pervasive presence. From government policy to leisure television, the information age touches us all. The papers collected in this book constitute some of today's leading analyses of the information industry. Together, these essays represent a needed foundation for understanding the present state and future development of the mass media. Current trends in communications as well as media impact on public opinion are studied and reported on. Topics include video conferencing via mobile devices in schools; managing the facility with lifecycle information; radio resource allocation in MU-MIMO LTE networks; a systemic modelling approach to interpreting service delivery; a morphogenetic approach to digital multimedia for college resources; and detection of spatially distributed signals by generalized receiver using radar sensor arrays in wireless communications.

Chapter 1 - Video conferencing has only been available in some schools within the last ten years. Mobile devices, such as laptops and tablets, have become available in schools in recent years. The focus of this chapter is on how the use of video conferencing used in conjunction with mobile devices can support learning. In exploring these technologies, aspects of authenticity are examined including interactions with audience, settings and activities. The role of the teacher in this environment is also discussed. This chapter draws on published research at the primary, secondary and tertiary levels of schooling as well as research from the author.

Chapter 2 - This chapter explores the use of Building Information Modeling (BIM) and other information technology solutions for managing lifecycle information in support of operating and maintaining a facility. BIM is a process that inherently increases the ability to collaborate and exchange information throughout a project's lifecycle from its conception through design, construction, facility management, and decommissioning. Its actual use, however, still leaves different phases of the facility lifecycle disconnected and fragmented. This fragmentation leads to inefficiencies at different levels throughout the lifecycle. The identified inefficiency and disconnect discussed in this chapter is between the facility management phases and those phases prior in the lifecycle. This chapter explores the different research initiatives that promote better information exchange to support facility management activities. A healthcare facility information management framework is highlighted in more detail as an example of where BIM is moving to support facility information management.

Chapter 3 - With the massive growth of wireless connectivity demand in cellular networks, the spatial dimensions introduced by the Single-User (SU) and Multi-User (MU)

Multiple Input Multiple Output (MIMO) systems become nowadays a must to overcome the spectrum radio limitation. On one hand, the multiple antenna techniques improve the transmission reliability. On the other hand, they are suitable for high data rate as they offer the possibility to multiplex different layers or/and users on the same radio resources. This chapter will be dedicated to study the radio resource allocation algorithms that combine spatial multiplexing with other multiplexing techniques as orthogonal frequency division multiple access (OFDMA) and Single-Carier Frequency Division Multiple Access (SC-FDMA) in LTE networks. For this, the authors will start first by defining reliable transmission modes that extract the spatial diversity and enable the multiplexing of different layers, and or users on the same radio resource. Then, the authors present radio resource allocation algorithms that distribute the spatial time-frequency radio resources among users.

Chapter 4 - This chapter deals with doctoral research involving the systemic modelling of interpreting service delivery, carried out in the Department of Media, Language and Communication at the Durban University of Technology. The rationale for the study was the urgent need to give students whose mother tongue is not the medium of instruction (i.e., English) equity of access to higher-degree education. The research was carried out within a critical realist approach, which seeks to transform society by practical application of theory. Unlike previous studies in interpreting, this research focused on the service provision aspect of interpreting. While it falls within the field of educational interpreting, it goes beyond the classroom situation in considering other university interpreting needs, such as seminars and in-house conferences, graduation and other ceremonies, operational meetings and labour-related meetings. A systemic modelling process was used to formulate a theoretical model of the interpreting service delivery mechanism, using data gathered during visitations to local and international universities. The theoretical model, or system of essential functions, was used to arrive at the applied aspect of the mechanism, termed an empirical model of interpreting service delivery. The model was then validated in terms of its application in various contexts at the Durban University of Technology. It is suggested that the theoretical and practical models developed have application not only for educational interpreting, but also in other interpreting contexts. The models are also considered to have relevance for service delivery in general, which is a critical issue at present in South Africa.

Chapter 5 - This chapter deals with doctoral research into the development of a curated Internet portal providing Photography students at the Durban University of Technology with online access to digital multimedia resources relevant to their academic programme. Today's university educators are faced with an ever-expanding array of e-learning options, ranging from open courseware (OCW) and open educational resources (OERs) to massive open online courses (MOOCs) and online educational portals. It is thus difficult for academic staff to decide which option is best suited to online college tuition in their specific discipline. This research developed and tested out one such option which the literature had suggested was best suited to the specific context, purpose and learner target audience. From within a critical realist orientation, a morphogenetic approach was used comprising three different levels: that of social change towards use of online digital multimedia for learning, that of organisational innovation in the field of e-learning, and that of artefact design in term of actual portal development. Staff and students' educational needs were identified using the morphogenetic action research cycle, analysing data from the Photography Programme review process. A curated educational Internet portal was then set up and prototyped, with various features being tested out in lecture periods, and feedback being obtained from both expert e-learning

practitioners and student participants. While the portal produced was extremely versatile in terms of its use by staff and students, the results suggested that a mixed mode approach was the best option for use in view of the Net Generation learners' preference for an experiential hands-on approach and face-to-face faculty interaction.

Chapter 6 – The authors consider a problem of detecting a random spatially distributed signal source by an array of sensors based on the generalized approach to signal processing (GASP) in no-ise. The authors derive some generalized receiver (GR) structures under several assumptions on the available statistics. The GR performance is evaluated and the effect of source angular spread is investigated. The authors notice the degrees of freedom of detection statistics distributi-ons depend on both the signal angular spread and the number of data snapshots. At the high signal-to-noise ratio and with small degrees of freedom, increasing in angular spread improves the detection performance. With large degrees of freedom the increasing in an-gular spread reduces the detection performance. A comparison between GR and conventi-onal beamformer is carried out by computer simulations. The results indicate a superiori-ty of GR implementation as the angular spread becomes large over the conventional be-amformer detector.

此为试读,需要完整PDF请访问: www.ertongbook.com

CONTENTS

Preface		**vii**
Chapter 1	A Window to the World: Video Conferencing via Mobile Devices in Schools *Damian Maher*	**1**
Chapter 2	Managing the Facility with Lifecycle Information *Jason D. Lucas*	**13**
Chapter 3	Radio Resource Allocation in MU-MIMO LTE Networks *Lina Mroueh*	**37**
Chapter 4	A Systemic Modelling Approach to Interpreting Service Delivery *Lolie Makhubu*	**57**
Chapter 5	The Curated Internet Portal: A Morphogenetic Approach to Digital Multimedia for College Resources *Deirdre Pratt and Abdul Haq Mahomed Bhorat*	**89**
Chapter 6	Detection of Spatially Distributed Signals by Generalized Receiver Using Radar Sensor Arrays in Wireless Communications *Vyacheslav Tuzlukov*	**143**
Index		**175**

In: Advances in Communications ... Volume 11
Editor: Anthony V. Stavros
ISBN: 978-1-63483-283-0
© 2015 Nova Science Publishers, Inc.

Chapter 1

A WINDOW TO THE WORLD: VIDEO CONFERENCING VIA MOBILE DEVICES IN SCHOOLS

Damian Maher
University of Technology, Sydney (UTS), Sydney, Australia

ABSTRACT

Video conferencing has only been available in some schools within the last ten years. Mobile devices, such as laptops and tablets, have become available in schools in recent years. The focus of this chapter is on how the use of video conferencing used in conjunction with mobile devices can support learning. In exploring these technologies, aspects of authenticity are examined including interactions with audience, settings and activities. The role of the teacher in this environment is also discussed. This chapter draws on published research at the primary, secondary and tertiary levels of schooling as well as research from the author.

Keywords: Video conferencing, mobile devices, schools, iPads, IWBs, authentic learning

INTRODUCTION

Recent technological advances have resulted in the introduction of two major educational tools into schools across the developed and developing countries which are video conferencing and the mobile device. Video conferencing has been in schools for approximately 10 years, facilitated largely due to the introduction of Interactive Whiteboards (IWBs) (Maher, 2012). Many schools in developed countries have them installed in each classroom. Through the use of the IWB, video conferencing is possible and provides a window for students to the outside world. The introduction of mobile devices fitted with cameras such as laptops, tablets and smart phones into the classroom is a more recent event and many schools have only recently implemented these into their practice or are planning to

implement them. The use of mobile devices allows a window into the world that is more mobile than has been previously possible.

In examining the use of these two technologies together, the mobile device is taken out into the field which then allows students to interact via video conferencing technologies with other people such as peers and experts and view locations that they would not normally have access to. The possibility of connecting classrooms in schools to remote locations has been possible for many years but the venues have been limited to those with the facilities which have been fixed and generally expensive to install and for students to access. Examples of such fixed venues include museums and field centres which are run by trained staff and generally involve a cost. The focus of this chapter is to examine how the use of video conferencing via mobile devices can be used to provide access for students to people and places outside of the classroom. Both the benefits and challenges of using these technologies are explored. In addition, the role of the teacher is discussed.

The lens for understanding how technologies support learning is informed by a socio-constructivist framework. Such learning is viewed as an active process where learners construct new ideas and concepts based on their current knowledge (Bruner, 1986).

Part of the theory of learning from a socio-constructivist viewpoint is the notion of authentic learning. As explained by Kearney and Schuck (2004) "authentic learning comprises learning in ways that fit with real world contexts, where the learning is motivated and developed by the context, and is also learning that develops skills and concepts for effective living in contemporary society now and in the future" (p. 2).

The Development of Video Conferencing and Mobile Technologies

Both video conferencing and mobile technologies are powerful tools in their own right providing for new learning opportunities both inside and outside of the classroom. In this section the background and history and of these two devices are examined.

Video Conferencing

Video conferencing is defined as the use of both audio and video communication between two geographically dispersed sites through a computer or telephone line (Cole, Ray and Zanetis, 2004). Video conferences provide for synchronous interactions that involve teachers and students working together at a specific time, and focuses on reconstructing the traditional in-class learning environment over the Internet (Yang and Liu, 2007). In addition to teachers and students, video conferencing also allows 'experts' to interact with students and teachers. The use of video conferencing has been in existence for some time now. It was first introduced in 1964 at the World Trade Fair (Noll, 1997). It became popular in business in the 1980s to help save in the time and cost of travel (Tang and Isaacs, 1995). It was not until the early 2000s that widespread availability of increased bandwidth, lower prices for equipment and standardisation of networks led to an uptake in schools (Roberts, 2009). At this stage it was generally for distance education.

The use of video conferencing is able to provide a formal bridge between the expert and teacher/student audience while promoting informal interactions open to discussion and exchange (McCombs, Ufnar and Shepherd, 2007). Video conferencing compares favorably with traditional instructional methods (Greenberg, 2004). It can also increase access to education (Kriger, 2001; Merrick, n.d) and be used to provide authentic connections beyond the school boundaries (Cavanaugh, 2001). Video conferencing has benefits which include real-time interactions and can support collaborative learning (Gillies, 2008). The importance of interactions during video conferences has been highlighted in research (Bates, 2005; Smyth, 2005). Interactions can include including questions asked by the teacher, questions asked by the students, interactions among the students at the remote sites and interactions between sites, which are highlighted in the literature (Denton Baird, 2003).

Additionally, interactions can occur before and after the class via email messages or other communications (Collins and Berge, 1998). The use of VC also allows multipoint connections to be shared between three or more geographic locations (Newman, 2007). Multi-site videoconferences add challenges to interactions between participants. "Even the addition of a third site has been found to add significantly to complications both technological and pedagogical" (Payne et al. cited in Gillies, 2008, p. 110).

The use of video conferencing is able to enhance communication and collaboration between the learner and the educator (Hinger, 2007; Saw et al., 2008). The use of video conferencing is seen in part by the New South Wales (NSW) Department of Education and Communities (DEC) as a way of preparing students to work in teams with people from different cultures in the global village that now exists. Schools are now being seen as global enterprises where students are seen as global citizens (2010).

Mobile Devices

Like many technologies used today, the genesis of mobile devices started long ago. The first tablet device was invented in 1915 which was a text recognition device (Dimond, 1957).

Not long after this mobile phone was first used in the First World War 1 around 1917 (Washington Post, 2014). The first laptop was introduced into the market in 1981 (Applewhite, 2003). Mobile technologies offer unique educational affordances (Klopfer and Squire, 2008) which include portability and an unprecedented degree of connectivity (Peters, 2007). It was not until two other innovations that the mobile device was able to support video conferencing. The first innovation was the inclusion of a camera in a mobile device. Web Cams had been around for some time for computers and laptops but it was the inclusion of the built-in camera that provided greater impetus for mobile video conferencing. It was not until 2012 that iPads were fitted with built in cameras. The second important innovation was the invention of the video conferencing software that would run on mobile devices. Skype (which is examined in this chapter) is a peer-to-peer VoIP client developed by KaZaa in 2003 (Baset and Schulzrinne, 2004) and allows a multi-point video connection with only the cost of the internet connection required. Google Hangout is similar to Skype and allows multi-point connections (up to nine) without cost being involved.

This multi-point connectivity allows schools to connect to more than one remote location at a time meaning students from different locations can participate in lessons.

There are other systems that schools and universities use such as Adobe Connect (Schullo, Hilbelink, Venable, and Barron, 2007). According to Kearney, Schuck, Burden and Aubusson (2012): "Formal learning is traditionally characterised by two constants or boundaries: *time and space*". Whilst using mobile technologies in the classroom connected via video conferencing is not impacted by time, the concept of space is different. "One of the liberating features of mobile technologies is their portability, which allows them to be taken into the field" (Burden and Maher, 2015, p. 176). This means that mobile devices can be used as communication devices where there is 3G or 4G available or wifi which does cover large geographical areas of many developed and developing countries.

Authentic Audiences

Authentic learning can involve virtual communities of practice (Lombardi, 2007) where students interact with members of the community who are more or less experienced (Bronack, Riedl, and Tashner, 2006). Video conferencing can enable students to connect to audiences that they wouldn't normally have access to (Finkelstein, 2006).

This is particularly the case once the use of mobile devices is incorporated. Once such devices are used anyone with a mobile device can be part of an online community and communicate with students in the classroom. The opportunity of collaboration is an important aspect of the authentic problem solving process as highlighted by Herrington, Reeves and Oliver (2014) and this is a fundamental aspect of a socio-constructivist perspective. Learning is not viewed as an individual process; rather it is a social process (Palincsar, 2005).

The availability of learning technologies such as video conferencing and mobile devices provide means for collaboration for participants who are geographically distant. Given that multiple connections to multiple locations are now possible this collaboration can enhance the learning occurring in the classroom. In considering the notion of interacting with audiences there are two different categories are focused on in this chapter which include students interacting with experts in the field and interacting with their peers.

Experts

The use of a mobile device allows students to talk and discuss ideas with experts in the field whom they previously have not had access to. Through the use of video conferencing "students hear things from 'the horse's mouth' and can respond immediately with their own questions" (Comber et al., 2004, p. 8). Additionally, "having a real audience means students take participation seriously" (ibid, p. 8).

An example of students working with experts is from research conducted by the author. Students at a hospital school in Sydney were connected through the class IWB to a dental ward via an iPad for a lesson on dental health.

The students were able to listen to a Dental Assistant talk to them about looking after their teeth. They were also able to ask questions about how often to clean their teeth and other similar questions. Without the use of the mobile device the students would not have had access to the expertise of the dental assistant.

The Role of the Teacher

In working with students via mobile devices, there is the likelihood that the experts will not have experience in working educationally with young people.

This can potentially mean that the interactions will not be as beneficial as compared to working with someone who has teaching experience. The teacher has an important role in facilitating the interactions that take place so that all students have the opportunity to participate and so that useful and meaningful learning takes place.

In research undertaken by the author discussed earlier, teachers took on the role of facilitators where they managed the conversation between the students and the dental assistant who was the expert. Berge (1995) focuses on four roles that the teacher can play in facilitating interactions which include; pedagogical, social, managerial and technical. In managing the interactions the teacher took on the pedagogical role and also the social role.

The teachers also had an important role to play through their interactions as participants as noted in the dentist lesson.

Through online interactions, the teachers took on the role of co-learners where they asked the dental assistant questions. This meant they did not always know what direction the lesson might take and they were required to hand over some of the control of the lesson to the dental assistant. The teachers took on this role of co-learner where students become participants in the learning organisation (Scardamalia and Bereiter, 2002). Through taking on the role as co-learner the teachers were able to model an enquiry process to the students.

During video conference sessions the teacher acts as a facilitator mediating the interactions of the experts online and the students. The teacher also provides prompts and scaffolds the students' learning in relation to the interactions with the expert. Additionally, the teacher needs to manage the technology to ensure that successful connections are made. In the research involving the dental lesson a muti-site link was established between the dental clinic, the school classroom and some students on a ward.

Multi-site video conferences add challenges to interactions between participants. The addition of a third site has been found to add significant challenges to both technological and pedagogical aspects (Payne et al., 2006). Where students are at two locations such as in a classroom and at home or in a ward, the role of the teacher is to ensure that all students get to actively participate in the discussions.

One challenge associated with one person interacting with a whole class is that the video conferences tend to be more lecture based (Bernard et al., 2004) with the presenter doing most of the talking. "The problems with conventional video conferencing have been highlighted in a number of instances and include difficulties arising from the formal setting.

These give rise to constraints on teaching style, so that it leans towards a more didactic approach" (Thorpe, 1998, p. 396).

As noted by Herrington, Oliver and Reeves (2003), authentic activities provide the opportunity to collaborate. The challenge then, is for the teacher to encourage collaboration amongst all participants.

Results of the research projects undertaken by the author indicate that this is more to do with the style of presentation and opportunities provided for student participation than the technology itself. Consideration needs to be given to the limitations of the pedagogies possible using video conferencing.

此为试读,需要完整PDF请访问: www.ertongbook.com