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Notes on Contributors

Greg Lancaster is a lecturer in the Faculty of Education, Monash University, Australia, and a long standing member of the Faculty's Science Education Research Group. His research fields are physics education, the use of new media and argumentation to enhance conceptual understanding in physics and science education, and team teaching in schools. He has taught physics method to pre-service teachers and assisted in developing professional learning programs for in-service science teachers over a number of years. He continues to act as the Faculty of Education academic liaison to the specialist John Monash Secondary Science School since its opening in 2010 and regularly presents his research findings at international science education conferences.

Professor Deborah Corrigan is Deputy Dean at the Faculty of Education, Monash University, Australia. She currently leads the Faculty's Science Education Research Group in the Centre for Science, Mathematics and Technology Education. She has extensive research and development experience in the areas of science education, particularly chemistry education, and teacher education/professional learning (both pre-service and in-service). Her research interests include industry and technology links with science, local and international STEM education policy and the values that underpin science education. She has developed and delivered many professional learning programs for both pre-service and in-service science teachers for the Victorian Department of Education and the Science Learning Hub for the New Zealand Ministry of Research. She regularly presents her research findings at international science education conferences.

Lisa Fazio was the recipient of the Emeritus Professor Peter Fensham (the first Professor of Science Education in Australia – 1970) PhD scholarship awarded to candidates undertaking important research in the area of STEM education in Australian schools. Her research focuses on understanding how recent Australian Government policies on science innovation and STEM education will impact on the development of STEM programs and their implementation in Australian schools. She is also an acting joint ReMSTEP coordinator with the Faculty of Education, Monash University.

Joanne Burke is a lecturer and acting joint ReMSTEP coordinator with the Faculty of Education, Monash University, Australia. She has worked as a teacher of science and mathematics and a school administrator in secondary schools in Melbourne and Asia for more than 25 years. During her involvement with the Faculty of Education she has gained extensive experience in the development and delivery of teacher professional learning programs and is currently undertaking a PhD focusing on the qualities and traits of "excellent" science teachers.

Dr David Overton is a lecturer and education officer with the School of Chemistry, Faculty of Science, Monash University, Australia. Prior to his appointment at Monash University his career in the UK included many years as an industrial scientist, a teacher of both primary and secondary school children, and a pre-service and in-service teacher educator. He has extensive experience in sharing his professional practice with pre-service and in-service teachers in classroom settings and contexts outside of classrooms.

Huanshu Yuan holds a Master of Education degree with distinction in Bilingual and Multicultural Education and is currently a PhD candidate with a major in Multicultural Education at College of Education, University of Washington in the United States. She is a frequent presenter at national and international education conferences. Her teaching and

research interests are multicultural and social justice education, culturally responsive teaching, curriculum development and reform, ethnic studies and teacher education. Her current research concentrates on creating multicultural learning environments for students from diverse backgrounds, as well as preparing culturally responsive teachers for future students.

Ferdi Widiputera is currently a PhD candidate at the Top Institute of Evidence Based Education Research, Maastricht University, the Netherlands. He was born in Hamburg, Germany. He completed a Bachelor's degree in Economics at Trisakti University, Jakarta, Indonesia in 2000. He also holds a Master's Degree in Economics from the University of Indonesia, graduating in 2004. He has several years of work experience in multinational companies from 2001 to 2009. From 2010 he worked in the government sector at the Ministry of Education and Culture of the Republic of Indonesia.

Professor Kristof De Witte is a tenured associate professor at the Faculty of Economics and Business at KU Leuven, Belgium, and he holds the chair in Effectiveness and Efficiency of Educational Innovations at the Top Institute for Evidence Based Education Research (TIER) at Maastricht University, the Netherlands. In addition, he is an affiliated member of the CESifo Research Network (Ludwig-Maximilians-University and Ifo Institute, Germany).

Professor Wim Groot has been Professor of Health Economics since 1998 and Professor of Evidence Based Education since 2008, both at Maastricht University, the Netherlands. In 1986 he received an MA in Economics from the University of Amsterdam and in 1992 a PhD in Economics from the same university. He is the co-founder and scientific-director of the Teachers Academy of Maastricht University and the Top Institute for Evidence Based Education Research. In 2015 he also became Professor of Evidence Based Education and Labor Market Policy at the University of Amsterdam.

Professor Henriëtte Maassen van den Brink is Professor of Economics (Education, Labor Market and Economic Development) at the Faculty of Economics and Business at the Department of General Economics at the University of Amsterdam and professor of Evidence Based Education at Maastricht University, the Netherlands. She obtained her MA (cum laude) in 1988 and her PhD in Economics (cum laude) at the University of Amsterdam in 1994. Since 2008 she has been the Scientific Program-Director of TIER (Interuniversity Top Institute for Evidence Based Education Research). In 2015 she also became the chair of the Dutch Education Council. Her research interests are in the areas of education, labor and health economics. Her publications can be found on www.tierweb.nl.

Dr Marine Milad is a PhD holder and Assistant Professor of English Language and Applied Linguistics at Arab Open University (AOU), Kuwait. Her PhD major was "Developing Reading and Writing Research Skills in a Blended Learning Environment through Critical Thinking and Problem Solving" and her MA major was "Technical Writing for Business Communication". Moreover, she attained a Master Graduate Course in TEFL/TESL Assessment Techniques from Indiana University, Bloomington, in the United States. Currently, she is the general course chair/coordinator for the reading comprehension course and the academic writing and composition course across eight branches of the AOU. Her present research interests are in Constructive Learning by Doing, Blended Learning, Multiple Intelligence, Learning Styles, Brain Colors and Changing Minds, Assessment for Learning, Technology in Learning, Research Skills, Critical Thinking, Problem Solving and Coaching.

Professor Gunter Saunders has worked in higher education for over 30 years teaching and researching in the area of Microbial Genetics and developing approaches for the integration of technology into teaching. He is a Principal Fellow of the Higher Education Academy, nationally recognised for his contributions to the support and development of learning and teaching, including classroom design. He is currently leading the University of Westminster's development of technology-enhanced working and learning. This includes overseeing a five-year rolling programme of classroom renewal that has been designed to deliver classrooms, informed by student and staff feedback, that are adaptable and technology-enabled and that will support student-centred learning.

Federica Oradini is Senior Lecturer in eLearning and the University Mobile Learning and Development Co-ordinator at the University of Westminster. She is a HEA Senior Fellow. She designs and implements e-learning and blended learning courses in collaboration with the University's faculties, by providing expertise in instructional design and advice on pedagogical aspects. She has been an e-tutor on a variety of online distance learning courses since 2009. She also supports professional development for academic staff, conceiving and running staff development workshops about the use of online platforms and web tools to enhance and support learning. Recently her role has been focusing on the use of mobile technologies.

Professor Mark Clements is the Director of Education/Chair Science Education within the College of Science at the University of Lincoln. He is a HEA Senior Fellow and Fellow of the Royal Society of Biology. He is interested in innovative in learning and teaching and has contributed to a number of large-scale projects on assessment and feedback, mobile learning and interdisciplinary art/science collaboration. In 2015 he received the Royal Society of Biology's Higher Education Bioscience Teacher of the Year Award.

Dr Nomazulu Ngozwana is a postdoctoral fellow at the University of South Africa. She obtained her PhD in Adult Education from the University of KwaZulu-Natal, Pietermaritzburg Campus, in South Africa. She holds Master's and Bachelors' degrees in Adult Education from the University of Lesotho. She has substantial practitioner experience in community development needs in marginalized communities in Lesotho and South Africa. Her research interests are in democracy, citizenship, governance, HIV/AIDS, correctional education and civic education.

Sibusisiwe Dube is a PhD candidate in Information Systems at the University of Cape Town, South Africa. She has worked as a lecturer at the National University of Science and Technology in Zimbabwe since 2008. She also worked as a teaching assistant at the Midlands State University in Zimbabwe from 2004 to 2008. She worked as a secondary school teacher for six years from 1994 to 2000. She has a Master of Science degree in Computer Science, a Bachelor of Science Honors degree in Information Systems, a Post Graduate Diploma in Higher Education and a Diploma in Education. She is interested in technology-enabled teaching and learning using social theories intended at emancipating the social actors.

Dr Elsje Scott is an associate professor at the Department of Information Systems, University of Cape Town, South Africa. She has been teaching object-oriented programming for the past 20 years. She has a Master's degree in Applied Mathematics and has a keen interest in Set theory and Graph Theory. For her PhD she developed a theory of coherent practice for capstone courses in Information Systems with the emphasis on as-lived project experiences and the development of project practitioners. This research was underpinned by theories and models for cognition and learning in order to develop IS competence and lifelong learning.

Dr Bernard Montoneri earned his PhD and his BA in Chinese from the University of Provence, Aix-Marseille I, France. He taught literature (European, Children's, American and British) and languages (French, English and Italian) at Providence University for 16 years. He is currently an associate professor at Tamkang University, French Department, Taiwan. He has around 40 publications, including journal papers (including SSCI, SCI and THCI), conference papers and books and has obtained many teaching and research projects. His research interests include French literature, children's literature, English writing, automated scoring systems, teaching and learning evaluation, data envelopment analysis, networking, and teaching methods.

Dr Elena Raevskikh is a research fellow at the French National Center for Scientific Research (CNRS), at the Centre Norbert Elias in Marseille. She presented a PhD thesis in sociology on "The Genesis and Renewals of Institutional Forms of Culture: A Study of Music Conservatories and Their Territorial Anchors". She graduated in International Public Law from the Moscow Lomonosov University Law Faculty, Russia. She is currently involved in the ANR-Curricula research project on European Capitals of Culture, and is developing new conceptual and methodological approaches to identify the creative territories and the socio-cultural dynamics of artistic innovation.

Md Mohammad Akteruzzaman obtained his Bachelor of Arts in English and his Master of Arts in ELT from the University of Rajshahi, Bangladesh. After graduation, he initiated his career as an English teacher at BRAC University, Bangladesh, and published research articles on collaborative learning, L2 pronunciation and linguistic imperialism. Currently, he is working as Assistant Professor and Head of the Department of English at Sheikh Fazilatunnesa Mujib University (SFMU), Bangladesh.

Md Rakibul Islam, a classmate of Md Mohammad Akteruzzaman, started his career as an English teacher at Leading University, Bangladesh, and throughout his career, sociolinguistics, discourse analysis and classroom management have been his research interests. At present, he is serving as Assistant Professor in the Department of English at Bangabandhu Sheikh Mujibur Rahman Science and Technology University (BSMRSTU), Bangladesh.

Dr Wolfgang Odendahl earned his PhD in 2009 (Sinology, Japanology and German Literature) from Cologne University in Germany. His thesis focuses on the affirmation of Chinese cultural identity through the immensely popular kung-fu fiction written by Jin Yong (1924–). Dr Odendahl has been teaching German as a Foreign Language at Taiwanese Universities since 1999 and currently works as a full-time assistant professor at National Taiwan University. His research interests include teaching techniques, computerized solutions for grouping and grading, didactics of interpretation, and assessment and evaluation. He is currently working on a project to provide Intercultural Sensitivity Training for Taiwanese students going to Germany.

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Yvonne Masters is currently Adjunct Senior Lecturer in Professional Classroom Practice in the School of Education at the University of New England, Australia. She was awarded her PhD in October 2010. Her research interests centre on teacher education, professional experience and virtual worlds, with a particular focus on distance education students.

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Richard Mather is a course leader in the Department of Computing at Buckingham New University, United Kingdom. His pedagogic research and PhD supervision include adaptive assessment practices, technologies and collaborative behaviors for learning computer science subjects. His geospatial project outputs provide a rich source of case studies for undergraduate and postgraduate teaching.

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Catalino Mendoza is Director for Publications, Research, Linkages and Liaison and a professor in the Graduate School, College of Business and Accountancy, College of Engineering, College of Tourism and Hospitality Management and College of Education at the University of Batangas, Philippines. He holds a Doctor of Management Science (DMS) and PhD in Human Resource Management.

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Alyson Miller is a writer, critic and scholar from Geelong, Australia. Her research focuses on scandalous literature, and the representation of freaks in literary and popular texts, as well as gender, feminism, postmodernism and dystopian Young Adult fiction. She currently teaches literary studies and professional and creative writing at Deakin University.

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Raimond Selke is an associate professor at the Graduate School of Language and Culture, Osaka University, Japan. He holds a PhD in Art History from the University of Regensburg (Bavaria, Germany), specialising in 19th-century Victorian Painting and Art of the Weimar Republic. His research interests are in Teaching German and Fine Arts and Business Studies.

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Andrzej Sokolowski earned his PhD (Curriculum and Instruction, emphasis in Mathematics Education) from Texas A&M University and his MS (Physics, emphasis in Didactics of Physics) from Gdansk University, Poland. His interests include research in mathematical modelling; in particular, its effects on students' learning of mathematics. He is the author of several articles and book chapters. He is a reviewer for journals such as *Review of Educational Research*, *International Journal of STEM Education* and *Journal of Research in Mathematics, Science, and Technology Education*.

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Dr Anna Toom is Associate Professor of Psychology and Education at Touro College Graduate School of Education, United States of America. In 1991, she attained her PhD in Psychology from Moscow State University of Management, Russia. She is a pioneer of distance education in New York City. She has been designing, developing and instructing various online psychology courses for 17 years. She now teaches Child Development and Learning in Cultural Context and History of Education Internet-based courses. Her primary scientific interest concerns learning in the virtual environment. She studies online students' adjustment, motivation, cognitive activity and communication in the virtual classroom.

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Daniel Velasco earned his BA in both English and French from UCLA and his MEd from National University in the United States. He spent the first part of his career in the field of international/cross-cultural education as an instructor, administrator and academic director at a variety of post-secondary institutions. He continued on to The Chicago School of Professional Psychology, where he earned a PhD in International Psychology. Dr. Velasco currently resides in Japan, where he is a mental health counselor, associate professor, researcher and public speaker. He regularly lectures on intercultural communication, teaching strategies, positive psychology, and counseling strategies with a focus on adaptation and acculturation. He is an active member of the Japanese Psychological Association (JPA), the American Psychological Association (APA), the International Council of Psychologists (ICP), the International Mental Health Professionals Japan (IMHPJ), the Japan Association for Language Teaching (JALT), and Teachers of English to Speakers of Other Languages (TESOL).

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Dr Yoshihiko Yamamoto is currently teaching English at Shizuoka University and has lived in both Australia and New Zealand for more than 10 years. He holds a PhD (Education) and an MA in TESOL from the University of Canberra, Australia, as well as a BA in Education and Linguistics from Victoria University of Wellington, New Zealand. His research areas are Discourse Analysis (gender talk), Sociolinguistics (gender stereotypes) and Applied Linguistics (in general).

Dr Tony Yeigh, Southern Cross University, Australia
Tony Yeigh is a lecturer in the School of Education at Southern Cross University (SCU), Australia, where he teaches in the areas of educational psychology and classroom management. His research interests are in the areas of working memory (WM) and classroom instructional design, and in this respect his PhD thesis examined the relationship between cognitive load and cognitive inhibition, an executive function of the WM system. Dr Yeigh is a research associate

with the Centre for Children and Young People (SCU), as well as a member of the Association for Mindfulness in Education (AME) and of the Teacher Education Research Group (SCU). He is also leader of the School of Education Learning Sciences Research Group, which focuses on the cognitive-psychological, social-psychological and cultural-psychological foundations of human learning. Based on these research affiliations Dr Yeigh has published widely in high quality education research journals and texts, and is currently pursuing research in the areas of pre-service teacher training, educational mindfulness and social-emotional wellbeing.

Reviewers

Dr Sonal Mobar Roy, National Institute of Rural Development and PR, India
Sonal Mobar Roy is Assistant Professor at the Center for PG Studies and Distance Education at the National Institute of Rural Development and PR, India. She has worked as a consultant at the Center for Equity and Social Development at the same institute and carried out monitoring and evaluation of sponsored government projects on the right to education and education for all. Her doctoral study focused on stigma related to TB and HIV in the Ladakh region of India, and the fieldwork was sponsored by Parkes Foundation, United Kingdom. Her research interests include Sociology of Education and Health, Culture Studies, Rural Development, Ethnography and Crowdsourcing. She has been involved in teaching, research and training at her institute and is currently working on compiling a compendium of best practices in rural development in India. She has national and international publications to her name and strives to bridge the gap between theory and practice through her writings and research.

Toya N Bhatta, Tribhuwan University, Nepal
Toya N Bhatta obtained his MPhil in Educational Leadership from Kathmandu University, Nepal (thesis defended on April, 2015). He received his first degree, MA in English in 2000 and MA in Linguistics in 2005, from Tribhuwan University, Nepal. He worked as a research assistant from 2007 to 2009 in DOBES Documentation of Endangered Languages programme funded by the Volkswagen Foundation, Germany. As a researcher he was involved in Language Documentation Projects and contributed to preserve the endangered languages of Nepal, as well as carrying out educational research. As a qualitative researcher, his main interest of research lies in phenomenological study. He has attended several international conferences and his articles have been published in national and international journals. Since 2005 he has been teaching Linguistics at Tribhuwan University, Nepal.

Huanshu Yuan, University of Washington, United States of America
Huanshu Yuan holds a Master of Education degree with distinction in Bilingual and Multicultural Education and is currently a PhD candidate with a major in Multicultural Education at College of Education, University of Washington in the United States. She is a frequent presenter at national and international education conferences. Her teaching and research interests are multicultural and social justice education, culturally responsive teaching, curriculum development and reform, ethnic studies, and teacher education. Her current research concentrates on creating multicultural learning environments for students from diverse backgrounds, as well as preparing culturally responsive teachers for future students.

Introduction

It is our great pleasure and honour to introduce Volume 5 issue 1 of the *IAFOR Journal of Education*. This issue is a selection of papers submitted directly to our journal as well as studies presented during:

1. The European Conference on Language Learning 2016. ECLL2016 was held at The Jurys Inn Brighton Waterfront, Brighton, United Kingdom, from Wednesday, June 29 to Sunday, July 3, 2016. Conference Theme: "Convergence & Divergence".

2. The Asian Conference on Education 2016. ACE2016 was held at the Art Center Kobe, Kobe, Japan, from Thursday, October 20 to Sunday, October 23, 2016. Conference Theme: "Education and Social Justice: Educating for Equality Within and Across Borders".

3. The European Conference on Education 2016. ECE2016 was held at The Jurys Inn Brighton Waterfront, Brighton, United Kingdom, from Wednesday, June 29 to Sunday, July 3, 2016. Conference Theme: "Education and Social Justice: Democratising Education".

The first paper, co-authored by Greg Lancaster, Deborah Corrigan, Lisa Fazio, Joanne Burke and David Overton, is entitled "Towards Building Science Teachers' Understandings of Contemporary Science Practices". This article reports on the experiences of a team of science education researchers from Monash University, Australia, in designing a new Master of Teaching unit for pre-service and in-service science educators. The unit is a response to the Reconceptualising Mathematics and Science Teacher Education Programs (ReMSTEP), a recent Australian National initiative designed to respond to the need for improved confidence and competence in the teaching of mathematics and science as a per-service focus across the Australian curriculum. The paper starts by providing insights into the Australian context and the pressing challenges facing science education in Australia and then explores one approach designed to encourage science educators to consider the changing understandings of the nature of science and contemporary science practices. These understandings are then extended by undertaking interviews with current practicing scientists in cutting edge research facilities.

The second paper, written by Huanshu Yuan, is entitled "Respond to Diversity: Graduate Minority Students' Perceptions on Their Learning Experiences in an American University". This qualitative study explored learning experiences of racial and ethnic minority students in higher education as well as examining the "teaching gap" between minority students' learning needs and university faculty's pedagogical responses to them. This study was grounded in the theory of multicultural education and culturally responsive pedagogy, which played significant roles in advancing prospective teachers' awareness and instructional practice of educational equity and quality. The research findings highlighted the importance of situating teaching and learning in cultural context, as well as demonstrated the need of embracing multicultural education in teacher preparation and development both in teacher education programs and post-secondary environments.

The third paper, entitled "Measuring diversity: A Review of the Literature and Empirical Approaches" is co-authored by Ferdi Widiputera, Kristof De Witte, Wim Groot and Henriëtte Maassen van den Brink. This paper reviews studies on diversity among academic programmes and higher education institutions in the Netherlands and explores empirical approaches to

measure diversity. The outcome suggests and compares the use of indices, such as the Herfindhal index, Gini coefficient, Theil entropy index and the Birnbaum (1983) measure. The results show limited diversity between institutions, disciplines and Bachelor's programmes, while the diversity at the Master's programme and first-year Bachelor's programme levels has increased between 2008 and 2013.

The fourth paper, entitled "Applying the CREAM Strategy for Coaching Teaching Practices" is written by Marine Milad. This article aims to assist the reader apply CREAM strategy on their teaching practices as a self-assessment tool to measure their Creative, Reflective, Effective, Active and Motivated performance. The researcher shares her experience in applying this strategy to coach, not monitor, staff tutors teaching foundation courses at Arab Open university in Kuwait. She was considered as a source of professional help rather than a threat to these tutors.

The fifth paper, co-authored by Gunter Saunders, Federica Oradini and Mark Clements, is entitled "SMART Teaching in New and Old Classrooms". The case study outlines how at the University of Westminster classrooms have been changed to be more adaptable in order to better suit different classroom delivery approaches and encourage more student-centred learning. The main findings of the work are that in re-developing classrooms it is essential to pay careful attention to basics (e.g. lighting, acoustics, writing surfaces) whilst experimenting with different types of furniture and simple, reliable technologies to facilitate tutor mobility within the classroom space and student engagement. The authors stress the need for effective support for staff in engaging with new facilities and in the design of classroom sessions to exploit the new technology and furniture.

The sixth paper, entitled "Rehabilitating Ex-Offenders Through Non-Formal Education in Lesotho", is written by Nomazulu Ngozwana. This paper studied the role of non-formal education and how it addresses the needs and interests of offenders in Lesotho. Moreover, non-formal education was examined in terms of its delivery and the effectiveness in motivating offenders to change and improve their lives during and after incarceration. The findings revealed that while adaptive and transformative needs of offenders were met through non-formal education, the holistic approach to learning was recommended. This includes equipping offenders with skills that addresses their immediate needs including the use of locally available resources.

The seventh paper, entitled "A Survey of the University Students' Perspectives about Using Digital Technologies in Education: Zimbabwean Case", is co-authored by Sibusisiwe Dube and Elsje Scott. This study used data collected from students studying at the National University of Science and Technology, one of the state universities in Zimbabwe. The paper describes the students' views relating to digital technologies in education. The findings highlight the need to be cognizant of the students' digital technology choices, uses and concerns prior to the selection and implementation of institutional teaching and learning technologies. These are the pre-requisites for the successful integration of digital technologies in education and a significant aspect to guarantee returns on technological innovations.

The eighth paper, written by Bernard Montoneri, is entitled "Facebook Posts as Complementary Teaching Material for a French University Course in Taiwan". This article compares data for 32 students who took a class of French for beginners in Taiwan during two consecutive semesters, from September 2013 to June 2014. The data is based on information collected on a Facebook secret learning group during the second semester and on the university

official questionnaires completed by students at the end of the two semesters. Only students from the class and the instructor could join, post, view posts, like and comment during the second semester. The objective was to compare the online behavior, motivation, learning satisfaction, approbation of teaching, and learning progress at the end of the first and second semester. Students not only improved their reading and writing skills, but also increased their knowledge of French culture. Using Facebook as a complementary educational tool reveals to be demanding and time-consuming, but also worth it, notably because students made learning progress, their learning satisfaction increased, and the instructor's teaching evaluation improved.

The ninth paper, entitled "Orchestrating French Music Conservatories: European Political Interventions and Local Governance", is written by Elena Raevskikh. This paper describes how French music conservatories survive through a restructure, and analyzes the role of music in contributing towards the formation of cultural identity. The research approach combines different sources of spatial and statistical data, and contributes to constructing a comparative institutional geography of French multi-level territorial divisions. The findings show the new 'horizontal' relations between French and other European conservatories that promote new musical networks dissociated from the former administrative and symbolic hierarchy between Paris and the provinces.

The tenth paper, entitled "English, Education, and Globalisation: A Bangladesh Perspective", is co-authored by Mohammad Akteruzzaman and Rakibul Islam. This article attempts to present the current situation of English in Bangladesh. It explores how English emerged as a tool for the Bangladeshi people rather than being a language itself from the perspectives of linguistic imperialism and the global aspects of English as a language. Through questionnaires and interviews, data were collected to reach the findings where the researchers tried to evaluate the real necessity of English that people (university students and working people both) cherish in their minds and to what extent, they uphold the beliefs nurtured in the National Education Policy. After analyzing the data, it became evident that the people have moved away from the real and intended purpose of learning English and their only goal is to obtain a good career using English.

The eleventh paper, written by Wolfgang Odendahl, is entitled "*Bildungskrise* – PISA and the German Educational Crisis". It analyzes the German public's perception of the PISA test results in the light of their media presentations. The article questions PISA's stated goal of predicting a nation's economic success by measuring the success of its school system. It argues that PISA does not take into account the social role of schools and their educational mandate to educate citizens capable of furthering their personal fulfillment and contribute to societal progress. It then links PISA to the utilitarian shift of values in Germany's educational system away from education, erudition, general learning, and self-formation towards training for employability and job qualification. The article notes job-market related vocabulary such as "competencies" and "qualification" permeating all education-related publications as the new yardstick for defining educational goals. Ultimately, the author urges to look beyond market-oriented skill training and view school education as preparation for life-long learning in a civilized society.

Please note that we welcome original research papers in the field of education submitted by teachers, scholars and education professionals. Authors may send in a manuscript even if they did not participate in one of IAFOR's conferences. We also welcome book reviews, reviews of the literature in the field, and contributions introducing key educational scholars.

The next issue, scheduled for publication on September 1, 2017, will also be a selection of papers submitted during the above-mentioned conferences. IAFOR publications are freely available on the IAFOR website (Open Access).

Note that there are no publications fees, neither for authors nor for readers. Please find the guidelines on our website (iafor.org/iafor-journals/iafor-journal-of-education) and at the end of this issue. Please ensure that you follow our Author Guidelines before submitting your paper.

Best regards,

Bernard Montoneri and Lucy Spence
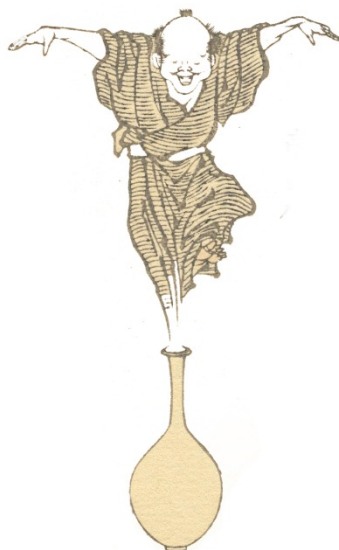
Towards Building Science Teachers' Understandings of Contemporary Science Practices

Greg Lancaster, Deborah Corrigan, Lisa Fazio, Joanne Burke and David Overton

Abstract

Faculties of Education and Science at Monash University have designed a Masters unit to assist pre-service and in-service science teachers in exploring the practices of contemporary science and examine how varied understandings can influence science communication. Teachers are encouraged to explore their current understandings of the Nature of Science (NoS) and to contrast their views with those known to be widely held by society (Cobern & Loving, 1998). Teachers are challenged to provide insights into their thinking relating to the NoS. In order to build understandings of contemporary science practice each teacher shadows a research scientist and engages them in conversations intended to explore the scientists' views of NoS and practice. Findings suggest that teachers were initially uncomfortable with the challenge to express ideas relating to their NoS and were also surprised how diverse the views of NoS can be among teachers, scientists and their peers, and that these views can directly impact ways of communicating contemporary science practice.

Keywords: scientific practices; the nature of science, science education, STEM workforce.

Introduction

There has been a worldwide call for greater education in science, technology, engineering and math (STEM) if we are to meet the workforce needs of the 21st century. Yet at the same time, there are more STEM students graduating while jobs in both developed and emerging countries are going unfilled, creating somewhat of a paradox (New York Academy of Sciences, 2014).

In Australia and internationally there is acknowledgement of decreased participation rates[1] across the secondary and tertiary sectors of students engaging in the study of science, mathematics technology and engineering (Kennedy, Lyons & Quinn, 2014; Mack & Wilson, 2014; Smith & Gorard, 2011; Charette, 2013). These decreased participation rates are often likened to a "leaking pipeline." However, this metaphor is misleading (Cannady, Greenwald & Harris, 2014) as it:

- fails to describe the experiences for about half of those who become scientists or engineers,
- masks meaningful differences in trajectories, particularly in subfields, and
- informs policies in ways that do not account for diversifying or increasing the size of the STEM workforce.

Schools and universities are often "blamed" for not educating enough STEM students, but this does not really capture the complexity of the STEM supply and demand issue. There are largely four main reasons to account for this somewhat paradoxical situation:

1. A shortage of graduates with soft skills. It is often difficult for graduates to apply the concepts they have learned to challenges in the workplace and their work is made more difficult as they often have had little opportunity to develop soft skills in communication, critical thinking and teamwork, which are essential attributes for successful employment. For example, Indian employers report serious shortages in the engineering workforce due to graduates lacking interpersonal and critical thinking skills (Bolm & Saeki, 2011).
2. Lack of qualified technicians. In many countries the education system in not sufficiently aligned with industry in order to develop student attributes that meet employer needs. Graduates are often over-qualified for the positions that need filling. For example in USA manufacturing industries, 67% of manufacturing employers report they are unable to fill mid-level technical positions (Manufacturing Institute & Deloittes, 2011).
3. Loss of high-skilled workers. While many countries are producing STEM graduates, the opportunities for graduates in their own countries can often be limited – resulting in a "brain drain". This phenomenon is present in many countries both developed, such as Australia and emerging such as the Caribbean (UNDESA & OECD, 2013).
4. Untapped pools of Talent. Women, rural populations, minority ethnic groups, lower socio-economic groups and other marginalized groups are acutely under-represented in STEM fields in most developed and developing countries (UNESCO, 2014; Office of Chief Scientist, 2016).

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[1] Participation rates have been declining; however, the relative numbers of students studying these subjects, particularly in secondary schools, has remained similar even though more students are completing secondary schooling.

These four challenges together create a self-reinforcing global cycle that is difficult to break and as the loss of talent in STEM diminishes, the pool of capable teachers and mentors who can assist students in developing the necessary skills (including soft skills) for future employees in technology and science-based industries diminishes as well. Similarly, poor matches between educational pathways and employment opportunities discourage and/or prevent STEM graduates filling the available STEM jobs. Solutions will need to extend beyond the simple encouragement of more students seeking STEM degrees as this will not guarantee that they leave their education with the needed contemporary skills and capabilities. Governments, schools and industry will need to work together more closely in creating a robust "STEM ecosystem" (New York Academy of Sciences, 2014) as needed if such a STEM paradox is to be overcome.

The essential practices required to build a strong STEM ecosystem are (a) government policies that incentivize companies to invest in innovation and scientific research and development to create promising job opportunities for STEM graduates, (b) a strong education system that combines learning with real-world experiences in order to promote both technical and personal professional skills, and (c) a STEM culture embedded in the population in ways that highlight the importance of developing an understanding of opportunities that exist within STEM.

This paper deliberately focuses on Australia's response to building a strong STEM ecosystem, which would be characterized by strength in all three practices above. Some countries such as South Korea have such strengths in all areas), while many have strength in only one or two areas. Australia has some strong initiatives in each area, but still has much to do (as many other developed countries) to build a strong STEM ecosystem. In this paper we will be focusing on an initiative of the Australian Government that firmly exists within the second set of these practices; building understanding of real world contemporary science practices in our future and current science teachers.

Literature Review – Background

As reported by the Australian Office of the Chief Scientist (Office of Chief Scientist, 2014), there is growing acceptance by industry employers that scientific and mathematical competencies are essential for productive participation in a growing competitive knowledge-based economy. This report stated that 75% of the fastest growing occupations required science, technology, engineering and mathematics skills and knowledge in order to be internationally competitive. Twenty-first century workplaces will increasingly rely on employees having skills in digital communication, information technology and knowledge of mathematical competencies essential for analytical and financial modelling. Longitudinal results from the Programme for International Student Assessment, PISA (Australian Council of Educational Research (ACER), 2001; Thomson, De Bortoli, & Buckley, 2013) showed that Australian students' performance in Mathematics and Science literacy experienced a decline between 2000 and 2012, equivalent to a reduction of more than half a year of schooling. Likewise, in a review of outcomes of school education in Australia by the ACER (Ainley & Gebhardt, 2013), a comparative analysis of 2012 PISA and NAPLAN data shows that student performance is weakening among both low and high achieving students.

A more recent study (Kennedy, Lyons, & Quinn, 2014) compared subject enrolments of year 12 students in New South Wales between 1992 and 2012. They found that although there was an increase in participation by more than 30,800 students in 2012, there were 8,000 fewer students studying physics, 4,000 fewer studying chemistry and 12,000 fewer studying biology

compared with 1992. These reductions are similarly reflected in other states in Australia. Earth Science, the least popular science subject was the only science course analyzed where participation rates were shown to increase and this interest was attributed to the global resources boom active at this time. The percentage of students studying advanced and intermediate mathematics also declined over a similar period but the proportion of students selecting entry-level mathematics grew by 60 percent. The number of students (Mack & Wilson, 2014) shunning both mathematics and science has also risen, from 2.1 percent (male) and 5.4 percent (female) in 2001 to 5.9 percent (male) and 14.6 percent (female) in 2014. Similar trends have also been observed for Information Technology participation in schools (Ainley, Kos & Nicolas, 2008).

There has been wide speculation as to the reasons underpinning this decline in student STEM engagement and although this is seen more or less as a worldwide trend (Langen & Dekkers, 2005; Henriksen, Dillon & Ryder, 2015) little research has been able to authoritatively identify the key contributors in effect across international contexts. Australian sector experts identify a range of possible reasons for this decline. These include a deficit of enthusiastic, confident, and competent teachers in the early years to an Australian secondary system which offers too many subject choices in the senior years. Others lament a local tertiary entrance scheme which consequently rewards the brightest of our final year secondary students for selecting less difficult subjects in which they have greater opportunities to achieve outstanding results to maximize their University admission scores. Less attention appears to be paid to the possible combined impact caused by higher education fee increases, diminishing employment opportunities and declining industry incentives caused by the more widespread use of fixed contracts and increasing downward pressures on salaries within the industry.

In an interview conducted by John Burgher (Burgher, 2014) with Professor Iwona Miliszewska, Australian Council, Deans of Information and Communication Technologies, suggested a comprehensive, multi-pronged approach encompassing many ideas similar to those proposed by other industry experts, to encourage greater student interest in STEM engagement by:

- Enhancement of compulsory STEM education through a major revision to the national curriculum that resolves to increase the study hours and content of STEM classes in both primary and secondary schools. The goal of this initiative would be to improve the quality of basic STEM education nationwide, generating and stimulating interest in scientific topics and thus creating a broad support base for STEM in Australian society.
- Introduction of programs to nurture and train the best and brightest STEM talent by enhancing "elite" education; such programs would lay the foundation for a STEM "elite track" from secondary to tertiary levels of education.
- Facilitation of university-to-career transitions by supporting job placement of graduate students and post-doctoral researchers who complete degrees in STEM fields.
- Specifically addressing the under-representation of women in STEM education and careers by launching targeted initiatives supported through both public and corporate sector funding.

In acknowledgement of this deepening problem the Australian Government announced its *Students First-Restoring the focus on STEM in schools initiative* (Australian Government, 2015) that committed 12 million dollars to restore the focus on and increase student uptake of science, technology, engineering, and mathematics subjects in primary and secondary schools across the nation. It consisted of four key initiatives:

- Providing innovative mathematics curriculum resources for primary and secondary school students, focusing on inquiry-led teaching.
- Supporting the introduction of computer coding across different year levels in Australian schools leading to greater exposure to logical and computational thinking.
- An innovative approach to education based on the successful "Pathways in Technology Early College High School" program originating in the United States of America, and
- The introduction of summer schools for STEM students, to increase the number of girls and disadvantaged students (including Indigenous students and those from regional and remote areas) engaging with STEM.

The initiative also focused on the preparation of prospective STEM teachers through a number of targeted learning research grants. One of these grants was the ReMSTEP project.

The ReMSTEP Project

As part of the national initiative, the Australian Government Office of Learning and Teaching (OLT) provided funding in 2014 for two years to four collaborating universities. The University of Melbourne, Deakin University, La Trobe University, and Monash University were charged with exploring how pre-service teacher (PST) education programs could be enhanced in ways to better provide PSTs with greater competence and confidence in their teaching of science and mathematics. In particular, the focus was on examining productive ways of integrating the specialist knowledge of practicing scientists, researchers, and STEM specialists into the school curriculum and teacher classroom practice in order to create greater engagement and subject relevance for students. The project entitled Reconceptualising Mathematics and Science Teaching Education Programs, (see www.remstep.org) shares the vision of the Chief Scientist of Australia (Office of Chief Scientist, 2014). This vision advocates that learning and teaching STEM competencies should introduce students to aspects of contemporary science, technology, engineering, and mathematics practices in ways that students and teachers find exciting and socially relevant, rather than following a curriculum that represents STEM subjects as apparently divorced from any real-world applications or social contexts.

Monash University's involvement in the ReMSTEP project offers exciting opportunities as it involves the development and researching of new PST programs to better address the social relevance of science, technology and mathematics and importantly the sharing of these research findings across all four universities. This paper explores just one of these new initiatives resulting from collaboration between the Faculties of Education and Science at Monash University. The Monash ReMSTEP project team was keen to develop new opportunities for PSTs to experience and better understand many of the contemporary practices of science and mathematics used widely across a range of industry sectors. The assumption underpinning this initiative was that teachers who are more informed and better able to discuss these practices with greater confidence should be more capable of achieving greater classroom engagement and improved student interest in the future study of STEM subjects. The new Master of Teaching unit (equivalent to 288 hours of study) was devised with a number of key objectives consistent with the ReMSTEP project and incorporated successful reflective pedagogical approaches informed by past evidence-based science education research undertaken by the Faculty of Education.

Unit Objectives

Three key unit objectives were identified to encourage PSTs:

- Understand how sciences (including mathematics) knowledge, processes and communication shift over time through the influence of social and technological change.
- Explore the diverse and changing understandings of the Nature of Science (NoS) while challenging participants to re-conceptualize and articulate their own personal contemporary view.
- Investigate first hand contemporary practices of science and examine how the creation of new knowledge has significantly changed to become more inter-/multi- and trans-disciplinary, e.g. nanoscience, and bio-informatics.

Each of these is briefly discussed. The first objective underpinning the unit focuses on how science knowledge changes over time. Much of the knowledge and practices of science and mathematics are tentative and undergo constant reappraisal and update. Some ideas prove to be more enduring than others, however all ideas remain open to question. The creation of new technology can often have substantive impacts on how new knowledge is generated and in turn, this can influence the directions of subsequent technology development and applications. The idea that science knowledge and contemporary practices are tentative and changing is not widely explored in science or mathematics classes in secondary schools where content is often conveniently delivered as definitive and enduring.

Present textbooks are more likely to be revised to accommodate changing government curriculum initiatives rather than contemporary changes in science knowledge, such as new or revised understandings or the impact of advances in technology. For example, the continuing debate over the classification of Pluto as a planet and what should constitute a planet in our solar system may be seen by some as revealing an indecisiveness or a weakness of enduring knowledge and authority in science. However the debate by planetary scientists over the need for change of such a historical classification system provides insights into the dynamic nature of the sciences and the need for the sciences to constantly reassess and accommodate changing understandings based on the acquisition of new evidence. To ignore such instances of debate and review is to ignore a critical aspect of how sciences are undertaken and that all scientific knowledge should remain open to question and revision.

The second objective identifies that contemporary practices of science and mathematics and the new knowledge arising from such practices, has largely now changed to become more inter-/multi- and trans-disciplinary in nature. Increasingly more science research is now being undertaken at the fringes between the traditional subject disciplines. This requires researchers to have broad understandings across a number of what were once seen to be independent fields of specialization. Emerging areas such as nano-science, nanotechnology, bio-informatics, regenerative and imaging technology, require complex understandings of multiple disciplines. However, despite this mix of traditional discipline areas, the key processes by which sciences are undertaken and the overarching objectives remain equally applicable. This unit aims to make the processes of sciences and their associated skills more explicit for PSTs and emphasizes the importance for teachers to also make these explicit to their students as a part of their regular classroom practice. The unit seeks to identify the importance of science, mathematics and associated technologies as "a way of knowing and exploring our world"

where cross-discipline understandings have the potential for convergent investigation to generate richer understandings and reveal unseen complexity and interdependence.

Interviewing Scientists about their Practice

Although it is possible that some PSTs undertaking the unit may have strong backgrounds in the sciences, engineering or mathematical studies, including research backgrounds (or even PhDs) in related sciences or engineering fields, this is not typically the case. In addition, many PST of early years students often have more limited science and mathematical backgrounds. Given this diverse mix of science experience amongst the PST cohort it was felt essential that all PSTs should undertake a visit to a contemporary research facility where they can meet with and interview practicing scientists. The intention of this visit is to provide the PST's with a face-to- face experience in which they can chat with scientists to explore the nature of their work and familiarize themselves with the operation and practices of a contemporary research facility. The PSTs are then encouraged to share their reflective insights gained from the visits in brief video reports suitable for sharing with their peers in workshop discussions.

Monash University, as a research intensive university, is fortunate that it has a large number of world class "Centers of Excellence" and more than 20 expert research scientists operating across these have agreed to meet individually with a PST for several hours. In addition, a number of expert scientists from the Melbourne Museum (Australia) in specialist areas of entomology, paleontology, and plant physiology have also agreed to be involved in the program. In almost all cases the scientists have been approached to be involved in this program because they are engaged in research areas which help to demonstrate the highly interdisciplinary nature of contemporary research and they have a demonstrated track record for seeking to actively communicate their understandings of science to a wide range of audiences. Prior to the PSTs visiting the research centers the purpose of the visit is discussed and scaffolded in the unit workshops to make the intentions explicit and to assist the PSTs in constructing relevant interview questions that will explore the scientists understandings of the Nature of Science (NoS) and the purpose and range of audiences that they routinely communicate with. This approach is intended to assist the PSTs to maximize the learning benefits achieved from such a relatively brief visit to an authentic research setting.

Five Areas of Science Cognitive Engagement

Examining the effective communication of science, mathematics and technology is periodically revisited throughout the unit in ways that assist in reinforcing the importance for teachers to embed the investigation of STEM knowledge in a social context. A schema developed by Corrigan (2015), attempts to assist the PSTs in their analysis of the methods and intentions of the different types of science communication engaged in by contemporary scientists. This approach is seen as innovative as it tries to assists the PSTs to distinguish between the broad areas of complex cognitive engagement needed for effective communication with different audiences for different purposes. The schema attempts to identify 5 areas of science cognitive engagement that scientists, technologists and researchers are likely to engage with:

1) **General Public Engagement** – this is probably the most basic level of communication, however even though the sophistication of the science knowledge exchanged is likely to be quite elementary it does not imply that it is not without challenge. Looking to effectively communicate insights into big ideas or complex processes using appropriate metaphors or

analogies is a creative and demanding task which confronts many educators on a day to day basis. Predictably not all scientists are skilled at communicating with the general public which make those that are, such as Tim Flannery, Richard Dawkins and Brian Cox highly sought after by both the mainstream media and the general public.

2) **Informed Engagement** – This describes engagement by those who are conversant with a scientific field or discipline. They are informed and seek opportunities to share and improve their knowledge and understanding amongst competent peers with similar interests or expertise. This form of engagement is practiced widely by amateur interest groups, student societies and professional institutes and associations, e.g. amateur astronomical societies, soil science engineers, the Australian Society for Microbiology, the Royal Australian Chemical Institute, and the Australian Academy of Science.

3) **Applied Engagement** – This describes a broad engagement by scientists, engineers, technical designers and science communicators who apply current scientific knowledge to develop real world applications of technology or to share insights into fundamental processes of science. Their interests may include fields such as; engineering, medical imaging, robotics, polymer science or nanotechnology. They use the knowledge of science and its processes, e.g. experimental design, analysis of data and scientific modelling to test and improve technology and its applications.

4) **Focused Engagement** – This includes engagement which deals with the more routine practicalities of communication practices within and between scientific or industry research centers. Examples could include system approaches for regular reporting on project challenges and achievements to project personal, routine laboratory meetings, initiatives exploring workflow or communication practices and team reviews of technical protocols. It could also include the reporting of project mile stones to Government and industry or mentoring practices within specific research fields or scientific organizations.

5) **Expert Engagement** – This engagement involves science discipline authorities or research leaders acknowledged by their peers as experts and visionaries, e.g. Nobel Laureates, industry science prize winners, Australian Eureka Prize and Institute of Physics awards, and Australian Academy of Science award winners. This could include expert analysis or commentaries on new technology or recent scientific research discoveries and their likely societal or cross-discipline impact. Experts regularly provide key note addresses at conferences and their insightful presentations and critical analysis is regularly sought by industry, field specialists and the general media.

In addition to utilizing this organizational schema, PSTs are also challenged to communicate their understandings of science using creative multimedia artifacts. The rationale for this is to encourage the PSTs to develop and practice skills in creating and critiquing visual images or multimedia which has now arguably become very much mainstream in contemporary educational communication. Multimedia channels such as, YouTube.com, Vimeo.com and Vevo.com already provide access to a multitude of video resources from which educators can source and share useful multimedia artifacts. It is considered essential that PSTs are skilled to select discerningly from these rapidly growing collections with such diverse quality.

Another innovative approach used in the unit encourages PSTs to review, articulate and defend their personal view of the Nature of Science (NoS). This approach was initially adopted to encourage PSTs to develop and refine their views of NoS and to assist them to form a more

coherent view that they felt more confident to share and discuss. Although there has been considerable research into the views of NoS held by a wide cross-section of the community, from the general public to students, scientists and science educators, there appears to be far less research literature which reports on ways of developing activities by which PSTs can effectively construct and articulate a coherent personal view of NoS. In initial workshops the PSTs are introduced to a number of provocative statements about NoS in a collaborative activity outlined by Cobern & Loving (1998). In line with the approach advocated in Cobern and Loving's paper the PSTs are encouraged to work initially as individuals and then form larger and larger groups to select or reject (by consensus) deliberately provocative statements about science designed to align with one of six broadly identified views of NoS. Through peer discussion and debate, PSTs are encouraged to construct and revise their view of NoS and to acknowledge changes in their positional understanding.

This activity has been adopted because it does not privilege one view of NoS over another or encourage all PSTs to adopt one "currently acceptable" view, but reveals how contemporary understandings of NoS change and will continue to change over time. The NoS theme is periodically re-examined at key points throughout the unit and is seen as a mechanism for identifying and tracking changes in individual thinking about attitudes and values of science.

Methodology

This unit was successfully delivered in the second semester of the first year of the project and at the time of writing, is presently being offered for a second time in the project's final year. The unit was offered to practicing teachers and PSTs in mixed study mode, consisting of four face-to-face workshops each of three hours duration, alternating with five online study sessions providing a mix of research readings, media resources, collaborative activities, and peer discussion forums for completion. Although the initial unit cohort was small (n = 16) the findings indicate that greater research and analysis is warranted in the next iteration of the unit to enable a more effective evaluation of its impact on PSTs attitudes and practices. At the commencement of the unit all PSTs were invited to participate in the unit research and completed an initial online survey aimed at gathering data on their course pathways and areas of teaching specialization. The survey also asked teachers and PSTs to identify how confident and prepared they felt to successfully undertake the teaching of contemporary science.

At the completion of the unit all PSTs were invited to undertake a 30 minute individual face-to-face interview with an independent researcher. Only two (n = 2) PSTs agreed to be interviewed due to course workload demands and survey timing. Using a number of set questions, the interviewer sought to investigate the PSTs' understandings of the course intentions and to seek feedback from the PSTs on how successfully they thought the unit objectives were achieved. The scientists employed at the research facilities visited by the PSTs were also approached by the independent interviewer, however only two (n = 2) agreed to meet briefly providing only very limited feedback on their experience with the PSTs and their interviews. The impact of PSTs visiting research facilities and interviewing practicing scientists was explored during several workshops and although PSTs generally reported finding the experience to be positive and informative, the lack of feedback determined that this aspect warrants greater research in future programs.

Findings

The data collected from the initial online survey (n = 3) provided only brief insights into PSTs' course backgrounds and employment intentions. Understandably the PSTs indicated that they were choosing to undertake the unit to gain insights into the contemporary practices of science and to develop additional skills and understandings which they thought would be helpful for their classroom professional practice in teaching science and/or mathematics. Not surprisingly their articulated intentions closely reflected those of the unit objectives. During a unit workshop at which the lecturers and independent interviewer were present, the PSTs (n = 14) provided verbal feedback on a number of aspects of the unit. The majority of the PSTs reported finding the first assessment task, "the creation of a multimedia representation which reflects their personal view of NoS" highly challenging. Many PSTs discussed how they did not feel confident or skilled in creating and critiquing visual representations compared with the more traditional argumentative essay assessment task. This lack of confidence was also reflected by the number of clarifying questions fielded by the unit lecturers regarding the implementation of this assessment task. This view was also reported by the two PSTs who agreed to be interviewed at the completion of the unit. They both reported feeling apprehensive and ill equipped to undertake what they saw as a highly creative task. In conclusion, it was acknowledged that the PSTs in general reported a lack of confidence in addressing the task of designing and critiquing visual images or multimedia.

One of the more surprising findings was the impact acknowledged by the PSTs that the collaborative discussions about NoS (in workshops and online discussion forums) had on building their confidence and ability to communicate a coherent and more contemporary view of science. A majority of the PSTs spoke of how their thinking and view of science had changed during the unit from one in which they originally privileged understandings of science or mathematical content to one with a broader understanding of the processes by which science is undertaken. This acknowledged shift was evidenced again by several of the PSTs directly in their multimedia representations and in comments made in their second assessment task. However in this first unit completion there were no opportunities to investigate or witness the implications that this changed view may have on influencing or reshaping their classroom professional practice.

On reconceptualizing a personal view of NoS, the PSTs reported greater self-confidence in constructing and justifying a personal coherent view of NoS and an improved ability and confidence in discussing and communicating NoS understandings across a range of professional settings:

> *Student (2) – "You know you always start this going, oh [I] already know this, [but] ... really talking about it [NoS] and kind of expanding that understanding was really good. ... I came out [after the unit] with a fairly different kind of conception...than I started with of what science is and what's core to it."*
> *Student (1) – "Questioning and actually reflecting on ... what I think about science and what other people think about science and trying to figure out ... what you know, what a coherent view is because a lot of these things aren't ... necessarily explicitly looked at ..."*
> *Student (2) – "If I was doing an interview for a science position I think it gives me a better understanding to talk about science education in a way that I think would stand out to employers, compared to people who hadn't done this unit or something similar."*

Several of the PSTs also reported that since visiting a research facility and talking to "real" scientists they now felt that they had improved understandings of contemporary science practices and how science is undertaken by scientists. Many of the PSTs acknowledged that before their site visits they knew very little of how "big" science is undertaken in world leading centers of excellence and their views were limited to highly contextualized educational experiences in undergraduate labs or even earlier high school settings:

> *Student (1) – "Yeah that was really good. I enjoyed ... the interview part [of] the site placement and talking to a working scientist and finding out what they value ... the importance of creativity and collaboration and what they ... know."*
> *Student (2) – "There was a few things that ... I wouldn't have thought was important [before doing the unit] that when I got to do ... the interview [with the scientist] towards the end of the subject ... a lot of things came up that we'd talked about ... and it was ... confirmed ... by the working scientists."*
> *Student (1) – "For example in science education our experiments work ... [this] is not what it's like in actual science. You don't know the outcome of ... the actual experiment."*

Conclusion

The researchers openly acknowledge that the preliminary findings from the single unit offering are quite limited in scope. However, the general findings from the interviews, workshops, and assessment tasks suggest that many of the approaches and activities used throughout the unit were largely successful in achieving many of the intended unit outcomes. A surprising finding was that encouraging the PSTs to re-conceptualize their personal view of NoS proved much more powerful and engaging than originally anticipated. Participants were keen to revisit and challenge their ideas throughout the course and to actively explore and debate alternate views. The changing personal view of NoS also provided insights into how their understandings of contemporary sciences were changing over time. Some students were reportedly surprised at the impact that robust discussion and debate had on changing their long-held views.

Constructing a coherent contemporary view of NoS also appeared to provide participants with language and confidence to engage in professional discourse which challenged and further enriched their understandings of science. Several participants self-reported improved confidence and competence in their professional practice when exploring science with their students as a way of knowing and understanding the world.

The research center site visits and interviews with practicing scientists were also reported to be highly informative and although the conversations and experiences were diverse, the workshop discussions proved very rich in building contemporary views of science practices.

The initial findings raise many questions about the success and impact of this unit on shaping PSTs views of NoS and adopting teaching with a contemporary view of sciences and their authentic practices. Further research will be undertaken and reported when this unit is next delivered.

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Respond to Diversity: Graduate Minority Students' Perceptions on Their Learning Experiences in an American University

Huanshu Yuan

Abstract

The increasing population of minority students in higher education in the United States makes it relevant to focus on the issue of how to improve current educational philosophies, instruction and curriculum design, investment, and organization to meet the needs of minority students. A "teaching gap" between minority students' learning needs and pedagogical responses to these needs exists in American postsecondary education. This qualitative research study addressed this knowledge gap by using five semi-structured interviews with five graduate education major minority students to examine their learning and the teaching practice of faculty in a specific university in the United States. The results of this study indicated that situating teaching and learning in a cultural context and improved faculty multicultural awareness were important to improve minority students' learning experiences and academic outcomes.

Keywords: multicultural education; culturally responsive teaching; teacher education; minority student learning; higher education.

Introduction

Minority students have been struggling to experience educational equity and excellence in U.S. society and the educational system, in particular, to receive equal access to qualified educational resources and academic achievements as their White counterparts do (Banks, 2004). The increasing population of minority students in higher education in the United States makes it relevant to focus on how to improve current educational philosophies, instruction and curriculum design, investment, and organization to meet the need of minority students.

Because of the increasing diversity in students' cultural and racial backgrounds, research on minority students' learning and achievement has increased over the past years (Schofield, 2004). However, much of it leaves open the question of the causal direction of empirical links found among minority students' racial and cultural backgrounds, their academic performance and achievement, and reforms of educational policies and practices in the American educational system (Schofield, 2004). A "teaching gap" between minority students' learning experiences – curriculum, pedagogy, interactions, and teachers' pedagogical responses to them, exists in American higher education. This teaching gap plays an influential role in enhancing or reducing the likelihood of an achievement gap in higher education for linguistically and culturally diverse students.

Tomorrow's teachers and university faculty will need to be well prepared to effectively and appropriately deal with issues of race, culture, ethnicity, and language. The higher education systems, including teacher preparation programs, need to be more responsive to the needs of this growing segment of the student population (Villegas & Lucas, 2002). A more specific set of issues and possibilities in terms of teaching practices for multicultural students needs to be explored in more detail in higher education settings. Inequitable educational practices have been documented extensively in K-12 educational settings. But this source of the achievement gap has been less fully investigated in postsecondary learning environments (Villegas & Lucas, 2002). As students from various minority backgrounds encounter curriculum that may not be framed in ways that resonate with them, pedagogy that is insensitive to their cultural backgrounds and assumptions, faculty attitudes and expectations that reflect destructive stereotypes, or other aspects of the learning environment, they may not perform up to their potential, thereby continuing a systematic disparity in performance between them and their white counterparts.

Literature Review

Four bodies of research and theory inform this study, each offering different components to the research. These are: teaching attitudes, positive interactions, culturally responsive pedagogy, and content integration, and are depicted visually in Figure 1.
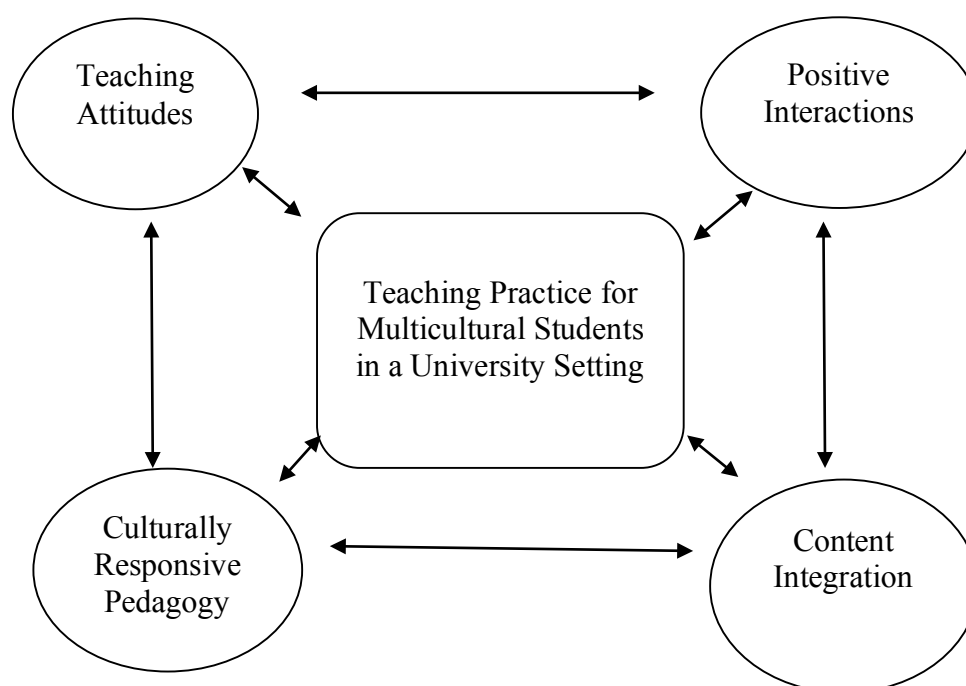
Figure 1: Conceptual framework

Some academic research and teacher preparation programs, in general, have viewed students of color as genetically inferior, culturally deprived, and verbally deficient (Delpit, 1995). Issues of teaching attitudes towards minority students are enacted in postsecondary academic environments, in teaching practice and curriculum design in particular. Previous scholarship on "racial and ethnic studies of minority students' achievement and attainment in U.S. higher education" evoke the reconsideration of the causes of variability in educational gaps among linguistically diverse students and their White counterparts. An important factor which results in minority students' comparatively lower academic achievements is destructive teaching attitudes and stereotyped expectations towards students' cultural and racial backgrounds. Scholarship on these negative teaching attitudes and expectations are grounded in critical race theory.

Effective learning requires active peer interactions and positive interactions between students and teachers. The culturally and linguistically diverse university classroom is at risk of developing inequities on the basis of difference in student status and teachers' position of authority (Cohen & Lotan, 2004). For example, minority students arrive with varied educational experiences and English proficiencies; this situation leads to variation in their academic skills, performances and differences in academic success. Many teachers in university settings are distressed to observe that newcomers and some minority students are virtual non participants in class discussions and activities (Cohen & Lotan, 2004), as many minority students have a hard time voicing their opinions and maximizing learning outcomes.

Allport (1954) suggests that the support of authorities and positive equal-status relationships and interactions among students of all ethnic and racial groups are vital to producing academic achievement. This finding has implications for increasing positive classroom interactions. Teachers are important authority figures, who can facilitate positive interactions among minority students and their White peers by using cooperative learning and alternative grouping strategies (Schofield, 2004). Teachers can also promote linguistic and cultural pluralism in the

academic learning environment for encouraging minority students' identity development and learning processes.

Content integration deals with the extent to which teachers use examples, materials, data, and information from a variety of cultures and groups to illustrate key concepts, principles, generalizations, and theories in their subject area or discipline (Banks, 2004). Gay (2004) extends the notion of systematic change in teaching content and materials by identifying significant ways of embedding culturally relevant components in curriculum and learning materials. These include designing curricula that develop understanding of ethnic groups' cultures, histories, and contributions; teachers becoming multicultural in their attitudes, values, beliefs, and behaviors; and using action strategies for combating racism and other forms of oppression and exploitation.

In addition to recognizing that minority students bring rich funds of knowledge to their higher education learning experiences, faculty in university settings can do much to modify their approaches to instruction. Educational equity and excellence for students from all ethnic, racial and cultural backgrounds in the United States are unattainable without the incorporation of cultural and racial pluralism in all aspects of the educational system. Educational practice, as Gay (2004) argues, plays a key role in reducing institutional racism and achievement gaps, as well as rebuilding minority students' self-esteem, identities and learning engagements. Culturally responsive pedagogy exists when teachers use cultural heritage and background experience to facilitate students' academic achievement (Gay, 2010; Banks, 2004). Addressing culturally responsive pedagogy also contributes to mutual understandings between minority students and teachers, valuing diverse cultural and racial heritages, and enabling diverse students to realize their potentials.

Methodology

The research was a short-term, qualitative study, which incorporated five semi-structured interviews in a specific university setting. The research followed a "basic" interpretive design (Merriam, 2009), which sought to understand the interaction of individuals with the culture of the academic learning environment and university context in which they lived and studied. It is a particularly appropriate way to pursue how minority students interpret their learning experiences, how they see racial and cultural impact on academic instruction and peer interactions, what factors benefit their learning, and what issues exclude them from effective learning and academic achievement.

Due to the research emphasis, the setting of this research was the University of Washington. Participants from the College of Education were chosen due to the rich diversity of students and faculty from different cultural and racial backgrounds within the teacher preparation and education programs at the University of Washington. The five participants were College of Education master and doctorate degree minority students. Five interviews provided opportunities for the voices of research participants to be heard, cultural and racial identities to be valued, and multiple needs to be fulfilled. Participants enrolled in the College of Education graduate program were selected according to their multicultural and linguistic backgrounds (English was not the native language), in order to demonstrate how racial and cultural factors contribute to their learning processes and outcomes.

A demographic summary of the participants is presented in Table 1. Due to the confidentiality agreements with research participants, all the names are pseudonyms.

Table 1: Demographic summary of study participants

Name	Nationality	Age	First Language	Gender	Program	Previous Academic Studies	Grade Level
Sunny	South Korea	31	Korean	Female	Curriculum & Instruction	South Korea	2nd year doctorate student
Ken	Chile	29	Spanish	Male	Teacher Education	Chile	3rd year doctorate student
Peter	Thailand	28	Thai	Male	Educational Psychology	Thailand & U.S.	2nd year doctorate student
Amy	Hong Kong	30	Cantonese	Female	Teacher Education	Hong Kong & U.S.	2nd year master student
Mary	Mainland China	25	Mandarin	Female	Curriculum & Instruction	Mainland China	2nd year master student

Discussion

Four major findings resulted from this study. The first finding was the misinterpretation of minority students' learning styles and cultural knowledge between faculty and students. The second finding was a lack of culturally diverse representation and responsiveness in learning materials and teaching practice. The third finding was the cross-cultural self in interactions. The fourth finding was a disparity in teacher preparation and practice in higher education.

Personality or Culture: Misinterpretation of Minority Students' Learning Styles and Cultural Knowledge between Faculty and Students

All five research participants indicated that they experienced a gap between their personal and cultural knowledge and mainstream academic knowledge. The concepts, explanations, and interpretations that students derive from personal experiences in their home, family, and community cultures constitute personal and cultural knowledge (Banks, 1996), which could be challenged by mainstream White dominant academic knowledge. Four of the five research participants' learning styles, communication styles, and in-class performance styles were deeply influenced by Asian-oriented cultural heritages and educational backgrounds. Instead of actively participating in class discussions, frequently speaking out their ideas in front of the whole class, questioning and challenging professor and classmates' opinions, and taking on leading roles in group assignments, Asian students were used to listening, memorizing, and following directions and requirements. As Sunny mentioned:

> During the past 29 years of studying in Korea, I was educated and trained to be obedient and submissive to my professors' instructions and requirements. In my home culture and school culture, students are required to listen to and memorize every word from textbooks and their professors. I am so used to accepting and memorizing everything from my professor, and it is my learning style and it is also my culture. It is in my blood and so hard to change even now I'm starting my doctoral program in America.

The cultural differences between students and faculties lead to cultural discontinuity in the U.S. higher educational environment. Failing to realize this may result in the cultural clash and limiting minority students' academic development. Minority students' cultural heritage and personal experiences not only construct their identity but also influence their learning, communicating, and academic performing styles in U.S. classrooms. Fordham and Ogbu (1986) indicated that minority students will experience academic difficulties in the school because of the ways that cultural knowledge within their home and cultural community conflicts with academic knowledge, norms, and expectations in mainstream classrooms. In higher education, especially in graduate programs, the population of enrolled minority students is scarce in comparison with their White counterparts. These demographic differences and related cultural mismatches can lead to minority students being misrepresented for their whole ethnic group based on the misreading of their in-class performance.

This issue of misrepresentation can reinforce negative teaching attitudes and practices toward minority students, which could create a cultural deficit model. As Mary stated: "I realize that some of my professors may be aware that Chinese students' learning styles and in class performance patterns are grounded in traditional Chinese culture, which emphasizes being polite and listening rather than speaking out. So they will assume every Chinese student follow this pattern and they will no longer have high expectations for my Chinese classmates and me. They won't expect us to play a leader role in group projects and I can feel the "expectation distance" from professors between me and my White American classmates."

Peter was frustrated about being perceived as a silent Asian student. He said, "Some professors categorized me as a quite student based on my Asian appearance and their previous culturally stereotyped assumptions towards Asian students' behaviors in class. It hurts sometimes. Although Asian students may have generally quite personalities, but that cannot fully represent every student and every Asian culture."

Misinterpretations of minority students' learning and performance styles illustrate a disconnection between teachers' and students' personal and cultural knowledge. Mainstream academic knowledge is more consistent with the cultural experiences of White middle-class students than those of most other ethnic groups, so it is important for faculty to understand and include the personal and cultural knowledge of minority students when designing the curriculum, teaching strategies and assignments for today's multicultural classrooms (Banks, 1996). Moreover, it is equally important for university faculty to obtain knowledge about cultural and racial diversity to reduce culturally mismatched teaching attitudes and practices in increasingly culturally diverse classrooms.

Content or Context: Lacking Culturally Diverse Representation and Responsiveness In Learning Materials and Teaching Practice

All five research participants indicated that they encountered learning materials and assignments that were not culturally relevant and responsive. The missing voices from their cultural backgrounds and racial heritages created a cultural vacuum for them in the university. Ken indicated that he had a very hard time reading textbooks and often learning materials in several classes that did not relate to his culture or contain international perspectives. He stated, "In one teaching pedagogy class, I found that my perspectives and knowledge were constructed and limited in Western, or American focused-context. I wanted to hear international voices and learned more cases from my cultural backgrounds so that I could obtain professional

knowledge and be able to practice it when I return to my home country. But I seldom read materials or textbooks that reflect cultural diversity or are relevant to my home culture."
The absence of cultural responsiveness and relevance in learning materials not only impacts minority students' construction of ethnic identity and cultural belongingness, but also shapes their access to academic opportunities, involvements and achievements. Amy shared how cultural mismatch affected her learning process and outcomes in her graduate program. She said:

> If learning materials and assignments are totally constructed on American culture or history, that will create an invisible cultural barrier for me to approach the content knowledge and engage in discussions. For example, in my first quarter of the graduate program, we were assigned to discuss Jim Crow case and its historical influences on educational policy. Being a cultural outsider, I was not so familiar with the American educational system and policies. It was hard to join in my American classmates' discussions. All those names, cases, laws became simple English words, which didn't make sense to me.

Content knowledge, curriculum, and teaching materials in higher education settings may exclude and marginalized minority students. Most of the students interviewed claimed that their cultural knowledge and heritage were not validated or well presented in textbooks, curriculum and other learning materials used in university classes. When separated from cultural context, content knowledge can be obstacles that minimize the learning processes and outcomes of minority students. Dilg (2003) noted that it is important for teachers to realize the ways in which minority students' cultural backgrounds and educational experiences affect how they understand and respond to learning materials and assignments. Faculty and students in teacher education programs need to learn how to reduce cultural distance for minority students. Dilg (2003) also indicated that students may connect deeply with a work based on connections they perceive between learning material and their own cultures, or reject it on the basis of its lack of "cultural fit" (p. 47).

Amy suggested incorporating culture to learning materials and teaching practices as she explained that, "If I can feel connections and reflections between my home culture and subject matter content, I will learn better and with more confidence and active engagement." The connection between learning materials, subject content, teaching practice and students' cultural backgrounds need to exist, so that a "safe cultural space" (Dilg, 2003, p. 48) can be created to reduce gaps between minority students and their academic learning materials, practices, and environments.

Misplaced Cross-Cultural Self in Interactions

The students interviewed shared feelings of being isolated from their instructors and American peers by language, academic talk, structured diversity, cultural preference, and classroom climate. Students who are not English native speakers indicated that their English proficiencies and non-native pronunciation separated them from their American counterparts and university faculty. Mary recalled that: "English can be a form of segregation which singles me out because of my Chinese accent. Language itself can create significant challenges or biases. For example, some of my instructors may misread my academic abilities and interaction patterns as a result of the differences in styles of language uses and proficiencies."

Another problem related to language is "academic talk" in classrooms. As Dilg (2003) explained, language can define, divide, embarrass, exclude, isolate, or draw together minority students, faculty and their White American peers at school. Furthermore, the cultural meanings behind the language used also makes a difference in minority students' learning processes and interactions with instructors. Peter provided an example of this when he first heard the expression, "the elephant in the room" in his class. All the American students immediately understood and responded appropriately. Peter added, "So I have to pretend I understand, in order to show I am listening and engaging. But this happens a lot in my studies. Instructors' styles of questioning and other academic instructions and talks may not always make sense to me because they are not just about English language; it's more about culture behind the language." Many students interviewed said they frequently encountered academic jargon that blocked their responses and understandings. This culturally embedded language barrier can mislead university faculty in their assumptions about minority students' interaction patterns, academic performance, and learning outcomes.

Structured diversity in graduate level classes at the research site presented another challenge for the interviewed students. According to Bennett (2004), structured diversity means the racial and ethnic diverse students and faculty representation in a particular institutional setting. The perception of racial and cultural diversity may increase or reduce cultural prejudices and tensions among students and faculties. All five students interviewed indicated that they expected to see more colleagues, classmates and faculty who "look like us", and thus secure their sense of cultural belonging, as well as building a safe and culturally familiar academic environment. This feeling was similarly conveyed by Peter, Ken, Mary and Amy. As Amy stated, "If the university's faculty team could have more faculties of color, or from my cultural background, I will be more comfortable, because they speak my language and could understand me, as well as be able to provide culturally responsive teaching practice and companionship to support my academic development and ethnic identity construction."

A House United or Divided: A Disparity in Teacher Preparation and Practice in Higher Education

The students who participated in this study recognized that misconnections existed. They noted that teacher education programs and university faculty were lacking multicultural courses and materials needed to educate in culturally responsive ways. This absence of culturally responsive content and contexts overweighed the subject content knowledge, or "professional skill" training. It caused a problem easily identified by the five research participants as: Some professors are experts in their scholarly fields, but they are not very good at transmitting their academic knowledge and content knowledge to culturally diverse students.

Ken, as a third year doctoral student in teacher education, expressed his concern regarding lack of multicultural content and training in his program as follows:

> Many teacher education students or professors may not have had the multicultural learning experiences which are necessary to break the conservative assumptions underlying teacher education at mainly higher education institutions. Lacking sufficient training in terms of culturally responsive teaching or multicultural education, prospective faculties may not be aware of the importance of cultural diversity, racial differences and their impacts on minority students' learning processes and identity constructions. This institutionalized traditional teacher education model will negatively reinforce inequitable teaching practices for culturally diverse students.

Mary and Sunny also addressed missing cross-cultural or multicultural education context and content in teacher education and faculty preparation. As Mary indicated:

> As prospective teachers or university professors, we are educated by what our professors know about education and instruction, and we will teach our future students in the way we are trained in the institution. If our instructors are lacking awareness and systematic training of culturally responsive teaching, how can their teaching practices become culturally responsive? And we are rarely seeing faculty preparation or training about teaching in a multicultural context. The university or higher education institutions are deeply impacted by the taken-for-granted belief that professors are experts and they can teach effectively. But this may not always work as well as they expect.

The students interviewed agreed with Goodwin (1997) that attitudes and practices and the lack of progress in the area of prompting multicultural teacher education should be re-examined. They also felt that inequitable teacher preparation in higher education is closely associated with their inequitable teaching practices that, in turn, expand gaps in the academic achievement of cultural and racial minority and majority classmates. Thus, systematic improvement in teacher preparation and faculty teaching practices are needed to address these concerns.

Conclusion

This research indicates a teacher preparation-teaching practice gap in U.S. higher education, especially among university faculties with increasing numbers of ethnic minority students in class. Teaching effectiveness in graduate level classes is traditionally defined by professional content knowledge, instead of the equal concern for faculty attitudes, curriculum design, teaching practice, and interaction with multicultural students. These missing components result in inequitable teaching practice and broaden academic achievement gaps between ethnic minority students and their White peers. This situation provokes the need for a re-conceptualization of teacher education in a multicultural educational context to include culturally responsive perspectives and practices in higher education. Through exploring the lack of multicultural concerns in teacher education and teaching practice in one university college of education, this study proposes the following suggestions for raising prospective teachers and university faculty's awareness of teaching for diversity.

Diversify Teaching Materials and Situate Teaching Practice in Diverse Cultural Contexts

Diverse students' personal and cultural knowledge and experiences are not addressed sufficiently and positioned adequately in the mainstream academic environment. The cultural, racial, linguistic, and knowledge diversity in this university's academic environment calls for faculties to reduce the discontinuity between what minority students experience and how they have been educated in their home cultural and educational contexts, and what they experience in university classrooms and how. In order to achieve academic success, minority students need to study in an academic environment that facilitates their cultural identity and competence development, when they encounter positive and culturally aware teaching attitudes, and action; receive real-life connections and cultural relevance from learning materials and curricula; and experience alternative and culturally responsive pedagogy and interactions with their faculties and classmates.

Rethink How to Prepare Faculties for Diversity, and Increase Diverse Representation among Faculties

An important mission of teacher education is improving teacher candidates' professional content knowledge and teaching strategies, as well as promoting educational excellence and equity. One of the major aims of teacher education should be to assist teachers to develop the attitudes, knowledge, and skills needed to become thoughtful and approachable for every student in the multicultural academic environment. To achieve this goal, appropriate and comprehensive training to foster positive teaching attitudes towards diversity and the deconstruction of teaching stereotypes and biases is needed. This present study supports this suggestion especially academic teaching for university level teacher education programs to foster positive attitudes, beliefs, and practices. Moreover, increasing the diversity of university professors can benefit and strengthen teacher awareness of multicultural issues, and can reduce the sense of cultural isolation among teacher candidates of color, and cultural insensitivity among White candidates.

Preparing Culturally Responsive Faculty and Adding Cultural Components in Teaching Practice

Adding cultural components in teacher training and promoting faculty cultural competence to better serve culturally diverse students are crucial steps toward improving university teaching practice. It is essential for teacher education programs to present teaching as an intellectual and cultural activity, as well as to develop productive perspectives about the interactions among race, culture, class, and schooling (Cochran-Smith, 2000). Teacher education programs need to modify content to support collaboration between faculty and teacher candidates in acquiring culturally responsive teaching skills for practice in schools.

This research study offers a perspective on making prospective teachers and university faculty aware of engaging more effectively with the diverse student populations. This study also advocates increasing culturally diverse components in teacher education beyond only mainstream culture and knowledge-focused content to multicultural perspectives and experiences to maximize efforts to improve the quality of teacher education programs, teaching practice, and student performance in higher education. This study takes a step towards creating a pathway to establishing campus climates and academic environments of teacher education programs where "students of every cultural and racial background feel welcome and are encouraged to reach their highest potential, as well as receive academic achievements" (Bennett, 2004, p. 864).

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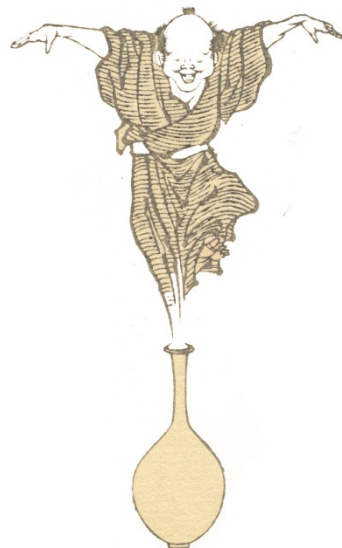
Measuring Diversity in Higher Education Institutions:
A Review of Literature and Empirical Approaches

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Abstract

This paper reviews studies on diversity in higher education institutions and suggests empirical approaches to measure diversity. "Diversity" in this paper refers to the internal and external differences among academic programs and institutions. As the empirical literature is relatively salient about how to measure diversity in higher education, the study suggests and compares the use of the Herfindhal index, Gini coefficient, Theil entropy index and the Birnbaum (1983) measure. Applying the indices to data on Dutch higher education, the results indicate limited diversity between institutions, disciplines, and bachelor's programs. The diversity at the master's program and first year bachelor's program levels increased between 2008 and 2013.

Keywords: diversity; institutions; indices.

Introduction

The end of the 1960s marked the start of the democratization of higher education in most Western countries and a number of institutions were faced with the challenge of how to accommodate a growing student intake (Beerkens-Soo & Vossensteyn, 2009, p. 3). In many parts of the world that have experienced an expansion of higher education, diversity has been emphasized as a tool to accommodate growing student numbers. In view of these changes, the student population of universities funded by the Dutch government has grown tremendously in the last five-years. Over the period 2009 to 2014, student enrollment grew by 13% to reach approximately 250,000 students (Law, 2016, p. 101).

Diversity in higher education refers to the variety in institutions or systems of higher education. It concerns the differences among the programs or services provided by institutions and the differences among the types of institutions themselves (Meek, Goedegebuure, Kivinen & Rinne, 1996). Diversity can be measured between institutions and programs. Diversity between institutions includes diversity "in size, in type or mission, in program profiles, in type of control and in location" while diversity between programs includes diversity "in field, in academic degree level, in orientation, in quality and in program delivery" (Dill & Teixeira, 2000, p. 100). Meek, Goedegebuure and Huisman (2000) explained that diversity is a system that "affects every aspect of higher education including access and equity, teaching methods and student learning, research priorities, quality, management, social relevance, finance" (p. 1). The Trow (1995) study defines diversity as characterized by the existence of institutions "within a state or nation that differ from missions, lifestyles, laws and relationships to government" (as cited in Meek et al., 2000, p. 3). Lang (2003) argues that "diversity is a policy objective" from a "planning, regulation, and funding" perspective (pp. 29 and 40). Van Vught (2007) claims that diversity is the "variety of entities in the system within time" (p. 2).

Diversity has long been recognized as uniquely associated with the higher education systems of many colleges and universities around the world and higher education institutions have used diversity as a measure to appraise their systems. Studies of diversity have been ongoing since the 1980s (Birnbaum, 1983). Although dozens of studies have focused on diversity in higher education institutions, there has been little review of the empirical findings of these studies. Moreover, the few existing reviews rarely take into account the strength of the evidence. The first best-evidence research in favor of diversity was from Birnbaum (1983). He measured the effect of external diversity in American higher education between 1960 and 1980. Morphew (2009) repeated Birnbaum's study and found a decline in diversity in the American higher education system. The literature on diversity in higher education has given limited attention to empirical approaches to measuring diversity (Huisman & Morphew, 1998). This paper contributes to the literature on diversity in higher education by suggesting and applying approaches to measuring diversity among higher education institutions.

Several recent reviews have described the findings of empirical studies that focus on measuring diversity. Horta, Huisman and Hector (2008) studied the use of research funding mechanisms between institutions and applied the Gini coefficient in order to evaluate the result. Rossi (2009) explained "the relationship between market competition and diversity in higher education" (p. 390) using the Herfindhal index to measure diversity and diversification. Bonaccorsi (2010) used the Entropy measure to measure diversity among universities in several European countries. In order to expand this literature, this paper explores four innovative approaches for measuring diversity in the Netherlands, which is an Organization for Economic Co-operation and Development (OECD) country. This focus is addresses the Dutch

government's policies to increase and maintain diversity in its higher education system. The 1985 Higher Education Autonomy and Quality (HOAK) claimed that program diversity is achieved "by granting institutions autonomy" (as cited in Huisman & Morphew, 1998, p. 7). According to the 1985 HOAK policy document, "the government tried to direct the higher education system with these stringent regulations and extensive control mechanisms" and "strengthen the autonomy of higher education institutions" (as cited in Maassen & Vught, 1988, p. 66). Furthermore, the government expected to raise the level of quality and stimulate diversity within the system (Maassen & Vught, 1988, p. 66). The focus of our review lies on diversity between programs and higher education institutions. It builds on investigations of external diversity in higher education, i.e. the differences between higher education institutions (Birnbaum, 1983). As such, the goal of this study is to assess whether diversity and its mechanisms provide changes in the higher education systems by applying the Gini coefficient, Herfindhal index, Theil entropy index and Birnbaum index. These indices were used to measure concentration within the context of diversity and to compare institutions and academic programs.

The next section presents an overview of the earlier literature on diversity using empirical approaches in higher education systems and diversity indicators that have been used in these studies. This is followed by a description of the methods and search strategies. After that, the paper presents an empirical study and the results. The final section presents the findings and conclusion of the study.

Literature on Measuring Diversity

In this section, we provide a review of the previous literature on diversity in higher education. The review starts by over viewing the conflicting views on the definition of diversity. It then highlights how earlier literature has conducted empirical analysis.

In his seminal study, Birnbaum (1983) studied forms of diversity. He focused on external diversity and presented "an overview of the various arguments found in the literature" (as cited in Vught, 2007, p. 5). Birnbaum identified seven forms of external diversity: "systemic diversity, structural diversity, programmatic diversity, procedural diversity, reputational diversity, constitutional diversity, and values and climate diversity" (as cited in Vught, 2007, pp. 2-3). Birnbaum (1983) used six variables: institutional control, size, minority enrollment, proportion of female students, program types and degree levels (as cited in Huisman & Morphew, 1998, p. 5). Birnbaum found that during the study period, external diversity in the American higher education system did not increase.

Four empirical studies have explored diversity at the discipline level. Rossi (2009) defined diversity as a variety of institution types, with the institutions categorized "according to one or more specific institutional characteristics, at a certain point in time" (p. 395). Rossi (2009) argued that the increase in diversity is one of the strategic arrangements in the higher education system. He measured diversity between universities at a discipline level. He also explored the effects of competition on diversity using Italian data for the period 1999-2006 in specific disciplines (Rossi, 2009, p. 391). Rossi used the Herfindhal index to derive a diversity index, as well as a regression analysis. The study concluded that there was a positive relation between competition and diversity. However, the relation was not robust. He recommended further study using other indicators. For example, the quality of the research in institutions or access to institutions would enrich knowledge of diversity in higher education.

There has been some research focusing on institutional diversity (Horta, Huisman & Heitor, 2008; Bonaccorsi, 2010). Horta et al. (2008), for example, focused on the relationship between funding for research in higher education and institutional diversity. They argue that funding might contribute to increased levels of institutional diversity in higher education systems. Their application uses the Gini coefficient. They describe the two main models which have dominated in higher education systems. The first model is "the state control model in which the government regulates through direct control" and the second is "the market based model, the autonomy by institutions of higher education" (Horta et al., 2008, pp. 148-149). Horta et al. (2008) observed that competitive funding rather than direct funding promotes institutional diversity. As such, institutional diversity can be fostered by "funding mechanisms for academic research" (Horta et al., 2008, p. 156). In a more recent study, Bonaccorsi (2010) measured diversity by using an empirical approach. Diversity in doctoral education was measured between universities in several European countries. The underlying census data originated from the project Aquameth, which collected data on all universities in 11 European countries during the period 1994–2004. Bonaccorsi applied entropy and distance measures and concluded that diversity at universities in several European countries had mixed effects on dynamic diversity. There were both positive and negative effects on diversity between universities.

The four studies reviewed above show a similar point of view regarding diversity. Some authors (Birnbaum, 1983; Rossi, 2009; Bonaccorsi, 2010) describe empirical approaches to measure diversity, while others (Horta et al., 2008) do not use empirical analysis. The studies clearly measure diversity and describe which variables have been used. The theoretical framework related to diversity and its effects are clear. The four studies specify which aspects of the systems in higher education the study refers to. Birnbaum's (1983) conclusions on whether government interference could increase diversity are different from those of other researchers. Rossi (2009), Bonaccorsi (2010) and Horta et al. (2008) do not explicitly explain government interference. Finally these four studies provide recommendations or advice for government policies in higher education.

Method

This study relied on published papers and working papers from the years 2000 to 2014. The following electronic databases were used: Higher Education and Economic Reviews, ERIC, JSTOR, Taylor and Francis, Wiley Online Library, Springer, and Google Scholar. The literature review used the following keywords: institutional diversity, program diversity, diversity and differentiation, diversity higher education, diversity and inequality, and external diversity. Our search identified thirty articles. Despite our inclusion criteria, we included the older literature by Huisman and Morphew (1998) and Birnbaum (1983) since these studies provided the seminal work on this topic. Eight studies attracted our attention in particular (Lepori, Huisman & Seeber, 2014; Bonaccorsi, 2010; Rossi, 2009; Horta, Huisman & Heitor, 2008; Ayalon, Grodsky, Gamoran & Yogef, 2008; Huisman, Meek & Wood, 2007; Kelchtermans & Verboven, 2010; Huisman, Kaiser & Vossensteyn, 2000). The difference between the latter eight studies and the other articles is that they specifically focus on diversity between higher education institutions while the other studies emphasize only general diversity unrelated to higher education. In the next step, all papers that did not meet our inclusion criteria were excluded. The decision to include studies was based on a combination of reading summary abstracts, theoretical framework, methods and results. Included studies also had to present definitions and measure diversity empirically. After applying these inclusion criteria, we had four studies left. The four studies are considered in this review.

Table 1 provides the relevant information and a systematic summary of the literature on diversity as well as the applied empirical procedures. The following information was relevant: author(s), country, type of study, type of diversity, methodology, and outcome.

Table 1: Literature review on the type of diversity and the applied empirical approaches and outcomes (after the year 2000)

Authors/Scholars/ Researchers	Country and year	Type of study	Topic on type of diversity	Methods/ Tools	Outcomes
Rossi	Italia (2009)	Empirical approach	Institutional	Herfindahl index	↓ Diversity
Horta, Huisman & Heitor	USA and UK (2008)	Empirical approach	Institutional	Gini coefficient	↑ Diversity
Bonaccorsi	European (2010)	Empirical approach	Institutional	Theil entropy	Dynamic mixed diversity
Lepori, Huisman & Seeber	Swiss and various European (2014)	Empirical approach	Institutional	Herfindhal index	↑ Diversity
Ayalon, Grodsky, Gamoran & Yogev	Israel and USA (2008)	Empirical approach	Institutional	Gini coefficient and across national and longitudinal analysis	Diversification affects to inequality
Huisman, Meek & Wood	OECD (2007)	Empirical approach	Institutional	A cross national and longitudinal analysis	↑ Diversity
Kelchtermans & Verboven	Belgium (2010)	Empirical approach	Program	Concentration index	↓ diversity
Huisman, Kaiser & Vossensteyn	OECD (2000)	Empirical approach	Institutional, Program	Relative score	↑ diversity

The Higher Education Institutions in the Netherlands

Higher education in the Netherlands is organized as a binary system (de Boer, Enders and Leisyte, 2007, p. 28). There are three types of Dutch higher education institutions, consisting of government-funded (*bekostigde*), approved (*aangewezen*) and private (*particuliere*) institutions (Law, 2016, p. 100). The Dutch higher education system is comprised of 13 research universities (*wetenschappelijk onderwijs, WO*) that are accredited and funded by the Dutch government and fifty universities of applied sciences (*hoger beroepsonderwijs, HBO*).

Approved institutions are different; they do not receive funding from the government. Private institutions also play an important role in the higher education system. They can apply for accreditation by the *Nederlands-Vlaamse Accreditatieorganisatie (NVAO)*. Table 2 provides an overview of the institutions of higher education in the Netherlands.

Table 2: Number of institutions in the Netherlands in 2016

Institutions	Total
Research universities	13
Universities of applied sciences	50
Total	63

How to Measure Diversity

The Herfindahl index can be used to measure concentration in a variety of contexts. One way is to analyze horizontal diversity between institutions. The Herfindhal supports multiple variables and allows multiple groups (year, discipline and program level). To use this statistical measure, the study considered the number of degree programs in each institution, for example the number of disciplines offered by each institution. The Herfindahl index (HH_i) can be constructed and computed for each institution as follows (Rossi, 2009):

$$HH_i = \sum_i \left(\frac{x_{ci}}{x_c}\right)^2$$

Where x_{ci} is the number of students in a degree program in discipline i offered by an institution in the year c. x_c is the total number of students in a degree program offered by an institution in the year c. Since not all institutions offer each discipline, this index determines the range of disciplines offered by each institution. The index varies from 0 to 1: the minimum diversity is indicated by zero and the maximum diversity is indicated by 1 referring to the total number of disciplines. A low value of HH_i indicates that the institution is "more specialized" (low diversity), and a high value indicates that the institution is "more diversified" (high diversity) (Rossi, 2009, p. 396). The advantage of using the Herfindhal index is that it can be determined by the range of each discipline in the program offered.

The second method is the Gini coefficient. The Gini coefficient is a measure of inequality. The techniques for calculating the Gini coefficient have been designed for ungrouped data and are popular "because of their simplicity and accuracy" (Abounoori & McCloughan, 2003, p. 505). The Gini coefficient has the disadvantage that the cumulative percentage cannot be calculated if one variable, for example the number of programs or the number of students, is not leveled from the minimum to the maximum value. The data required to calculate the Gini coefficient are the total number of programs in each institution and the number of students in each institution. The Gini coefficient is calculated by comparing the area between the diagonal and the Lorenz curve (area A) divided by the area of the triangle below the diagonal (area B).
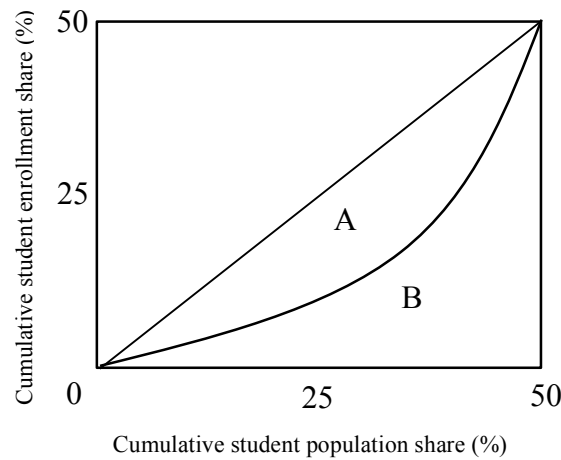
Figure 1: Representation of the Gini – measured as the area A / area B

Alternatively, the Gini coefficient is defined as follows:

$$G_i = \frac{A}{(A+B)} = 1 - 2B \qquad (1)$$

$$G_i = 1 - 2 \int_0^1 L(x)dx \qquad (2)$$

The function $L = L(x)$ is the cumulative proportion of the number of disciplines in each institution; L denotes the cumulative proportion of the number of students. In practice, function $L(x)$ is unknown. In this formula, $G_i = 1$ indicates perfect (maximum diversity) and $G_i = 0$ indicates absolute equality (minimum diversity).

As a third methodology, the Theil entropy index (E_i) can be defined as a "measure of the uncertainty" in a random variable (Mhaskar, 2013, p. 1). If E_i approximates to 0, this indicates a minimum diversity, and E_i approximating to 1 indicates a maximum diversity. The Theil entropy can be written as follows:

$$E_i = \sum_i \left(\frac{y_i}{Y}\right) log \frac{\frac{y_i}{Y}}{\frac{x_i}{X}}$$

Where y_i is the number of disciplines in institution i. Y denotes the total number of disciplines. x_i is the number of students in institution i. X stands for the total number of students and i is number of institutions (1,2,3 ... n).

Finally, this study also replicates the diversity measure by Birnbaum (1983). The Birnbaum index is applied by measuring institutional diversity based on the largest number of observations. Birnbaum (1983) explains that diversity increases as the largest number of observations increases. The Birbaum index can be calculated as follows:

$$D_i = \sum_i \left(\frac{Y_i}{X_i} \right)$$

Where Y_i is the most populated number of students in disciplines in institution i, and X_i is the total number of students in a discipline in institution i.

Data

The data was obtained from the Dutch Ministry of Education (*'Dienst Uitvoering Onderwijs', DUO*). The data includes for each institution the number of students in the academic years 2008 to 2013 for each institution. In addition, it provides program-level information on the number of students in specific disciplines and program types (bachelor's, master's and first-year bachelor's programs). First, we considered the number of students at the institution level. The study has information on all fifty institutions in higher education in the Netherlands. Second, we examined the number of students at program type and sector levels. The data consisted of program type, namely bachelor, master, or first-year bachelor. Third, we applied the methodology to the number of students based at the discipline level (1356 disciplines in total).

Results

Applying the four methodologies described above to data for higher education in the Netherlands yielded some interesting insights. Table 2 provides a summary of the outcomes for each of the four indices for the years 2008, 2009, 2010, 2011, 2012 and 2013.

Table 3: Diversity at institution level

Indices	Year	2008	2009	2010	2011	2012	2013
Herfindahl		0.0375	0.0374	0.0374	0.0372	0.0370	0.0374
Gini coefficient		0.4765	0.4755	0.4749	0.4773	0.4799	0.4778
Theil entropy		0.5276	0.5233	0.5208	0.5232	0.5274	0.5259
Birnbaum		0.9341	0.9373	0.9385	0.9345	0.9339	0.9301

Source: Authors' own calculations, based on the dataset from the Dutch Ministry of Education

The Herfindhal index is close to 0. It can be seen from Table 2 that the index value is 0.0375 in 2008 and 0.0374 in 2013. A lower number of students in each institution generated a low value on the Herfindhal index. The Gini coefficient and the Theil entropy are both close to 1. The results also indicate that the Birnbaum index is close to 1. This is because a large number of students in each institution generated a higher value on the Birnbaum index.
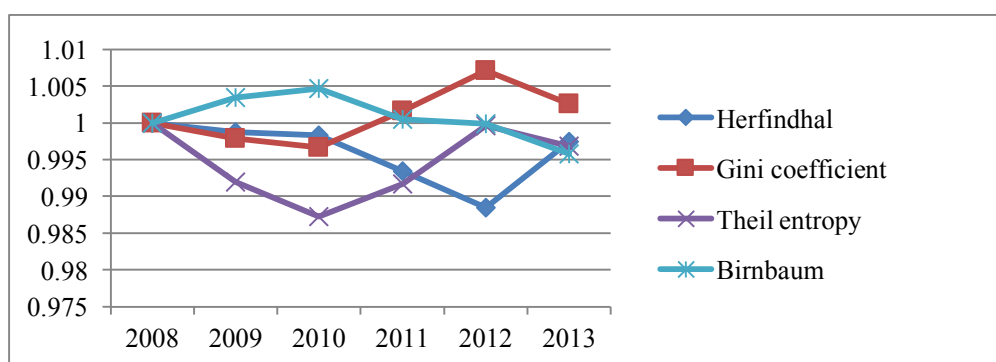
Figure 2: Comparison between four indices at institution level (2008–2013)

Using the four indices, the trend shows that diversity at the institution level decreased over time. The decrease means that institutions became more specialized during the period of study. Similar to the result of the Gini coefficient for 2008 to 2010, the figure decreased slowly from 0.4765 to 0.4749. However the trends significantly increased to 0.4773 and 0.4799 in the years 2011 and 2012, respectively. This increase is probably caused by an increase in the number of students in higher education. In the year 2013, the Gini coefficient decreased to 0.4778. The decrease of the Gini coefficient shows that diversity in institutions reached a minimum (institutions became more specialized in the period of study), and the Theil entropy index shows a similar movement. Both indices decreased between 2008 and 2010, then increased in 2011 and 2012, but in 2013 they decreased again. The decrease in diversity over time can also be seen from the Birnbaum index. The overall conclusion is that there is little diversity at the institution level. In other words, the institutions are relatively homogenous.

Table 4: Diversity at discipline level

Year Indices	2008	2009	2010	2011	2012	2013
Herfindahl	0.0089	0.0101	0.0098	0.0097	0.0094	0.0095
Gini coefficient	0.1715	0.1397	0.1441	0.1483	0.1502	0.1481
Theil entropy	0.6445	0.8400	0.8087	0.7868	0.7686	0.7785
Birnbaum	0.0476	0.0434	0.0316	0.0316	0.0313	0.0320

Source: Authors' own calculations, based on the dataset from the Dutch Ministry of Education

The results are based upon a total of 1356 disciplines at fifty institutions. The Herfindhal index, the Gini coefficient and the Birnbaum index at the level of discipline are low and close to 0. These low index values may be caused by a small number of students in each discipline. While the results from the Theil entropy index are above 0.5 in 2008 (0.6445) and in 2013 (0.7785), they are still below 1.
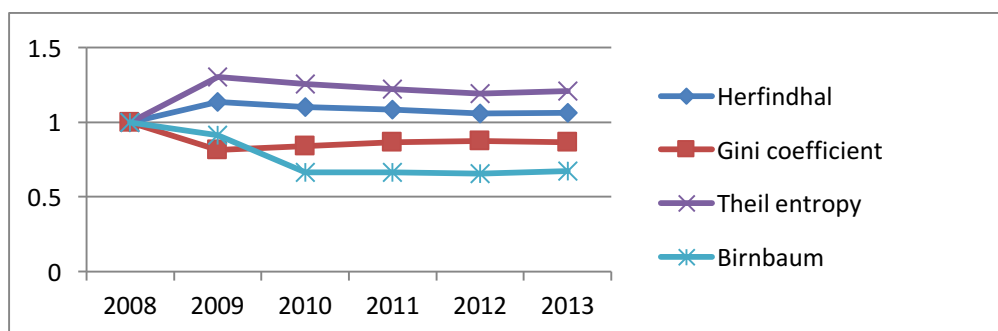
Figure 3: Comparison between indices based on disciplines (2008–2013)

The values vary between 0.0089 (2008) and 0.0095 (2013). However, the overall diversity at discipline level has decreased. Similar changes are also shown by the Theil entropy index. Both results indicate a decrease in diversity (disciplines became more specialized over time). The overall trends in the Gini coefficient increased from 2009 (0.1397) to 2012 (0.1502) and then decreased in 2012 and 2013. In 2013, the Gini coefficient decreased somewhat, and overall it can be concluded that diversity at the discipline level increased (disciplines became more diversified over time). The Theil entropy index increased from 2008 to 2009 and then decreased significantly until 2012. The Theil entropy index slightly increased in 2013. The overall comparison between the four indices indicates that diversity at the discipline level decreased (specialization increased).

Table 5: Diversity at bachelor level

Indices	Year	2008	2009	2010	2011	2012	2013
Herfindahl		0.8329	0.8319	0.8316	0.8300	0.8298	0.8282
Gini coefficient		0.5549	0.5648	0.5625	0.5589	0.5598	0.5587
Theil entropy		0.6635	0.6821	0.6811	0.6777	0.6807	0.6798
Birnbaum		0.7146	0.7030	0.7043	0.7012	0.6993	0.6945

Source: Authors' own calculations, based on the dataset from the Dutch Ministry of Education

The results show that the four indices are not close to 1, indicating that the bachelor's level programs are relatively homogenous. However the Herfindhal index is high at the bachelor's program level. The Gini coefficient is the lowest of the four indices.
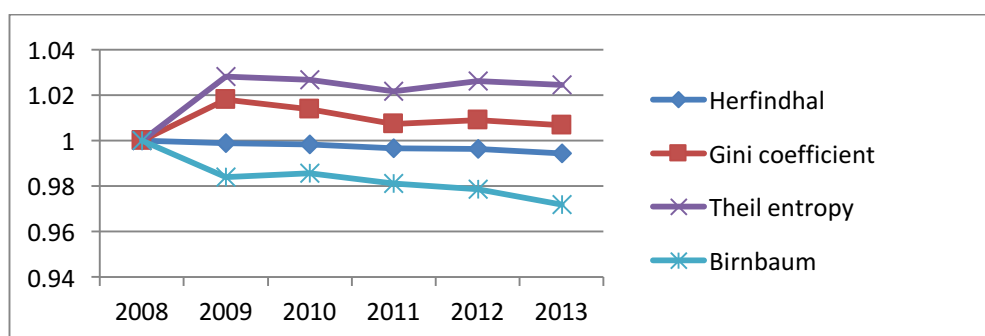
Figure 4: Comparison between indices based on bachelor's programs (2008–2013)

The Herfindhal index decreased from 2008 to 2013. It can be concluded that bachelor's programs during that period had minimum diversity (more specialization). The Gini coefficient and the Theil entropy index decreased from 2009 to 2011. From 2011 up to 2013 there was an unstable movement. In general, these indices were rather similar concerning the direction of the movement. The decrease in diversity was also found in the Birnbaum index. The overall result of these indices supports the conclusion that diversity at the bachelor's program level was low. Bachelor programs were relatively homogenous.

Table 6: Diversity at master level

Year Indices	2008	2009	2010	2011	2012	2013
Herfindahl	0.8604	0.8727	0.8734	0.8752	0.8757	0.8784
Gini coefficient	0.6482	0.7082	0.7145	0.7284	0.7264	0.7440
Theil entropy	0.7659	0.8139	0.8178	0.8277	0.8333	0.8472
Birnbaum	0.7734	0.8191	0.8252	0.8271	0.8281	0.8398

Source: Authors' own calculations, based on the dataset from the Dutch Ministry of Education

The results in Table 5 show that the Herfindhal index approached 1. The Gini coefficient had a low value compared with other indices. However, most indices were relatively high. The high values of the indices imply that diversity at the master's program level was large.
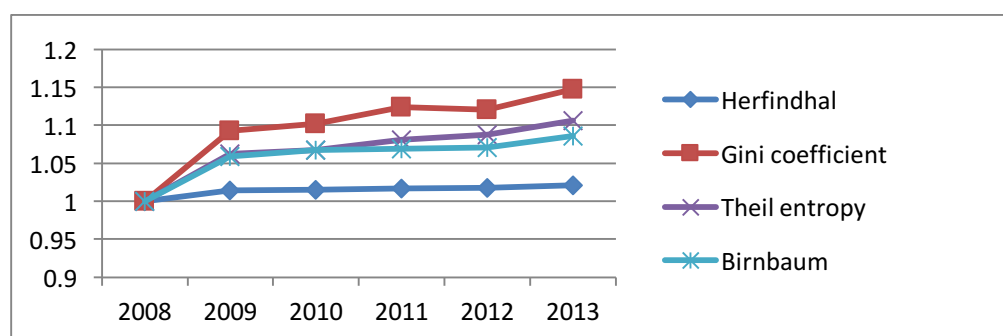
Figure 5: Comparison between indices based on master's programs (2008–2013)

The Herfindhal index, the Gini coefficient, the Theil entropy index and the Birnbaum index were similar in their trend from 2008 to 2013. All indices increased during this period. Diversity in master's programs at sector level increased significantly. This increase was probably due to the growth in the number of bachelor's students who continued in a master's program, thus affecting the number of students in master's programs. Master programs were relatively heterogeneous.

Table 7: Diversity at first year bachelor level

Year Measurement	2009	2010	2011	2012	2013
Herfindhal	0.7986	0.7997	0.7981	0.7978	0.8012
Gini coefficient	0.4679	0.4693	0.4666	0.4662	0.4735
Theil entropy	0.5014	0.5050	0.5026	0.5073	0.5220
Birnbaum	0.6637	0.6659	0.6626	0.6644	0.6705

Source: Authors' own calculations, based on the dataset from the Dutch Ministry of Education

The results refer to the number of first year bachelor's students. The Herfindahl index was high compared with other indices. The Gini coefficient was the lowest among the indices (below 0.5). The Herfindahl index had a high value. The high value indicates that diversity at the level of first year bachelor programs was high.
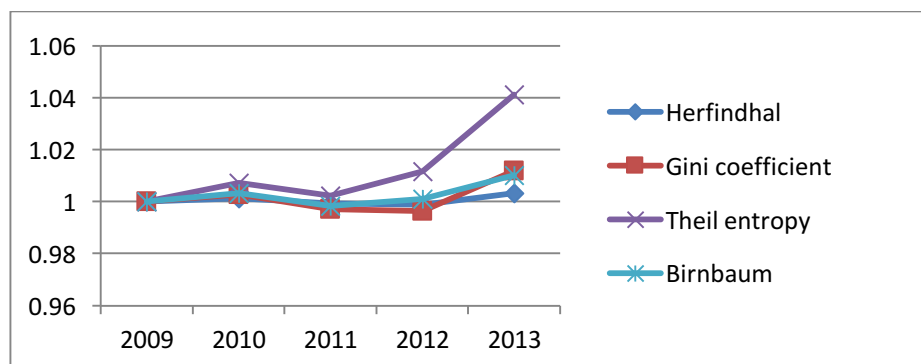
Figure 6: Comparison between indices based on first year bachelor's program (2008–2013)

The diversity indices presented a dynamic mixed trend movement at the level of first-year bachelor's programs. The diversity in first-year bachelor's programs increased between 2009 and 2010 but decreased in 2011. Moreover, the Herfindhal index and the Gini coefficient decreased somewhat between 2010 and to 2012 and then increased in 2012 and 2013. This dynamic mixed movement is probably due to the number of students enrolled in first-year bachelor's programs. Generally, the analysis concluded that diversity in first-year bachelor's programs was high.

Discussion

The Impact of Diversity

This paper focuses on recent changes that have taken place in the Netherlands' higher education system. Diversity is generally considered as an effective strategy in higher education systems, and in the Netherlands, increasing diversity responds to demands from stakeholders (Rossi, 2009). Scholars have disagreed on whether or not diversity improves higher education. The current debate between scholars and policy makers about the role of diversity in higher education has been mired in the ambiguity of whether diversity has a positive or negative effect. This ambiguity could be attributed to the lack of empirical evidence, theoretical approaches and methodologies (Mahat, 2014). The previous literature on diversity suggests that heterogeneity in the types of programs is feasible to study, but it is not clear whether there are empirical approaches to measure diversity adequately. This study exploits the empirical approaches by using four different methodologies (Gini coefficient, Herfindhal index, Theil entropy and Birnbaum method) to measure diversity. To our knowledge, this is the first study which suggests innovative approaches in the sense that we can measure diversity not only for all levels of higher education institutions but also for various programs offered and for several types of programs, such as bachelor's and master's programs. Like many other model-based measures, our approach ignores differences in program quality as well as the attractiveness of programs.

Differences between Institutions, Disciplines and Program Levels

This examination of the dynamics of the composition and the number of enrollments at the institutional level provides some insight about the causes for these differences. The analysis shows that the four concentration indices have decreased over time, although not monotonically (as shown in Figure 2). This indicates that universities have a tendency not to offer degree courses in specific markets. Universities encounter difficulties when diversifying in order to cater to a wide range of student preferences. Similar results are obtained when we consider differences at the level of disciplines. Overall, the variation of the four indices decreased monotonically during the period 2008–2013 (as demonstrated in Figure 3). The reasons for this decrease are arguably related to the decrease of diversity at discipline level and are mainly due to a lower number of students recruited to universities. Our analyses demonstrated the dynamics of the indices at the bachelor's level in the period 2008–2013. Furthermore, small universities and institutions with a good reputation have to compete among each other to increase enrollment in bachelor's programs. Competition between institutions decreased the number of students enrolling. In addition, our analyses examined program levels from bachelor's degree and master's degree. The number of students enrolled increased significantly because of the increase in the number of bachelor's and master's degree programs offered in the Dutch university system.

Improving Diversity

A major problem that clouds the debate on diversity in higher education systems is a lack of consensus on what is required to improve diversity in higher education. In order to research this question further, future research could construct the Boone-indicator. The Boone-indicator is a new measure of competition (Leuvensteijn, Bikker, Rixtel & Sorensen, 2007). This approach is able to measure competition at the program level. The main idea of the Boone-indicator is that more efficient programs achieve higher profit. The more negative the Boone indicator is, the higher the level of competition between programs in the market.

Conclusion

The call for more diversity among higher education institutions and programs has coincided with the democratization of higher education. One of the earliest studies on this topic was conducted by Birnbaum (1983), who analyzed the impact of diversity on the higher education system in the United States. The latest empirical research was conducted by Rossi (2009), who considered diversity as an effective strategy for the higher education system in Italy. The present study has contributed to this literature by applying and comparing four indices to measure diversity using data at different levels of higher education in the Netherlands during the period 2008–2013.

The study concluded that diversity at the level of master's and first year programs increased in higher education institutions in the Netherlands. The number of students increased and this has significantly driven the increase in diversity. However, results differ between institutions, disciplines and program levels. The study found that diversity at the bachelor's level decreased, but diversity increased at the master's level. The indices for the first-year bachelor's program level were more mixed over time. The development of diversity over time can be affected by the number of students who enroll in the programs.

Besides suggesting various ideas to measure diversity, this paper provides several lines for future research. First, the current study provides separate estimates on diversity between institution and program level. Additional research is necessary to explore the relation between diversity at the program level and the number of students. Second, the study measured diversity across institutions, disciplines and program types (bachelor's, master's and first-year bachelor's degree) using data on the number of students enrolled. In order to research this further, it is necessary to explore diversity for groups at the program level. Data on the number of students at the program level investigate the characteristics and attractiveness of program. Third, the study used a sample of Dutch higher education programs. It would be interesting to compare our results with results for other countries.

Acknowledgements

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Applying the CREAM Strategy for Coaching Teaching Practices

Marine Milad

Abstract

Monitoring and evaluating staff tutors necessitates constant follow-up to ensure that they are in line with the University's mission and vision. This has raised a fundamental educational question: how to coach rather than monitor the tutors. To answer this question, Cottrell's (2008) CREAM (Creative, Reflective, Effective, Active, Motivated) strategy was applied to coach these tutors following the GROW Model (Goal, Reality, Options, Will way forward) as a framework for structuring both team and individual coaching sessions. Cottrell's strategy was initially developed for enhancing the learner's self-directed/autonomous learning. For the purpose of this implementation, the researchers applied the CREAM strategy as a self-assessment and observation tool. Being pragmatic leaders, they conducted three team coaching sessions and one-to-one individual sessions throughout the academic semester following the GROW Model to: establish SMART Goals, examine the current Reality, explore possible Options/Obstacles, and establish the Will. A checklist was developed to measure the staff tutors' self-assessment of their Creative, Reflective, Effective, Active, and Motivated teaching practices and the same checklist was used by the head of the program as an observation checklist to evaluate these practices. The two tools were statistically analysed and a correlation was found.

Keywords: CREAM strategy; coaching; pragmatic leaders.

Introduction

Developing one's skills is not an easy task whether done by oneself or other individuals. The true leader tries to be pragmatic rather than dogmatic (Geiger, 2011). Pragmatic leaders have their feet on the ground. They are realistic and practical. A pragmatic approach to something is the sensible one. A pragmatic way to fix a bike is to use the tools you have rather than the ones you wish you had (Biesta & Burbules, 2003). In an attempt to be pragmatic leaders, the researchers reasoned that they should coach the staff tutors to enhance their teaching practices. Wade (1997) specified that coaching is a process that enables individuals to achieve their full potential. It helps them in making real, lasting changes and facilitating the exploration of their needs, motivations, desires, skills and thought processes. Parsloe (1999, p. 32) defines coaching as "a process that enables learning and development to occur and thus performance to improve. To be successful, a coach requires knowledge and understanding of process as well as the variety of styles, skills and techniques that are appropriate to the context in which the coaching takes place." Through observation, listening and questioning techniques, a coach can help individuals understand the current situation and identify needed solutions and actions rather than adopting a wholly dictated method. Whitmore (2002, p. 19) stated that "getting better performance from any group or individual, yourself included, means permanent change in the way you think [coach]. Change of this kind is not a single transaction but a journey, and the journey has a specific starting point [reality] and a clear destination [goal]." Coaching guides individuals to set appropriate goals and methods of assessing their progress in relation to these goals. Coaching can be done individually or in groups, taking many forms and applying a variety of techniques which may include one-to-one training, facilitating, counselling and networking (Shermon & Shermon, 2016). Thus, the researchers adapted the C.R.E.A.M. (Creative, Reflective, Effective, Active, Motivated) strategy, which was initially developed for enhancing self-directed autonomous learning, to help the tutors assess their teaching practices following the GROW model of performance coaching (Goal, Reality, Options, Will way forward).

Coaching and Performance

Gallwey (2000, p. 40) defines effective coaching as "…unlocking a person's potential to maximize their own performance. It is helping them to learn rather than teaching them." Whitmore (2002, p. 23) describes coaching as "…the essential management style or tool for optimizing people's potential and performance. Commanding, demanding, instructing, persuading with threats, overt or covert, cannot produce sustainable optimal performance, even though they may get the job done." Thus, coaching is not just meant for enhancing poor performance, it can also be used to help project team members or staff tutors develop and achieve their goals, while producing better results on their projects or enhancing their teaching practices. Whitmore (2002, p. 28) highlighted the importance of coaching to enhance performance: "if either the quality of a performance or learning from the experience is important, coaching is a must." This importance of a coach suggests that effective coaching is necessary for progression of performance.

Coaching offers a vehicle for analysis, reflection and action that ultimately enables individuals to achieve success in one or more areas of their life or work. It also encourages a commitment to action and the development of lasting personal growth and change. Moreover, it maintains unconditional positive esteem in that the coach is at all times supportive and non-judgmental of the individuals; their views, lifestyle and aspirations. The role of the coach is to encourage individuals to work within their area of personal competencies; continually improve these

competencies and develop new developmental associations where necessary to achieve their goals in light of their qualifications and experience with high performance (Knight et al., 2015; Shermon & Shermon, 2016). The coach should make sure that individuals are working on developing their own competencies, not on developing unhealthy dependencies on the coaching relationship. Individuals will be able to evaluate the outcomes of the coaching process and use objective measures wherever possible to ensure that the relationship with their coach is successful and that they are achieving their personal goals and maximizing their performance.

GROW Model of Performance Coaching

In the 1980s, Sir John Whitmore and his team of performance consultants developed the GROW model which is now firmly embedded in the world of business coaching (Whitmore, 2009). GROW stands for: Goal, Reality, Options, and Will way forward. For establishing the *Goal*, the coach should prepare individuals to set their Simple, Measurable, Attainable, Realistic, Timed (SMART) goals and examine if these goals fit with the overall career objectives and the team's objectives. Then, the coach should set an observation checklist to follow up the individuals' accomplishment of these goals. After that, the coach should guide the individuals towards examining the current *Reality* by evaluating what is happening now and what sort of obstacles stand in the way, setting milestones to take the necessary steps towards the target goals, picturing the effect of this on the long run, and identifying any potential conflict of their goals with other goals or objectives. Thus, individuals should be guided to explore different available *Options* to solve a present problem or to perform a given task better out of their understanding of the current reality. Then, the individuals should evaluate the advantages and disadvantages of each option. They should be guided to consider the weight of each option and what should be done to achieve it. Finally, the coach helps individuals to set the *Will* by deciding what they will do next within a certain timeframe keeping in mind what type of obstacles might hinder their progress and how to overcome them as shown in Figure 1 below (Whitmore, 2009).
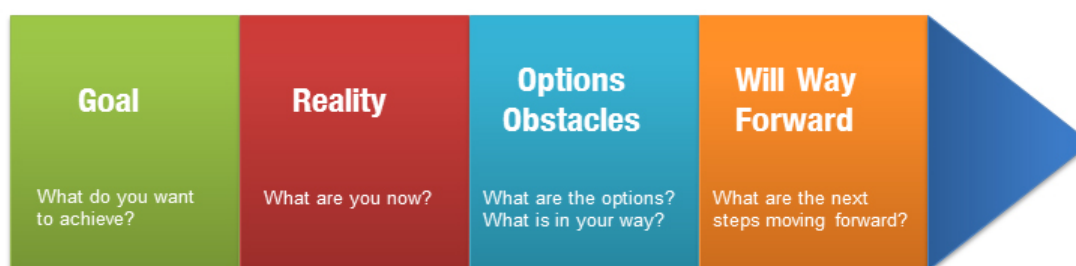
Figure 1: GROW Model of Performance Coaching

Adapted from Coaching for Performance by John Whitmore, 4th Edition, 2009. Source: https://www.linkedin.com/pulse/ten-powerful-coaching-questions-ask-performance-choo-gaicd

A good example of the GROW Model of Performance Coaching is driving a car. Before driving, a *Goal* should be identified by specifying the destination of the desired location and target. Then the driver should explore the current *Reality,* such as checking the car tires, oil level and petrol. Then, the driver should choose from different *Options* the most effective route that would save time, effort and money to reach the chosen destination. Finally, s/he *Will* start driving using his/her competence as a licensed driver to get to the desired destination. While driving the role of the coach is highlighted. The coach should guide the driver to mind the

mirror's blind spot, announcing that there is another car approaching. Similarly, a coach can also guide tutors to plan their teaching and improve their performance by highlighting their strengths and overcoming their flaws.

Characteristics of an Effective Coach

A good coach should promote an individual's self-evaluation and reflection of his/her own performances. In sports, "a coach who is other than consistently enthusiastic, whatever the team's results or mood is in the wrong job" (Wade, 1997, p. 22). Thus, an effective coach "…applies intelligence to leadership and can involve persuasion and compelling players to go along with them" (Wade, 1997, p. 30). In such a field, if players or athletes are not led or steered properly through training, they may feel unsure of what the coach is trying to achieve and reluctant to change their training or technique. Similarly, if tutors are not inducted or guided appropriately towards the best teaching methods for achieving the target learning outcomes, they might lose track of what should be delivered and how to help learners reach these desired outcomes. Wade (1997) believes that in order for coaching to be effective the coach must exhibit a number of qualities such as: leadership and intelligence, analytical ability, confidence and decisiveness, integrity and reliability, vision and imagination, coping with unpleasantness, organization and administration, and enthusiasm. An effective coach should provide formative evaluation and constructive reflection on individuals' performance including both areas of good execution and areas which need improvement and should suggest suitable models for each one.

A Coach as a Pragmatic Leader

Adopting the pragmatic leadership approach, the researchers acted as thoughtful leaders, sensitive to the organizational environment, and willing to modify goals or strategies periodically. Pragmatic leadership means to develop a leadership competence that balances the best elements of efficiency and context.

> In order to meet the needs of stakeholders, clients or customers, you may need to be flexible to ensure that the day-to-day priorities of your team – and the over-arching priorities of the organization – can adjust to remain responsive, relevant and competitive……the pragmatic leader is able to deal with the day-to-day issues and challenges in a straight forward, practical manner…….pragmatic leadership is made up to two essential components: principles and experience (Bedell-Avers et al., 2009, p. 301).

In pragmatic leadership, one of the most important roles is to coach your team members to do their best. By doing this, you get them to be better decision makers, problem solvers, continuous learners for new skills, and career oriented. For the purpose of this study, the researchers adopted concepts like honesty, integrity, fairness and transparency to coach their staff tutors as pragmatic leaders (Biesta & Burbules, 2003). They followed an open-door policy with their staff tutors and started coaching and leading with examples. In addition, they worked hard on building trust and gaining their tutors' confidence through establishing a friendly atmosphere, empowering their staff, killing rumours/gossips, acknowledging efforts and providing financial and/or moral incentives. Once the leaders' values are aligned with principles and built on experience, they could be confident that their chosen approach was the correct, defensible and sustainable one (Bedell-Avers et al., 2009). Therefore, the researchers adapted Cottrell's C.R.E.A.M. strategy to coach their team's teaching practices.

C.R.E.A.M. Strategy

Cottrell (2008) recommends the C.R.E.A.M strategy for learning. She focuses on developing self-learning skills and equipping learners with the necessary study skills to pursue their academic major at a university level. In the project described here, the researchers worked on applying the C.R.E.A.M strategy to coach their staff tutors' teaching by highlighting their strengths and helping them to discover their areas of improvement.

To promote *Creativity*, the researchers coached their team to increase their confidence in using their own individual strategies and styles that work best for them. In addition, the tutors were encouraged to apply their imagination to their teaching practices. As for being *Reflective*, the researchers guided their team to reflect on and evaluate their own performance identifying their strengths, areas of improvement and what is missing in their class. They were also encouraged to pay class visits to their colleagues' classes to learn from each other.

Moreover, the tutors were also encouraged to make their teaching practices *Effective* by understanding their students' needs and having their state of mind, space, time and materials organized in the ways that best suit their way of teaching. Consequently, with enough planning and preparation, the tutors will make their teaching effective, saving time, effort and money.

Being *Active* is one of the important dimensions in Cottrell's strategy (2008). Active teaching exists when tutors are involved in what they are teaching and constantly looking for ways of getting their students be more involved in and responsible for what they are learning through using games, debates, role plays, simulations, field trips, etc. The tutors should set short-term goals and involve their students in setting these goals. They should be aware that their level of *Motivation* will affect their success and their students' success as well. Thus, tutors should be coached that motivation is the key for pursuing goals, reaching success, and that attitude is everything. If students feel that their tutors are not motivated, they will not be motivated. To sum up, the C.R.E.A.M strategy is a general principle which encourages individuals to constantly stop, think and reflect on ways of improving the way they teach and learn.

Methodology

Statement of the Problem

Based on a review of the literature, the researchers' observations, and the lack of a deliberate model/strategy for training and coaching the staff tutors at Arab Open University (AOU), Kuwait Branch, the educational question raised was how to coach rather than monitor AOU tutors. To answer this question, Cottrell's (2008) C.R.E.A.M. strategy was applied to coach these tutors and to help them to discover and develop their teaching performance following the GROW Model as a framework for structuring both team and individual coaching sessions.

Participants

The implementation of this study involved a sample of 19 staff tutors, 7 of whom were female and the rest male. The age group of the participants ranged from 24 to 53 years old. These tutors were teaching the general English language courses at the Foundation Program, English Language Unit (ELU), Arab Open University (AOU), Kuwait Branch for not less than two academic semesters.

Duration

The duration of the project was one academic semester. It started in the fall/first semester of the academic year 2015/2016 and continued till the end of the academic semester.

Hypothesis

The project aimed to investigate the effect of Cottrell's C.R.E.A.M. strategy on improving the staff tutors' teaching performance following the GROW Model of performance coaching. Cottrell's strategy was initially developed for enhancing the learner's self-directed/autonomous learning. For the purpose of this project, the researchers applied C.R.E.A.M. strategy as a self-assessment and observation tool to coach their tutors to discover their teaching potentials and maximize them so as to be able to coach their students towards being self-directed learners.

Measures

Data for this study were collected through fifteen items developed for observing and assessing the staff tutors' performance in teaching general English language at the Foundation Program (appendix A). The Observation/Self-Assessment Checklist was designed to test the five dimensions of the C.R.E.A.M. strategy (Creativity, Reflective, Effective, Active, and Motivation). The checklist was developed by the researchers based on the five dimensions of the C.R.E.A.M. strategy. The tool was verified by an external assessor the number of the checklist items was reduced from twenty-three to fifteen to avoid repetition of some items and to give equal weight to each dimension. For the purposes of this study, the checklist was used by the tutors as a self-assessment tool and by the head of the Foundation Program as a general summative assessment tool for teaching performance. The tutors' self-assessment responses and the head of the Foundation Program's observation response for each tutor were statistically analysed and a correlation was explored using SPSS.

Research Design

A descriptive design was adopted to review and survey previous literature and studies related to the variables (C.R.E.A.M. strategy and GROW model of performance coaching). One group design with pre-post measure was adopted to assess the tutors' teaching performance using the observation/self-assessment checklist.

Setting/Delivery

A two-day coaching/training session was conducted at the beginning of the fall semester of the academic year 2015/2016 to coach the staff tutors of general English language courses at the Foundation Program. The session also aimed to maximize the tutors' teaching potentials by familiarizing them with the course aims, intended learning outcomes, materials, and assessment tools, in addition to sharing best teaching practices. This coaching session was to help them develop the learners' general English language skills and equip these learners with the necessary study skills to pursue their academic major at a university level. After that, two induction sessions were presented to familiarize the same staff tutors with the teaching methods, study calendars, assessment rubrics and group/double marking. This is in addition to conducting a 360-evaluation cycle based on student and peer feedback and the head of the Foundation Program feedback.

Instruments/Assessment Tools

One instrument was used twice to measure the variables of the study. An observation/self-assessment checklist was developed to be used by the tutors to assess their Creative, Reflective, Effective, Active, and Motivated teaching practices at the beginning of the semester. Then, the same checklist was used by the head of the foundation program as an observation checklist to evaluate these practices at the end of the same semester. The results were statistically analysed and a correlation was explored.

Results and Discussion

The 19 tutors responded to the fifteen questions of the self-assessment checklist at the beginning of the fall semester of the academic year 2015/2016 to assess their Creative, Reflective, Effective, Active, and Motivated teaching practices. They were asked to provide a brief description of their experience after responding to the questions and analysing their own data. They were asked to share their findings regarding what they learned about themselves and how far they were applying the C.R.E.A.M. strategy in their teaching practices. They were also asked to share their future plans to improve their teaching practices in light of the C.R.E.A.M. strategy. The tutors' responses to each dimension of the C.R.E.A.M. strategy and the observation for each one was statistically analysed and a correlation between each tutor's self-assessment and the head of the Foundation Program (Rater) observation were explored as indicated below.

Figure 2: The Overall Correlation Averages between Tutors' Self-Assessment Responses and head of the Foundation Program (Rater) Observation on C.R.E.A.M. Strategy

The above radar chart (Figure 2) helped in detecting the correspondence between the two sets of data. It demonstrated the similarities and discrepancies across individuals. As shown in the above graph (Figure 2), there were a few discrepancies between some of the tutors' self-assessment responses and the head of the Foundation Program observation. As a result, the head of the Foundation Program held an individual one-to-one coaching session with each tutor. During this coaching session, the head of the Foundation Program discussed each dimention

of the CREAM starategy to make sure that the concept was clear to this tutor and provided relevant field examples to clarify each dimension and how to implement it in teaching.
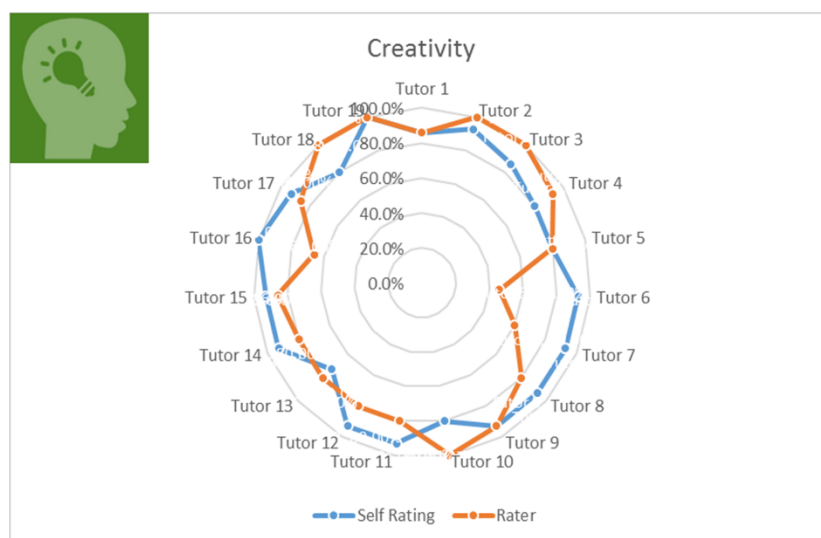
Figure 3: The Correlation between Tutors' Self-Assessment Responses and head of the Foundation Program (Rater) Observation on the Creativity Dimension

As shown in the above graph (Figure 3), there were a few discrepancies between some of the tutors' self-assessment responses and the head of the Foundation Program observation on the creativity dimension. Thus, the head of the Foundation Program provided a relevant example that occurred during teaching the Oral and Presentation course. She explained that when teaching a speaking course, a tutor must be extremely creative to encourage students to come at the front of the class and speak up for two minutes. In one of the speaking classes, the chapter was about healthy food, so the head of the Foundation Program came to class wearing a chef's hat and an apron. She displayed toy cooking equipment and started the lesson teaching the students a funny recipe as to how to cook fried eggs. Then, the students were given five minutes to prepare a recipe of their own and come to the front of the class to present it. The students reported that this activity was so much fun for them and created a very comfortable atmosphere where all students had the courage to participate in the class discussion and speak up. Another creative example was in a speaking course. The chapter discussed practising sports, so the head of the Foundation Program arrived in class wearing sports clothes and holding a volley ball. Then she and the students did an aerobics session before they started passing the volleyball and discussing the target topic.
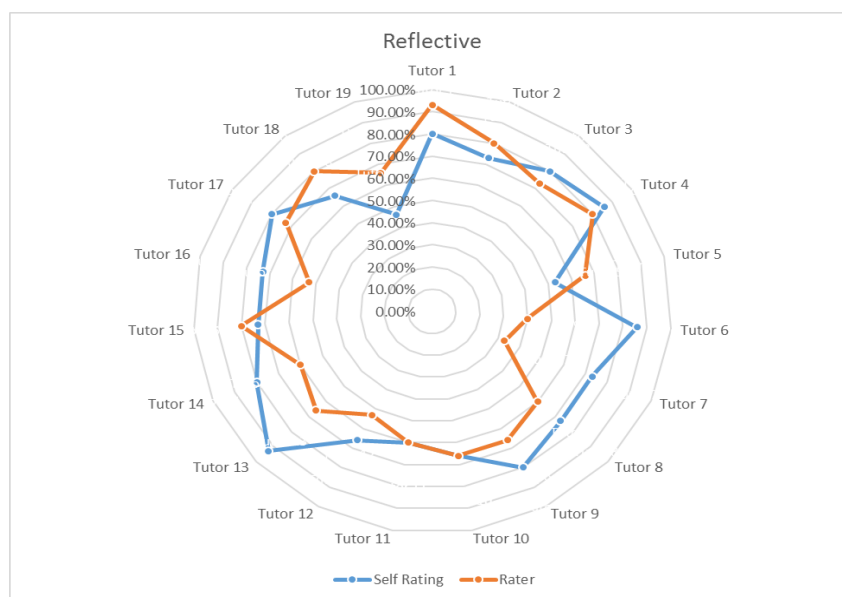
Figure 4: The Correlation between Tutors' Self-Assessment Responses and head of the Foundation Program (Rater) Observation on the Reflective Dimension

As shown in the above graph (Figure 4), there were a few discrepancies between some of the tutors' self-assessment responses and the head of the Foundation Program observation on the reflective dimension. Accordingly, the head of the Foundation Program provided the following example discussing the importance of being reflective on one's own teaching practices. She stated that going into a lecture without being ready is very bad and does not sound professional at all. She shared an authentic experience when she was asked to teach a writing course for business studies with a very short notice to prepare the course. After finishing the first lecture, she left the class and started crying because she reflected on her teaching practice and discovered that the lecture went so bad thus she gave herself a zero-satisfaction degree. She advised the tutors that they should frequently reflect on their teaching practices. Thus, educators should evaluate and ask themselves every time they finish a lecture: "How did I do? Did I deliver the information in a suitable/right way? Did the students receive and assimilate the information I delivered well?" By asking these reflective questions, educators can detect the areas that need improvement by themselves.
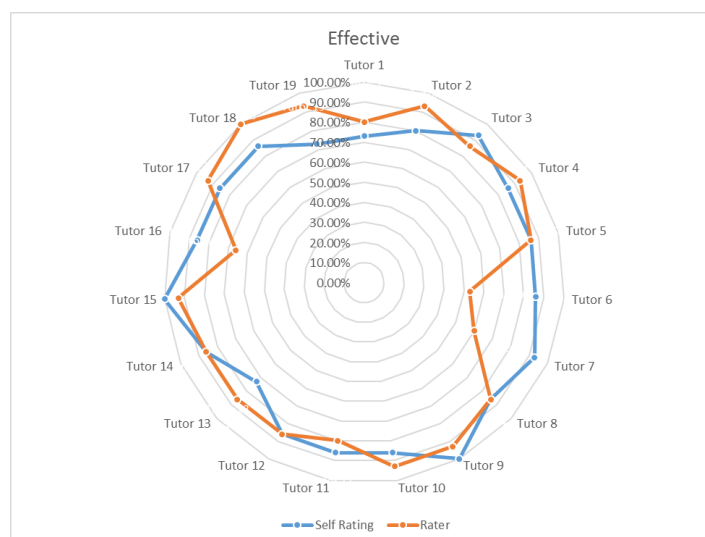
Figure 5: The Correlation between Tutors' Self-Assessment Responses and head of the Foundation Program (Rater) Observation on the Effective Dimension

As shown in the above graph (Figure 5), there were a few discrepancies between some of the tutors' self-assessment responses and the head of the Foundation Program observation on the effective dimension. Therefore, the head of the Foundation Program provided the following example discussing how organizing and managing one's own time can lead to effective teaching practices that would help the tutors reach the target learning outcomes. Being an effective tutor means that you should be highly productive- saving time, effort and money while performing any task. You need to know what your students' needs are. You have to plan your lecture well. Even though you might be teaching the same subject for more than one semester using the same course guide, calendar and material, you need to have a clear lesson plan for each session that might require few adjustments based on your students' needs. Moreover, you should realize that you set an ideal example to your students, you cannot ask them to be on time if you are not.
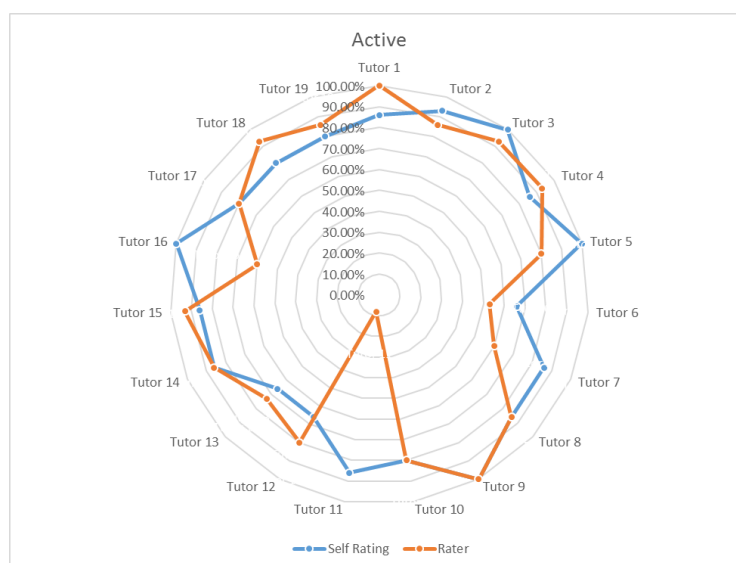
Figure 6: The Correlation between Tutors' Self-Assessment Responses and head of the Foundation Program (Rater) Observation on the Active Dimension

As shown in the above graph (Figure 6), there were a few discrepancies between some of the tutors' self-assessment responses and the head of the Foundation Program observation on the active dimension. Consequently, the head of the Foundation Program provided the following example regarding the level of students' involvement in setting goals and class interaction. The head of the Foundation Program stated that in all classes tutors must make sure that their students are involved in all sorts of activities. The tutors should divide their students into groups and ask them to write a short script on a given topic to perform a role-play using their own words and ideas. Tutors can ask students to use their mobile phones because they like the idea of using them in class and at the same time, they will be involved in doing something that is common among all. Students can use their mobile phones to google a topic or even a word.
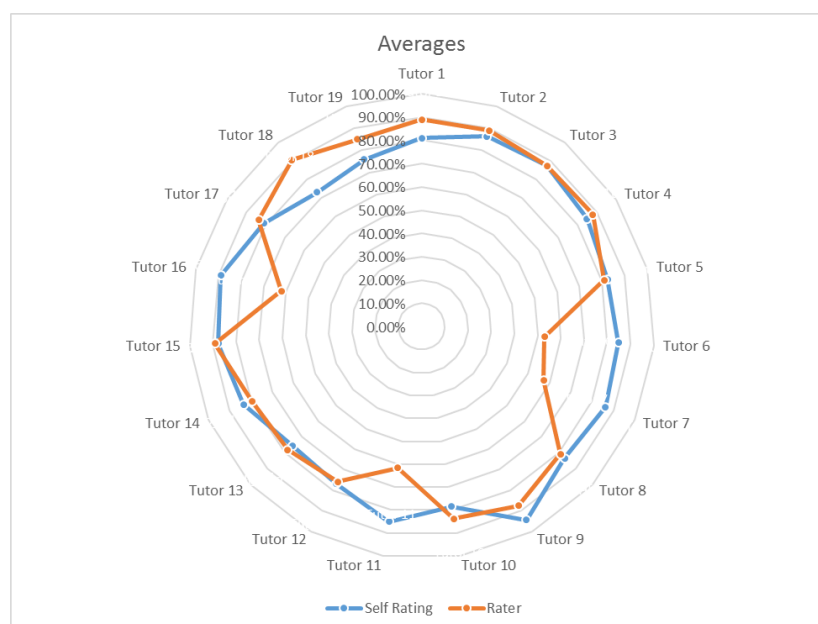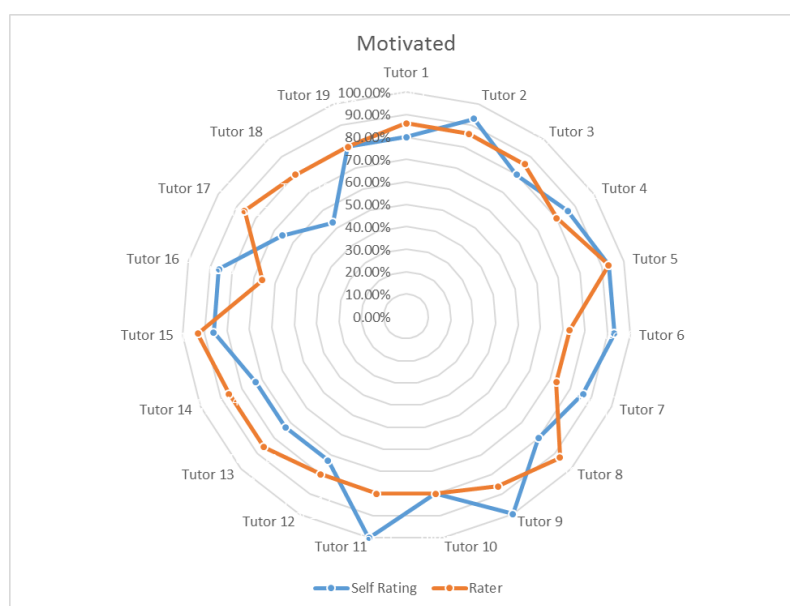

Figure 7: The Correlation between Tutors' Self-Assessment Responses and head of the Foundation Program (Rater) Observation on the Motivation Dimension

As shown in the above graph (Figure 7), there were a few discrepancies between some of the tutors' self-assessment responses and the head of the Foundation Program observation on the motivation dimension. As a result, the head of the Foundation Program provided the following example. As a coach, you need to be motivated first, then, you can ask your staff tutors to be motivated; same applies for your students. You should be motivated intrinsically and extrinsically so as to be able to get your students motivated. Your staff tutors should see and feel that you are motivated, thus they will reflect this motivational attitude on their students. They will reward them since they have been rewarded by their coach/leader. The head of the Foundation Program used a variety of motivational techniques such as sharing motivational stories, awarding distinguished performance, empowering with needed authority, delegating tasks and leading with examples. For example, she held an end of semester meeting to acknowledge each tutor's effort and share good practices. She bought gifts and rewards to distinguished tutors, group leaders and coordinators to encourage them to keep high teaching performance and encourage others to do their best so as to be awarded the following semester. There are many ways of motivating staff tutors and students and encouraging creativity.

After detecting the above discrepancies, a two-day coaching/training session was conducted at the beginning of the semester to maximize the benefits of the foundation tutors' potentials by

familiarizing them with the course material, teaching methods, study calendars, and sharing best teaching practices. The aim of this training session was to help them develop the learners' general English language skills and equip these learners with the necessary study skills to pursue their academic major at a university level. After the midterm exams, two induction sessions were presented to familiarize the tutors with the assessment rubrics and group/double marking. This is in addition to conducting a 360-evaluation cycle based on students' feedback, peers' feedback and head of the program feedback.

At the end of the project, the tutors were asked to respond to the questionnaire again. They were encouraged to give detailed feedback on what changed in their teaching practice. The mean scores of the tutors' self-assessment and the head of the Foundation Program observation in the five dimensions of the C.R.E.A.M. strategy was statistically analysed and Pearson coefficient was calculated to measure if there was a significant difference between the tutors' assessment and the head of the Foundation Program observation at the end of the project. The statistical results presented in table (1) below show the mean scores of the tutors' self-assessment and the head of the Foundation Program observation in the five dimensions of the C.R.E.A.M. strategy. There is small difference between the tutors' self-assessment and the head of the Foundation Program observation, p 0.027 (p> 0.05).

Table 1: Mean scores of tutors' self-assessment and the head of the Foundation Program (Rater) observation

Items analyzed	Particip ants #	Creative Mean	Reflective Mean	Effective Mean	Active Mean	Motivated Mean	Pearson Coeffici ent r
Tutors' self-assessment	19	0.89	0.73	0.86	0.85	0.82	0.0.027
Rater's observation	19	0.84	0.66	0.85	0.78	0.83	

	Creative	Reflective	Effective	Active	Motivated
Series1	0.89	0.73	0.86	0.85	0.82
Series2	0.84	0.66	0.85	0.78	0.83
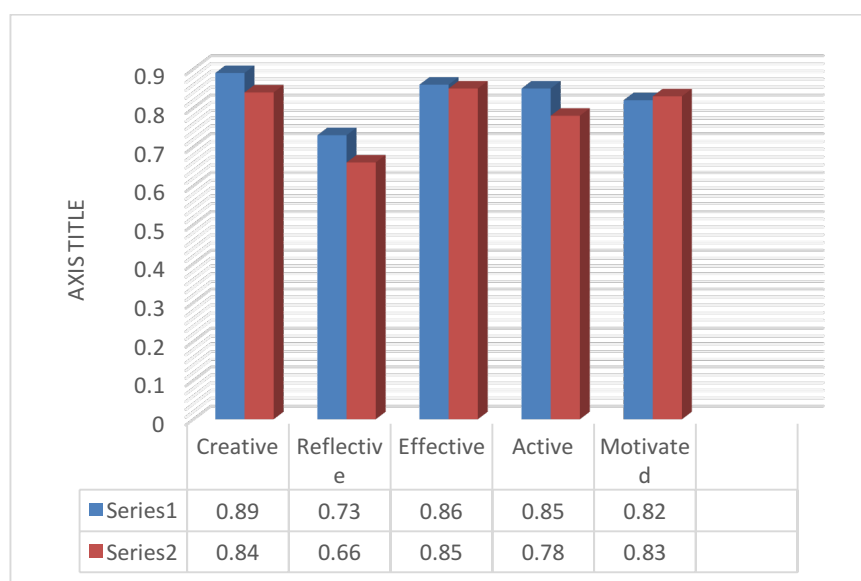
Figure 8: The mean score of tutors' self-assessment and the head of the Foundation Program observation

The findings show between .01 and .07 discrepancies between the mean sores of the tutor's self-assessment and the head of the Foundation Program observation. This indicates that the majority of the staff tutors exhibited distinguished performance in the five dimensions of the C.R.E.A.M. strategy by the end of the project especially after following GROW model to coach their teaching practices. All the 19 tutors received group coaching sessions and only three tutors received individual on-to-one coaching sessions based on the discrepancies detected from the radar charts.

Conclusion

The findings of this study can be summarized as follows. Factors that contribute to the success of coaching teaching practices using the C.R.E.A.M. strategy are leading with examples, adopting open door policy, building trust and gaining confidence through establishing a friendly atmosphere, empowering staff, killing rumours/gossip, acknowledging effort and providing incentives whether financial or moral incentives. The most important success factor was showing empathy and tolerance because we are all human being and we can learn from our mistakes. In addition, the slight difference in the mean score of the tutor's self-assessment and the head of the Foundation Program observation at the end of the project confirms the role of the GROW model in improving these tutors' teaching practices.

However, there were a few challenges that have acted as obstacles in front of the success of this study. These failure factors should be avoided to be able to coach tutors successfully such as resistance of some tutors to accept change and move out of their comfort zone, emergence of personal issues that could make the tutors distrust their coach/leader, unconvincing goals and visions, unclear tasks and instructions, impractical methods, insufficient tools, and unprofessional assessment techniques whether formative and/or summative assessment.

Recommendations

In light of the previous data analysis and the coaching with examples technique, the following can be recommended. It is advisable to encourage adoption of the C.R.E.A.M. strategy across AOU branches in the following ways: general course coordinators to coach branch course coordinators, branch course coordinators to coach their teams, and team leaders to coach tutors. Finally, it is highly recommended to self assess your own teaching in the light of C.R.E.A.M. strategy.

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Appendix A

Observation / Self-Assessment Checklist

Applying CREAM Strategy

Tutor's Name: _____

Course (s): _____   Date: _____

CREAM strategy was developed by Stella Cottrell, an international bestselling author, to promote self-directive/autonomous learning. The aim of this self-assessment tool is to measure how far you apply CREAM strategy on your teaching.

Read each statement carefully and indicate how frequently it applies to your teaching style (always, often, sometimes, rarely or never) by Putting ☑ in the box that best describes your teaching.

Statement	Likert Scale				
	Always 5	**Often 4**	**Sometimes 3**	**Rarely 2**	**Never 1**
1. I have the confidence to use my own individual strategies and styles that work best for teaching.					
2. I challenge myself to be creative and apply my imagination to my teaching.					
3. I am a curious person. I ask my students some questions to get to know them well and discover their needs.					
4. I reflect and evaluate my own teaching performance through identifying my strengths and weaknesses.					
5. I ask myself what is missing in my class.					
6. I do peer class visits and I make use of the feedback I receive from other tutors.					
7. I set realistic, measurable mini-goals and take things one step at a time.					
8. I organize and manage my time properly and be in class on time.					
9. I put myself into an extremely teaching mood and make my classes as enjoyable as possible.					
10. I involve my students in my teaching by participating in					

setting intended goals to take responsibility of learning.					
11. I look for links between different things to facilitate my students' constructive learning.					
12. I take charge of my class and manage it like a project.					
13. I see difficulties as challenges and opportunities for progress because every problem has a solution.					
14. I believe that my level of motivation will affect my success.					
15. When I meet my goals, I reward myself and set more challenging goals.					

Write your score below:

Creative	Reflective	Effective	Active	Motivated
1. ------	4. -----	7. -----	10. -----	13. -----
2. ------	5. -----	8. -----	11. -----	14. -----
3. ------	6. -----	9. -----	12. -----	15. -----
-----/15	-----/15	-----/15	-----/15	-----/15

Percentage of CREAM Strategy = Total sum of all columns × 100/75

------ × 100÷75 = --------%

Reflection on the checklist:

1. **What did you learn about yourself?**

   _____
   _____
   _____
   _____
   _____
   _____

   _____

2. **What do you plan to do to improve your teaching style in the light of CREAM strategy?**

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SMART Teaching in New and Old Classrooms

Gunter Saunders, Federica Oradini and Mark Clements

Abstract

The University of Westminster is undertaking a major classroom refurbishment program that is linked to a new approach to staff development in mobile learning. Feedback obtained from academic staff and students previously highlighted how classrooms should be changed so as to promote more active forms of curriculum delivery. Both technology and classroom furniture were considered significant enablers for effective in-class delivery, with the simplicity of the former and flexibility of the latter identified as key. To date nearly 70 classrooms have been re-designed and the impact of the changes on both staff and students has been assessed. Generally, the feedback has been positive with high praise for the easy to use technology solutions provided and the adaptability of the furniture. In addition, the significance of 'getting right' basic features in new classrooms (lighting, acoustics for example) was frequently cited by staff and students. This paper will highlight the features of new classrooms that students and staff have indicated they feel are most significant for their learning and teaching experiences. The paper will also assess the extent to which the new classrooms have been successful through analyzing the impact of both new technology and furniture arrangements on approaches to curriculum delivery. In addition, staff views on the utility of the new staff development approach will be discussed.

Keywords: learning and teaching; technology enhanced learning; mobile learning; new classrooms; staff development.

Introduction

Students in the United Kingdom are expecting more from Higher Education as the personal costs for degrees in many countries progressively rise (Douglas, Douglas, McClelland & Davies, 2015; Temple, Callender, Grove & Kersh, 2014). Linked to this are changing expectations in relation to the ways in which universities prepare students for their future life in the workplace (Higher education: success as a knowledge economy, 2016) and the recognition that technology must play a key role in that preparation. Digital technology is central not only to the personal development of students but also to curriculum delivery in modern education. School leavers tend to come to university having experienced the use of technologies as an integral part of their earlier learning years, and they expect to see technology being used effectively by their lecturers to support and underpin their learning (Lai, 2011; Sharpe, Beetham, & De Freitas, 2010).

The current situation, however, is that the use of technologies in learning and teaching, and especially online and web-based tools and systems, has still generally not led to a fundamental transformation of teaching and learning from largely lecture based to more student centered and active approaches (O'Flaherty & Phillips, 2015).

The experience described and analyzed in this paper is of a university seeking to redress the balance of activity in taught classes from lecturer to student centered. The University of Westminster is seeking to change the nature of curriculum delivery through a fundamental shift in the nature of its learning spaces and in the way it provides staff development in new approaches to learning and teaching.

Literature Review

Web-based tools and systems have considerable potential to change learning and teaching dynamics and processes (Gilkas & Grant, 2013; NMC Horizon Report, 2014; Saunders & Oradini, 2008) and the literature is full of numerous case studies of its successful use (Sharpe, Benfield, Roberts & Francis, 2006) However unlike in the commercial world, technology has still not fundamentally transformed the way in which universities conduct their core business of curriculum delivery (Huer, 2015). Most UK universities are still trying to make sense of the place of technology-enhanced learning within overall learning and teaching strategies (Kirkwood & Price, 2014). This is currently a major area of debate specifically in relation to the concepts of mobile learning and the flipped classroom (Bishop & Verleger, 2013; Saunders & Klemming 2003). We know that students use their mobile devices frequently whilst at university and would like to exploit them in learning (Beetham & White, 2013). Equally, we know that the majority of academic staff are suspicious of these devices and often see them as distractions or only useful for surface learning (Garrison & Vaughan, 2012; Greener, 2010; Hanson, 2009; Outram, 2004). It is quite common in UK classrooms for students to be told to switch off mobile devices rather than for them to be exploited as part of a curriculum delivery and engagement strategy.

There are a number of other possible reasons why mobile devices are not used that much by lecturers as part of the learning and teaching approach. The age profile of academic staff can have an impact, with many not familiar with the features of smartphones beyond telephone calling, texting, and browsing. Certainly, many academic staffs lack the confidence to engage with tools or services that can be accessed on mobile devices often for fear of the approach failing on the day. Thus the technical infrastructure and support for staff are frequently raised

as an impediment to progressing attempts to integrate mobile learning approaches into classroom teaching (Puentedura, 2006; Sharples, Arnedillo Sánchez, Milrad & Vavoula, 2009). Allied to this are concerns about the physical nature of the classrooms, for example, poor WiFi and furniture that makes it difficult to do anything other than seat students in rows facing one way.

Today's students enter Higher Education with an increasingly diverse range of prior knowledge, capabilities, study habits, digital literacies, and expectations than those of previous generations (Valenti, 2015). "Students need a flexible environment that lets them experiment, learn from each other, and create their own blend." (Beetham, 2014, p. 1).

Today's fast-paced business environment demands nearly instant productivity from every hire. The nature of work today is inherently team-based and collaborative, often virtual and geographically distant. Employers seek creative, collaborative and dynamic employees, therefore the student of the future needs to graduate with instantly productive skills and abilities and educational institutions are being asked to fill in the gap (Valenti, 2015). The blend of technology-specific, individual, and team-based skills is a realistic portrayal of the needs of the modern student (Brown, 2012). Pedagogies that encourage a participatory culture need to be the new focus of educational change (Abeysekera & Dawson, 2015).

The physical classroom remains key to curriculum delivery in most traditional campus-based universities (Fisher, 2016; Graham, 2012; Hakkinen & Hamalainen, 2012; Oradini & Saunders, 2016; Temple, 2007). Curriculum shifts include focusing on various forms of active learning such as flipped classrooms, scale up, team-based learning (Michaelsen, Davidson & Major, 2014) and problem-based learning environments (Tritz, 2015). Such active learning classrooms have the potential to enable students to acquire exactly the kind of skills that employers are demanding of today's graduates.

The general trend towards constructivist approaches in learning and teaching is driving the need to have more adaptable physical spaces that are suited to a range of teaching and learning approaches (Mukerjee, 2014; Valenti, 2015). At the University of Westminster, an extensive review of infrastructure for learning and teaching in 2014 showed clearly that academic staff felt inhibited by the physical spaces they taught in. They collectively highlighted a range of issues that made it difficult for them to contemplate more flexible forms of in-class curriculum delivery, as also observed by Oblinger (Oblinger, 2006). Many problems cited were quite basic such as lighting, availability of sufficient whiteboard space and room blackout capability. Classroom furniture was also frequently raised as requiring attention. Audio-visual (AV) and Information Technology (IT) facilities were also identified as key to the set of lecturer's tools within a modern classroom. The ease of use of the AV and IT was critical in determining the extent to which they were used. Current AV/IT configurations were not seen to encourage nor enable student engagement, again tending to lead to a lecturer-centric model of operating within the classroom environment.

Methodology

Purpose of the Work

The work described and discussed in this paper was undertaken in order to support a desired shift by the university to more student-centered, active learning approaches in curriculum delivery. The changes made to physical classrooms were one major aspect of the university-

wide project concerned whilst the promotion of mobile learning was the other. Allied to both of these was an examination of existing staff development in new methods for learning and teaching and a consideration of how best to provide such development support.

Classrooms – The Views of Staff and Students

A range of approaches to obtaining views and opinions from students and staff about existing classrooms were exploited including surveys, crowd sourcing, as well as individual interviews and focus group meetings. The discussions and data obtained from over 150 staff and around 1000 students were categorized into various themes (see results below).

Having gathered a number of consensus points about new classrooms from across all subject areas, the next step was to work out how to reflect the views collected in any new classroom designs. Working through the University's estates department, a project manager (PM) was engaged for the work and a single person internal to the University, with teaching experience, acted as the principal client for the work. The client's main role was to engage with the customers (the academic staff who would use the rooms) to take the themes that had emerged from the review and start to develop outline plans for a number of rooms.

The university is structured into five faculties and working within the available budget it was calculated, using sector and internal norms for room refurbishment costs, that potentially 5-6 rooms per faculty might be refurbished. Each faculty was asked to identify a minimum of two lead stakeholders to work with the client on identifying the target rooms and to go on from there to specify requirements for each room. The specification/design process was broadly split into two; the audio visual and IT in each room was one part and the other was what would be described as the "building works." To help to ensure that the overall look of the new classrooms would feel engaging, an external design company (Rock Townsend) was contracted to ensure this and to provide overarching co-ordination of the entire works. The AV and IT delivery aspects were managed by a separate external company that had already been engaged to start a program of AV/IT refresh across the whole of the university that would progressively ensure uniformity in AV/IT equipment, as well as effective control and monitoring of that equipment.

Through a series of face-to-face meetings, sometimes with single faculties and sometimes with representatives from all faculties, the rooms to be targeted were identified and details of any specific requirements for each room were developed. Specific requirements were either related to the precise mix of the technology in the room or the furniture.

Approach to the Development of Mobile Learning

In order to move the University of Westminster forward in relation to mobile learning, a project-based approach, based on best practice methods developed by sector-wide agencies was used. Initially, members of the core project team concentrated on exploiting a number of resources that were specifically focused on mobile learning to gather ideas for moving forward with the project in its early stage. These resources were provided through JISC, a not-for-profit organization for digital services for further and higher education. JISC resources helped in deciding certain paths (e.g. formation of a practitioner group) and gave ideas for quick wins. In addition, the resources were used as sources for a report prepared by the project team to provide a basis for engagement with the wider university staff and student community. This included the gathering of baseline data from stakeholders on their view of mobile technologies and learning approaches. The JISC resources exploited were:

Mobile Learning infoKit (https://www.jisc.ac.uk/guides/mobile-learning) – this was the core resource and helped us to consider where quick wins might be made. For example, this resource prompted the generation of the Virtual Learning Environment (VLE) newsletter for staff and students and also began to make us think of implementing a secure texting service for use by staff.

Effective Practice in a Digital Age (www.jisc.ac.uk/publications/programmerelated/2009/eff ectivepracticedigitalage.aspx) – this provided some useful information on the theoretical aspects of the report referred to above and also suggested the use of YouTube for storage of videos that would then display on mobile devices.

JISCTechDis' Go Mobile! (http://rscstaffdev.blogspot.co.uk/2009/02/jisc-techdis-go-mobile.html) – again this provided useful background for the report and also was an important resource to cite in highlighting the advantages of mobile learning to students with accessibility issues.

Sustainability Toolkit (https://sustainembed.pbworks.com/w/page/31632855/Welcome) – the project director was very familiar with this resources having worked with a major contributor to the resource for some time. We were able to draw therefore on the individual concerned to guide us quickly through key points to ensure sustainability, which in part has led the project to work ever more closely and become a small part of wider institutional initiatives. An early eye on sustainability also led us from the outset to ensure the work was connected to key institutional committees (in this case Information Strategy Committee and Learning, Teaching and Student Support Committee).

Results

Audio-visual and IT Equipment

A standard audio-visual arrangement for each room was used, which had been previously agreed for the entire university. This included a new kind of lectern, touch-screen all in one networked PC, data projector and a range of wired connectors to which devices brought to the classroom by the lecturer could be attached to display screens. In addition, as standard, each room was also equipped with a microphone and necessary software to allow for capture (as minimum) of audio/audio over slides. The external design company (Rock Townsend) had the primary responsibility for working with the faculties on room layout and furniture options.

Though not part of the established standard for AV/IT across the estate, all of the rooms were provided with a Kramer unit (www.kramerelectronics.co.uk/products/#filters?&groupli=57). This was provided as a solution to an emerging requirement to enable screen-casting in classrooms from mobile devices belonging either to the lecturers or the students. The Kramer unit is a wireless presentation and collaboration system that enables more than simple screen-casting. So for example with Kramer units, it is possible to have multiple independent wall displays within one room. In addition, with a Kramer unit up to 6 user screens can be shown simultaneously on one class display. The AV/IT installed the rooms can be grouped broadly into 3 types as shown in Table 1.

Table 1. Summary of types of AV/IT configurations beyond the basics across the classrooms

Type	AV/IT features	No. of rooms
1	One data projector displaying to a designated main wall	11
2	One data projector displaying to a designated main wall but with additional independent displays on other wall(s)	7
3	Smart display board to main wall	1
4	Smart display board to main wall with additional independent smart board displays on other wall(s)	3

Although the University of Westminster had a standard lectern shown in Figure 1, 6 of the 22 rooms refurbished in this project were equipped with an innovative non-standard lectern (Figure 2). This wall attached lectern was designed to be side on to the audience thus removing the potential physical barrier between lecturer and student audience of the standard lectern.

Figure 1: The standard lectern at the University of Westminster

Figure 2: Non-standard side-on wall mounted lectern known as 'the box'

The variation in the precise mix of AV and IT and furniture allowed the collective group of faculties to make available a variety of room types at the end of the project but still enabled certain aspects of AV/IT (such as the control panel on the lectern) to be standardized. Similarly, although furniture could be different, the general décor and basic features such as lighting, window blinds, and flooring and electric power options was also standardized across the rooms. In addition, feasible walls became 'writable' surfaces to add a further option for group working. Typically, this included the designated 'front' wall and one side wall.

The Furniture

There was variation across the classrooms with respect to furniture. Essentially three types of furniture or furniture arrangements were agreed upon. The first was a standard table and chair (see example room in Figure 3) though the specification from faculty academic staff was that these should be much lighter than current tables and chairs typically supplied. The second type of furniture was an 'all in one' unit i.e. a chair on wheels with a small writing tablet built in that could be pulled across in front of an individual once seated in the chair (see example room in Figure 4). In the end, the project experimented with 2 types of such chair. Finally, there was a circular, sofa-based seating arrangement proposed for one of the 22 rooms (see Figure 5) and one room was planned to have fixed revolving seats (see Figure 6).

The balance of furniture types across the rooms was:

- Standard tables and chairs – 8 rooms
- All in one chairs on wheels – 12 rooms
- Sofa/lounge type circular seating – 1 room
- Fixed revolving seats – 1 room
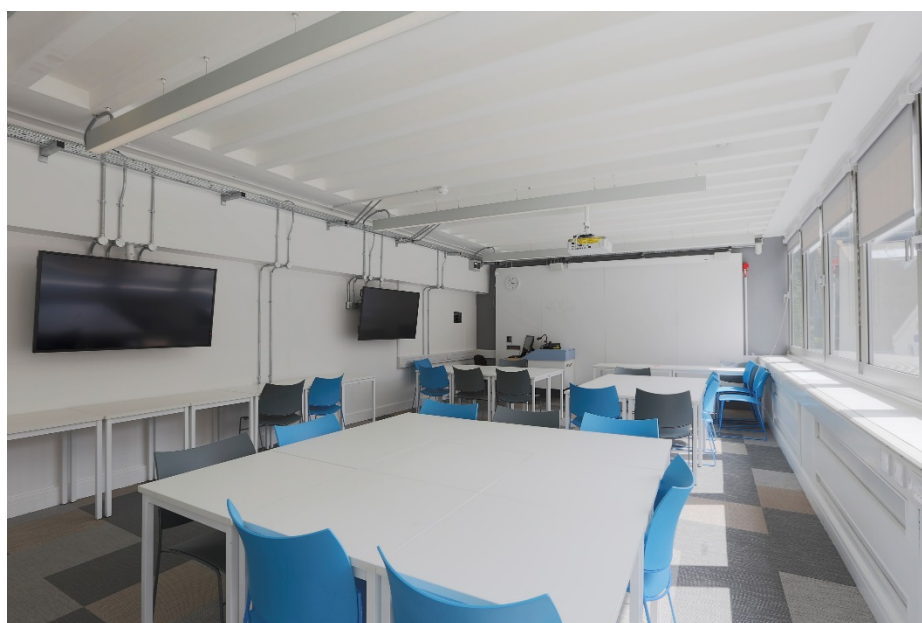
Figure 3: Classroom with standard tables and chairs

Figure 4: Classroom with chairs on wheels with integral writing tablet
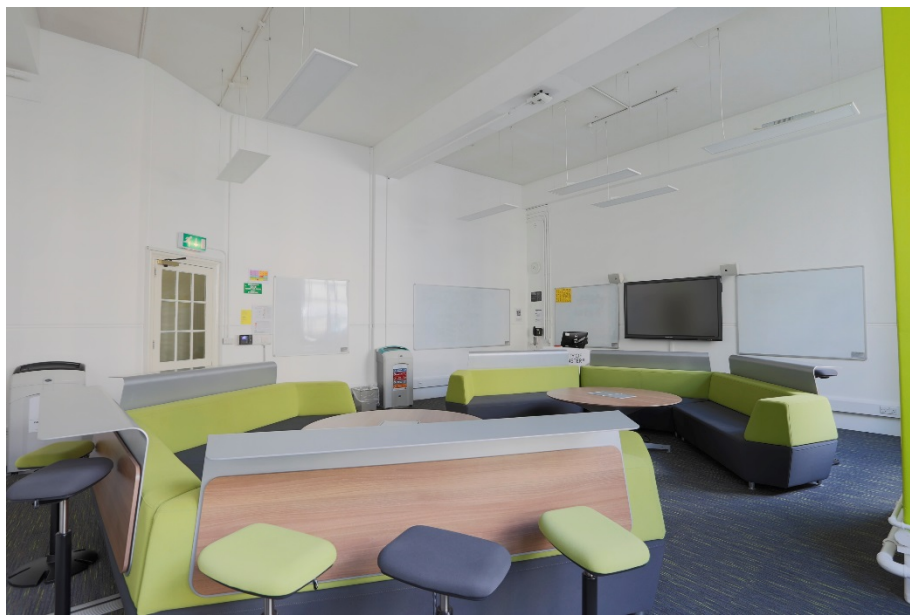
Figure 5: Classroom with sofas and additional informal seating

Figure 6: Classroom with fixed, rotating chairs with integral writing tablet

Developing the use of Mobile Learning at the University

Surveying students on their views and use of mobile devices and systems

An online survey (see Appendix 1) was distributed across a range of subject areas at the University with the help of academic staff with a teaching responsibility in those areas. These subject areas were Construction, Biosciences, Media Art and Design, Psychology and Complementary Medicine. They were chosen because of the active involvement and interest of specific academic staff which made it more likely that the project team would be able to get reasonable numbers of responses from students. The goals of the survey were to gather information on students' use of online technology and tools as well as to get a feel for variation in student views across a range of subject areas. In the end, the survey collected some 413 responses across the 5 subject areas involved.

A summary of the data collected is shown in Tables 2, 3 and 4 below. The tables respectively report on access to specific hardware or ownership of specific social networking accounts (table 1); use of/preference for different communication and social networking systems (table 2) and perceived training/development needs (table 3). The 5 columns represent the 5 subject areas that took part. The total number of responses for each subject area were respectively: Construction 129; Psychology 28; Biosciences 180; Media Art and Design (MAD) 47; Complementary Medicine (Comp Med) 29.

Table 2: Access to specific hardware and use of social networking tools and features

	Construction	Psychology	Biosciences	MAD	Comp Med	Mean
Access to laptop	87%	90%	81%	91%	97%	**89%**
Access to tablet	16%	15%	19%	11%	17%	**16%**
Smart phone	78%	79%	53%	68%	66%	**69%**
No mobile internet	12%	18%	30%	28%	24%	**22%**
Have a Social network account (e.g. Facebook)	77%	86%	77%	91%	76%	**81%**
Have a Twitter account	20%	36%	23%	49%	13%	**28%**
Don't know what an RSS feed is	64%	54%	67%	55%	66%	**61%**

Table 3. Use of communication and social networking systems

	Construction	Psychology	Biosciences	Art	Comp Med	Mean
Never read blogs	38%	21%	31%	9%	28%	**25%**
Never created blogs	86%	61%	78%	26%	90%	**68%**
Never used wiki	72%	29%	42%	40%	34%	**43%**
Never used discussion boards	54%	29%	41%	45%	52%	**44%**
Rarely use email as communication	4%	4%	2%	6%	0%	**3%**
Never used web-based image hosting	53%	61%	57%	26%	72%	**54%**

Table 4. Stated training/development needs

	Construction	Psychology	Biosciences	MAD	Comp Med	Mean
Need to develop internet searching skills	9%	7%	14%	4%	7%	**8%**
Need to develop word processing skills	5%	4%	9%	6%	14%	**8%**
Need to develop spreadsheet skills	29%	18%	27%	45%	31%	**30%**

Key findings from the student survey included a relatively high percentage of smartphone ownership but low tablet ownership. In addition, students seemed generally to use social networks but were often ignorant of terms such as RSS feed. Significant percentages of students had not previously maintained, created or used blogs, wikis and discussion boards. Most students rated their internet searching skills very highly. More recent data gathered from staff and students at Westminster indicates these findings were still mostly valid in 2015.

Student focus group discussions were carried out to explore the results of the survey which generally reinforced and confirmed the impressions gained from the survey data collected. The focus groups also explored in more detail the student views of the Blackboard Mobile Learn app used at the university. All of the students found the mobile app was valuable to them as an aid for keeping up with their studies with the mobile alerts constantly mentioned as a key feature. None of the students who contributed to these face-to-face discussions had experience using their mobile device in any formal, directed learning activity. The groups were evenly split over whether using mobile devices more proactively in learning activities were desirable.

Surveying Staff about Mobile Learning

At the start of the project a short questionnaire designed to obtain baseline information about current exploitation/interest in mobile learning approaches was distributed to all staff who are instructors in the University's VLE, Blackboard. There was a total of 58 completed questionnaires received with representation from each faculty in the university.

The questionnaire included one closed question asking if staff provided material/content that they expected or required students to access on a mobile device. By far the majority of staff who responded (88%) did not currently do this. Two open questions then explored what learning activities staff currently provide for mobile devices and how desirable and/or feasible they thought it was to integrate mobile technologies into learning and teaching either inside or outside the classroom.

Of the 14% (n = 8) that identified a current use of mobile learning, only 2 could be classified as being mobile specific. These were, using a mobile to take video footage (Media, Art and Design), and sharing and pooling group work tasks during seminars on mobile devices (Social Sciences). The other practices put forward were focused on information retrieval from Blackboard and were not necessarily mobile dependent i.e., could also be done via a desktop, or in one case (Computing) the use of puzzles which could be accessed on iOS and Android mobile platforms but also on a computer desktop. Although 88% (n = 50) of respondents

indicated they do not currently provide information, online materials or activities that they expect or require students to access/use with a mobile device, it was apparent from the responses to the question about desirability of utilizing mobile approaches for learning that a large number of the staff who responded were using learning and teaching activities which could support a mobile learning strategy. Examples of this were:

- posting additional [course] information on Facebook accounts
- asking students to photograph relevant public scenes [linked to theory learned in class]
- providing a comprehensive range of learning resources on Blackboard
- annotating lecture slides directly onto netbook (small, lightweight, legacy-free, and inexpensive laptop computers) or tablet devices
- downloading e-books of key texts to refer to in practical classes on laptop or tablet
- encouraging data gathering directly onto smartphones via survey monkey
- ensuring multimedia materials are accessible to mobile devices
- using Twitter, Flickr, etc. for project work
- audio recording of lectures
- viewing YouTube videos in class

When asked how desirable or feasible it is to integrate learning and teaching activities utilizing mobile technology/devices beyond just the provision of information, 77% (n = 45) respondents gave a positive response. Only a very small number of respondents were unsure of this, with the common reason being the lack of knowledge of what might be possible (either from not being aware of the technology available or the support for this within the University). Some 16% (n = 9) stated that a greater integration of mobile learning approaches was neither feasible nor desirable. A common theme amongst the negative responses was a concern over the impact on physical attendance and the subsequent loss of "personal interaction," "sensorial experience," the perception that mobile learning "does not enhance learning" and furthermore is a more superficial "surface approach to learning'." Across all respondents, there were concerns about equality of access given that not all students have access to smartphones or tablets. Finally, a substantial proportion of respondents 81% (n = 47) expressed a desire to find out more about mobile learning approaches either through workshops, seminars or newsletters.

Developing a Community of Practice

The work described above led to the formation of a mobile learning practitioner group. This group had 70 members at the first meeting to discuss how best the University could support mobile/flexible learning. The group went on to organize an internal webinar series to disseminate more widely some of the examples of practice that bringing the group together had revealed. The group managed to engage with the Deputy Vice-Chancellor of the institution with responsibility for learning and teaching, who personally took part in the webinar series, and undoubtedly raised awareness at a senior level the need for support development. This led to specific changes to the technology enhanced learning strategy for the institution. The project also funded a number of pilot projects, including one designed to measure the impact of providing a tablet device to students in small classes to facilitate student co-creation.

Leveraging Additional Institutional Investment in Mobile Learning

As a consequence of the practitioner group as well as the university-wide events the group organized to raise the profile of flexible/mobile learning, the university's central support

services added two services to the online learning toolset that could underpin mobile learning approaches. These were a texting solution that integrated with the VLE and web-based polling that could be used both in and outside of the classrooms. In addition, a plan for the progressive enhancement of the university's WiFi network was also put in place.

Academic Staff Development

We received clear feedback from staff that what they wanted was simple uncomplicated suggestions of how to integrate mobile learning into their teaching and classroom delivery. Time was cited as a real issue for academic staff. There was little spare time to spend on complicated systems or excessive pedagogic theory. Experienced staff wanted ideas with which they could rapidly engage and consider within the context of their subject area. We therefore started with a workshop that was around two hours in length when delivered face-to-face.

The workshop was discursive and centered around four short video case studies that briefly highlighted situated learning, the use of video recording, student co-creation and use of online collaborative spaces including writing walls and blogs. The student co-creation case study was internal to Westminster and was based on pilot work supported by the project. Presentation of the case studies was followed by group work where participants brainstormed "how what they had seen and heard in the case study video could apply to their teaching." Initial feedback from the first two workshops (15 participants in total) was generally positive. However several participants did remark that they would like access to additional "how-to guides and videos."

As a consequence, the workshop team developed an online version of the workshop within the VLE. The site contained the short case study videos plus a recording of the introduction to the workshop given face-to-face. Wholly online participants were encouraged to keep personal blogs and to reflect at predefined points with those reflections guided by questions focused on "how what they had heard could help in their context or not." In addition, there was a course blog to which all participants at the end of the online course were asked to post an outline plan for taking mobile learning forward in their teaching. The online site also contained a number of short videos supplementing the core materials and activities used in the face-to-face version of the workshop. These videos showed how specific tools worked and it also included an area called the "app store" where all participants could share their experience of apps or web services they found valuable. Associated with the completion of the online course was the award of a digital badge that could be passed by the participant from the VLE site to their Mozilla Badge Backpack. The badge was triggered by completion of personal blog posts at set points in the course workflow and through completion of the outline plan referred to. The workshop continued to be offered face-to-face and these participants, as well as those who had taken the face-to-face course previously, could gain the badge by writing an outline plan posted to the workshop in the VLE blog.

Between January and July 2015, around 150 staff attended the workshop either face-to-face or online and nearly 300 blog posts were made. The views from participants at various points in the workshop (face-to-face and online) were also collected on Padlet walls.

Academic Staff Reflections on the Workshop and Mobile Learning Approaches

Many unsolicited comments written in the blogs suggest that the workshop was highly regarded and pitched at the right level. The scope for participants was: to hear about simple approaches

that have worked, think with others about how the approach could be adapted to their context and then find out how to use the technology tools required. In the latter respect, the online site was considered most helpful not just for the how-to aspects but also because it was a place they could revisit and benefit from the reflections and views of others. While there were many blog posts praising the course and highlighting the community aspect of the online site, there was one part of one post that we reproduce below and which we believe reasonably represents the collective view of the utility of the course and the community aspect:

> Thank you for a really useful introduction to mobile learning. I feel much more confident about starting to implement mobile learning techniques into my teaching sessions and the tools that are available to me now, as well as where to get help and advice from. It's also been really useful to read some of the blogs from other participants on this course who, having tried and tested some of these tools and activities, have offered valuable tips and ideas, and others who like me are relatively new to mobile learning and had similar concerns and ideas also. I am now thinking of ways in which I can use some of these tools in my upcoming sessions.

Generally, participants who wrote in the online course blog about their plans for going forward tended to focus on what they had experienced in the workshop/online course. So, situated authentic learning was regularly raised, as was reflection, sharing and role-playing. Of the technology tools used in the face-to-face workshop, Padlet (online writing wall), Poll Everywhere (in and out of class web-based polling) and the video/audio capture capability of smart devices seemed to exercise individual and group thoughts most frequently. A number of examples of simple mobile learning approaches already practiced by participants or planned for the future, across a range of subjects, are summarized in Table 5.

Table 5: Simple mobile learning approaches done or planned by participants

Subject Area	What I do or plan to do	Technology
Politics	Students reflect on visits to political, government or non-government institutions. Communication and sharing of data to prepare for simulated negotiations,	Twitter, blogs, Padlet, Poll Everywhere
Psychology	Students are encouraged to experience a musical genre culturally different to their own. Reflections can be enhanced through recordings and shared with peers. Students visit a museum to research aspects of the topic (e.g., history, conceptual issues, professional issues). Students use mobile devices to gather data.	recorder app, discussion board, smartphone or tablet
Languages	Students share what they have observed on a visit. Class responses to translation questions and strategies. Brainstorming vocabulary or opinions on different topics. Recording of role play scenarios.	Padlet
Business	Sharing reflection and commentary on daily news. Gathering feedback on curriculum delivery. Students work in groups and produce podcasts. The group chose the best podcast to represent their group. Students work in groups to identify characteristics of projects and post comments on these.	Padlet, iMovie, Educreations app, Adobe Voice

Computer Science	Students attend exhibition and create a group video of their experience. Recorded video lectures coupled to student completing set questions to bring to face-to-face lectures.	iMovie app, Padlet, Panopto, Google Sheets
Cultural Studies	Providing groups of students with the opportunity to formulate answers to in-class questions.	Padlet, Poll Everywhere
Biomedical Science	Laboratory class recording of observations, and measurements made during experiments.	iMovie app
Property and Construction	Pre-class sharing of individual and team work.	blogs
Health Sciences	Student teams co-create learning materials.	Group blogs
International Relations	Students visit a cultural organization, record aspects of the event and then share reflections in relation to learning outcomes.	Smartphone, blogs
Molecular Biosciences	Students work on placement record and share their experiences.	blogs
History	Creation and sharing of recordings/short films while on field trips/walks.	Smartphone, blogs
Law	Gathering information from students on topics that they find difficult to support revision	Padlet

Discussion

It is clear that quite basic aspects of a classroom were of importance in helping lecturers to make classes more flexible or adaptable. While most of the academic staff saw the potential of some modern technology approaches in learning, their main concern was to be able to do the basics with technology easily and reliably. When questioned about this, academic staff cited two issues consistently. One was a lack of confidence in using new technology in a live classroom and the other, tightly associated with the first, was time needed to become confident in dealing with situations where the technology does not operate as expected. A quote from one member of staff summed it up thus:

> When I go into a classroom I am performing and to perform I need to know how my props work inside out. When my props are harder to operate than a light switch or are not tools I can use in my own office or at home I struggle. Teaching is a performance and I don't have the time to rehearse as much as I would like. To be honest most classroom technology beyond the PC and PowerPoint is simply not mature enough for me to engage with confidently.

In addition to the technology, classroom furniture has generated a great deal of debate. While it is generally accepted that chairs on wheels with integral writing tablet support adaptability, such chairs do not suit all types of classroom activity across subject areas. Without effective timetabling, it can be very difficult to ensure that particular classes get the facilities that most suit their type and pattern of in-class work.

The university has plans to undertake further research to determine the impact of the changed nature of these classrooms on the curriculum delivery approaches taken by lecturers and on the student experience. In part, this is due to acknowledged limitations associated with the

evaluations carried out to date. The surveys conducted have a relatively low response rate and the conclusions drawn may not be entirely representative, despite best efforts to check conclusions through focus group meetings with representative student and staff groups. The low level of engagement with feedback mechanisms is particularly an issue with staff where some lecturers seem reluctant to engage at all. This lack of engagement from non-enthusiasts makes it harder to fully satisfy the needs of different subject areas while also addressing the financial and design constraints that are often faced.

As this research goes on, what has been learned to date is being used to inform the second phase of classroom refurbishment, this time to encompass 40 classrooms across the estate. In the second phase, the nature of the AV and IT introduced, beyond the basics, will be examined carefully to ensure that what is provided generates scope for innovation but is practical for busy staff. In addition, adaptability may be addressed better through providing classrooms that have a mix of furniture within them and also by improved agility of timetabling.

The work done on developing mobile learning alongside the classroom redesign has clearly raised awareness as well as exposed real interest in mobile learning approaches. The desire to engage with mobile learning by academic staff is evidenced through the surveys and focus groups. The pleasing engagement with the staff development workshop, "Flipping Mobile Learning" is another strong sign of the topical nature of mobile learning, especially when linked to classroom activities. For students, the surveys generally show their interest in all things mobile, though this is by no means true for all students and in addition, there is a significant view that mobile learning for students is more about receiving information and watching videos than for engaging in classroom-based or out-of-classroom group activities. This may, of course, reflect their experience of the use of mobile learning to date, which would in turn reflect the relatively low level of maturity for this form of learning at the University. It may also be a sign that significant numbers of students are more comfortable with passive roles within classrooms and may see some mobile learning approaches as potentially a way to make them do more work.

The student survey carried out as part of this study revealed that though many students like using mobile devices, they may not be too keen on in-class activities that exploit mobiles. On the other hand, academic staff surveys and focus groups suggest they struggle to be less reliant on lecture and want to engage students, but too often find it difficult to do so. Whilstmany staff seemed able to see the opportunities that mobile approaches present for changing the passive student role, they are wary of using less familiar technology in the classroom environment. How does one address this difficult and complex problem?

At the University of Westminster, as at most universities in the UK, new staff has to undertake at least one module on the Postgraduate Certificate in Higher Education. One of these, Technology to Enhance Learning, covers mobile learning and flipping the classroom as part of its timetable. It has undoubtedly led to an increase in interest and practice amongst new staff in these key areas of teaching development. However, the bulk of the staff at Westminster who are experienced do not, by and large, have time to take a full module and want brief, immediately applicable support. This is what the authors feel the workshop described in this paper is delivering. The feedback to date, on both the design of the course and the readiness to state concrete plans for action post-completion of the workshop, supports these feelings. The combination of face-to-face and online delivery for the workshop has worked well to support diverse learning styles and to develop connections across a community with some common interest.

It is to be hoped that the wider sector can learn from the experiences of this case study from the University of Westminster. These are exciting and interesting times for university within a rapidly changing higher education environment. The introduction of a new curriculum structure, with an enhanced focus on employability, and new learning and teaching strategies with a focus on blended learning, signal significant changes ahead. Whilst not by any means the panacea for success, technology will be central to building the future learning environment and student experience. To be successful, any university will need to bring academic staff closer to simple technology solutions and help students to get more engaged in an active learning partnership with academic staff.

Future work at Westminster will focus on how to achieve even wider engagement across the student and staff base in determining the impact of the new classrooms on what actually happens in taught sessions and how this impacts the student experience and their learning and achievement. Part of this will include a longer term assessment of the wider adoption and impact of mobile learning technologies and approaches.

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Appendix 1 – Survey of Technology Access and Usage

This is a simple survey of students on University Programs to establish how familiar students already are with some of the technologies used in connection with your course, and the level of access you have to technology.

Your responses are anonymous and will not be used to assess you in any way. Please answer honestly. The results of the survey are only useful to us if we can get a clear picture of students' current level of access and usage. We aim to use the results of this survey to inform the design of our course content and staff development to best meet your needs.

When you have answered all the questions, simply click on 'Submit'.

Thank you.

Questions

* Required

Your course *

1. Please indicate which course you are on

2. Please indicate your year/level of study *

- Foundation year (Level 3)
- Undergraduate year 1 (Level 4)
- Undergraduate year 2 (Level 5)
- Undergraduate year 3 (Level 6)
- Postgraduate (level 7)

3. Please indicate whether you are a full time or a part time student

- Full time
- Part time

4. Please indicate whether you are male or female

- Male
- Female

5. For all of your modules it is essential to have access to a computer with an internet connection. Which of the following options best describes the type of computer access which you use most frequently in connection with your studies?

- I use my own personal laptop or netbook with a wireless internet connection
- I use a desktop PC at home with a high speed internet connection
- I use the open access computers provided by the university
- Use of a laptop or netbook computer

6. Please indicate the option which best describes your access to a laptop or netbook, and how you generally use it.

-   I don't have access to a laptop or netbook
-   I have a laptop or netbook and I generally bring it with me to University
-   I have a laptop or netbook but I do not bring it with me to University
-   Tablet computers (e.g. iPad or similar)

7. Please indicate the option which best describes your access to a tablet computer, and how you generally use it.

-   I don't have access to a tablet device
-   I have a tablet device and I generally bring it with me to University
-   I have a tablet device but I do not bring it with me to University

8. Please indicate the option which best describes your access to a smartphone or other mobile device

-   My mobile phone is a smartphone (e.g. iPhone, Android, Blackberry etc) which can access the internet
-   I don't have a smartphone but I do have a mobile device which can access the internet (e.g.an iPod Touch)
-   I don't have any mobile devices capable of accessing the internet

9. Please indicate your level of usage of social networking sites such as Facebook

-   I have a social networking (e.g. Facebook) account and I update my status daily
-   I have a social networking (e.g. Facebook) account and I update my status occasionally e.g. once a week
-   I have a social networking (e.g. Facebook) account but I rarely post anything on it and only use it to view other people's posts
-   I don't have a social networking (e.g. Facebook) account

10. Please indicate your level of usage of Twitter

-   I have a Twitter account and I post 'tweets' daily
-   I have a Twitter account and I post 'tweets' occasionally e.g. once a week
-   I have a Twitter account but I rarely post anything on it and only use it to view other people's 'tweets'
-   I don't have a Twitter account

11. Please indicate the extent to which you read blogs on the internet

-   I read a lot of blogs on the internet and I read them regularly
-   I occasionally read blogs on the internet
-   I rarely read blogs on the internet
-   I never read blogs on the internet

12. Please indicate the extent to which you use RSS feeds

- I use an RSS feed to bring all the blogs I follow together in one place
- I have used an RSS feed in the past but I never kept up to date with it
- I know what an RSS feed is but I have never used one.
- I don't know what an RSS feed is

13. Please indicate whether you maintain your own personal blog, or have done so in the past (please only consider personal blogging - not any course related blogs you have been asked to contribute to)

- I maintain my own personal blog and post to it regularly
- I maintain my own personal blog but only post to it occasionally
- I have maintained a personal blog in the past but currently do not
- I have never maintained a personal blog

14. Please indicate your prior level of experience in using wikis

- I have contributed to wikis regularly in the past
- I have limited prior experience of wikis
- Prior to starting to this course I had never used a wiki

15. Please indicate your level of prior experience in using online discussion boards (Note: this can include experience in using discussion boards for non-academic purposes, e.g. a football fans' message board or similar. This does not relate to any current course related discussion boards you may contribute to)

- I have contributed to discussion boards regularly in the past
- I have limited prior experience of discussion boards
- Prior to starting to this course I had never used a discussion board

16. Please indicate the extent to which you use email

- I send and receive emails every day (including, work, social and university)
- I send and receive emails occasionally (e.g. a few times a week)
- I hardly ever use email as a means of communication

17. Please indicate your level of experience in using web-based image hosting services (e.g. Flickr or Picasa)

- I have used web-based image hosting services regularly
- I have limited experience of web-based image hosting services
- I have never used web-based image hosting services

18. Please indicate your level of experience in using web-based social bookmarking services (e.g. Delicious or Diigo)

- I have used web-based social bookmarking services regularly
- I have limited experience of web-based social bookmarking services
- I have never used web-based social bookmarking services

19. Please indicate what level you consider your internet searching skills to be

- I consider myself to be highly proficient at internet searching
- I consider myself to be competent at internet searching
- I think I need to develop my internet searching skills

20. Please indicate what level you consider your word processing skills to be at (e.g. in Microsoft Word)

- I consider myself to be highly proficient at word processing
- I consider myself to be competent at word processing
- I think I need to develop my word processing skills

21. Please indicate what level you consider your spreadsheet skills to be at (e.g. in Microsoft Excel)

- I consider myself to be highly proficient in the use of spreadsheets
- I consider myself to be competent in the use of spreadsheets
- I think I need to develop my spreadsheet skills

Rehabilitating Ex-Offenders Through Non-Formal Education in Lesotho

Nomazulu Ngozwana

Abstract

This paper reports on the rehabilitation of ex-offenders through non-formal education. It examines how non-formal education has addressed the ex-offenders' adaptive and transformative needs. Using an interpretive paradigm and qualitative approach, individual interviews were conducted with five ex-offenders who were chosen through purposive and snowball sampling. Qualitative data analysis was used to generate the themes from the data. The findings revealed that ex-offenders were taught basic literacy and life skills through non-formal education. Moreover, non-formal education facilitated the ex-offenders' transformed attitudes, including recognizing their identity as a result of transformative non-formal education. Some ex-offenders in Lesotho demonstrated how by tailoring programs and utilizing their own personal knowledge, they were able to share skills in spite of the prison bureaucracy and have consequently established an organization that serves as a link between prison and society. However, there should be a holistic approach to learning, which can target the immediate application of skills once offenders are released from prison. Similarly, offenders need access to educational resources once they leave prison that can build on what they already know/have learned so that they can turn their lives around.

Keywords: rehabilitation; ex-offenders; non-formal education; adaptive; transformative; Lesotho.

Introduction

In most African countries, Lesotho included, offenders' low educational status contributes to their offending and reoffending (Wade, 2007; De Maeyer, 2001; Biswalo, 2011; Setoi, 2012; Mkosi, 2013). Even though rehabilitation programs are provided for offenders in Lesotho, there are challenges facing that section whereby prison sentences do not always match education and training schedules, there are shortages of materials and equipment, inadequate funding, and a lack of further education and training for the training officers (Setoi, 2012; Tsepa, 2014). Furthermore, Setoi (2012) reveals that the content for educational rehabilitation programs offered in most correctional service institutions in Lesotho is inadequate, poorly planned and does not receive enough care for it to flourish. In his report, Setoi indicates that the educational role is mainly to keep offenders busy and to control them rather than a means for human development (Setoi, 2012). Research studies on education in general and rehabilitation programs in particular for offenders in Lesotho are limited, if not lacking, and there seems no obvious policy on offenders' rehabilitation programs (Tsepa, 2014; Setoi, 2012; Mokoteli, 2005). Additionally, what is lacking in the literature (Tsepa, 2014; Setoi, 2012; Mokoteli, 2005) is whether the adaptive and transformative needs of offenders are addressed through rehabilitation programs provided in Lesotho's correctional institutions, using non-formal education.

Several studies have shown that offenders' educational rehabilitation programs facilitates for their behavior change, reintegration into societies and prepare offenders for employment opportunities after release (Biswalo, 2011; Setoi, 2012). According to the United Nations General Secretary, "education is the fundamental right and the basis for progress in every country." (UNESCO, 2014). Education in general and non-formal education in particular caters for all age learners throughout the lifelong phenomenon whereby all individuals' growth and self-improvement are encouraged (Rogers, 2004). This research was done with the purpose of gaining a deeper understanding about how non-formal education have addressed the adaptive and transformative needs and interests of certain ex-offenders in Lesotho. In the first section, I review the literature regarding non-formal education. Secondly, I review the meaning and discussion on adaptive and transformative responses. Finally, I show how this type of education is relevant and necessary for ex-offenders in Lesotho.

Literature Review

Non-Formal Education

Literature has significantly shown (UNESCO, 2014; UIS, 2012; Rogers, 2004) the renewal of interest in non-formal education in an effort to meet and reach the targets of the Education for All goal, which is placed at the center stage of global education and development agendas. Non-formal education is manifested in traditional societies by using apprenticeships in specific trades (Peace Corps, 2004). Additionally, on-the-job training is widely conducted through non-formal means of learning. Apart from this, traditional knowledge was passed from generation to generation through one-to-one teaching or group facilitation using various methods of non-formal education. Thus, non-formal education, as opined by Sevdalis and Skoumios (2014) is commonly known to be:

> Any organized, systematic, educational activity carried on outside the framework of the formal system to provide selected types of learning to particular subgroups in the population, adults as well as children. (p. 14)

In this definition, the impression is that non-formal education is flexibly organized in order to suit its participants' environment wherever they may be. In the same way, Rogers (2004) states that non-formal education is provided on a continuum: at one point it is closer to formal education and at the other end it is closer to learner ownership. The author stipulates that non-formal education extends opportunities for job creation and development activities for its participants (Rogers, 2004). Thus non-formal education has been regarded as remedial education for people who have missed the opportunity to attend formal education; hence it is regarded as complementing the latter (UNESCO, 2014). In non-formal education, there is no age restriction and most often what is learned is culturally valuable as it addresses the needs and interests of the learners. It is likely that non-formal education is the most appropriate approach to be used with offenders because it is provided outside the formal school system and is nevertheless organized and structured and flexible to fit the correctional environment. The subsequent section discusses the meanings of adaptive and transformative needs of learners.

Non-Formal Education as Adaptive Outcomes

According to UNESCO (2014), non-formal, location precise strategies are suitable for reaching out to different populations for accomplishing the goals of Education For All. In this way, non-formal education responds to adaptive outcomes, as its provision is mainly to rectify the shortfalls felt by its clientele and to assist them to adapt and adjust to their environment and conditions of life. Consequently, non-formal education addresses specific learning needs and interests for the achievement of immediate personal outcomes (UNESCO, 2014). These include education and training, knowledge and skills acquisition, enhancing the quality of life, reducing poverty and improving livelihood initiatives in regard to socio-economic needs. In this manner, the initiatives focus on making up what is missing in terms of modifying behavior, adjusting to an environment and enhancing personal development and other outcomes. These outcomes assist participants in adapting to different situations, hence non-formal education is provided for adaptive responses (UNESCO, 2014). In the same manner, non-formal education also reacts to transformative responses of its learners as in the following section.

Non-Formal Education as Transformative Outcomes

Non-formal education further addresses the immediate-to long- term structural outcomes that entails different peoples' dispositions. This includes but is not limited to: realizing the socio-cultural context and creating awareness thereof, identity recognition, empowerment, increased socio-political participation, breaking the social and economic barriers and other inequalities (UNESCO, 2014). In the same way, UNESCO (2014) identified "experimental and innovative non-formal education, some of which involves greater independence from governments, to respond to emerging learning needs as societies evolve" (p. 6). Some examples include education for peace and democracy, citizenship education and education for sustainable development. Moreover, non-formal education develops human capabilities, improves social cohesion and creates responsible citizens (UNESCO, 2014). This means that transformative, non-formal education develops an individual above mere education and learning initiatives. It can be seen that the focus is mainly to make a difference in individuals and societies in general, thus achieving transformative outcomes. The following section deals with the necessity and relevance of non-formal education within the correctional facilities in Lesotho.

The Necessity and Relevance of Non-Formal Education in the Correctional Facilities

Recent studies by Biswalo (2011) in Swaziland, Setoi (2012) and Tsepa (2014) in Lesotho, Mkosi (2013) and Quan-Baffour and Zawada (2012) in South Africa show that there is a range of formal, non-formal and informal adult educational programs undertaken by inmates. However, the extent to which non-formal education meets and addresses the adaptive and transformative needs of offenders varies from country to country.

According to Biswalo (2011) in the context of Swaziland, the department of Adult Education at the University of Swaziland in consultation with the prison service conducted needs assessment between 1997 and 2009. The needs assessment was done before developing the educational programs to ensure that the felt needs of the inmates were included and addressed by the educational programs offered, followed by monitoring exercises. The needs assessment was conducted with the inmates through individual interviews and group discussions. Thereafter, prioritization of needs took place based on the capability and the potential of the inmates to acquire and secure resources for conducting the programs that can develop into viable businesses after their release from prison. In the whole exercise, activities that required locally available and less expensive resources were given priority over others. Moreover, the department of adult education provided relevant training that strengthened what the inmates acquired within the correctional institutions as best practices. Biswalo further outlined that baseline assessment and placements were also conducted before developing the content to be taught. The inmates' contributions to their programs enhanced their ownership to the latter, which also addressed and met their adaptive and transformative learning needs. Biswalo's, 2011 study stands in contrast with what happens within Lesotho's correctional facilities.

The Lesotho Correctional Service (LCS) provides a variety of programs that are taught by LCS officers, volunteers and the inmates themselves. Normally, prison populations are less well-educated than the general population in Lesotho and in other countries (Setoi, 2012, Biswalo, 2011; Tsepa, 2014). According to Setoi (2012), the Ministry of Justice and Correctional Services in Lesotho offers education and training to the inmates as mechanisms to rehabilitate and reintegrate them into their communities. These education programs are provided as formal literacy and numeracy classes from Standard 1 up to Form E, which is equivalent to grade 1 to 12 in South Africa. These are basic and continuing education classes that are meant to assist the inmates to acquire the qualifications for job opportunities for male inmates in certain correctional centers. The inmates are further provided with skills training such as carpentry and joinery, stone cutting, building, welding, leatherwork, electrical installation, plumbing, plastering and brick-making, upholstery and sewing. However, the methods used to deliver the above trainings are not stated, as well as whether the inmates' needs are met. The next sections discuss the methodology that was used to conduct the study of non-formal education in Lesotho.

Methodology

An interpretive paradigm using a qualitative approach was followed to gain understandings into the subjective beliefs and perceptions of the participants (Cohen, Manion, & Morrison, 2009). The phenomenon is enlightened by those who live it and construct its meaning (McMillan & Schumacher, 2006; Patton, 2002). A purposive and snowball sampling was used to select ex-offenders from their homes (Cohen, Manion, & Morrison, 2009), who participated in semi-structured interviews. Five ex-offenders were interviewed who had been previously incarcerated in the Male Correctional Institution in Lesotho. I adhered to the necessary ethical measures - willingness to participate in the investigation and informed consent. Ethical

considerations were carefully attended to, informed consent, confidentiality, obtaining the necessary permission, privacy, anonymity and encouraging participants to speak freely without fear of repercussions (Cohen, Manion, & Morrison, 2009).

All the ex-offenders provided their stories and their viewpoints regarding the educational programs they embarked on during their incarceration. Although the findings cannot be generalized to the larger population, the ex-offenders' role within the environment under which they carry out their sentences excludes the wider society, while the shared experiences may be similar for the incarcerated community. Inductive qualitative data analysis was used where themes were developed from the data, categories, insights, and understandings were further formulated. Different theoretical concepts of non-formal education and were mapped across the data as a theoretical lens for discussing the inductively derived themes and for more abstraction.

Findings

Findings are presented according to the themes that emerged from the data provided in the responses from the ex-offenders. The themes were basic literacy education and life skills, transformed attitudes and identity recognition.

Basic Literacy Education and Life Skills

In response to the question of what they learned during the time they were incarcerated, ex-offender E bemoaned:

> It was very painful for me to be there as an inmate (shaking his head slowly sideways with his face down). However, I feel happy because I have that experience of being an inmate and it toughened me… (Clears his throat) I learned how to write and read my name and a few sentences. I can even count the numbers, which was not the case before I was incarcerated. The prison has taught me several skills that I was not aware of, such as landscaping, gardening, feeding pigs and cleaning my surroundings (Ex-offender E).

The participant indicated that incarceration has made him become a tough man. He further showed that he learned how to write and read. The findings reveal that some ex-offenders acquired basic literacy and numeracy skills, which they learned during incarceration, thus enabled them to rectify their gap of being illiterate. Additionally, the inmates were assigned work that taught them life skills, such as how to keep their environment clean, including taking care of animals that are kept within the correctional facilities. On the same note, ex-offender A explained:

> I approached other inmates about the idea of formal school and I was responsible for seeing that the school was operating. Those who were enlightened and had formal education background taught the others who were illiterate (Ex-offender A).

Ex-offender A pointed out that some offenders would volunteer to teach others who were illiterate so that they could also acquire the basic skills of how to write and read their names. It is noted that the offenders supported each other since they shared the common experience of incarceration. Additionally, the non-formal characteristics of a flexible environment could be seen in the learning environment of the correctional facilities. This means that learning takes place everywhere, in particular, using non-formal education approaches. Of great concern was

the inmates' ability to make decisions regarding whether or not what they learned addressed their needs and interests.

In regard to the life skills that were offered, ex-offender E indicated that the content that was learned did not address his needs because he spent the entire sentence of five years doing gardening, which was not his interest. He emphasized that he was interested in welding and electrical work. He mentioned that he had basic knowledge about welding since he learned while as an apprenticeship with another person from his community. However, he showed that he was comfortable with gardening and landscaping because he realized that there was a shortage of welding equipment. In his words:

> Welding is dangerous because it affects a person's eyes. All those who joined that team were having problems with their eyes. It is because there was no proper equipment used to protect people while they did that work. I decided that it was better for me to do gardening and landscaping because there was no harm in performing those tasks.

Ex-offender E was able to settle for the work of landscaping and gardening as a way of avoiding endangering his eyes with the welding work he liked. Moreover, the warders seem to be making the decisions for the offenders in terms of what skills to learn or not. This imposition of skills refutes the non-formal educational feature whereby curriculum or content has to address the learners needs and interests, therefore has to be learner-centered. The data also show that the offenders were never consulted in terms of what they would want to learn as skills for future use. Instead what seemed to matter was whether the sentence to serve as punishment was longer or shorter. This has implications for how the offenders may be transformed with the expectation of being socially reintegrated back into their societies.

Transformed Attitudes

On the other hand, ex-offender B attested that he did woodwork and continued with that work after his release from prison. He reported to be self-employed and to enjoy his work. He said:

> I did woodwork while I was there [under custody] and I learned to do built-in shelves, wardrobes, tables and many other things. I now support my family through the income that I generate from my workshop. I am now a new person who has reformed from criminal acts. I have three people who help me then I pay them monthly. In fact, I was never rehabilitated by those officers, I counseled myself and told myself that I needed to change completely (Ex-offender B).

On the question of whether he chose for himself to do woodwork or not, he responded by showing that the work was imposed on him. He alleged:

> (Smiling) Fortunately, I took that work seriously and ensured that I learned everything. At first, I wanted to join those who did the bricks and building. The warders refused [when I wanted to join the building team] and they instructed me to join the wood work team. We did not choose for ourselves, they [warders] placed us according to the length of our sentences. The ones who were serving long sentences were not allowed to go out, therefore remained in the workshops. Prison life is tough … (pause), it needs a person who can accept that instructions had to be followed. But at the same time [one had to] look out for the opportunities and make use of them; that is how I survived for the 12 years that I stayed there (Ex-offender B).

Ex-offender B had a positive story to tell regarding his transformed attitude by learning to do woodwork, which also follows the purpose for non-formal education. It can be observed that ex-offender B used the acquired skills and started his own workshop, where he was able to generate income. It is interesting to see that the participant counseled himself and accepted the instructions that were given. By adapting to prison life, the situation potentially transformed his attitude and life for the better. His knowledge has further become a resource for income-generation, which is economic empowerment. He provided employment for himself and for other people who were able to provide support to their families. Another particular concern is the notion of ex-offenders' identities.

Identity Recognition

The ex-offenders in this study significantly changed their behavior in terms of how they thought as individuals and how they assisted each other including the offenders who are about to complete their sentences. Learning from what they experienced while incarcerated, even when they received no support from their significant ones, they supported each other as demonstrated in the following quote:

> We had an informal support group of peers and we thought about starting an association for ourselves. We established this NGO to try and fill that gap for such activities … we have tried to approach the government to change the way they perceive the ex-prisoners but we have a long way to go. The issue of a link is an important thing that we do, also to link them [released-prisoners] with existing members of this NGO in different districts and their families. Other things do not need money to happen (Ex-offender D).

In the above quote, ex-offender D related a story that while incarcerated, they were able to set up a peer education program with other offenders. They even went further to establish an association, which would serve as a link between the offenders who were released and those under custody. Ex-offender D indicated that with the peer support, they managed to establish Crime Prevention Rehabilitation and Reintegration of Ex-Prisoners Association (CRROA) in Maseru, Lesotho. Ex-offender D further stated that the association has representatives in all the districts. In other words, ex-offenders have established an association that made it possible for their identities to be recognized. In this way, the link between the incarcerated offenders and their families is served through the ex-offenders. He illustrated that upon his release, he found it very hard and difficult to go to his home alone without anyone accompanying him. In his words:

> My family never visited me while I was in custody for eight years. That made me feel less confident when I was about to go there [home] alone, hence I needed someone to accompany me. By the time of my release, the only people that were closer to me were other offenders and the prison warders.

Additionally, he said that his release brought everything to an end between him as an ex-offender and the prison. It can be argued that when ex-offenders experience unfavorable family members' attitudes, packed with labels associated with prison and lawbreaking, it becomes difficult for them to feel and belong as part of their communities. Therefore, the establishment of CRROA may have been propelled by the fact that ex-offenders felt more comfortable with each other rather than with the larger population. It can be noted that the organization promoted a sense of self and belonging for the ex-offenders who support one another. These findings have implications for how policy should address social reintegration and use such links

between released ex-offenders and those under custody as another mechanism for enabling the reformation of ex-offenders and their avoidance of re-offending.

Discussion

The findings demonstrate that illiteracy is a concern for offenders in custody who never went to school. It can be argued that to a large extent, their lack of education may have also influenced their engagement in committing crimes as supported by the literature (Biswalo, 2011; Setoi, 2012; Wade, 2007; De Maeyer, 2001). Moreover, the offenders' relationships amongst themselves seemed to have been built upon trust whereby the latter facilitated their learning from each other in a flexible, relaxed environment. The flexibility of environment is one of the powerful characteristics of non-formal education that makes it easy for learning to take place everywhere, hence it can be concluded that it is a suitable approach for use with offenders who are incarcerated under correctional custody. Furthermore, it can be argued that non-formal education responds to the needs and interests of offenders who rectified their shortfall of not knowing how to read and write including counting. Hence the data supports what UNESCO (2014) has shown in terms of non-formal education facilitating the adaptive outcomes of its clientele.

Additionally, it has been disclosed that offenders learned various life skills such as gardening, landscaping, and woodwork among others; however, these were imposed on them. Here the findings reveal that the non-formal characteristics in regard to control and who determines what the learners want to learn is not occurring. The situation with offenders under custody in Lesotho differs from the situation of the inmates incarcerated in other contexts like Swaziland, where the offenders are engaged in a needs assessment and evaluation process, which enhances their motivation to learn and change their lives (Biswalo, 2011). Therefore, the findings reveal that non- formal education characteristics are often realized in theory but not in practice within the Lesotho context.

Furthermore, the data reveal that some offenders managed to transform their attitude by accepting and conforming to the situation in custody. This was expressed by ex-offender B who developed a positive attitude income-generation by starting his workshop from the woodworking skills that he acquired while incarcerated. The data confirmed that non-formal education that was provided within the correctional facilities indeed facilitated the employment opportunities and rehabilitation of offenders as stated by authors like Biswalo (2011), Quan-Baffour and Zawada (2012), Tsepa (2014) and Setoi (2012). Ex-offender B took the woodworking skills seriously and coped with his prison situation thereby transforming his life for economic gain. As a result, non-formal education empowered offenders who acquired skills for the immediate application (Rogers, 2004) as stated by ex-offender B, who used the skills for positive livelihood benefits.

Regardless of the prison bureaucracy and the difficulties that the ex-offenders felt while under custody, they managed to set up an association for themselves. It was found that through modifying their educational programs and through the peer support amongst them, they consequently established an association that identified them as ex-offenders. The association further served as a link between the released offenders and their families and communities. Likewise, non-formal education addressed offenders' transformative outcomes (UNESCO, 2014) by facilitating the establishment of an ex-offenders association, which is a long-term response that served as reintegration for the offenders, promoting their sense of belonging.

Conclusion

In conclusion, there is evidence that non-formal education seemed an appropriate approach of rehabilitating offenders who were incarcerated under correctional custody in Lesotho. This was illustrated by ex-offender E who reported to have learned several life skills including literacy and numeracy. Additionally, the findings demonstrated that the adaptive needs of certain ex-offenders were met. Also, the data revealed that through the offenders' trust and support for each other, some (Ex-offender A) volunteered to facilitate the teaching of basic literacy skills for those who lacked such skills. Furthermore, the life skills acquired during incarceration facilitated their economic empowerment, and thus transforming their lives for positive livelihood benefits. This was reflected by ex-offender B's positive story of making use of the woodworking skills he acquired that changed his economic status and improved his life for the better. It was noted that non-formal education facilitated the immediate application of skills for some of the offenders, hence the resulting adaptive outcomes and transformative outcomes.

The findings of this study point to the social identity that ex-offenders share, which also reflects the strong cohesion and sense of belonging among them. The formation of an ex-offenders' association reflects a collective group identity, which is a strength that can be used to motivate offenders to engage in other economic empowerment activities. Similarly, non-formal education resulted in transformative outcomes where an association for ex-offenders was established, which promoted their identity while also serving as a long-term link for other released offenders and their communities. However, it is suggested that non-formal education and learning should be all-inclusive in its provision and further aim to equip offenders with the immediate application of skills once they are released from prison. Furthermore, offenders need access to educational resources once they leave prison that can build on what they already know/have learned so that they can turn their lives around.

Acknowledgement

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A Survey of the University Students' Perspectives about Using Digital Technologies in Education: Zimbabwean Case

Sibusisiwe Dube and Elsje Scott

Abstract

This study investigated the perspectives of university students on the use of digital technologies as tools for teaching and learning. Digital technologies are an essential asset for academic institutions as they can support strategic teaching and learning objectives for education institutions. Studies have shown that limited use of digital technologies could lead to a second order digital divide. This problem negatively impacts the Government and university efforts and initiatives of increased technological investment. There is therefore a need to uncover and obtain a deeper insight into university students' perspectives due to the sparse literature discussing this problem within the Zimbabwean context. Quantitative data on student perspectives was collected using 100 questionnaires administered to students at a single university of technology in Zimbabwe. Although the findings concur with existing literature that students highly value the integration of technology into their learning process, there were issues that appeared to be peculiar to the surveyed environment. For example, the surveyed students professed disappointment with the current traditional teaching methods despite the high availability and accessibility to digital technologies within the institution. They indicated their frustration emanating from the disconnection between commonly used teaching methods and the digital technologies effective for teaching and learning.

Keywords: digital technologies; perspectives; students; teaching and learning; university.

Introduction

Digital technologies are information and communication technology (ICT) that include computers, learning management systems (LMS), digital media such as wikis, blogs, social media and podcasts. They commonly refer to a broad collection of technologies which capture, process, store and transmit information in digital form. Digital technologies can be both hardware-based devices such as computers, mobile devices like smart phones, game consoles, video and audio players, and software-based applications such as web applications, blogs, wikis, social-networking sites, and chat sites. In addition, Groff (2013) identifies video and image sharing, simulations, games and gamification, handheld and tablet computing, digital cameras, scanners, virtual environments, augmented reality and wearable technologies as emerging digital technologies available for use in higher education. Table 1 depicts some common digital technologies which have proved to benefit the teaching and learning practice. These benefits include the capability of digital technologies to facilitate a more student centric as opposed to instructor centric approach to teaching and learning. Digital technologies engage and empower students, promote peer learning and creativity. The students who integrate digital technologies in their learning have been found to develop better literacy and communication skills than those who do not. More so digital technologies enable students to keep abreast with the latest technologies and thus bring returns on the costly technological investments.

Table 1: Examples of digital technologies

Digital Technology Example	Definition
Learning management systems (LMS)	Computer programs that aid e-learning through the formation of course content (Leon & Teasley, 2009)
A blog, or weblog	Online diary where entries are normally written/displayed in reverse sequential order and in addition to text messages, postings can include photos, links, video and audio (Baltaci-Goktalay, 2010)
Wiki	A web site design and authoring tool that permits a group of people collaboratively to add or edit web site content (Bajt, 2011)
Podcast	A series of digital-media (audio or video) files which are circulated over the Internet using syndication feeds for playback on mobile devices (MP3 players or iPods) and computers (Bajt, 2011)
Gamification	Deterding, Dixon, Khaled, & Nacke 2011) defined Gamification as the use of game design elements in non-game contexts.
Augmented Reality (AR)	Augmented reality (AR) is a variation of Virtual Reality which completely immerses a user inside a synthetic environment such that the user cannot see the real world around him (Kaufmann, 2003)

From a higher education perspective, digital technologies can assist with better management and administration of university activities and afford educators and students to create an environment that enables different types of social interaction. They also facilitate an increased access to information and overcome some challenges related to the time and place constraints associated with teaching and learning. Students can also take advantage of digital technologies to demonstrate their creativity in knowledge creation. The portability, ubiquity and low costs of digital technologies can enhance communication abilities and interactivity, enabling the Zimbabwean university students to be technologically savvy like their digital native counterparts as well as prepare them for survival in an information-rich digital society. In accordance, Johnson, Adams, Estrada, & Freeman (2013) posit that today's workforce requires university graduates to possess communication and critical thinking skills that can be fostered through technology-enabled learning.

Furthermore, for students to compete effectively in this digital age, they must have diverse digital skills. Emerging digital technologies like cloud computing, mobile learning, big data and social networks can enable academic institutions in Zimbabwe to capitalize on new opportunities to improve efficiency and effectiveness and achieve quality education. More so, there is evidence in literature that students who engage with appropriate digital technologies can positively impact society (Johnson, Adams, Estrada, & Freeman, 2014). It is on this premise the study sought to understand the Zimbabwean university students perspectives about of such technologies since the latter's affordnces are not yet realised. It is is paramount to establish such perspectives since the delays in the integration of digital technologies in education tends to widen the existing second order digital divide, a problem discussed in the next section.

Problem Statement

Technology-based teaching and learning is not visible in higher education institutions, particularly in the developing nations. Despite the widespread adoption and high access to digital technologies, their use for learning and teaching in Zimbabwean universities is yet to be realized across programs and institutions (Mbengo, 2014). Contrary to the management, decision and policy makers' technological initiatives, an insignificant number of people, in Zimbabwean higher learning institutions, is fully embracing the affordances of the digital technologies into the curriculum. The problem is rather usage than access since current studies indicate that even among universities with both high availability and accessibility; use of digital technologies in teaching and learning is still at its infancy (Bhuasiri, Xaymoungkhoun, Zo, Jeung, & Ciganek, 2012). Nevertheless, the influential causes of the low uptake have a minimal documentation. It is on his basis that the study sought to establish and document the Zimbabwean university students' perspectives about digital technologies, a phenomenon that has had a narrow focus in developing nations' context (Mbengo, 2014). In a bid to establish these perspectives, the subsequent key questions require to be answered through this study:

1. What are the university students' perspectives about digital technologies in education?
2. Which digital technologies do students own and for what purpose do they use them?
3. What digital technologies do students consider useful for teaching and learning?

The current generation of university students is affectionately considered the digital natives (Prensky, 2001). The kknowledge about the students' digital technology choices, concerns and priorities could assist university management, decision and policy makers to make informed decisions about technological investments from which technological returns could be realized.

Globally the university students have developed an inherent ability and reliance on technology across all contexts of their lives (Corrin, Lockyer, & Bennett, 2010). The aanswer to the preceding questions are therefore necessary for making technological investments that favor the students' needs. Li and Ranieri (2010) argue that mere access to digital technologies does not translate to effective use in the learning context, hence the need to establish students' view point about what and how digital technologies should be integrated in education. In their study, Kennedy, Krause, Gray, and Judd (2006) indicated that university students seldom use the various digital technologies at their disposal to support learning. According to Echenique (2014) university students' use of digital technologies for learning is influenced by a range of factors such as subject-specialty more than individual characteristics, differences in technology access or expertise. This is an observation acknowledged in a study by Selwyn & Facer (2014) hence the aim and objectives of this study as discussed in the following section.

Objectives

The study aimed at establishing the perceptions and concerns of university students about digital technologies in teaching and learning. Although a well-researched phenomenon, little has been done with a focus on university students in developing nations (Mbengo, 2014) such as Zimbabwe. Much of the existing literature relates to the developed world, a context with students of differing experiences and expectations about digital technologies from those in the developing world. For instance, Minocha (2009) examined the use of social software with respect to UK students' learning and engagement aimed at uncovering both the benefits and the challenges students experience from using the digital technologies. Little is known about how relevant the benefits and challenges are with regard to the developing world context. It is on this background that this study sought to fill this gap in literature through the establishment of the evidence-based view of the Zimbabwean students' technological perspectives. The aim is to contribute this body of knowledge for the benefit of the relevant researchers as well as the university management, decision and policy makers.

It is vital to make informed decisions concerning technology-enabled education if returns on the costly technological investments are to be realized. More so the appeal of digital technologies in universities varies with the context. In this regard, Kennedy, et al., (2006) concludes that technological experiences are vital to informing university decision and policy formulation that can transform the way education is delivered. A consideration of students' technological concerns and priorities is vital since most developing countries seek to achieve quality education using scarce resources (Aiammary, 2012). Therefore, simply focusing on adopting digital technologies without a proper operating model or framework can result in failure (Conole, de Laat, Dillon, & Darby, 2008) that deprives learning institutions of anticipated returns. This study therefore sought to establish the students' viewpoints about digital technologies in education. The other objective was to determine the Zimbabwean students' technological choices and priorities as opposed to those of their worldwide counterparts' perspectives reviewed in proceeding section.

Related Work

Despite many studies demonstrating levels and patterns of technology access and use in education, researchers are still concerned about the underutilization of digital technologies in universities (Noguera, 2015; Johnson, et al., 2013), a persisting trend since the 1990s (Dimaggio & Hargittai, 2001). For example, Echenique (2014) examined the use of new digital technologies in teaching and learning in higher education and the findings show that in the

developed world students use a variety of digital technologies and recognize their value as teaching and learning tools

Conole, de Laat, Dillon, & Darby (2008) carried out a series of in-depth case studies on students' use and experience of technologies and their findings demonstrate that technology is at the heart of all aspects of university students' lives and students use technology to support all aspects of their learning processes. These authors' findings show that students appreciate digital technological tools and find them appropriate in teaching and learning in a variety of ways, depending on individual needs and preferences ranging from directed study, resource discovery, preparation and completion of assignments, communication and collaboration, presentation and reflection.

Likewise Liaw, Huang, and Chen (2007) as well as Corrin, Lockyer, and Bennett (2010) explored the learners' attitudes toward e-learning system usages, and found that learners have abundant computer related experience in digital technologies such as browsers and electronic mail. They then concluded that university students believe that e-learning environments are an efficient learning tool and expect teachers to satisfy their learning needs that are technology based.

The study by Jones, Blackey, Fitzgibbon, and Chew (2010) indicate that at universities there is more use of educational technologies such as Power Point, Virtual Learning Environments and Wikis. They also reveal that social networking software is valued by university students as an ideal tool that assist both the students and educators to reflect on their learning and teaching practice.

On the contrary, an investigation by Margaryan, Littlejohn, and Vojt (2011) on the extent and nature of university students' use of digital technologies for learning and socializing show that students use a limited range of established technologies with the use of collaborative knowledge creation tools, virtual worlds, and social networking sites very low Kennedy, et al., (2006) reported that while most students regularly use established and available digital technologies such as email and Web searching tools, only a small subset of students use more advanced or newer digital technologies such as such as augmented reality, games and simulations.

The reviewed literature demonstrates that university students generally appreciate the value of digital technologies as demonstrated by the wide use of such technologies in social aspects of students' lives. The main concern depicted in literature is the limited integration and disconnect between educational technologies and teaching and learning practice. University students are frustrated by popular traditional teaching methods that are without technology. They feel that the limited integration of digital technologies in teaching and learning robs them of the affordances enjoyed by their counterparts in the developed world. This practice in the relevant learning institutions interferes with the students' technological abilities. The universities appear to have failed to set up a conducive environment that promotes students' use of digital technologies in the learning process. With this background, the subsequent section discusses the methodology used to collect and analyze data from Zimbabwean university students about their perspectives with regards to digital technologies in education.

Methodology

The research drew data from one of the sixteen universities in Zimbabwe. The choice of this university case was influenced by the institution's mission to produce technologically competent human resources and a workforce that is compliant with the current digital society' labor market requirements. A survey method was employed for faster and easier access to collected data. After an approval of an ethical clearance application, one hundred questionnaires were administered to both full-time and part-time undergraduate students who were randomly selected from all the faculties. The students voluntarily participated in the survey and the anonymity of the participants was maintained with no disclosure of identities. Eighty-four questionnaires were returned, achieving an 84% response rate. Of the returned questionnaires, eighty-two questionnaires satisfied the data cleaning process with two questionnaires discarded for missing and incomplete data entries and outliers.

The survey questions were designed on the background knowledge that students' use of digital technologies is normally influenced by digital technology affordability, availability and accessibility. In addition, other questions sought to establish the demographic data, students' digital skills and competence, level of education, subject area and mode of study. The questions were easy to answer as students were mainly required to choose answers provided in the form of a 5 point Likert scale. There were a few open-ended questions for further elaboration. The collected data were analyzed using the Statistical Package for Social Sciences (SPSS) and the subsequent findings were obtained.

Findings and Discussion

Through our investigation, we obtained the underlying findings towards answering the questions asked in the preceding section. Regarding the question on the perspectives of students about the use of digital technologies in the teaching and learning, the results concur with the existing literature since the Zimbabwean students' value of technology based teaching and learning was very high. The students indicated that digital technologies are convenient and flexible tools that could enhance their learning activities as indicated in Table 2. Table 2 is a depiction of the value attached to the e-learning system tools by the students. Only 31% of the participants found the e-learning system tools not useful while 58% consider them very useful.

Table 2: E-learning portal by subject area

"Subject Area specific use of the institution's e-learning system			portal			Total
			Not Useful	Somewhat useful	Very Useful	
Subject Area	Engineering	Count	6	2	17	25
		% within Subject Area	24.0%	8.0%	68.0%	100.0%
		% within portal	23.1%	22.2%	34.7%	29.8%
		% of Total	7.1%	2.4%	20.2%	29.8%
	Languages, Education	Count	3	2	5	10
		% within Subject Area	30.0%	20.0%	50.0%	100.0%
		% within portal	11.5%	22.2%	10.2%	11.9%
		% of Total	3.6%	2.4%	6.0%	11.9%
	Natural Sciences	Count	4	0	1	5
		% within Subject Area	80.0%	0.0%	20.0%	100.0%
		% within portal	15.4%	0.0%	2.0%	6.0%
		% of Total	4.8%	0.0%	1.2%	6.0%
	Creative Art and Design	Count	3	0	6	9
		% within Subject Area	33.3%	0.0%	66.7%	100.0%
		% within portal	11.5%	0.0%	12.2%	10.7%
		% of Total	3.6%	0.0%	7.1%	10.7%
	Business	Count	10	5	20	35
		% within Subject Area	28.6%	14.3%	57.1%	100.0%
		% within portal	38.5%	55.6%	40.8%	41.7%
		% of Total	11.9%	6.0%	23.8%	41.7%
Total		Count	26	9	49	84
		% within Subject Area	31.0%	10.7%	58.3%	100.0%
		% within portal	100.0%	100.0%	100.0%	100.0%
		% of Total	31.0%	10.7%	58.3%	100.0%

The surveyed students also revealed that the digital technologies are capable of improving their academic performance, as evidenced by Figure 1.
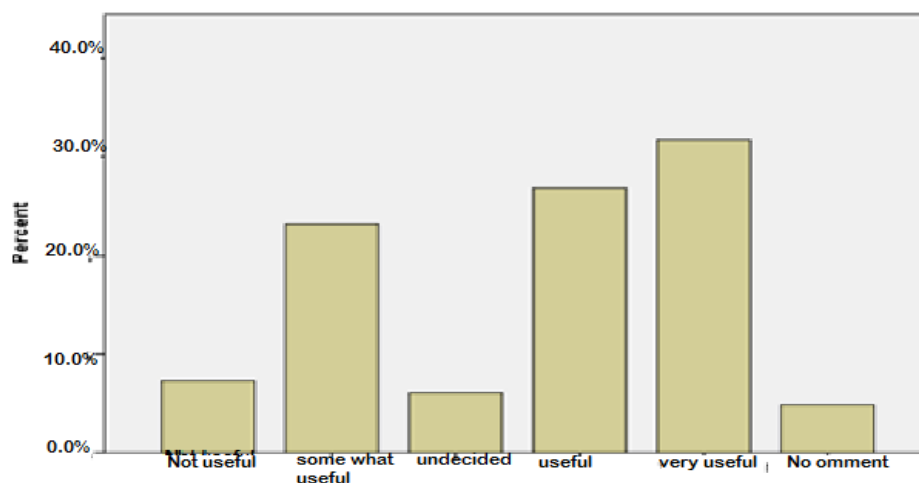
Figure 1: Value of social media in the learning practice

In Figure 1 it is clear that social networking sites are very common among Zimbabwean university students. For example, less than 10% of the surveyed students regarded these networks as useless tools for teaching and learning while the rest find them useful in education. According to the surveyed students, digital technologies are valuable tools for communicating with both lecturers and with each other. They also indicated that these technologies are desirable features that facilitate access to learning material and course content. The students' sentiments are summarized in Table 3 showing how appreciative they are of social media sites.

Table 3: Subject area-based usability of social networking technologies

		Social networking			Total
		Not useful	Somewhat useful	Very useful	
Subject Area	Engineering	4	8	12	24
	Languages, Education	0	4	6	10
	Natural Sciences	1	1	3	5
	Creative art and Design	0	2	7	9
	Business	5	9	20	34
Total		10	24	48	82

Table 3 depicts that of the eighty-two surveyed students; only ten students indicated that the social networking sites are not useful learning tools, with the students from business and engineering finding them very useful. These positive views are further augmented in the open ended questions. For instance, one of the students elaborated the benefits drawn from digital technologies in education as follows: "It is of paramount importance because reading a hardcopy textbook is harassing than reading a soft copy at times due to poor network connections, this may lead to use of digital technology not being seen as helpful."

In answering the question on students' perspectives about the digital technologies, the participant rated them very highly and would be very excited if they learning practice could be driven by these technologies. Table 4 has evidence to this regard.

Table 2: Students' perceptions about digital technologies in education

	Not useful	Somewhat useful	Undecided	Useful	Very useful	Not applicable or Missing value
	%	%	%	%	%	%
Internet search engines	0.0%	3.7%	0.0%	24.4%	63.4%	8.5%
Search for journals	2.4%	7.3%	3.7%	26.8%	52.4%	7.3%
Use recordings or videos area of study	4.9%	11.0%	4.9%	26.8%	48.8%	3.7%
Use social networking sites students on your courses (e.g. Face book)	7.3%	23.2%	6.1%	26.8%	31.7%	4.9%
Wikipedia	7.3%	15.9%	3.7%	31.7%	30.5%	11.0%
Web-based bibliography tools	6.1%	18.3%	4.9%	36.6%	23.2%	11.0%
Use web-based document (e.g. Google Docs)	3.7%	15.9%	4.9%	35.4%	36.6%	3.7%
Free educational content (e.g. i-Tunes)	7.3%	19.5%	2.4%	29.3%	35.4%	6.1%
Twitter	31.0%	26.2%	7.1%	10.7%	11.9%	13.1%

Table 4 is demonstrative of the digital technologies most common among the Zimbabwean students. The most popular and preferred technologies include search engines and journals for research purposes as well as the recorders and networking sites. WhatsApp, Wikipedia and You Tube are also among the most-used technologies by the Zimbabwean students. This could be attributed to the high availability and accessibility of the technologies and the devices compatible with them. Figure 2 demonstrates this observation. Of priority concerning students' learning is the search engines used as the primary source of information. 60% of the surveyed students also confessed to using YouTube to both share and view lectures notes from sources external to their institution.
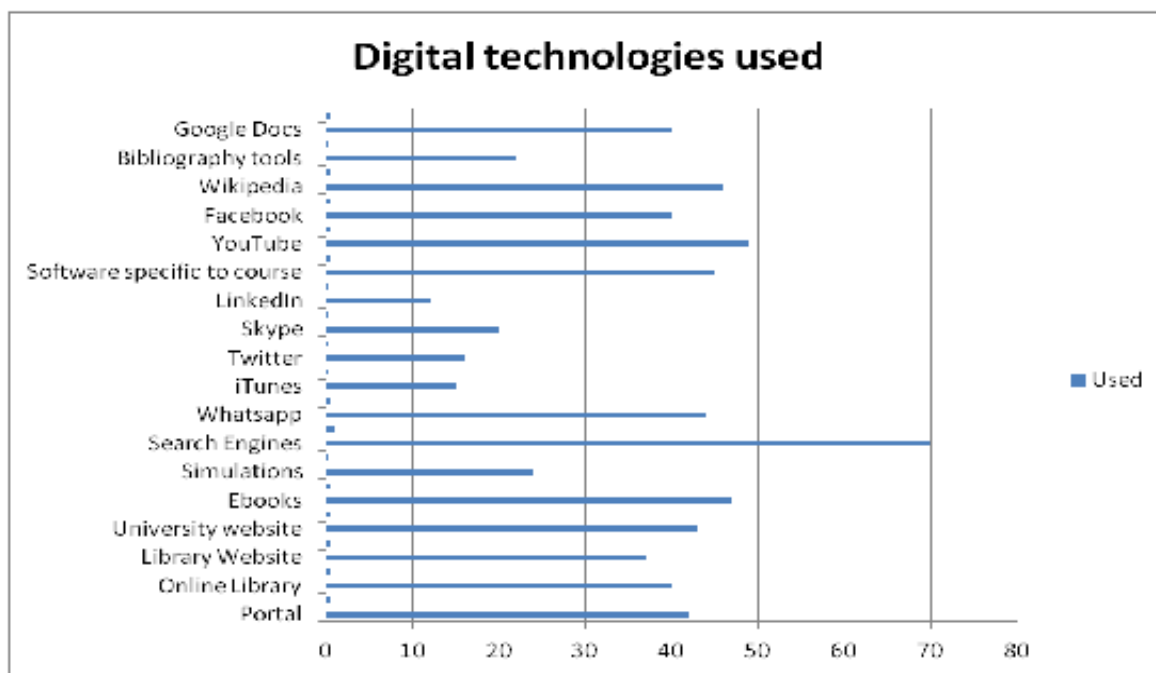
Figure 2. Common digital technologies among students

Figure 2 shows the common digital technologies for use by Zimbabwean university students in their learning. Interestingly, though, the use is concentrated on a limited selection of these technologies such as search engines at 70%. Social media like twitter, Facebook and WhatsApp have limited use in academia probably due to the idea of separating learning from social activities.

Table 5 shows that research activities are the fundamental purpose for technology use with 89% of students in favor of this use. These results can be attributed to the flexible, bring your own device (BYOD) practice where students are free to use their digital devices and software within the institutional premises.

In answering the question regarding the purpose of using digital technologies, Table 5 shows that Zimbabwean students use such technologies as tools for finding information. They also use them for downloading audio and video files, which they then listen to and watch respectively. These could be both for entrainment and learning purposes. It is clear that the Zimbabwean students rarely use digital technologies for citing purposes as evidenced by only 25% of the participants. More focus is on documentation, presentation, e-mail and collaboration activities. This shows that students integrate such technologies despite the low uptake by their lecturers.

Table 3: Common uses of digital technologies among students

Variable		Number	Percent
Find Information	no	9	10.7%
	yes	75	89.3%
Audios and Videos	no	23	27.4%
	yes	61	72.6%
Insert citations	no	59	70.2%
	yes	25	29.8%
Collaborations	no	39	46.4%
	yes	45	53.6%
Free sources	no	30	35.7%
	yes	54	64.3%
Communication with Instructors	no	36	42.9%
	yes	48	57.1%
Email33	no	32	38.1%
	yes	52	61.9%
Writing Documents	no	17	20.2%
	yes	67	79.8%
Presentations	no	18	21.4%
	yes	66	78.6%
Creating videos	no	44	52.4%
	yes	40	47.6%
portal	no	15	17.9%
	yes	69	82.1%

These results demonstrate that students focus on digital technologies that support their learning. As indicated in literature, the students' digital technology preferences are highly determined by both task completion and academic performance. For instance, in Figure 3, simulation technologies are mostly used by the students enrolled in the engineering courses as they find them handy in completing practical tasks unlike the arts and natural sciences students who have less need for this application.
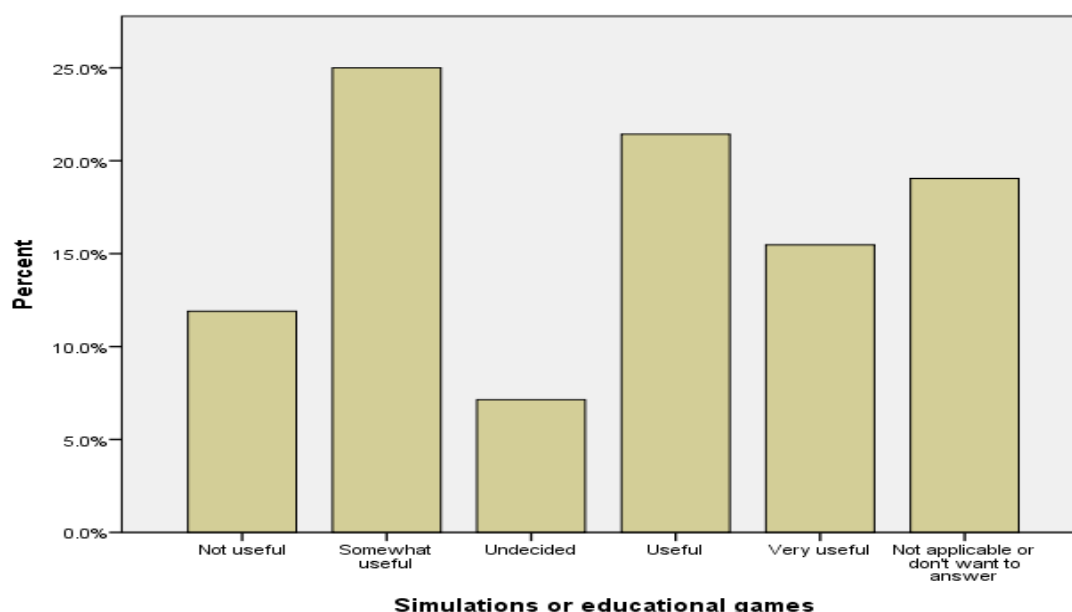
Figure 3. Course-related technology preferences

These findings also show that the university students' digital technology preferences are dependent on the capabilities of multiprocessing and discovery-based learning. Our research findings are contrary to the contention in literature that use of digital technologies by students is mostly influenced by age, giving rise to the digital natives and digital immigrants' debate. According to this research, there are minimal differences in digital technologies usage across age. However, it seemed gender shaped the use of certain digital technologies such as social networks and library websites.

Our findings also reveal that availability, accessibility and affordability were not the major determinants of using the digital technologies in learning. The findings have evidence of the affordability, availability and accessibility of the various digital technologies to the students both personally and institutionally. However, the results also show a gap between access to and use of such digital technologies as Facebook, twitter, Google docs and WhatsApp for learning purposes. This second order digital divide is puzzling considering the widespread access, affordability and availability of such technologies to the students. More so, the uptake of such digital technologies as iTunes, Web-based e-learning portal and the citation tools are not as common among the surveyed Zimbabwean university students as they are to their counterparts in the developed nations. This is evidenced by the 2.111 coefficient against a 0.184 value for twitter technology. It can thus be concluded that the popularity of the digital technology is rather consistent with environmental and institutional context than the general notion of age as stipulated in Prensky (2001).

Contrary to the documented literature, the Zimbabwean students expressed dissatisfaction with the service provision of the IT infrastructure, campus computers, bandwidth and Wi-Fi. The students argued that the available institutional infrastructure is out of date and the computers are old, such that their specifications no longer satisfy the students' educational requirements. They also complained about the slow internet connectivity and low bandwidth, which make it impossible to download the learning material from such current and advanced technologies as YouTube. Table 3 is a representation of the low uptake of the electronic learning system currently deployed at the institution, which can be attributed to underutilization by the lecturers.

The students were also dissatisfied with the lecturers' irregular approach to using the available digital technologies especially the implemented LMS tools. The Zimbabwean students expressed their disappointment in the current teaching methods without digital technologies, which they felt deprive them of the technological affordances currently enjoyed by their counterparts in developed nations. The Zimbabwean learning institutions confirm the observation in Kolikant (2010) that educators have failed to build on students' technological abilities' On the contrary, Paul, Baker, and Cochran (2012) show that the trend in the developed world is toward increased use of such technologies as social networking sites; Facebook and LinkedIn by academics, to communicate and deliver instructional content. Below is an extract of students' views in this regard. One student expressed discontent with the technological conditions at the university by saying, "The institution is depriving us from using and embracing the technologies by slow internet speed."

Consequently, the current gap between availability and use referred to the as the second-order digital divide is existent in higher education environments in Zimbabwe. This divide is demonstrated in the lesser use of digital technologies for teaching and learning practice. The second-order digital divide problem could be attributed to institutional factors more than either technological or individual student factors. This observation is also confirmed in Kennedy et al., (2006, p. 413) that "Universities are still ill equipped to educate a new generation of learners whose sophisticated use of emerging technologies is incompatible with current teaching practice."

The contribution from this research has therefore been to inform the digital divide researchers on the role played by the institutional context in either enabling or constraining the use of digital technologies in teaching and learning. Evidence from the survey shows that there is nothing wrong with the digital technologies owned by the students as they found them both useful and usable; there is nothing wrong neither with issues related to individual students as they have access to and the capacity to use the digital technologies on their own apart from the influence from the lecturers. However, the findings are useful also to both the university management and policy makers such that their future ICT policy development and choices of digital technologies should rather be bottom up than top down and should be driven by the students, who are the intended beneficiaries of such technologies. The available and accessible digital technologies should improve and enhance students' learning and academic performances. The full utilization of these available and accessible digital technologies is bound to prepare the current generation of university students for survival in the current digital society (Aiammary, 2012). Furthermore, it will equip these students with the digital skills required in the 21st century labor market (Prensky, 2001). It is therefore the duty of university management and policy makers to ensure that their students neither lag behind nor are deprived of the digital technology affordances currently enjoyed by the students attending university in the developed nations. The institutions need to devise the technological implementation models that that address the perspectives, priorities, choices and concerns of students.

Conclusion

Through this research, it was clear that digital technologies are affordable, available and accessible to the Zimbabwean students and can be embraced in teaching and learning practice. Nevertheless, a second-order digital divide persists in Zimbabwean learning institutions despite the widespread access to several digital technologies. This divide robs the current generation of students from the affordances enjoyed by their counterparts the world over. There is evidence that Zimbabwean students highly perceive the digital technology tools in learning as

indicated by the widespread ownership of such technologies as smartphones, computers as well as the widespread use of social networking sites, search engines and YouTube to search for information. There is therefore a need for learning institutions to channel their resources towards facilitation of an increased utilization of both the existing and future digital technology investments.

Future Research

Despite these findings being based on a single university case in Zimbabwe, the results have an implication on learning institutions of similar situations where a paradox of the second-order digital divide exists. For a more informed view on students' perceptions about digital technologies, future studies can focus on multiple cases with a longitudinal background to enable the provision of a more generalizable view that represents the perceptions of students across institutions and environments. In addition, such studies should also incorporate both quantitative and qualitative data for the presentation of both valid and reliable results.

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**Facebook Posts as Complementary Teaching Material for a French
University Course in Taiwan**

Bernard Montoneri

Abstract

A growing number of instructors use information and communications technology (ICT) inside and outside the classroom to teach all kinds of programs, including language courses. In this study, the instructor used a traditional way of teaching (lecturing, text-book, conversation, no technology in the classroom, no social network) during the first semester of academic year 2013-2014 (September-January) in a French course for beginners in a Taiwan public university. During the second semester (February-June 2014), the teacher added the use of multimedia and Facebook to teach the same students. They joined a Facebook learning group, which they could access anytime during the second semester; they could post, view posts, like, and comment in French and sometimes English. They could not use their mother-tongue, Chinese. This study analyzes data from the first and second semester to measure students' learning progress and how the Facebook group might influence their motivation and change their behavior. Students were expected not only to improve their reading and writing skills, but to increase their knowledge of French culture.

Keywords: Facebook; French I; learning performance; educational tool; Taiwan.

Introduction

Mark Zuckerberg famously launched Facebook, the world's most popular online social networking service, with his college roommates and fellow students, at Harvard University in 2004. As of March 2013, Facebook claimed having 1.1 billion monthly active users (Facebook, 2013). In April 2016, the number of active users grew to 1,590 billion (Statista, 2016). According to Facebook, the number of monthly active users was 1.71 billion as of June 30, 2016 (Facebook, 2016). Internet World Stats (2016, a and b) estimates there were almost 98 million French speaking Internet users in 2015, including 52 million having a Facebook account. As to the Internet users in Taiwan, in June 2016 it was estimated there were 19.6 million (including 18 million Facebook users) out of a population of 23.4 million.

This paper focuses on an optional course of French for beginners open to all students at a public university in Taichung, Taiwan. This study compares data for 32 students who took the class during two consecutive semesters, from September 2013 to June 2014. The data is based on information collected on Facebook during the second semester and on the university official questionnaires completed by students at the end of the two semesters.

The instructor used a traditional way of teaching (lecturing, textbook, conversation, no technology in the classroom, no social network) during the first semester of academic year 2013-2014 (September-January). During the second semester (February-June 2014), the teacher added the use of multimedia and Facebook with the same students. They joined a Facebook "secret group", that is a group in which only students from the class can join, post, view posts, like, and comment. The objective was to compare the online behavior, motivation, learning satisfaction, approbation of teaching, and learning progress at the end of the first and of the second semester. Students were expected not only to improve their reading and writing skills, but to increase their knowledge of French culture.

Literature Review

The launch of Facebook in 2004 means that specific literature only spans 12 years. However, because of the immense success of the online platform, a large amount of academic studies have been published discussing various topics, such as the impact of Facebook on health (Yeh, Ko, Wu, & Cheng, 2008; Steinfield, Ellison, & Lampe, 2008; Lin, Ko, & Wu, 2011), or the social network relationships in computer-supported collaborative learning (Ryymin, Palonen, & Hakkarainen, 2008).

The Net Generation, "the cohort of young people born between 1982 and 1991 who have grown up in an environment in which they are constantly exposed to computer-based technology" (Sandars & Morrison, 2007, p. 85) relies heavily on Information and Communications Technologies (ICTs) for social and professional interactions. Many studies, such as Oblinger & Oblinger (2005), Barnes, Marateo, & Ferris, (2007) showed that this Net Generation expects technology to be part of their education. But according to Aydin (2012), "there has been a serious lack of research on Facebook's use as an educational resource" (p. 1093). Yu, Tian, Vogel, & Kwok (2010) had also noticed that little attention in the research literature on social networking's pedagogical impact on university students.

Hwang, Kessler, & Francesco, (2004) demonstrated that college students' social networking with their peers and instructors may help them increase their information and knowledge, and as a result improve their performance. Wang & Wu (2008) showed that in a Taiwan research

university, undergraduates interaction with their peers to get feedback helped them improve their learning performance. Studies such as Madge, Meek, Wellens, & Hooley (2009), Bosch (2009), Mazman & Usluel (2010), and Prescott, Wilson, & Becket, (2013) have shown that Facebook might be used for communication between student and instructor or with peers about course content, collaboration between students, and other kind of informal learning.

Various studies have demonstrated the use of Facebook as an English Language Training (ELT) supportive tool, such as Baran (2010), Anderson (2009), and Greenhow (2011). Social media and notably Facebook provide students with extracurricular content resources (Bahner, Adkins, Pate, Donle, Nagel, & Kman, 2012; Pilgrim & Bledsoe, 2011). Shams (2014) analyzed the effectiveness and impact of Facebook in English language classrooms in Bangladesh. According to her study, students with poorer English skills were more motivated when using Facebook during the class. Direct contact between the instructor and the students increased the positive influence of social media. Manca and Ranieri (2013) showed that students did not wish social media to be a unique teaching tool for learning.

Bishop (2006) concluded that "online communities are increasingly becoming an accepted part of the lives of Internet users, serving to fulfill their desires to interact with and help others." Some studies have been published in this direction, notably on the impact of opening learning groups on Facebook. However, there is very little research in Taiwan on the impact of Facebook learning groups on students' motivation and performance. Çoklar (2012) and Montoneri (2015) showed that Facebook had an impact on students' motivation. Montoneri (2015) created a Facebook group for a class of European Literature (option, 3 hours/week, junior students) in order to share teaching material related to the class on a weekly basis. The course was attended by English majors in a private university in Taichung, Taiwan. The study notably analyzed students' motivation, progress in learning and improvement of the instructor's evaluation by students. It appeared that students regularly and constantly participated to the group until the end of the second semester. Teacher evaluation was higher and the average students' final score progressed at the end of the second semester. See table 1 for a non-exhaustive presentation of studies on Facebook as an educational tool.

Table 1: Non-exhaustive presentation of studies on Facebook as an educational tool

Study	Location, data	Outcomes according to the authors
Yu et al. (2010)	Information Systems Department, College of Business, City University of Hong Kong. 4 rounds of group discussions involving 14 undergraduates (Hong Kong, Mainland China, and US) + anonymous online survey among university business major undergraduates in information systems (187 valid individual responses).	• University students show zeal for online social networking • Facebook directly influences university students' learning outcomes • Helps the students attain social acceptance from others and adapt to university culture • Peer interaction online is a crucial source of learning
Aydin, S. (2012)	Review of the literature concerning Facebook as an educational environment. The study compares Facebook usage in Turkey to its use on a global scale.	Six categories analyzed: • Facebook users • Reasons people use Facebook • Harmful effects of Facebook • Facebook as an educational environment • Facebook's effects on culture, language, and education

		• Relationship between Facebook and subject variables.
Kayri & Çakır (2010)	Department of Computer and Instructional Technology, Yuzuncu Yil University, Turkey. The attitudes of the group towards Facebook were measured after interactively conducting "Computer Networks and Communication" lesson on Facebook during one term.	• The students reported that Facebook could beneficially be used in education • Significant correlation between FB adoption and the amount of time spent on it • Students who spent much time on FB perceived it as an educational tool • Most of the students actively participated in virtual environment during the study.
English & Duncan-Howell (2008)	Department of Business Administration, Queensland University of Technology, Australia. Creation of a group page to examine their experiences and behaviours during their teaching practicum placements.	• Facebook could be used as a supplemental tool in education. • The majority of posts were associated with affective communication such as group reinforcement, encouragement, and support • The sense of community was strong in this group.
Di Capua (2012)	Review of more than one hundred studies on Facebook. Focuses on FB use, six categories identified: initiating and maintaining relationships, learning about others, recognition, personality and willingness to communicate, social influence, and experience.	• Methodologies employed in most of the studies consist of surveys • Researchers preferred a quantitative approach and based their studies on self-report • Scales such as that of Likert restrict the participants' choice and make the results more likely to follow the researchers' predictions • Most surveys were conducted online hence limiting the monitoring effect on the participants.

Methodology

The Data Source

The study case is a public university founded in 1919 as an academy in Taipei; the academy later moved to Taichung in 1943 and became a national university in 1971. The data comes from the university's online student rating system, which provides student feedback to professors at the end of the first semester (September 2013-January 2014) and of the second semester (February-June 2014). Participants were studying French I as a 3 hour/week option at the Language Center and were majors from varied departments, including Chinese, Marketing, History, Business. The characteristics of the data source and research object are as follows:

1. French I was an optional, three-credit course open to all the students of the university. Thiswas a course for beginners. Students had never studied French before, but they all understood English.
2. The instructor used English to teach during the class because students did not know French yet. The textbook (Picture 1) was published by the instructor in 2009. It was written in French and Chinese.

Picture 1: French textbook for beginners I published in 2009 and used during the class in 2013/2014

3. This study compares data for students who took the class during both the first and the second semesters. Students who failed, dropped or had to leave at the end of the first semester (at this time, exchange students from Mainland China could only study for one semester in Taiwan) or who joined later during the second semester were excluded from this research.
4. Thirty-two students learned French I during the two consecutive semesters, that is, from September 2013 to June 2014.
5. The data was based on questionnaires divided in 2 parts: Part 1 concerned students' learning behavior (2 questions) and part 2 concerned the degree of approbation concerning the teaching. The questionnaires were filled out by the students at the end of each semester. Each question was rated from one (strongly disagree) to five (strongly agree).
6. All the students were required by the university to fill out the questionnaires online if they wanted their grades to be validated. The study progressed with the assumption that all students participated.
7. All of the 32 students in this study had a Facebook account at the beginning of the second semester. They joined the Facebook secret group created by the instructor.
8. None of the 32 students was English majors; none of them belonged to a department of foreign languages. They all came from various departments. Among the 32 students, for example, 7 studied in the Chinese Department, 6 in the Department of History, 3 in the Department of Plant Pathology and Microbiology, and 2 in the Department of Forestry.

Empirical Study

The Facebook secret group for French I was founded and opened on February 27, 2014. All the students registered in the class joined quickly thereafter and the first post was uploaded by the teacher on February 25, 2014 (Post 1); the last post was uploaded June 19, 2014 (Post 24).
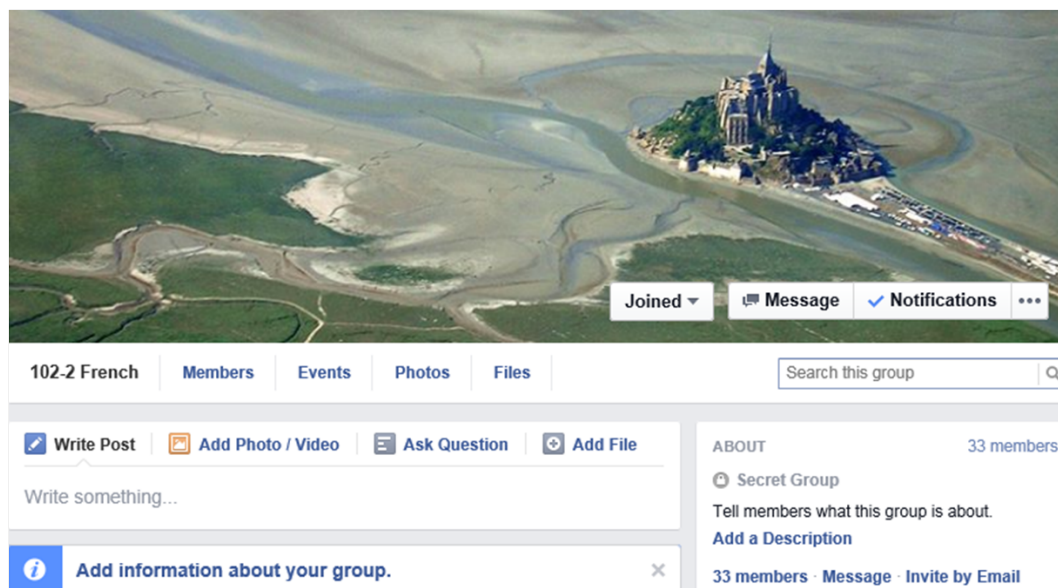
Picture 2: French I secret group, 33 members, from class 102-2 French (2-6/ 2014)

There were 33 members in the group; including the students and the instructor. The group was "secret" in the sense that only the students who joined the class could participate, that is join, read the instructor's posts, post, like, comment and share posts with the other members of the group. Picture 2 shows the cover picture for the Facebook secret group: Mont Saint Michel, Normandie, France.

Picture 3. Post 13 uploaded by the instructor

I used my French given name and Chinese family name in Chinese pinyin (Bernard Meng). Student names were hidden for the sake of privacy and anonymity. Post 13 included two tables

and one hyperlink (Picture 3). This post was uploaded on March 22, 2014; it was viewed by 29 students and 8 students liked it. The purpose of this post was to help students learn verb conjugation. The table on the left shows how to build French tenses. For example, most verbs at present tense finish by –e at the first person, *je mange*, -es at the second singular person, *tu manges*. The table on the right presents the conjugation in the present tense of the two most useful verbs in French: to have, *avoir* and to be, *être*. The hyperlink is a website created by the French newspaper *Le Figaro* which provided conjugation of all French verbs.

Picture 4: Post 16 uploaded by the instructor

Picture 4 includes hyperlinks to translation websites, French to English and French to Chinese. One link gives students access to verb conjugation and an online dictionary. This post was uploaded on April 17, 2014; it was viewed by 28 students and 8 students liked it. This type of post helped students find useful online learning material they could view anytime, during the class (phones are allowed during the classroom for educational purpose) as well as outside the class. The instructor noticed that students checked the group as soon as there was a new post; however, they were more likely to check in the morning, before the class.
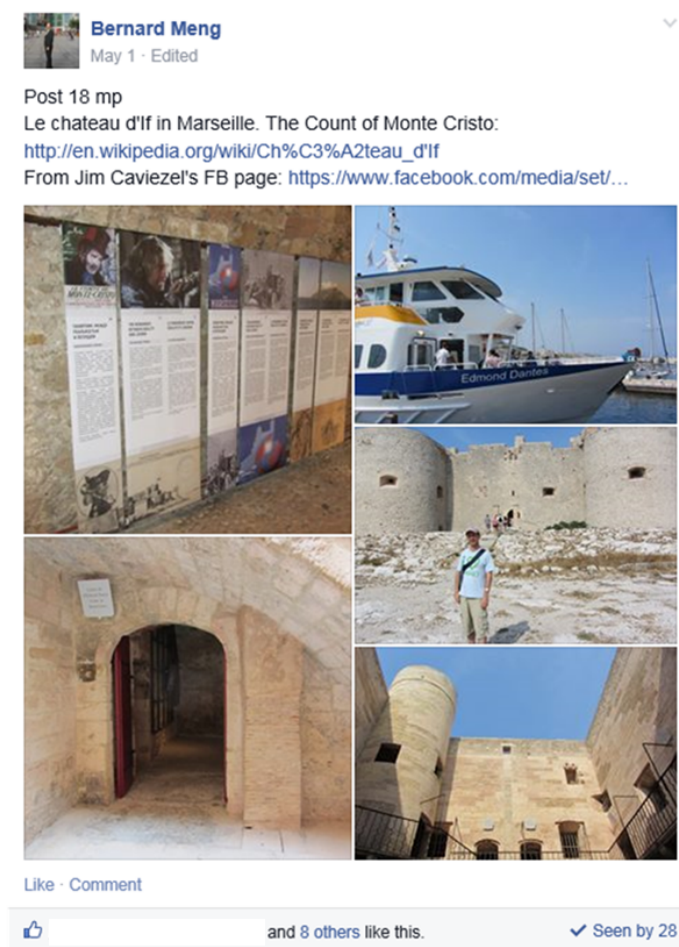
Picture 5: Post 18 uploaded by the instructor

Post 18 (Picture 5) was quite successful as it was viewed by 28 students and liked by 11. To motivate students and to interest them to French language and culture, I introduced the story of *The Count of Monte Cristo* by Alexandre Dumas (1844). Students watched the movie during the class and I gave them detailed information about the writer, the story as well as the infamous Château d'If, situated about one mile offshore in the Bay of Marseille in southeastern France. Students' interest increased as I posted my own pictures of the château taken in July 2013. "If" (the French word for the Yew tree) used to be an ideal escape-proof prison, very much like the island of Alcatraz in California. It became one of the most feared and notorious jails in France. It is now opened to the public. One of the boats which carry tourists to the island was named after the hero of the novel, "Edmond Dantès".

Picture 6. Post 20 uploaded by the instructor

Picture 6 introduces French culture, in particular Versailles Palace and related stories, such as *The Man in the Iron Mask* with Leonardo DiCaprio (1998) and *Marie Antoinette* with Kirsten Dunst (2006). This post was uploaded on May 15, 2014; it was viewed by 28 students and 7 students liked it. The French for beginners course is 3 hours long. During the third hour, I generally introduces French culture, including French tourist areas, cinema, literature, and music. By the end of the second semester, students were able to read in the French, extracts from various novels and tales, including *The Little Prince* and *Beauty and the Beast*.
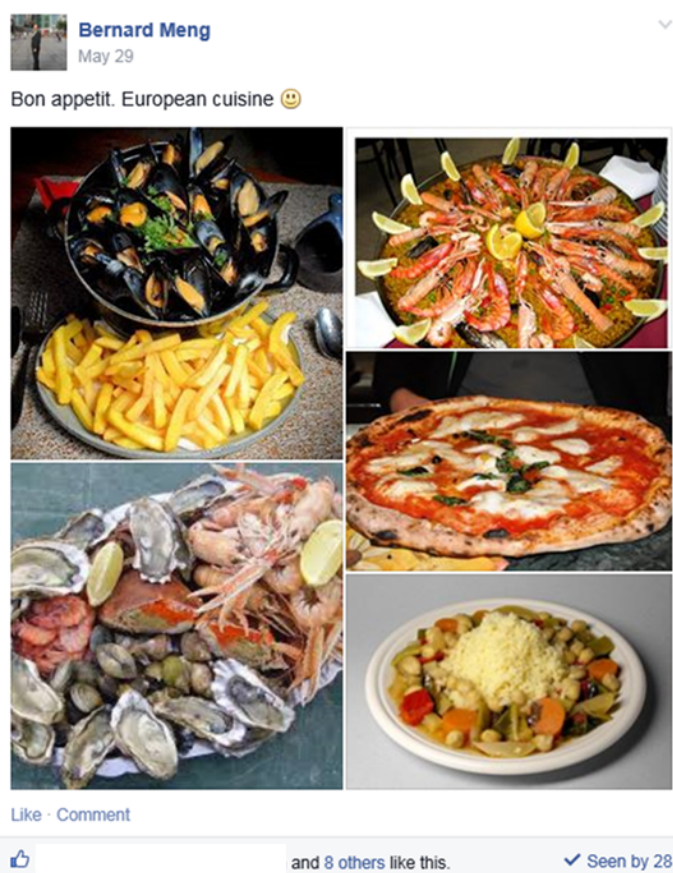
Picture 7: Post 22 uploaded by the instructor

Picture 7 introduces French culture as well; French cuisine is quite famous around the world. This time, I just wanted to introduce some international dishes French people enjoy eating, such as couscous (North Africa), pizza (Italy), French fries and mussels (Belgium), paella (Spain), and some French sea food (Provence). This post was uploaded on May 19, 2014; it was viewed by 28 students and 11 students liked it. During the class, I also introduced traditional French dishes and told students the Chinese translation for most famous French and Chinese/Taiwanese dishes, such as le bœuf bourguignon 紅酒燉牛肉 (beef Burgundy), les nouilles au bœuf 牛肉麵 (beef noodle), l'omelette aux huîtres 蚵仔煎 (oyster omelet), and drinks like le thé aux perles 珍珠奶茶 (bubble tea).
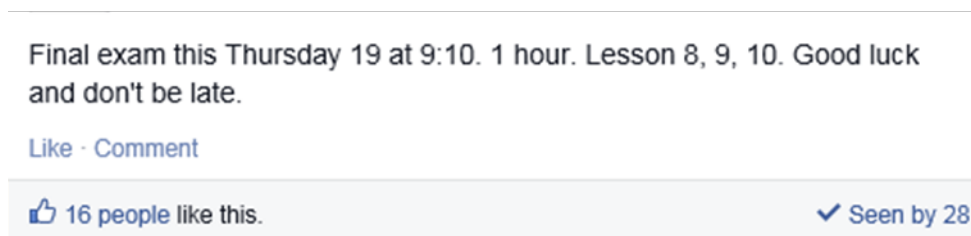
Picture 8: Post 23 uploaded by the instructor.

Picture 8 is a short message to students regarding the coming final exam. This post was uploaded on May 19, 2014, in the morning, before the exam; it was viewed by 28 students and

16 students liked it. This is the highest number of likes during the whole second semester. Who knew students like exams more than pizzas? I suppose the likes mean that students enjoyed the class and were ready for the final exam. I note that the number of students who viewed the posts was high and quite stable.

Picture 9: Post 24 uploaded by the instructor

Picture 9 is the last post of the second semester, uploaded on June 19; it was viewed by 27 students and 16 students liked it. This post is a message to students notifying them that the course is over, and wishing them a nice summer vacation. Nobody left the group after the end of the semester, but I eventualy closed it as well as the Facebook account. I added a picture of a famous motivational quote encouraging students to work hard and never to give up.

Analysis of Various Types of Teacher's Posts and of the Timing of Posts

In a previous study on Facebook as an educational tool (Montoneri, 2014), I defined six types of posts, such as quotation of texts, PowerPoint, pictures or photos, movie information and music adapted from books, and external links. I demonstrated that students showed little interest toward PowerPoint presentations posted in the group in a class of European Literature. In the present study, I focus on four types of posts: *photo*, that is the sharing of pictures taken by the instructor and photos found on Internet; *film*, referring to everything related to French cinema; *song,* means the sharing of French songs found on Youtube and information about French singers; *link*, referring to additional information about French grammar, syntax, vocabulary, and pronunciation. During the class and in the Facebook group the students learned about the influence of French Literature and the numerous adaptations on screen of French novels, notably in Hollywood (*Les Misérables*, *The Phantom of the Opera*, *The Count of Monte*

Cristo, *The Little Prince*, and so many others). Table 2 and Figure 1 show that almost all the students in the group viewed all the teacher's posts. They were obviously more attracted by the posts with pictures, *photo* in French (5.2), and information concerning French cinema, *film* in French (5.0); surprisingly, students were less interested by posts on French music or *song* (*chanson* in French) (2.3). The posts called *link* (*lien* in French) were quite appreciated (4.5), because they gave complementary information about French vocabulary and various points of grammar studied during the class.

Table 2: Average number of views and likes for various types of posts

Type of posts	Number of views	Number of likes
photo	28.6	5.2
film	29.0	5.0
song *chanson*	28.7	2.3
link *lien*	28.5	4.5
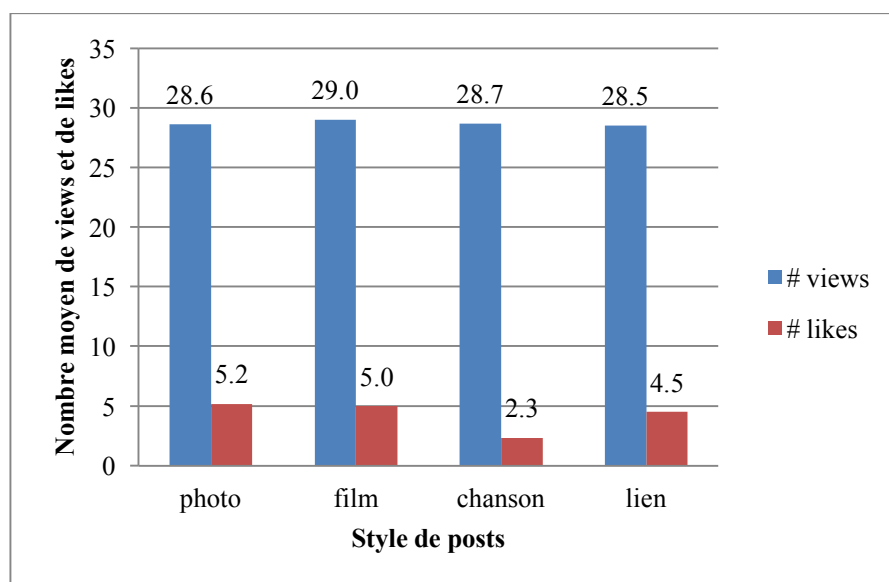
Figure 1: Comparison of various types of posts

Posts' Timing: At What Time of the Day Posts Might be More Successful?

It might be interesting and useful for teachers to have some insight into students' online behavior, which may of course vary from country to country. According to Pring (2012), almost 50% of 18-34 year olds check Facebook when they wake up – 28% before even getting out of bed. It seems that students in Taiwan are online day and night. However, in my experience, it seemed that posts uploaded in the morning before the class might have more chance to be viewed by a larger number of students. The time of the week that would have the lowest success rate or impact would be on Sunday morning, very early.

Student behavior was interesting here and a little difficult to analyze as each student had his or her own problems and deadlines. This course was an option for beginners in French. It was impressive enough that students would spend so much time for a 3-hour class when they were so busy with their major. Moreover, none of the students in the group belonged to the

department of foreign languages. Seven were Chinese majors; the other students did not belong to a department of languages. We can see in Table 3 and Figure 2 that some students were highly motivated; they took on the habit of viewing and liking posts as soon as they got uploaded. Other students tended to go online some time later and to view many posts at once. As people who regularly use social media might suspect, posts are viewed the most just after they are uploaded, that is in the next 24 hours. This study demonstrates the overwhelming importance of timing. People react very quickly and almost immediately when information is posted online. However, students who did not have the opportunity or the time to view a post so quickly (exams in other courses, assignments, school activities, part-time job…) still came back to check previous posts. As a result, one month later, a few students were still viewing older posts. With the exception of post 1 on week 2, all the other posts from week 3 to week 14 were mostly viewed within a day after posting (in red, Figure 2).

Table 3: Average number of views and likes for various types of posts

Time* \ Week	2	3	4	5	7	9	10	11	12	13	14
1 day	2.0	11.0	15.0	11.0	10.0	21.0	19.0	16.0	13.0	12.0	12.0
2-3 days	8.0	2.7	0.0	0.0	1.0	0.0	0.0	1.0	3.0	2.0	2.0
4 days-1 week	8.0	7.3	4.0	4.0	8.0	0.0	1.0	1.0	2.0	3.0	3.0
1-2 weeks	6.1	1.0	0.0	1.5	7.0	0.0	0.0	1.0	0.0	1.0	5.0
3-4 weeks	0.7	1.0	4.0	9.0	1.0	0.0	0.0	2.0	4.0	5.0	6.0
1 month~	4.1	6.0	6.0	3.5	2.0	7.0	8.0	7.0	6.0	5.0	0.0
Proportion for the first week (%)	29.0	29.0	29.0	29.0	29.0	28.0	28.0	28.0	28.0	28.0	28.0
Proportion the two first weeks (%)	62%	72%	66%	52%	66%	75%	71%	64%	64%	61%	61%
Proportion for the first month (%)	83%	76%	66%	57%	90%	75%	71%	68%	64%	64%	79%

* "1 day" means that students saw a post within the next 24 hours after the upload of the post. "1 month~" means after a month and more.
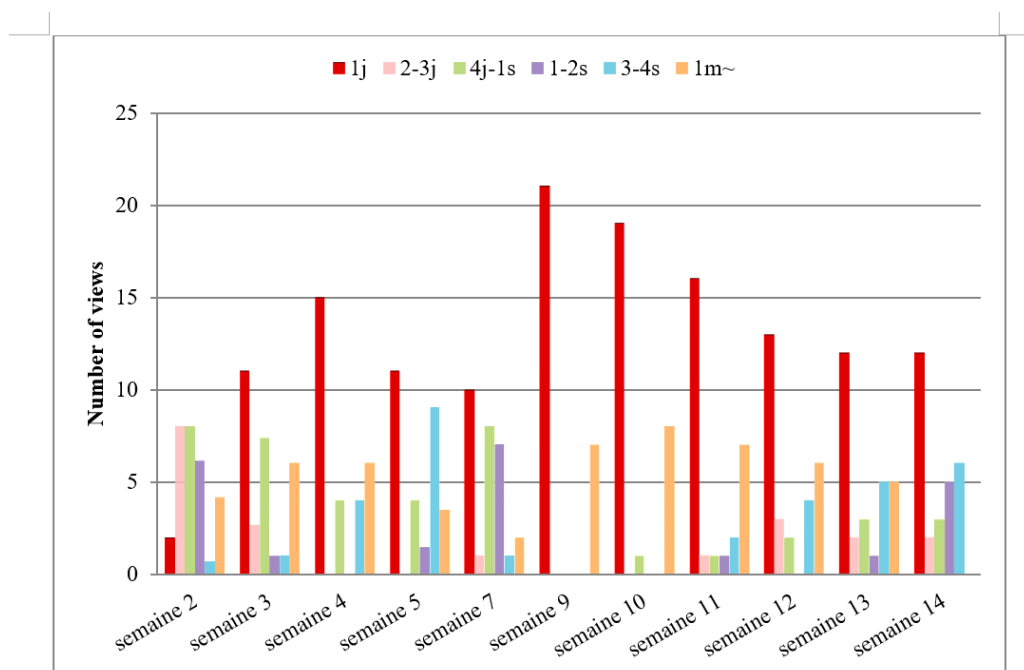
Figure 2: Views of weekly posts and timing

* *semaine,* week; j for *jour,* day; 1s for *une semaine*, one week; 1m for *un mois,* one month.

Analysis of Teacher's Evaluation

The questionnaires were originally written in Chinese and translated into English by the instructor/researcher. Table 4 shows student evaluation of the instructor for two consecutive semesters. The questionnaires are divided in two parts: Part 1 concerns student learning behavior (two questions) and part 2 is the degree of approbation concerning the teaching.

S1 represents the amount of time students believed they were absent or late during the two semesters, from never absent to absent more than 19 hours during each semester. Between the first and second semester there was a -6.43% progress (from 1.71 to 1.6). This means that students were less absent or late during the second semester. To decrease absenteeism is not easy. Some students are often late early in the morning. The class was 3 hours long, from 9 am to 12. Using Facebook seemed to have motivated some students to be on time and to attend the class more often. The instructor also noticed that when some students were late or absent, they took on the habit of sending a message on Facebook before the class (asking for a sick leave for example).

The amount of work represented by the score of S2 decreased from 2.5 to 2.2 (-12.0%). The course during the second semester became more demanding (workload, difficulty of the lessons) and more severe (notably concerning the scoring); as a result, students' average scores were relatively lower. They were able to progress and maintain a certain level, despite the fact that they had the impression they needed less time and effort to progress in French. Learning the basics in French (ABC, pronunciation, numbers, gender of nouns, verb conjugation, accents and liaisons) required a fair amount of hard work at the beginning. Once they learned and assimilated the rules, students needed less effort to speak and write in French. By the end of the second semester, they were able to read extracts from French Literature. This is the first time the instructor could get beginners to read literature in French during the class.

Morevover, despite the fact that students' scores decreased during the second semester, the instructor's evaluation increased (average score T1 to T12: 4.08 to 4.34 from the first to the second semester; 6.37% increase), which shows that scores and approbation of the teaching are not related, in part because students felt their grades were "justified and fair" (T10: first semester 4.18; second semester 4.33; 3.59% increase).

T2 rates how clearly and coherently the teacher speaks. This rating increased at the end of the second semester. Additional explanation and online feedback helped students better understand the instructor's lecture during the class. Perhaps, because students made progress in both French and English during the academic year, they could more clearly understand the teacher. It is noteworthy that the class was teaching French using English to Chinese students who are not majoring in English. It takes tremendous effort to learn a foreign language, French, through the medium of another foreign language, English.

T5 rates the informative content of the educational material. This rating was very important in relation to the use of Facebook. As we saw earlier in this paper, the instructor added a large number of posts about French culture, which were quite successful. The 8.37% increase concerning this question is an important encouragement for teachers using social network during and outside the classroom. Students seemed to appreciate the additional amount of information and course content. According to the detailed data, more students appreciated the teacher's open attitude toward communicateing with them online during the second semester.

T7 rates the availability of the instructor to help students and to guide them to solve problems. This rating was interesting. Facebook concretely helped students in their perception that the teacher was helping them, during the class as well as outside the classroom. They could send messages and ask questions any time. They had therefore more opportunities to practice French and more feedback from the teacher. Many students wrote short texts in French, asking the instructor to correct them (even during the weekend, which was also more demanding for the teacher, increasing his workload).

T8 rates the punctuality of the instructor. This rating showed some subjectivity in the way students answered. Since the instructor was never late or absent during the entire academic year, it seems that the score should be higher.

Table 4: Teacher evaluation at the end of the first and second semester

Part 1: Students' learning behavior

Questions \ Period	Semester 1	Semester 2 with Facebook	Progress (%)
S1. This semester, after the dropping out period, for this course, circumstances of absence (including being late, leaving the class early, authorizations of absence and absenteeism) are : 1. never absent, 2. absent 1-6 hours, 3. absent 7-12 hours, 4. 13-18 hours, 5. absent more than 19 hours.	1.71	1.6	-6.43%
S2. This semester, I worked for this course an average per week after school of about: 1. Less than an hour, 2. between 1-2 hours, 3. between 2-3 hours, 4. between 3-4 hours, 5. More than 4 hours.	2.5	2.2	-12.0%

Part 2: Degree of approbation concerning the teaching (1 strongly disagree, 5 strongly agree)

Questions \ Period	Semester 1	Semester 2 with Facebook	Progress (%)
T1. The instructor at the beginning of the semester can explain clearly the content of the syllabus for this course	4.03	4.47	10.92%
T2. The teacher speaks clearly and is coherent	3.94	4.27	8.38%
T3. The instructor's teaching methods have helped me to learn	4	4.2	5.00%
T4. Weekly progress for this course is appropriate	3.97	4.13	4.03%
T5. The content of the educational material is informative	4.06	4.4	8.37%
T6. The instructor is highly enthusiastic in the teaching process	4.29	4.53	5.59%
T7. The instructor is available to help students and to guide them to solve problems	4.09	4.53	10.76%
T8. The instructor is rarely absent or late with no reason	4.24	4.4	3.77%
T9. The scoring method can reasonably reflect students' learning results	4.06	4.2	3.45%
T10. Until now, students' grades are justified and fair.	4.18	4.33	3.59%
T11. Until now, the instructor can immediately provide the results of the evaluation for each student.	4.06	4.33	6.65%
T12. Overall, the results concerning the teaching of this course are good	4.06	4.27	5.17%
Average score T1 to T12	4.08	4.34	6.37%

Figure 3 and Figure 4 below highlight the progress made between the first and second semester. Concerning part 2 of the questionnaires, it indicates improvement for all of the questions from T1 to T12; T1 and T7 show the highest progress (10.92% and 10.76% respectively). The progress of question 3 and 6 implies that the posts provided on Facebook gave extra information, which helped students to better understand the curriculum content.
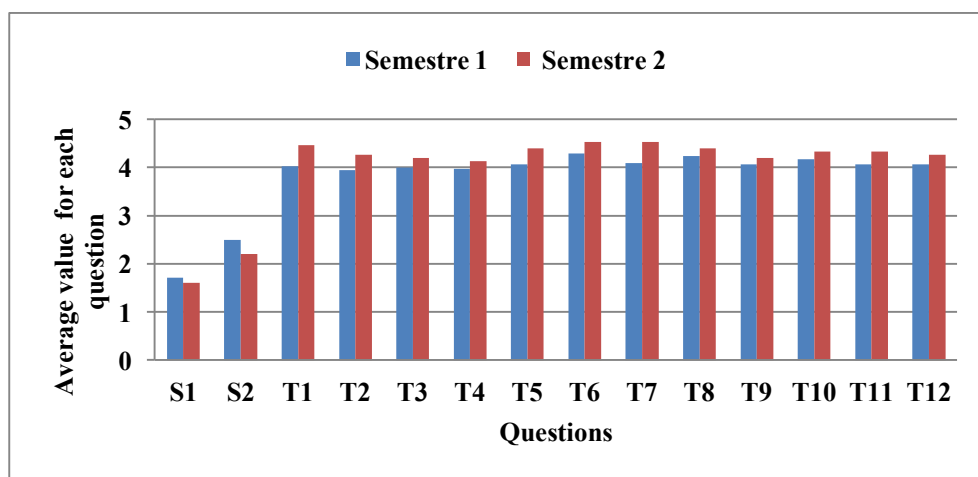
Figure 3. Comparison Semester 1/Semester 2, without and with FB
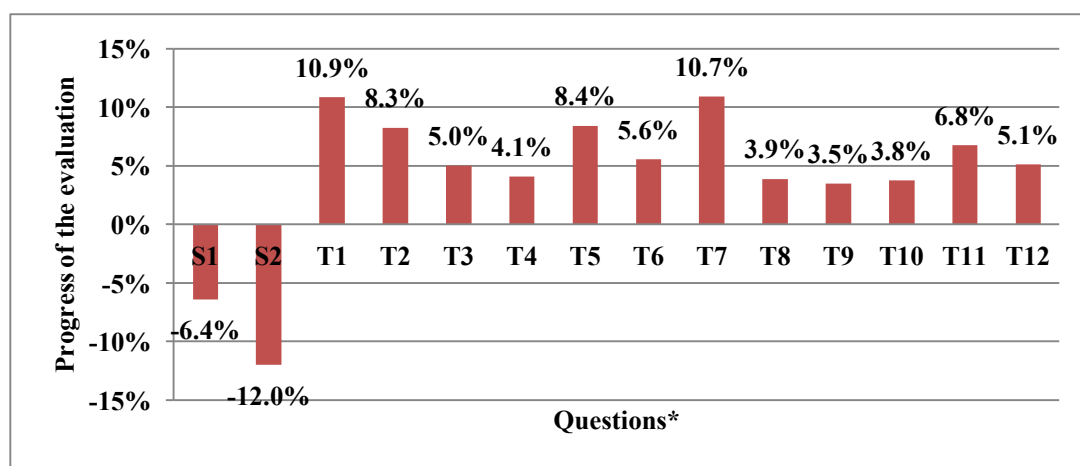
Figure 4. Progress of the evaluation for the second semester after using Facebook

* S1~S2 represent the evolution of students' learning behavior, T1~T12 represent the evolution of the degree of approbation concerning the teaching of this course.

Conclusion

Facebook can be a useful complementary educational tool for teachers who wish to improve the presentation and organization of their courses. The teacher plays the roles of instructor, group administrator and group member; this situation gives them the opportunity to observe and analyze students' improvement, their motivation, their behavior, and their needs. Teachers may do real-time adjustment and have a better relationship with their students who have one more way of communicating with their instructor, during and outside of the class. This way of teaching is obviously more demanding and time-consuming, but it is worth it, as students can see their level in French progress faster while using online technology and social networking. We note that they did not communicate with each other in the group and did not share information with the teacher or with their classmates. Further studies could concentrate on encouraging students to participate more actively in the group, that is, to share their knowledge, ask questions and chat with their classmates.

Suggestions for Future Use of Facebook as a Language Learning Tool

● We saw that Facebook allows instructors to create groups that are easy to open and to manage. Teachers can collect data to do research, notably concerning the impact of Facebook on their students' motivation, learning progress, behavior, tastes, communication and language skills.

● Facebook might help the instructor share his or her own teaching material and also find new teaching material online (flashcards, drawings, tables and figures) which can be viewed by students anytime, anywhere, during and outside the classroom.

● Students become more engaged in the learning process, further studies could encourage students to be more active in the group, that is, to post and to share their classmates' posts, to comment posts in the language they study, to share their experience and what they know about the country and language they study.

● Facebook may help improve the relationship and communication between the instructor and the students. Shy students can also have another way to communicate with their teacher. Taiwanese students are quite shy and rarely ask questions during the class. They might feel more confortable asking questions online about things they did not understand during the lecture.

● Facebook can be a useful tool to schedule events and exams, to make announcements, as well as to send messages concerning unexpected absences or problems.

● Students in Taiwan are very confortable with Facebook and before the instructor created the learning group, all of the students in the class already had a profile for years. They easily connect with their teachers and generally enjoy reading posts related to their courses.

● The instructor may also help students connect to relevant websites, such as the Bureau français de Taipei (functioning as a de facto embassy), the Alliance Française (international organization promoting French language and culture around the world), webpages teaching French online or helping students pass the DELF (diploma awarded by the French Ministry of Education to prove the French-language skills of non-French candidates); students might also have the opportunity to meet future employers in the French community.

● Teachers should find some balance and make sure that being the group administrator does not become time and energy consuming. It is therefore advised to post one or two times per week and to choose the posts "wisely", in relation with what was actually taught during the class. Sharing too many posts or unrelated posts might be counterproductive.

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Orchestrating French Music Conservatories:
European Political Interventions and Local Governance

Elena Raevskikh

Abstract

Supported by the omnipresent State in the past, French music education leans increasingly towards a more liberal and competitive model. In the current context of a decentralized economy and European integration, music conservatories are called upon to contribute to regional and municipal development and enhance European student mobility. How do conservatories react to the restructuring of the competitive field? How do they affect European territorial cohesion? Are they managing adaptive or hybrid strategies with new conceptions of music education? Alternatively, do they gradually move away from the marketplace and become an obsolete and difficult heritage to maintain? To answer these questions, it is necessary to analyze the current balance of power among the different elements of the French multi-level system of conservatories, including communal, inter-communal, departmental, regional, national and European institutions. By combining different sources of spatial and statistical data, this paper contributes to constructing a comparative institutional geography of French multi-level territorial divisions. Extraction and treatment of the *small data* with SPSS statistical software allowed us to build a number of small-scale datasets that were merged to broader geographical databases from the French National Institute of Statistics and Economic Studies (INSEE). The geographical units that structure the INSEE databases (the zip and district codes, codes of regions, departments, GPS coordinates) made possible the location of each conservatory within municipal, departmental, regional and national spaces. A cartographic approach to studying music conservatories allows the identification of problems that deserve further detailed qualitative and statistical study in the future.

Keywords: cultural policies; music education; cultural institutions; European integration; territorial administration; institutional geography.

Introduction

French multi-level territorial divisions – regions, departments (counties) and communes (districts) – are both administrative channels for central government and decentralized territorial units. The hierarchy of the French music education system formally corresponds to this territorial division, and includes National Conservatories, Regional Conservatories, Departmental Conservatories, Inter-communal and Communal Conservatories.

Since the period of "Cultural Democratization" – the cultural policy launched by the French Minister of Culture André Malraux in the 1960s – regional conservatories have become the major territorial instances of music education. The Ministry of Culture assigned the "Regional" label to the most competitive institutions, promoted by local authorities and strongly involved in territorial competition. Since their creation in 1967, regional conservatories have been subsidized not by the regions themselves, but mainly by the central state and cities.

The political and artistic networks were mobilized to spread the elitist and selective pedagogical approach to orchestral musical disciplines and solfeggio over the country. Well-known pianists, violinists, and conductors were appointed directors of regional conservatories. The regional conservatories played the role of "selection agencies" (Boudon, 1979) that regulated the access for the best students from provinces to the National Superior Conservatory of Paris. Low enrollment fees and scholarships for the best students were established by the State to guarantee democratic access to high-level music education.

In early 1980s, the socialist government and the new Minister of Culture, Jack Lang, criticized the "Democratization of Culture", as a "top-down" elitist homogenizing approach to culture that ignored cultural expression and practices outside the mainstream canon. As an alternative, Jack Lang launched a new inclusive policy called "Cultural Democracy" that enlarged the notion of "culture" and promoted ordinary cultural practices. Typically situated in cities' downtowns, the conservatories had to find the new inscriptions in the local and urban realities and attract populations that were previously poorly integrated into local cultural life.

Newly created peripheral annexes of conservatories were dedicated to teaching improvised and "popular" music (rap, rock, etc.) that should be accessible to every music lover, regardless of age and musical capacity. At the same time, the old "central" annexes of conservatories maintained their role as "selection agencies" for the National Superior Conservatory of Paris and the National Superior Conservatory of Lyon (founded in 1980), that maintained the national monopoly on professional music education. Students from provinces who wished to pursue their musical education in these institutions were required to train in regional conservatories according to the nationwide standard and the curriculum established by the State.

The nationwide standard of music education, because of its rigidity, allows an accurate transmission of traditional musical values and skills. By contrast, the relative flexibility of contemporary and improvised musical forms question the institutional legitimacy of conservatories that seek to preserve their traditional values. The nationwide standard of jazz, rock, and contemporary music education has not yet been established. Moreover, the French political vision that associates contemporary music expression with popular values and peripheral neighborhoods creates new obstacles for its integration in the performance-oriented conservatories. Consequently, conservatories have interpreted "cultural democracy" differently, according to the local authorities and musical networks involved in the functioning

of each institution.

Contradictory political interests and ideological debates divide cultural policy-makers (as well as musicians, directors of conservatories and instructors), and place the conservatories between two competing forces: (1) the "centripetal" legitimacy of the National Superior Conservatories focused on national prestige and pedantic "written music" education, and (2) the "centrifugal" legitimacy of regional and urban needs, typically associated with contemporary music, inclusive cultural policies, and territorial concurrence.

The New Decentralized Economy of Music Education

In the 1960s and 1970s, the state had the means to support its ambitions in the field of music policy. In 1969, the so-called "ten-year plan for music" established by Marcel Landowski transformed the economy of the music profession; state intervention in musical life in France was funded up to 51 million francs. In 1974, the state budget dedicated to the musical institutions reached 162 million. The conservatories were subsidized according to their formal territorial ranking. For instance, government endowments for Regional Conservatories varied in different years from 12% to 20% of participation in the budget of each institution.[1] Regular ministerial inspections of the provincial conservatories were organized to evaluate their performance, and guarantee their strong "centripetal" links with the National Superior Conservatories of Paris and Lyon as well as their curriculum.

During this period, the music education system was in tune with the marketplace, strongly supported (and partly created) by the government itself. The "ten-year plan for music" expanded the number of ensembles subsidized by the State. France was divided into ten "music regions" each of which had at least one symphony or chamber orchestra in addition to a lyric ensemble or opera troupe. The main effect of this "ten-year plan for music" was to promote cultural decentralization and secure employment opportunities for musicians (Drott, 2011).

We are currently faced with a different situation. The central state has devolved the management of cultural institutions to the territorial authorities and the State-based music marketplace has been liberalized. Since 2008, the government has been entirely disengaged from the management of communal and inter-communal conservatories that became entirely endowed to territorial authorities. In 2015, the central state was almost completely disengaged from the funding of regional and departmental conservatories. Following the acute public debates provoked by this decision, in 2006, €13.5 m was allocated to the conservatories with the best "institution projects", regardless of their formal territorial ranking.[2]

The "institution projects" of conservatories are, in theory, based on State cultural policies of youth inclusion, territorial equality and cultural diversity. Each conservatory is expected to justify its focus on the marketplace and establish a durable cooperation with local cultural and educative organizations and associations. This approach, based on selection of the most competitive structures, has replaced the previous distributive model based of territorial ranking, and weakened hierarchical links among national, regional, departmental, inter-communal and communal conservatories.

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[1] Rapport d'information n° 458 (2007-2008). *Décentralisation des enseignements artistiques : des préconisations pour orchestrer la sortie de crise*. URL : https://www.senat.fr/rap/r07-458/r07-458_mono.html
[2] Projet de loi de finances pour 2016 : Culture. URL : http://www.senat.fr/rap/l15-164-37/l15-164-378.html

Innovations Induced by the Bologna Process

The selective approach to the attribution of static endowments was established in the particular context of inscription of the French conservatories in the Bologna Process, designed to ensure comparability of the standards and quality of higher education qualifications.

Until now, French conservatories could not afford to offer a general education, and took the cultural values of music for granted. The student, therefore, was expected to possess a general education or to acquire one at an institution best suited for this purpose. That was simply not feasible for most people (Sorce Keller, 1984). In consequence, regional conservatories turned out trained technicians who did not have an intellectual understanding of what they were performing. The major opportunity for these technicians was to succeed in auditioning for the highly selective National Superior Conservatories of Paris and Lyon. However, the number of places in the National Superior Conservatories is strictly limited and disproportioned compared to the number of potential candidates. The growing number of unemployed Regional Conservatories' alumni questions both the monopoly of the National Superior Conservatories and nationwide music education standards. The equivalency of the French music diploma with European counterparts has also been compromised.

This systemic inconsistency has been resolved through the creation of new decentralized Superior Conservatories of Performing Arts ("Superior Poles") that reunite the departments of music, dance and theatre studies. The Superior Poles are founded based on the most competitive regional and departmental conservatories. In 2016, €5.8 m was allocated to these Superior Poles. Another €4.4 m[3] was attributed to the "clusters of artistic education" – regional and departmental conservatories associated to the Superior Poles and engaged in their institutionalization. The Superior Poles are typically installed in contemporary buildings that contrast with the classical aesthetics of the old Regional conservatories (see Photo 1).

Photo 1: The premises of the Regional Conservatory of Versailles (since 1951) and the new building of the Superior Pole of Nantes (inaugurated in 2016)

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[3] Stroesser, N. (2015). *Financement des établissements d'enseignement artistique par l'Etat : chronique d'un retour annoncé et attendu, mais…?* http://conservatoires-de-france.com/blog/2015/12/03/financement-des-etablissements-denseignement-artistique-par-letat-chronique-dun-retour-annonce-et-attendu-mais

The Superior Poles deliver, in collaboration with universities, the new diploma: National Superior Professional Diploma of Musician (DNSPM) equal to a *License* (bachelor) level (1st cycle). The "hybridization" of the conservatory and university curriculum is innovative for the French music education system. The university is called upon to fill the gap in the "general education" of musicians, as well as to give knowledge in the theory of music making and practice, historical and aesthetic doctrines, etc. Practice-oriented academic courses such as arts management or music pedagogy are geared to keep young musicians in tune with society and job market.

The European standard of the Superior Poles' curriculum facilitates the enrollment of French students in foreign conservatories at a Master's (2nd cycle) or Ph.D. (3rd cycle) levels. In France, not only The National Superior Conservatories of Paris and Lyon, but also the Superior Poles of Poitiers and Strasbourg deliver Master diplomas. The Ph.D. in Music is delivered exclusively by the National Superior Conservatories.

Analyzing the Territorial Dynamics of Music Education

In the current context of the decentralized economy of music education, French conservatories are called upon to strengthen regional and municipal development and enhance European student mobility. Analyzing the differences between American and European visions of music education, Marcello Sorce Keller observes:

> Schools must survive economically, and if they fail to attract students, they may have to close down. While it is at times regrettable that education be linked to mercantile considerations, there is little doubt that total independence from the marketplace generates isolation and estrangement from the real world. The Italian case shows it very clearly. There is a need for scientific research, especially where technological breakthroughs are feasible, and colleges are unable to fulfill that need. There is a need for a variety of music, and conservatory graduates can provide only one kind. It would indeed be marvelous if we could have the best of both worlds (Sorce Keller, 1984).

Supported by the omnipresent State in the past, French music education leans increasingly towards a more liberal and competitive model. How do conservatories react to this restructuring of the competitive field? How do they affect European territorial cohesion? Are they managing adaptive or hybrid strategies with new conceptions of music education? Alternatively, do they gradually move away from the marketplace and become an obsolete and difficult heritage to maintain?

To answer these questions, it is necessary to analyze the current balance of power among the different elements of the French multi-level system of conservatories. However, the absence of coherent national or regional statistics prevents a quantitative analysis measuring the overall territorial impacts of the cultural and educational policies.

Several sources of *small data* – for instance, forms filled by administrators of each conservatory containing data on the taught disciplines, territorial ranking, addresses, management and equipment of each conservatory – can be found on specialized open source websites, such as *lalettredumusicien.fr*. Data concerning the conservatories recognized by the European instances can be found on the site of European Association of Conservatories (AEC): *www.aec-music.eu*.

Methodology

By extraction and treatment of this *small data* with SPSS statistical software, we were able to build a number of small-scale datasets that were merged to broader geographical databases from the French National Institute of Statistics and Economic Studies (INSEE). The geographical units that structure the INSEE databases (the zip and district codes, codes of regions, departments, GPS coordinates) allow for the location of each conservatory within municipal, departmental, regional and national spaces.

A combination of spatial and statistical data allows us to build tailor-made institutional comparative cartography of these territorial levels. The Map 1 below is an example of a two-dimensional cartography that combines (1) territorial indications and (2) the proportion meaning of regional and departmental conservatories. Obviously, we observe a low cohesion between the two territorial levels: (a) the departments with the highest density of departmental conservatories (in red), and (b) the regional metro-areas with a strong presence of regional conservatories and their peripheral annexes (in blue).
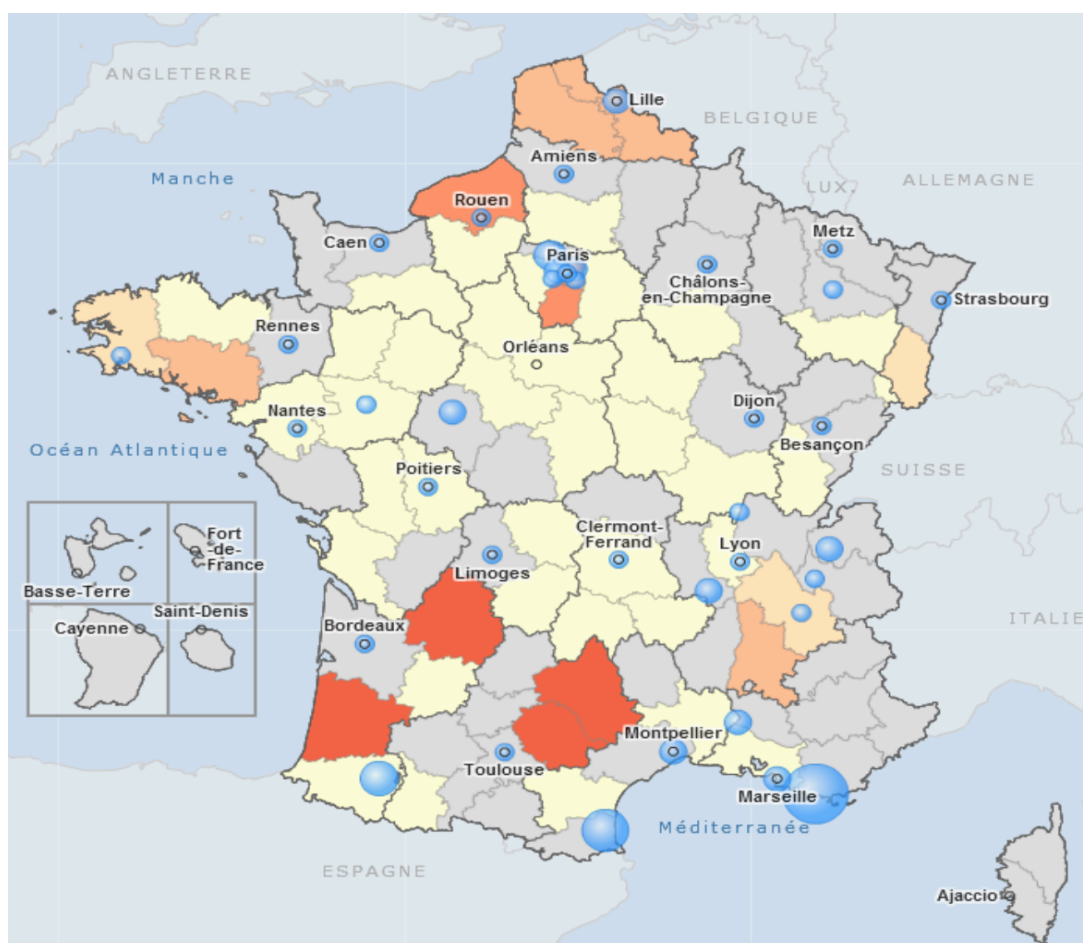
Map 1: Graduated symbol map of the Regional conservatories and their peripheral annexes (in blue) and Departmental conservatories (in red)

A cartographic approach to analyzing music conservatories allows us to identify the problems that deserve further detailed qualitative and statistical study in the future. In the present paper, we focus on three main questions:

(1) Could the Superior Poles be *a priori* qualified as "European conservatories"? Which French conservatories are recognized by the European instances?
(2) Music education and decentralization: How has the recent reform and mergers of French regions affected the territorial balance of music education?
(3) Analyzing the effects of « Cultural Democracy »: How baroque and contemporary music are taught in Regional and Departmental conservatories?

Results

1. Could the Superior Poles be *a priori* qualified as "European conservatories"? Which French conservatories are recognized by the European instances?

What makes a conservatory "European"? Is the "European" administrative status capable of amplifying the real international influence of an institution? Is this status as important as the orientation of musical and political networks that aim for international cooperation – or avoid it? Or maybe the transversal "European" curriculum of music education is essential - even if the perfectly balanced compromise between the national traditions of music education seems to be unfeasible?

From the administrative viewpoint, the success of a Europe-oriented superior conservatory is measured by the relative concordance of its curriculum at the European level, augmented European mobility of students, and the creation of new European networks of artistic cooperation. The European Association of Conservatories (AEC) and the Erasmus network for music "Polifonia" are two European organizations that address the European higher music education issues.

The European Association of Conservatories (AEC) was created in 1953, and was initially based in Utrecht, Holland. Now, the AEC has moved to Brussels, and has been empowered by European political instances as the representative of the EU in the area of music education. AEC experts are engaged in the "Quality Enhancement Process" that elaborates the insights and recommendations for European conservatories. Three European countries are the most represented among the members of AEC: Italy (55 music schools), Germany (24 music schools) and France (20 music schools).

The blue circles on the maps below show the proportion meaning of the Superior Poles and other institutions that deliver the DNSPM in France (Map 2), but also point out the French members of the AEC (Map 3). Both of the maps indicate the proportion meaning of regional conservatories and their annexes at the departmental level (in red).
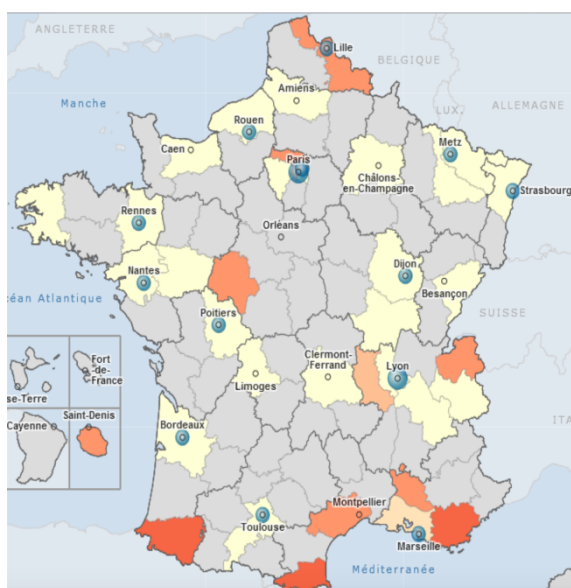
Map 2:
Proportion meaning of the Superior Poles and other institutions that deliver the DNSPM (in blue)
Proportion meaning of Regional conservatories and their annexes at the departmental level
(in red)
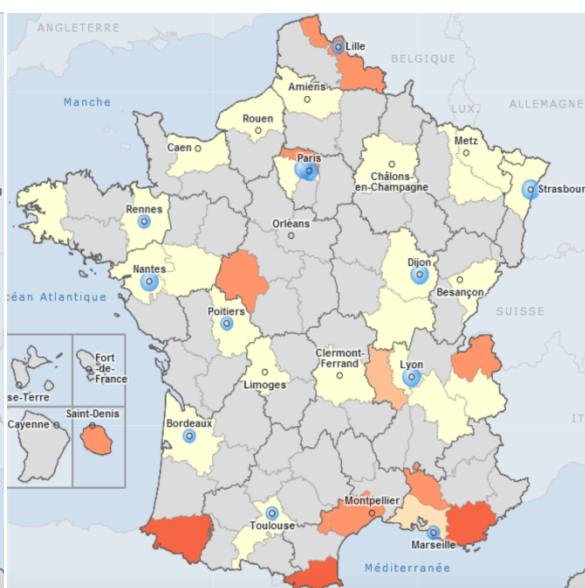
Map 3:
Proportion meaning of the French institutions recognized by the European Association of Conservatories (in blue)
Proportion meaning of regional conservatories and their annexes at the departmental level
(in red)

As we see, the two maps are similar. However, the list of French conservatories recognized by the AEC as "European" (Map 3), includes not only 7 Superior Poles, but also 10 regional conservatories, 2 national conservatories (Paris, Lyon) and 1 National Centre of Education of Music Pedagogues (CEFEDEM).

Most of these heterogeneous institutions are situated in the same cities as the Superior Poles (Map 2). Whereas some of the newly created Superior Poles are still not recognized by the AEC, the spatial proximity between the Superior Poles and previously existing territorial institutions recognized by the AEC (i.e. the Regional Conservatories of Strasbourg, Nantes, etc.) creates the illusion of the almost identical appearance of the two maps. The only exceptions are the institutions based in the metro-areas of Rouen and Metz: neither the Regional Conservatories nor the Superior Poles are recognized by the AEC.

Obviously, most of the Superior Poles were created based on previously existing clusters of music education that have been often recognized by the AEC *before* the equivalency of French music diploma with its European counterparts. At this level, top-down European policies have met pre-existing bottom-up dynamics of the territorial political and musical networks strongly implicated in territorial concurrence.

The other visible particularity consists in the low correlation between (1) territories with a higher proportion of regional conservatories and their annexes (in red) and (2) territories with a higher proportion of Superior Poles and the other institutions recognized by the AEC (in blue). Indeed, most Superior Poles are currently based in departments with one centralized Regional Conservatory (in yellow).

Obstacles to the creation of new Superior Poles based on the strongly decentralized Regional Conservatories with several peripheral annexes (such as the institutions situated in the Atlantic Pyrenees, Oriental Pyrenees and Var (in red)) deserve more detailed ethnographical and historical study in the future.

2. Music education and decentralization: How has the recent reform and mergers of French regions influenced the territorial balance of music education?

Encouraged by the European Union, regions become the frame of reference for European regional politics, aiming to promote the development of competitive territories. Since 2016, the number of French regions has decreased from 22 to 13. This territorial reform aimed to accelerate the decentralization process and empower the regional metropolis (Marseille, Bordeaux, Toulouse, Nantes, Nice, Rouen, Grenoble, Montpellier, Rennes and Brest), as well as cities ranked as "European metropolis" (Lille, Strasbourg). The initial project of decentralization reform also provided the erasure of departments. Although growing conflicts between regional and departmental competencies are still being debated, the final decision on this question has been delayed until 2020.

The new French Regions are highly impacted by the intense development of local smart specialization strategies, based on the assumption of attractiveness to higher social fractions, or the "most educated and talented people", being able to migrate and reach the most culturally attractive regions and cities. If one believes the scenarios presented, investment in cultural capital in the broadest sense should lead to a concentration of social capital itself. In turn, social capital must generate economic capital for regions practicing the implementation of this new form of cultural policy and promote smart, sustainable and inclusive growth in all EU regions and cities. From this perspective, European conservatories contribute to territorial competition by attracting the young talented people that are potentially able to enhance local cultural and economic dynamics.

Map 4 below shows the distribution of regional conservatories and their annexes (in blue) and the Superior Poles (in red) before the reform of French regions.
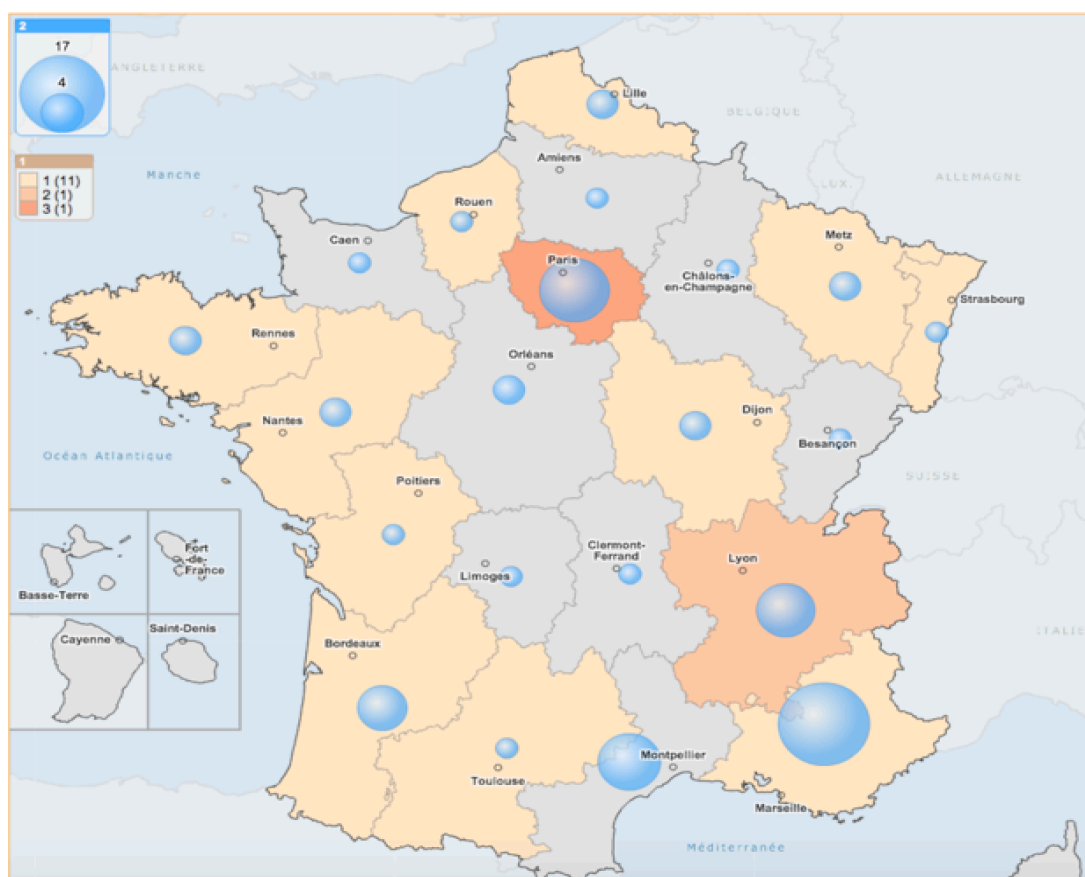
Map 4: Graduated symbol map of regional conservatories and their annexes (in blue) and the Superior Poles (in red) before 2016.

In terms of implication in the Bologna process, only 13 among 22 French regions were equipped with Superior Poles, and were ready to integrate into the European marketplace of music education. The Parisian region and Rhône-Alpes – pre-existing centers of music education due to the presence of the National Superior conservatories of Paris and Lyon – were the most saturated in both regional and European conservatories.

Provence-Alpes-Côte d'Azur, featuring the biggest Regional Conservatory in France, the Conservatory of Toulon (11 territorial annexes), as well as the regional conservatories of Nice, Marseille, Aix-en-Provence and Avignon, had the only Superior Pole: the National Center of Education of Music pedagogues (CEFEDEM), based in Aix-en Provence.[4]

Montpellier and Perpignan – the most dynamic cities of Languedoc-Roussillon – featured important regional conservatories that were not implicated in European dynamics. The opposite situation was observed in Midi-Pyrenees: the only regional conservatory in this region, the Conservatory of Toulouse, has become, since 2011, an influential European cluster of music education.

After the mergers of French regions in 2016, the situation changed. Map 5 below shows the

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[4] The European conservatory that delivers the DNSPM diploma in music practice has not been installed in the PACA Region because of concurrence issues among the regional conservatories. In-depth interviews with the administrators of the Conservatories of Aix-en-Provence, Avignon and Toulon revealed cleavages of institutional logics and disagreements concerning the installation of a Superior Pole in this Region.

current distribution of regional conservatories and their annexes (in blue) and the Superior Poles (in red).
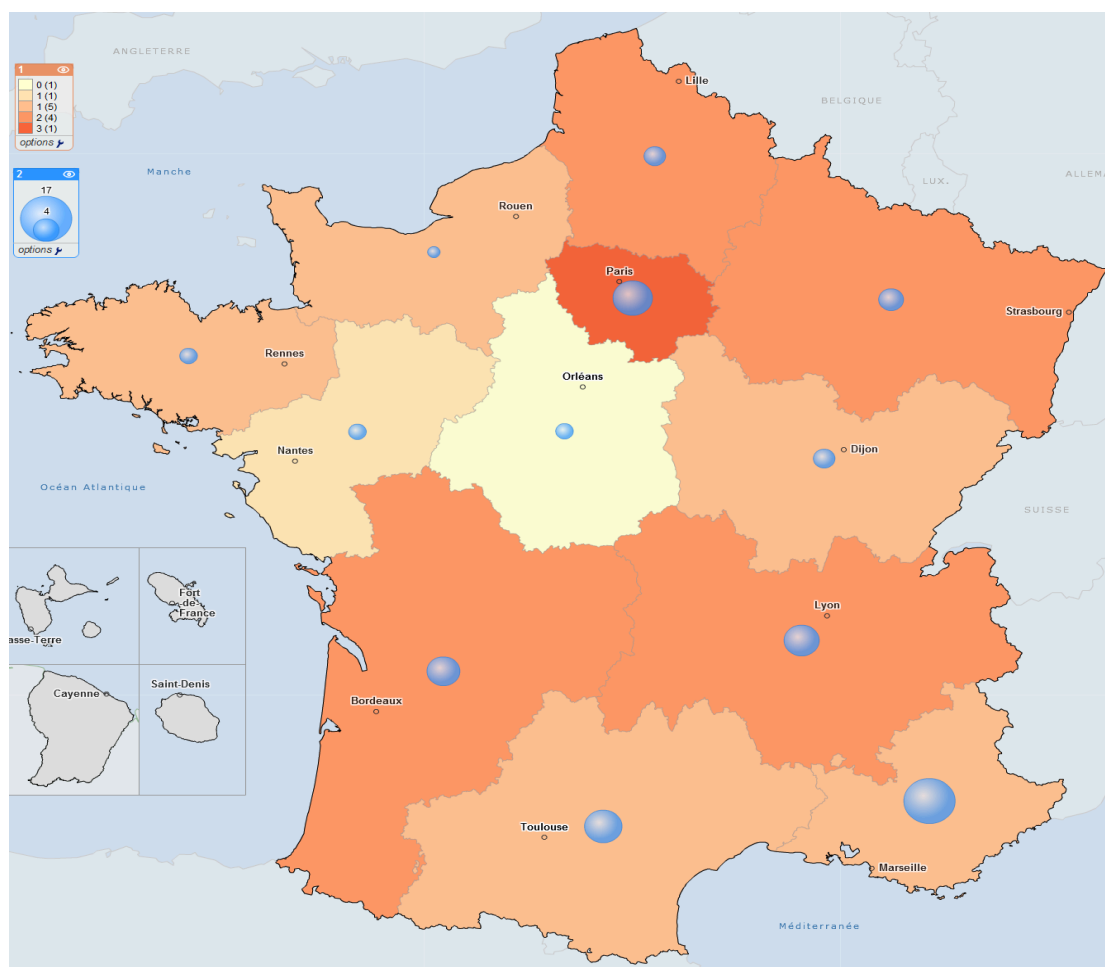
Map 5: Graduated symbol map of regional conservatories and their annexes (in blue) and the Superior Poles (in red) after 2016.

Mergers of the regions resulted in a consolidation of the macro-regional units that brought together previously existing cultural institutions; and decreased gaps between the different regional structures of music education.

Although the Parisian Region is still the most concentrated of the Europe-oriented conservatory regions in France, the new macro-regions have reinforced their positions by uniting territorial institutional resources. Areas previously poorly integrated in the new European dynamics of music education have joined regions with the pre-existing Superior Poles.

The Superior Poles, formally attributed to a city, have an impact on the entire region, and even beyond national borders. For instance, the Superior Pole of the Region Picardy-Nord Pas de Calais is based in Euro metropolis Lille-Kortrijk-Tournai that reunites several French and Belgian cities. "New horizontal" relations between French and other European conservatories promote new musical networks dissociated from former administrative and symbolic hierarchy between Paris and the provinces.

3. Analyzing the effects of "Cultural Democracy": teaching of baroque and contemporary music in Regional and Departmental conservatories

Since 1980s, the French conservatories have been strongly impacted by Jack Lang's "Cultural Democracy" political program. European inclusive policies strengthen and support a similar approach to music practice open to everyone; regardless of income, cultural origins, age, and education level. Contemporary disciplines (rock, rap, hip-hop, etc.), as well as disciplines that historically existed outside conservatory frameworks (flamenco, baroque music, ancient music, etc.) have been integrated in the curriculum of the most regional and departmental conservatories.

However, regardless of the "Cultural Democracy" program's long-term implementation, the institutional geography of concerned institutions is far from homogeneous. In this paper, we reflect upon the teaching of (1) baroque music and (2) contemporary music. How are the conservatories that teach these disciplines distributed at the regional and departmental levels? The lack of official statistics to answer this question leads us to data available from specialized directories, such as *lalettredumusicien.fr,* containing information communicated by the administration of each conservatory on the disciplines taught in each institution. Here we will present the results of the cartographical analysis of these data.

a. Regional level

According to the directory, only 29 Regional Conservatories among 71 (40.8%) integrate baroque music into their curriculum. Map 6 below shows the overall proportional meaning of regional conservatories and their annexes (in red), and the regional conservatories that teach baroque music (in blue.)
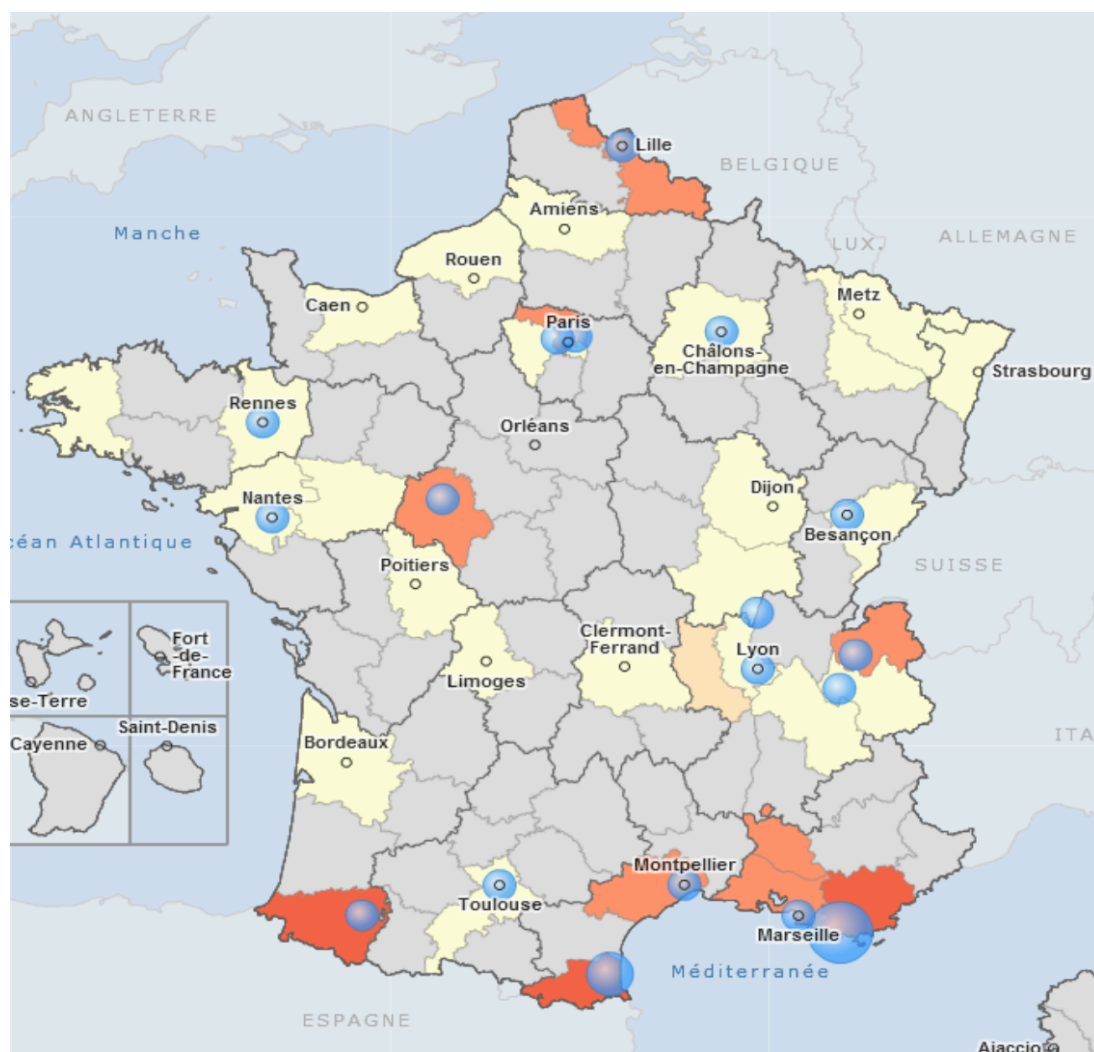
Map 6: Graduated symbol map of regional conservatories that teach baroque music

Most conservatories that teach baroque music are situated in the following regions: Parisian Region (6 institutions), Provence-Alpes-Côte d'Azur Region (3 institutions based in Marseille, Nice and Toulon, but also several territorial annexes of Toulon Regional Conservatory), the new macro-Regions of Auvergne-Rhône-Alpes (3 conservatories based in Annecy, Chambery and Saint-Etienne) and Languedoc-Roussillon-Midi-Pyrenees (3 conservatories based in Toulouse, Montpellier and Perpignan).

Concerning the teaching of contemporary music, only 26 regional conservatories among 71 referenced in the directory (36.6%) have included this discipline in their educational program. Most of these institutions are based in the same regions as regional conservatories opened to baroque music. However, there are some particular exceptions. For instance, the Regional Conservatory of Marseille teaches baroque music, but is still resistant to the teaching of the contemporary music.[5] Several institutions that teach contemporary music are also gathered in Pays de la Loire (Conservatories of Nantes and Angers), as well as in the new macro-region of Aquitaine Limousin Poitou-Charentes (Conservatories of Poitier and Bordeaux).

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[5] Raevskikh, E. (2014), *Genèse et renouvellements des formes institutionnelles de la culture: une étude des conservatoires de musique et de leurs ancrages territoriaux.* Doctoral dissertation, EHESS-Marseille.

Map 7 below shows the overall proportional meaning of regional conservatories and their annexes (in red), and the regional conservatories that teach contemporary music (in blue).
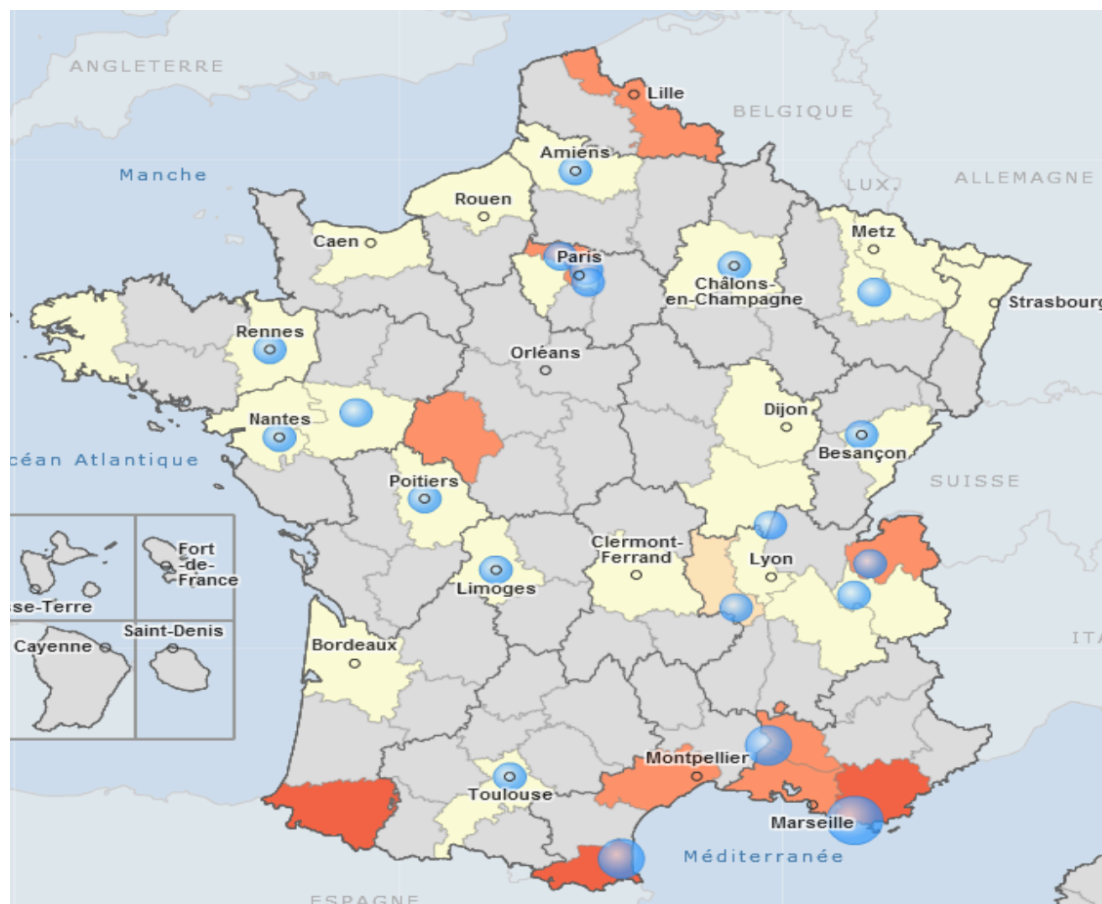
Map 7: Graduated symbol map of regional conservatories that teach contemporary music

b. Department level

At the departmental level, baroque music is taught in 40 departmental conservatories among 179 referenced in the directory (22.3%). Map 8 below shows the overall proportional meaning of departmental conservatories and their annexes (in red), and the departmental conservatories that teach baroque music (in blue).
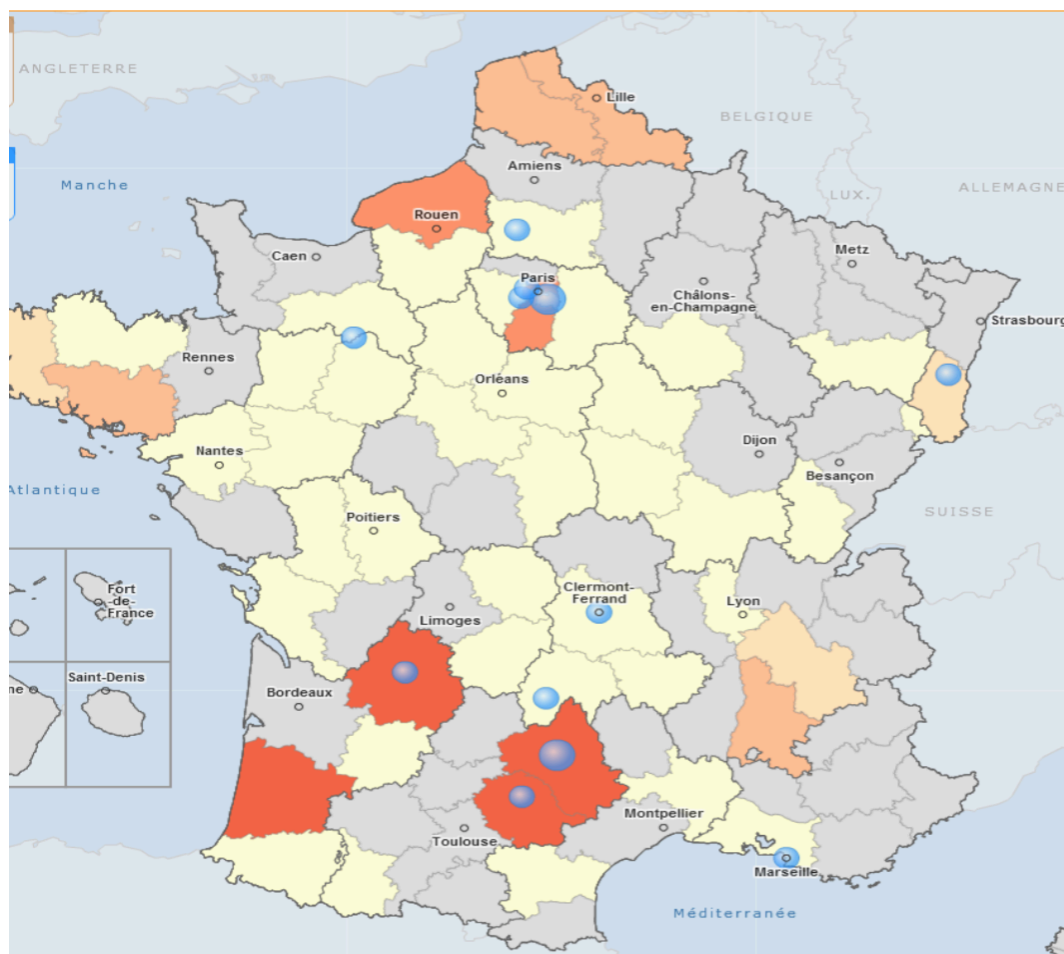
Map 8: Graduated symbol map of departmental conservatories that teach baroque music

The departments in the Parisian area (Seine-et-Marne (77), Yvelines (78), Essonne (91), Hauts-de-Seine (92), Seine-Saint-Denis (93), Val-de-Marne (94) house 10 institutions. Important centers of baroque music teaching are also based in the Departments of Tarn (81), Aveyron (12) and Haute-Vienne (87), which are also strongly saturated with the territorial annexes of local department conservatories (marked in deep red).

Contemporary music is taught in 76 departmental conservatories among 179 (42.4%). Map 9 below shows the overall proportional meaning of departmental conservatories and their annexes (in red), and departmental conservatories that teach contemporary music (in blue.) Although contemporary music is more widely disseminated at the departmental level than the baroque music, we can observe the concentration of both disciplines in Parisian area, as well as in the departments of Tarn (81), Aveyron (12) and Haute-Vienne (87) (in deep red).
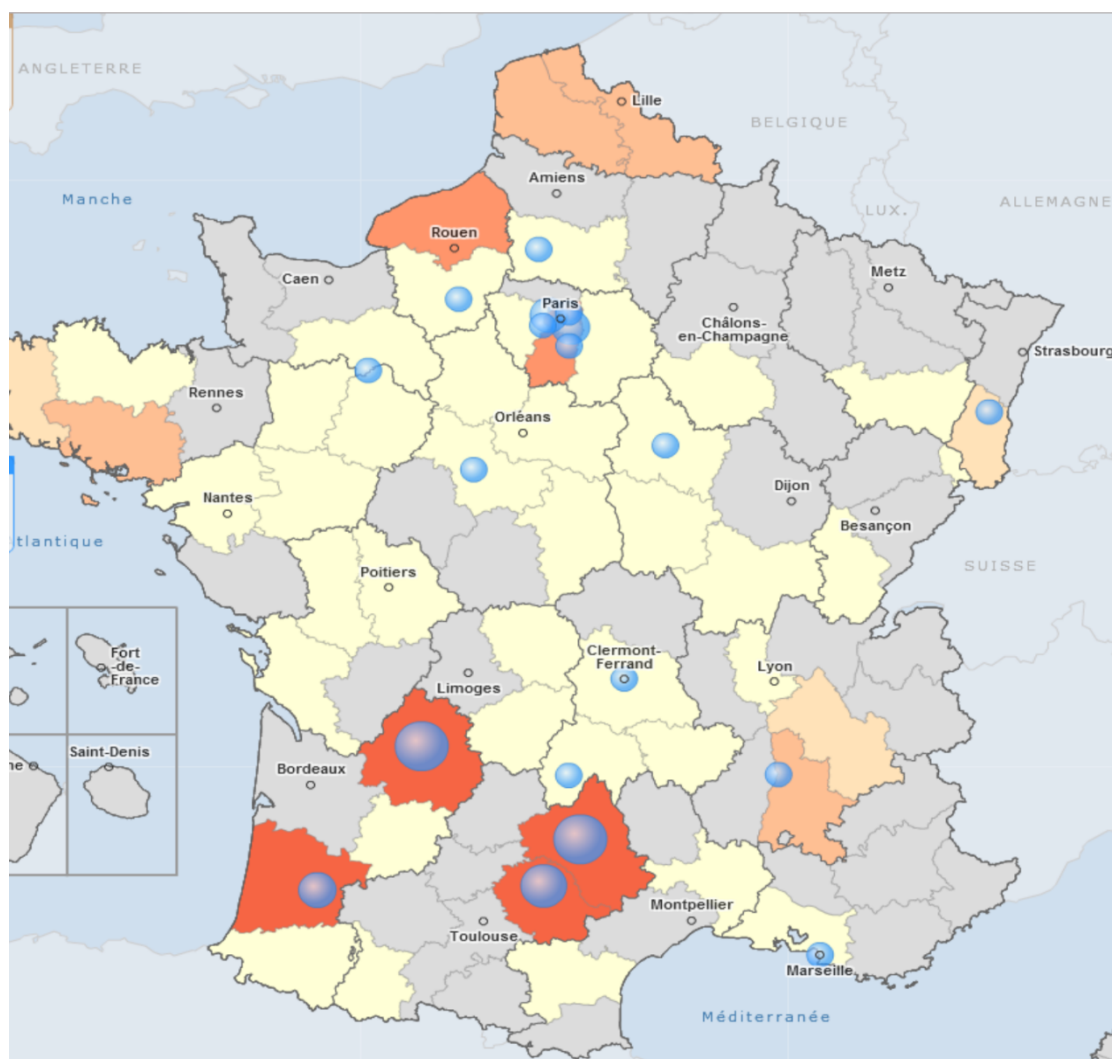
Map 9: Graduated symbol map of departmental conservatories that teach contemporary music

Conclusion

In the current context of the decentralized economy and European integration, French music conservatories are called upon to contribute to regional and municipal development and enhance the European student mobility. Previously existing territorial clusters of music education have become a moving force for the equivalency of the French music diploma with its European counterparts. Although the formal European compatibility of the new French diploma (DNSPM) itself does not give an immediate increase in European mobility, conservatories become gradually engaged in territorial concurrence between the regional metropoles, which seek to define their *smart specialization* strategies. New "horizontal" relations between French and other European conservatories promote new musical networks dissociated from the former administrative and symbolic hierarchy between Paris and the provinces. We expect to witness, in the upcoming decades, considerable changes in the way we conceive and understand the French music education system.
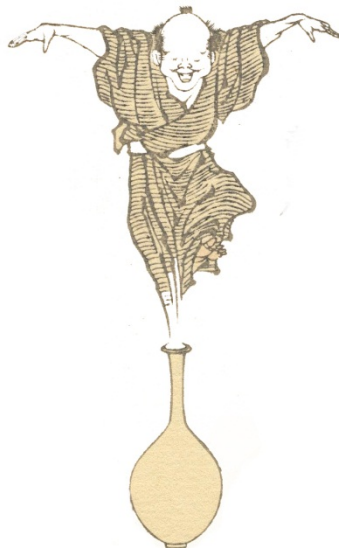
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English, Education, and Globalisation: A Bangladesh Perspective

Mohammad Akteruzzaman and Rakibul Islam

Abstract

As a third world country and a former British colony, Bangladesh has seen a dramatic upsurge in the use of the English language. Built on the concept of imperialistic aspects of the English language, this paper draws on responses from anonymous survey results and interviews and attempts to provide deeper insights into the global aspects of English as a language and the credibility of this language in the minds of the populace. This paper assesses the English language as a feature of globalization where English is considered to be of the utmost value. Questionnaires were designed and interviews were arranged to evaluate the commercial and linguistic aspects of English in Bangladesh to reach a conclusion whether the mass perceives this very language as it should be or there are any other economic and cultural aspects. The findings were presented graphically and the study showed that English fails to meet the expectations of the stakeholders and policy makers of Bangladesh. The paper concludes with some recommendations that could help resolve the situation and present English to the people in a better light.

Keywords: linguistic imperialism; English as a global language; language contact; bilingual education.

Introduction

Phillipson (1992) quoted a sentence from the Annual Report of British Council (1987/88, p.8) which states 'Britain's real black gold is not North Sea oil but the English language' (Phillipson, 1992, p. 49). From the ongoing trends, one is likely to perceive that the report writer was a far better fortuneteller than *Paul the Octopus*, with a success rate beyond a hundred percent. English is flourishing, English is in the air and above all and people are living in English now. Even in a remote corner of a village, you will be enjoying great views of posters, banners or festoons proudly upholding the prodigy of this great language, directly or indirectly. This is not a one-way process; rather, the mass is merging themselves into the same flow. The prominence and promotional activities of English have caused the spread of English teaching, teachers and obviously, a lot of learners. English is highly promising in providing them with better chances in the fields of jobs, in society and at the ideological level (Phillipson, 1992). In the case of Bangladesh, English is a mandatory subject for the learners from the very beginning of their academic life until the tertiary level. On the other hand, English still enjoys an EFL status in Bangladesh. This survey research paper was by collecting and analysing the data obtained from anonymous surveys, case studies, and interviews that had three very rudimentary research questions at the roots:

a. What does English mean to the people of Bangladesh?
b. What is the most significant reason for learning English for the people of Bangladesh?
c. How far can the education policy of Bangladesh justify itself with the actual needs of the people learning English?

The Unquestionable Significance of English

The proliferation of English in the world can be effortlessly perceived only by elaborating on the fact that it is the number one 'lingua franca' in the whole world (Jenkins, 2007; Kirkpatrick, 2010; Mackenzie, 2014) and the officially accepted language of more than 85% organizations in the world (Crystal, 2012). It is often taken as the entryway to the modern world. Learning a second language often comes in handy in terms of maintaining communication with the people around the world as multilingualism helps greatly in this regard (Mansour, 1993; House & Rehbein, 2004). If this is the case, English has to be the first and foremost alternative next to the mother tongue. However, the learners of English as a second language often face difficulties as they have to bridle all the four horses namely Reading, Writing, Listening & Speaking at the same time. Keeping these complications in mind, the English language courses are designed to assist them in the best possible ways. To supplement the process, numerous organisations offer English language courses for the mass and there are some state organisations that have opened the gates through which one can authenticate himself to be a potential and prominent speaker of English. In a word, English is in the air nowadays where one finds his 'Querencia' (Heard, 1995). Hemingway (1932) defines 'Querencia' denoting it to be 'a place the bull naturally wants to go to in the ring, a preferred locality... It is a place which develops in the course of the fight where the bull makes his home'. In addition, it is fairly out of any doubt that English makes someone a part of the global village (McLuhan, 1964) due to the radical upsurge in the areas of mass media. The axiom of English has crossed the borders of any state transforming the regular neighbourhoods into the segments of a globalised world (Crewe & Axelby, 2012; Wolff, 2014). Everyone living inside the premises of a third world country bears the sense that they need something to get themselves merged with the people in the Inner Circle and English inclines to be the easiest and the most accessible choice to acclimatize and implement in

pursuing the dream to become a part of the Inner Circle or, at least, go close to it (White, 2016; Kachru, 1985; Nejad, 2011; Phillipson, 1992).

English in Bangladesh

English has been in the veins of Bangladesh since the periods of colonisation. Being a part of the Indian Subcontinent, it has seen dramatic developments of English as the language of the dominators, rulers, oppressors and the decision makers. However, English was not taken into the parts of the then society as a part of the subsidised class or the subdued section of the colony and their popular culture. People had a disdainful stance towards English as the tongue of the 'Firingees' (equivalent Bangla term for an Englishman), the patois of the authority, the voice of their plunderers and anything that suits the same context. After that came the epochs of Pakistan government as India and Pakistan derived two different entities in 1947. Without going much into that narrative, it can only be mentioned that the present national language of Bangladesh, Bangla, is the outcome of a long lasting protest against the Urdu language and a nationwide movement to give Bangla the place it deserves. Commemorating that blood marks in the history of language development in Bangladesh, UNESCO declared 21 February as the International Mother Language Day celebrated every year with remarkable grandeur and ceremonial fashion. Now, it stands profoundly as the eighth language in the world by the total number of speakers that engulfs 190 million native speakers and 20 million non-native speakers (List of languages by total number of speakers, 2016).

Generally, Bangladesh is taken as a monolingual country where the national language, Bangla, is spoken by 98% of the people (LLC, 2010; Kirkpatrick, 2015; Kachru, Kachru, & Sridhar, 2008). Kachru, Kachru, & Sridhar (2008) explain further that even the native speakers are not aware of the minority languages spoken inside the borders of their country and some of them have not even heard the names of some dialects. Although there are 36 marginal groups with their own languages (Mohsin, 2003), the government of Bangladesh denies the existence of any indigenous people in Bangladesh (Chittagong Hill Tracts: "There are no indigenous people in Bangladesh", 2011). By this, it can be affirmed that, linguistically, Bangla is the only language that has been serving the purposes of communication throughout the history.

However, with the emergent demand of global and intercultural communicative competence (Jackson, 2014; Dai & Chen, 2014), it became essential to cultivate an education policy that would serve the goals of creating global citizens (Dower & Williams, 2002; Mayo, 2005) as well as reflecting the needs of the learners. In the case of education policy in Bangladesh, there have been several testimonies of power practice and hegemony. Though literacy is always in the focal point in designing educational policies (Datta, 2007), studies have revealed several occasions that should be considered while taking account of educational policies. These policies have moved from their traditional strands and now tend to integrate into a 'postmodern critical approach' (Paciotto & Delany-Barmann, 2011). Mohsin (2003) asserts that 'the government of Bangladesh has deeply hegemonic and chauvinistic policies of its own' which puts it into a problematic situation. As more and more countries are reshaping and redesigning their policies to keep a sustainable demand of English (Tsui & Tollefson, 2008), Bangladesh, along with the other third world countries, is forced to provide more and more space to English. So far, the education policy of Bangladesh has been through significant number of amendments and modifications e.g. introducing the English version of the national curriculum in the late 1990s, enactment of Private university Act 1992 that inculcated the classroom instructions in all the private university to be completely in English, and, establishing mandatory English courses in all the universities of Bangladesh in 1994 (Rahman, 2015). On the other hand, a

third world country like Bangladesh is rigorously affected by the 'imperialism' imposed on the language policies through the gates of 'aids', 'English language promoting organisations' and 'language agents' (Phillipson, 1992) and from the sociolinguistic aspects, this very nation is still to find it's way to the global prospects of English. Phillipson (1992) also affirms that 'the dominance of English is asserted by the establishment and continuous reconstruction of structural and cultural inequalities between English and other languages' (p. 47) and unfortunately, in our case, Bangla represents the other language. He terms this as 'linguicism' that occurs when 'there is a policy of supporting several languages, but priority is given on teacher training, curriculum development and school timetables to one language' (p. 47). Such processes have also been labelled as 'neocolonialism' in education (Altbach, 1971) as 'the educational systems of most developing countries, on almost all levels, remain rooted in the administrative structures of the former colonial rulers. The colonial power may not be the direct cause of this situation, but the fact that the structure and organisation of the schools reflect a foreign model necessarily has an impact on the nature of the education provided' (p. 237).

Contemporary Practices in English Teaching

To match with the advent of English, Communicative Language Teaching (CLT) for teaching English was first introduced in the secondary and higher secondary levels of Bangladesh in the 1990s by the National Curriculum and Textbook Bard keeping the notion of developing communicative competence in the global context (Binoy, Sultana, & Basu, 2007). In Bangladesh, English is taught as a compulsory subject (English Part I & II) included in the syllabi of Secondary School Certificate and Higher Secondary School Certificate examinations (Secondary Curriculum, 2016; Higher Secondary Curriculum, 2016). However, there have been several disputes over the success of CLT in Bangladesh and most of them concern the complications regarding classroom management, less supportive infrastructure and a shortage of competent teachers (Haque, 2015; Rahman & Karim, 2015; Islam & Bari, 2012). One more peculiar specimen can be the passing rate of Dhaka University. A newspaper report published on 25 September 2014 in www.bdnews24.com reported hat only two students could make it to the gates of admission into the English Department of Dhaka University. Furthermore, English courses have been made obligatory by the University Grants Commission of Bangladesh for the undergraduate levels of all disciplines and the latest reform in educational policy (2010) evidently projects that 'English will be taught as a compulsory subject at the degree level of all colleges and universities. It will carry 100 marks/3 credits' (National Education Policy 2010, p. 32, clause 09). Along with these aids, students have better chances of receiving alternative assistance from the international organisations, e.g. British Council, to replenish their skills of the English language. Moreover, there are different streams of learners with their own curriculum and teaching system. Right now, the mainstream of the students falls under the category of the national curriculum or, the Bangla curriculum that follows the national curriculum of Bangladesh designed by the government. All the books are distributed free of cost to the learners which are written in Bangla and the testing system aims at evaluating their analytical abilities which is termed as 'Creative Learning and Teaching'. The second major group comprises of the students from the English medium schools. These schools follow the curricula designed internationally and Edexcel is the most common one of them. The next cluster encompasses the pupils who follow the English version of the national curriculum. These books are the English translations of their original Bangla counterparts and the same system of testing & evaluation is followed in this case. The fourth group consists of the learners opting for the Islamic system of learning and teaching referred as 'Madrasa Education' with their own authority or, education board and individually designed books. At last, there is another stream of education namely 'Vocational Learning' that is dedicated to occupational

training. Their books are also designed separately and have a distinct evaluation process. To elaborate over the higher-secondary education of Bangladesh, it would be enough to say that all these secondary levels have their own advanced or higher level examinations. Also, students have the freedom to switch to any module of teaching at certain periods which enables them to opt for any mode of teaching they prefer (An overview is provided in Table 1). Considering all these viewpoints, it is certainly conceivable that English is already in the brains, minds, and hearts of the students who have gone through the national curriculum or English medium curriculum before they begin their tertiary education.

Table 1: Overview of the secondary and higher secondary examinations

Secondary Exams	Target learners	Higher Secondary Counterparts
Secondary School Certificate (SSC)	Students following the national curriculum (both Bangla & English version)	Higher Secondary School Certificate (HSC)
Dakhil	Students following Islamic system of teaching	Fazil
SSC (Vocational)	Students aspiring for job placement training more than institutional education	HSC (Vocational)
O Level	Students following international curricula	A Level

Besides, there is one more underlying society that consists of the working people. For these people, most of whom have obtained their education in a Bangla-medium environment, English often poses to be a threat and sometimes burden. The above case study or, seemingly unnecessary elaboration in the introduction part is just a casual phenomena.

Methodology

The respondents for this survey research paper come from versatile socio-economic backgrounds. The first portion comes from the university students. The university students were selected from four public and private universities in Bangladesh specifically University of Rajshahi (RU), Bangabandhu Sheikh Mujibur Rahman Science and Technology University (BSMRSTU), Hamdard University Bangladesh (HUB) & United International University (UIU) among which the first two are government-run universities and the other ones are privately owned educational institutes (University Grants Commission of Bangladesh, 2016). The second group of informants are the people working in various sectors of the country. The first part was comprised of the members of the upper class (economically or intellectually), for example, directors or managers of public and private organisations, university teachers, journalists, writers, education researchers and experts. The second part involved the middle layer of the organograms, for instance, executives, officers, medical promotion officers, reporters and filed workers of different organisations. The last part incorporated the people from the grassroots level like fruit sellers, small grocery owners, rickshaw pullers, street hawkers, road-side tea sellers and drivers of public vehicles. For ensuring the objectivity of the research, their names have not been revealed, however, their occupations and positions are included in the transcriptions.

Data were collected through two different methods. The first method included the distribution of 240 copies (including both Set A and B) of questionnaires among the respondents and the second method involved interviews in the form of researchers' notes. It was made sure that the respondents had a clear understanding of the survey and the impacts before starting delivering the responses. Only the respondents enthusiastic for participating were approached and none of them had been persuaded by any means to contribute to the survey. All the responses are

deliberate & spontaneous derived from a group of respondents with Informed Consent (Switankowsky, 1998; Marshall, 2007). Also, all of them were aware of the fact that their names or any sort of identifiers would be kept undisclosed thus preserving a thorough level of Confidentiality and Anonymity (Kulakowski & Chronister, 2008; Wiles, 2012).

The first set of questions was designed for the students studying at the above-mentioned universities. In total, 120 copies were distributed and all of them were submitted with responses as both the researchers have direct access to all the universities. After that, another set of questions was distributed among the working people of the country. The rest 120 copies were divided into three parts and distributed in groups. It is also to mention that there was a third set as well which was the Bangla translation of the second set. This was used in case the situation necessitated one. Findings from both of them have been analysed and incorporated under one figure. Out of 120 of them, only 89 were submitted.

To obtain a clearer view of the selections made by the respondents and inquire about additional responses, five short interviews were conducted. All the interviews have been recorded and transcribed by the surveyor. The findings have been presented (in percentile) through Figures 1 and 2 and the transcriptions are included in the Appendices. The responses of the questionnaires were tabulated and have been presented in the Findings.

Findings

All the figures provided below are the results of an anonymous survey conducted in Bangladesh where all the figures represent the percentile of the responses for each choice. The questionnaires are provided in the Appendices section along with the transcriptions of the interviews. Studying the finding has brought some interesting facts to light.

Table 2: Responses to Set A (in percentile)

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
S1. I learn English because I love to enrich my knowledge of English.	23	22	26	7	12
S2. English is necessary for me to get a better job.	48	16	12	17	7
S3. I believe that without English I cannot shine in life.	53	3	14	13	17
S4. I want to achieve fluency in speaking rather than in writing or reading.	69	16	7	5	3
S5. English courses are highly effective in my university.	17	21	16	31	15
S6. My goal is to achieve a decent command over English only to maintain external communication.	57	24	6	8	5
S7. I want my English classes focus more on real life communications rather than theoretical aspects.	61	19	2	12	6
S8. English does not attract me as a subject other than being a part of the core courses.	54	27	1	7	11
S9. I do not want to study English after finishing the mandatory credits for my degree.	76	19	1	4	0
S10. English is only necessary for my future career and higher studies abroad.	64	9	12	14	1

Table 3. Responses to Set B (in percentile)

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
S1.English is necessary for my job.	42	27	5	15	11
S2.I cannot communicate with my clients without English.	12	31	9	39	9
S3.I use English for all my local correspondences.	1	2	0	14	83
S4.I use English for all my international correspondences.	56	19	11	12	2
S5.It is alright for me if I can make sense in my writing without maintaining accuracy.	82	13	1	1	3
S6.I try to avoid speaking in English with my bosses and clients.	67	21	6	4	2
S7.I would not even try to learn English if I had option to do so.	41	34	8	12	5

Discussion

It becomes obvious from the survey results that the current practices in teaching English in the tertiary levels clearly reflect the government's aspirations underlying '…we need to upgrade the quality of our higher education to match the international standard. It is very important for the young people to acquire professional skills and we will have to take all necessary steps to ensure this.' (National Education Policy 2010, p.5) and it is obvious that in the echelons of higher studies in Bangladesh, the significance of studying English is irrefutable. It has been so compelling on the parts of the learners that they believe that English is a mandatory part in their career and without English they do not stand a chance of survival in the global world. There also lies a shortage in their intrinsic motivation as they are learning English merely as a part of their education, not as a subject that can enhance their future learning or has the capacity to aid them in entering the world of great scholars and literature (S1, S2, S3, S9, S10 from Set A & S1, S2 from Set B).

Keeping this focus in mind, it is expected that the learners will have a firm grip on the English language before starting their higher education. However, the present competency level of the learners does not comply with this picture completely. The findings produce a clear image of the discrepancies that are eventually built inside the learners and transformed to them through the faulty teaching system in the secondary and higher secondary levels. The findings also suggest that the learners are not satisfied with the effectiveness of the English language courses at the universities (S5 from Set A). One of my professors, Md. Jahurul Islam, from the Department of English, University of Rajshahi, once expressed his view regarding the vocabulary used by an average learner at a university and he was shocked to discover students using sentences like 'I have ill', 'I absent for sick' and many more. While attending the classes, we had to bear his reconciliations over the students and he termed these sentences as 'Mad English'. As he was one of the designers of the National Textbook of English (Higher Secondary Level) in Bangladesh, he doubted whether these books are actually followed as they meant to be or not. If these books were used in the real sense in the secondary and higher secondary classes, the learners would have gained at least six thousand new words before entering the premises of the universities. Our findings point directly to the faulty teaching system in the lower levels which created a fearful appearance of English in the minds of the young learners. S6, S7, S8, S9 from Set A & S5, S6, S& from Set B clearly indicate that the learners are at a stage where they try to avoid the use of English as the teaching system of secondary and higher secondary levels does not provide them with an opportunity to practice

English, mainly speaking and listening, for real life communications and when they have to interact with the people using English, they become frightened. It is also a noticeable in the English language classrooms at the universities where the learners are highly reluctant to speak in public although they are very good at writing and reading.

Moreover, the previous studies had found that CLT stumbled in its roots because of integrating unsuitable approach in response to the social setting of Bangladesh, less motivation in the norms of T-S interaction, and above all, insufficient and indecorous training facilities for the EFL teachers (Rahman & Karim, 2015). Earlier researchers also found that CLT becomes very hard to implement as Bangla is the medium of instruction in the lower levels and this severely hampers the communicative practices intended to be carried out (Siddique, 2004). Barman, Sultana and Basu (2006) pointed out several issues that had negative impacts on the implementation of CLT in Bangladesh which included unavailability of expected number of proficient facilitators, socio-economic limitations, less reliable administrative system, inadequate infrastructure and management system, mismatch of the method with the culture, class size, seating arrangement and assessment. They also blamed the poor remuneration for the teachers of schools and colleges and less funding support as the leading causes for the less qualified populace of educators in these levels. All these problematic factors have an overall effect in the minds of the learners and in the findings, S4 from Set A and S5 from Set B evidently express that the learners are doing the same mistake in their higher education. As speaking and listening has not been enforced in the lower levels, they tend to put more emphasis on speaking & listening which creates another problem. They take it granted that the use of English is all about oral communication with the people giving less importance on writing or reading.

Furthermore, Hamid and Baldauf (2008, p. 17) stated that the English teaching of Bangladesh in most cases is 'basically the same over two decades'. Collectively, these issues are reflected in a broader spectrum when these students enter the tertiary education and are put into the communicative practices of English. The findings (S6, S8, S9, S10 from Set A and S6, S7 from Set B) also suggest that these learners fail to internalise the aspects of English as it is anticipated to be and they consider English merely as a means of accomplishing their higher studies and obtain the degree. This situation compels them to overlook the literary and ornamental features of English that can be used in enhancing their own language aptitude and leaves English simply as a means of survival in the world. For both the groups, the students and the working people, English does not possess a position that could be utilised in gathering more knowledge, developing an understanding of the contemporary trends, augmenting a sense of progressive thoughts and literary acquaintance. As most of them generally keep themselves away from the use of English, they fail to keep pace with the world of scholars as most of the books are written in English. Apart from the specific situations mentioned in the questionnaire, the best exposure they have in English relies mostly on the use of social media and computers.

Another study focused on less available opportunities for in-class activities, students inclination towards accuracy over fluency and deficiency in necessary ELT materials (Islam & Bari, 2012). Furthermore, Ansarey (2012) adds some other issues e.g. inconsistency between the curriculum and testing system and learners' low level of motivation and communicative skills. At last, Farooqui's (2014) case study presents that in most rural or semi-rural institutions, Grammar Translation Method (Byram & Hu, 2013; Tetzner, 2006) is used for teaching English and Bangla is used as the medium of instruction. This unswervingly affects their exposure to the target language as well as their Critical Period of language learning as this hypothesis considers the younger age to be the better age for language acquisition (Birdsong, 1999;

Penfield & Roberts, 2014; Singleton & Ryan, 2004). Thus, from the findings, it can be effortlessly assumed that the apathy towards English is not born overnight, rather, it is the result of instigated practices that have created an anxiety towards English in their minds and the learners have taken it granted inwardly that English is tough to learn and we should not mess with it.

Moreover, they tend to make haste while preparing for this very subject which generates more complications. The ever growing demand of English makes it harder on their parts by getting dissolved with their fear. In fact, they cannot match their knowledge of English with the expected level in their higher studies or job sectors because of having a superficial understanding of English. To add more, the learners of Bangladesh are more dependent on their teachers in terms of classroom teaching and they can hardly accept the communicative norms of English as a major focus is premeditated on improving reading and grammar skills (Rahman & Karim, 2015). They fail to realise that English teaching in a university is not the same as it happened to be in their schools and colleges. As more and more qualified ELT practitioners join the crowd of university teachers every year, it can be undoubtedly presumed that the learners can interact with better and more skilful educators than they used to encounter in their past. Still, the learners cannot internalise the concepts of English for a greater benefit which must be addressed on an urgent basis. It can be associated with the concept of 'banking' education as defined by Freire (2005) where:

(a) the teacher teaches and the students are taught
(b) the teacher knows everything and the students know nothing
(c) the teacher thinks and the students are thought about
(d) the teacher talks and the students listen-meekly
(e) the teacher disciplines and the students are disciplined
(f) the teacher chooses and enforces his choice, and the students comply
(g) the teacher acts and the students have the illusion of acting through the action of the teacher
(h) the teacher chooses the program content, and the students (who were not consulted) adapt to it
(i) the teacher confuses the authority of knowledge with his or her own professional authority, which she or he sets in opposition to the freedom of the students
(j) the teacher is the subject of the learning process, while the pupils are mere objects (p.73)

As an aftermath, pupils struggle with their credibility in writing and cannot harvest an expected level of oratory skill when they are exposed to the physical situations in the universities. As projected earlier through different studies, they rely on the teacher completely who will guide them through the annulled realms of English. Students cogitate about English in a way that they just want to get over with it anyhow. They fail to intellectualise the significant aspects of this language and take it as customary that it is only a technique for their lives which is evidently identifiable through the responses (S1, S2, S3, S7, S9, S10 from Set A and S1, S2, S3, S6, S7 from Set B).

Another finding can be addressed as the incapability of realising the real benefits of learning a new language. Bearing the importance of learning English in mind, learners should be motivated enough to conceptualise this language and comprehend that learning will help them in their own higher studies as most of the books are written in English. This will also be beneficial to their L1 and future career as well as improving their cognitive and analytical abilities (Trimnell, 2005; Smith, 2016). On the other hand, Hasan (2015) describes that 'many people in our country are interested to learn French because it may help them to get UN jobs

and jobs in Multinational companies' which can be taken as another indicative of the treatment of English in the hearts of the people of Bangladesh. English still enjoys an EFL status in Bangladesh where people are adhering to it only for a better prospect in future that may include a handsome salary, migration to a developed country and so on. It is evident that these people are just the common victims of a third world country who aspire to reach the pinnacle which is fashioned to them as the Adam's Apple namely the English language. English has proved itself to be the elixir that can turn the table of anyone's fortune. In Bangladesh, one will find a lot of persons who completed tertiary degrees in English just to move on swiftly in the job market without any intention of serving the mankind. The responses undoubtedly provide evidences of such attitudes towards English.

One more alarming point is the number of students enrolling in the Department of English of Bangladeshi universities. Either they are forced to get themselves admitted just because they could not make it to their dream subject or they want to enjoy a hassle-free life during their higher education. So, the complicated factors are on the rise from both the parties e.g. those who did not opt for studying English and those who opted for it in reclusion. However, both the groups have one common intention which is to achieve a sound knowledge of English. By any means, the education policy of Bangladesh does not conform to this state. Still, English is celebrated to the fullest as remarked by Phillipson (1992) that the expansion of English is backed by 'ethnocentricity' and 'professionalism' that creates a 'regression' in the minds of the people leading them to become more and more calamitous to learn English. He further designates the 'ideological functions' of English where it is taken as a goal for material advancements and a means for efficiency thus placing English in the pinnacle of 'patriarchal mode of production' (p.68). In our context, Imam (2005) justifiably notes that 'In Bangladesh it is now essential for even factory worker, who earns less than the minimum wage, to know some English, the language of the labels on goods and packaging' (p.480). In terms of survival and job opportunity, the people are swivelling towards English at their levels best. As depicted by Gramsci, this vision turns them to an objective form of knowledge, rather than a subjective one which is not palpable for society in the long run as 'knowledge' should be used as 'science', not as a 'technique' (Hoare & Smith, 1971). Also, by achieving a shallow knowledge of English, a massive part of our population is transforming into 'traditional intellectuals' (Brooker, 1999) who only hold the information of bits and pieces of English and are bound to the order that is bestowed upon them as a result of hegemony, unlike 'organic intellectuals'. This study also reveals that 53% of the respondents of a particular group think that they cannot even do anything better in life without knowing English. That is why they have turned their attention towards English allowing the erroneous notion of 'knowledge' sink in which results from the "coercion" and conformation to the state without any resentment (Gramsci, 1980).

The massive globalisation of English similarly takes it one step forward by creating a sense of superiority by using English mixed with Bangla. A large portion of the respondents even believes that they will never shine in life without English (S3 from Set A). The young generation is so obsessed with the use of English in their speaking, that currently, we have a new dialect which is often termed as 'Banglish' that involves the concoction of Bangla and English words (Manzoor, 2006; Nordquist, 2016). It can be mentioned that the education policy and current teaching practices fail to propagate the effects of 'language attrition' (Schmid, 2011; Seliger, 1991; Köpke, Schmid, Keijzer, & Dostert, 2007) and as a process, more space for English to sink in is getting fashioned day by day. The education policy is a puzzle in itself considering some perilous issues. For example, English is never used in dispensing any official document by the government except few instances and English is never reinvigorated in the government offices the way English is proliferated in the educational institutions. This creates

a void backwash effect in the minds of the learners which forces them to accept that English is only necessary for their student lives and that is why 76% of them do not want English any longer after the completion of their mandatory credits. The education policy, by any means, does not propagate this belief it itself. The findings do not project any intense circumstance that could prove the success of the education policy and reforms.

Recommendations

Grounded on the findings, some recommendations have been listed below:

a. English teaching has to be made more contemporary and either the existing educators have to fathom the implication of modern approaches leaving their cocoons or they have to make space for newer, more enthusiastic and more energetic teachers who have a passion for teaching rather than reading out the texts to the class. Still, in most schools and colleges, the teachers follow the traditional grammar translation method making it a habit for the learners to be carried forward even in the universities. CLT should be practised to its accurate perception.

b. Infrastructure and funding have always been our common problem, however, educators have to be aware of the fact that beavering on this issue, they cannot let go the future of the learners. They have to meditate over the alternatives so that the learners can get the utmost benefit. Their congression should be more focused on the real life practices so that the students can promulgate their authentic potentialities in learning English and nurture this language from the beginning of their academia.

c. The government has to be more vigilant in appointing the English teachers, especially in the secondary levels to shape the learners from the roots. The learners are fearful to English in terms of speaking mostly as they get the prospect of English speaking hardly. To sort out this issue, more exertions should be given on dragging them to the podium and let them replenish their skills in front of the audience from the very beginning. If possible, Task Based Learning (Ellis, 2003) can be applied. Prabhu (1987) has set some decidedly competent and practical applications of TBL which can also be adopted.

d. The stakeholders have to be more thoughtful in designing and implementing the education policy so that it equals with the current practices. By any means, it cannot be accepted that the national education policy has been crammed up by the stimuli arising from globalisation and linguistic imperialism. The modification of education policy can never be an erratic process without paying admissible attention towards the tangible level of the individuals who will be essentially under the practice of the policy. Canagarajah (1999) has conferred the aspects of imperialism in language teaching detailing the looming realities in curricula design and pedagogical practices that can also be taken into consideration while formulating the policy in our context.

Conclusion

This was a small-scale survey to inquire into some impending facts of English learning and this study divulges some of the realities from the minds of the participants. The results and findings project that the driving force behind the policy makers is immensely ill-advised which demands an apposite amalgamation of needs analysis and enactment for a fruitful output. If this dispute is not rehabilitated on an urgent basis, the days are not far when it will get over the heads of the learners in the course of their fight in terms of escalating the concrete resolutions of learning

and Bangla will facing more language attrition in the process of paving more pathways for English. It is also to be clearly itemized that our intention is not to demean the education policy, current practices in teaching English in Bangladesh or the substantial diffusion of English as a global language; rather, our insignificant venture is to point out some conjectures that might prove to be fruitful for the betterment of the teaching practices in Bangladesh.

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Appendices

A. Questionnaire Set 1 (for the university students)

Please select only one option for each statement that suits your standpoint.

1. I learn English because I love to enrich my knowledge of English.
☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

2. English is necessary for me to get a better job.
☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

3. I believe that without English I cannot shine in life.
☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

4. I want to achieve fluency in speaking rather than in writing or reading.
☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

5. English courses are highly effective in my university.
☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

6. My goal is to achieve a decent command over English only to maintain external communication.
☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

7. I want my English classes focus more on real life communications rather than theoretical aspects.
☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

8. English does not attract me as a subject other than being a part of the core courses.
☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

9. I do not want to study English after finishing the mandatory credits for my degree.
☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

10. English is only necessary for my future career and higher studies abroad.
☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

Thank you.

B. Questionnaire Set 2 (for people working in different sectors)

Please select only one option for each statement that suits your standpoint.

1. English is necessary for my job.
☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

2. I cannot communicate with my clients without English.
☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

3. I use English for all my local correspondences.
☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

4. I use English for all my international correspondences.
☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

5. It is all right for me if I can make sense in my writing without maintaining accuracy.
☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

6. I try to avoid speaking in English with my bosses and clients.
☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

7. I would not even try to learn English if I had option to do so.
☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree

Thank you.

C. Translated version of Set 2

অনুগ্রহপূর্বক প্রতিটি বিবৃতি থেকে শুধুমাত্র একটি বিকল্প নির্বাচন করুন যেটি আপনার দৃষ্টিকোণের সাথে সামঞ্জস্যপূর্ণ ।

১. ইংরেজি আমার চাকরির জন্য প্রয়োজন ।
☐জোরালোভাবে সম্মত ☐	সম্মত☐	নিরপেক্ষ☐	☐	অসম্মত
জোরালোভাবে অসম্মত

২. আমি ইংরেজি ছাড়া আমার ক্লায়েন্টদের (মক্কেলদের) সাথে যোগাযোগ করতে পারি না ।
☐জোরালোভাবে সম্মত ☐	সম্মত☐	নিরপেক্ষ☐	☐	অসম্মত
জোরালোভাবে অসম্মত

৩. আমি আমার সব স্থানীয় যোগাযোগের জন্য ইংরেজি ব্যবহার করি ।
☐জোরালোভাবে সম্মত ☐	সম্মত☐	নিরপেক্ষ☐	☐	অসম্মত
জোরালোভাবে অসম্মত

৪. আমি আমার সব আন্তর্জাতিক যোগাযোগের জন্য ইংরেজি ব্যবহার করি ।
☐জোরালোভাবে সম্মত ☐	সম্মত☐	নিরপেক্ষ☐	☐	অসম্মত
জোরালোভাবে অসম্মত

৫. এটা আমার জন্য ঠিক আছে যদি আমি লিখে ভাব প্রকাশ করতে পারি, সেটা নির্ভুল না হলেও ।
☐জোরালোভাবে সম্মত ☐	সম্মত☐	নিরপেক্ষ☐	☐	অসম্মত
জোরালোভাবে অসম্মত

৬. আমি আমার বস এবং ক্লায়েন্টদের (মক্কেলদের) সাথে ইংরেজিতে কথা বলার এড়ানোর চেষ্টা করি ।
☐জোরালোভাবে সম্মত ☐	সম্মত☐	নিরপেক্ষ☐	☐	অসম্মত
জোরালোভাবে অসম্মত

৭. বিকল্প থাকলে আমি ইংরেজি শেখার চেষ্টাও করতাম না ।
☐জোরালোভাবে সম্মত ☐	সম্মত☐	নিরপেক্ষ☐	☐	অসম্মত
জোরালোভাবে অসম্মত

আপনাকে ধন্যবাদ

D. Questionnaire for interview

Q.1. Do you speak English? (আপনি কি ইংরেজি বলতে পারেন?)

Q.2. Why do you think English is necessary? (আপনার কেন মনে হয় যে ইংরেজি প্রয়োজনীয়?)

Q.3. In what circumstances, you use English? (কোন কোন ক্ষেত্রে আপনি ইংরেজি ব্যবহার করেন?)

Q.4. Do you use English always, even if it is not necessary? (আপনি কি সবসময় ইংরেজি ব্যবহার করেন, প্রয়োজনীয় না হলেও?)

Q.5. Do you enjoy using English or, you do it as you have no other option? (আপনি কি ইংরেজি ব্যবহার উপভোগ করেন নাকি উপায় নেই বলে ব্যবহার করেন?)

E. Audio transcriptions of the interviews

All the interviews have been conducted in a secure & convenient environment without the intervention of any third person ensuring an entirely stress-free mental condition of the interviewees. Nobody has been persuaded by any means and all the responses have been recorded as they sentences have been uttered out by the actual participants. However, corrections have been made only in the cases of grammatically inaccurate, incomplete, fragmented or run-on sentences and to guarantee the objectivity, all the names have been omitted mentioning only their speculative role in the society as a participant. In addition, translations have been provided where applicable.

Interview A: A CNG (auto-rickshaw) driver

Q.1. Do you speak English? (আপনি কি ইংরেজি বলতে পারেন?)
Answer: অল্প অল্প পারি । (I know bits and pieces of English.)

Q.2. Why do you think English is necessary? (আপনার কেন মনে হয় যে ইংরেজি প্রয়োজনীয়?)
Answer: ইংরাজি ছাড়া কেমন কইরা হইবো কন? একটু আগেই একটা ভাড়া লইয়া নামায় আইলাম এয়ারপোর্টে ।গুলশান, বারিধারা, উত্তরা এই সব জায়গায় তো ইংরাজি না জানলে অনেক ভাড়া মিস হইয়া যায় গা । (What can be done without English? I just dropped a passenger at the airport. A lot of deals are missed at Gulshan, Baridhara, Uttara and places like these if you don't know English.)

Q.3. Q.3. In what circumstances, you use English? (কোন কোন ক্ষেত্রে আপনি ইংরেজি ব্যবহার করেন?)
Answer: আমি শুধু ভাড়া লইবার টাইম কই যাইবো কয় টাহা দিবো এইডা জিগাই আর কিছু না । (I only ask about my fare and destination, not more than that)

Q.4. Do you use English always, even if it is not necessary? (আপনি কি সবসময় ইংরেজি ব্যবহার করেন, প্রয়োজনীয় না হলেও?)
Answer: না না । দরকার না থাকলে আমি কইবার যামু কান ইংরাজি? শুধু বিপদ আপদ এর লাইগা ২–৪ টা শব্দ শিখা লইসি । মাঝে মাঝে ভাব লইতে হয় তো বিদেশীগো সামনে । (No no! Why would I use English without necessity? I have just learned some words for circumstantial cases. It helps create an impression in front of the foreigners.)

Q.5. Do you enjoy using English or, you do it as you have no other option? (আপনি কি ইংরেজি ব্যবহার উপভোগ করেন নাকি উপায় নেই বলে ব্যবহার করেন?)
Answer: না মজা লইলে তো আরো শিখা লইতাম । এইডা হইল ঠেকায় পইড়া শিখা আর কি । (No, I would have learned more if I enjoyed it. It's just I have no other way to overlook it.)

Interview B: Senior Officer of a private bank

Q.1. Do you speak English?
Answer: Yes, I do.

Q.2. Why do you think English is necessary?
Answer: It is necessary for communication mainly.

Q.3. In what circumstances, you use English?

Answer: To be frank, I do not need to use English for speaking. I hardly use it for writing as we have to write emails sometimes and in most cases, we have a preset template.

Q.4. Do you use English always, even if it is not necessary?
Answer: No.

Q.5. Do you enjoy using English or, you do it as you have no other option?
Answer: Not really. I use it only when I have no other option.

Interview C: A lecturer of a public university

Q.1. Do you speak English?
Answer: Yes of course.

Q.2. Why do you think English is necessary?
Answer: For me, it's necessary for teaching and my research.

Q.3. In what circumstances, you use English?
Answer: I use English for writing papers and sometimes in class for lecturing.

Q.4. Do you use English always, even if it is not necessary?
Answer: No, I don't.

Q.5. Do you enjoy using English or, you do it as you have no other option?
Answer: I only enjoy it if I can find someone to converse with, otherwise, no.

Interview D: A government employee

Q.1. Do you speak English?
Answer: Yes.

Q.2. Why do you think English is necessary?
Answer: For talking in some cases when we have foreign guests.

Q.3. In what circumstances, you use English?
Answer: Only when we have to talk to foreign delegates, though, it is very rare for me.

Q.4. Do you use English always, even if it is not necessary?
Answer: No, never.

Q.5. Do you enjoy using English or, you do it as you have no other option?
Answer: No, I use it when I have no choice.

Interview E: A university student

Q.1. Do you speak English?
Answer: Yes, but, I hardly use it.

Q.2. Why do you think English is necessary?
Answer: It is necessary to understand some parts of my class lecture and give presentations.

Q.3. In what circumstances, you use English?
Answer: I only use it in my presentations.

Q.4. Do you use English always, even if it is not necessary?
Answer: No, I do not.

Q.5. Do you enjoy using English or, you do it as you have no other option?
Answer: To be honest, I prefer using Bangla while speaking. English makes it hard for me to tell exactly what I am thinking. However, for writing, I have no option other than English.

Bildungskrise – PISA and the German Educational Crisis

Wolfgang Odendahl

Abstract

After consistently bad results in every PISA test (Programme for International Student Assessment) and an accompanying prediction of lack of skills in its future workforce, Germany might be on track for losing out in international competition. Because of PISA's overwhelming marketing presence, its results are a major political influence. The OECD PISA committee's recommendations based on the results are challenging the fundamental structure of Germany's three-tiered educational system, aiming to eliminate its segregational effects on social classes. In order to analyze PISA's effects on German society from the angle of educational policy, this study compares the goals stated in its documentation with its effects on the public perception of Germany's future workforce. Three fields of research are considered: Education as a concept for furthering society as a whole, assessment logic, and the educational system as a functional module of the nation state. The study will show that PISA's test results are valid in indicating an urgent necessity to improve the teaching of basic skills, such as mathematics, reading, and writing. The interpretations of and recommendations based on these results, however, are reflecting a solely utilitarian view of educational systems as supplying human resources for industry.

Keywords: PISA; Germany; schools; educational policy; shift of values.

Introduction

In 1997, the Organization for Economic Cooperation and Development (OECD), an intergovernmental organization of industrialized countries, devised PISA (Programme for International Student Assessment) as a testing program to measure how schools around the world prepared their pupils to act as contributing participants in a globalized economy. Its results are designed to predict a nation's economic success. They are presented as a side by side comparison with their competitors. The triennial surveys exclusively test 15-year-old pupils in all participating nations and economies; they cover the three basic skills of reading, science, and mathematics applied to problem-solving and cognition in everyday life.

The results of the first PISA test, published in December 2001, were a shock for Germany. In international comparison, Germany's pupils ranked at 21 out of 32. This indicated that schools didn't provide adequate proficiency in basic life skills and that Germany might soon fall behind in the global race for economic well-being. What made the situation even worse was the fact that Germany continued to score badly in all four subsequent PISA tests. German media revived the 1960s battle-cry of educational crisis or *Bildungskrise*.

This paper argues three major hypotheses. First, Germany's educational system is undergoing a shift of values by substituting the traditional concept of *Bildung* – an untranslatable word incorporating education, erudition, general learning, and self-formation – with training for employability and job qualification. PISA has contributed to this shift of values by focusing on the economic impact of schooling and by being the most publicly visible test program of its kind. Second, PISA's prominent role in the public debate about education is in large part due to its huge marketing machinery, rather than objectifiable contributions. Third, PISA is not actually measuring educational success, because it reduces education to its economically quantifiable output. This paper concludes that PISA does not take into account the social role of schools and their duty towards educating citizens capable of furthering their personal fulfillment and – by extension – society.

What Makes PISA Successful?

Background

Development of the PISA assessment was commissioned in 1997 by the Organization for Economic Co-operation and Development (OECD). It is a standardized assessment of 15-year-olds still in school and has been jointly developed by participating countries. Its goal is to provide decision makers with quantifiable data for improving the output of human capital from schools. Prior to commissioning the PISA studies, OECD published the basic framework it would be based upon:

> OECD countries are undergoing economic changes with important implications for the ways in which human capital is acquired and used. Exploring these trends leads to an analysis of the information and decisionmaking systems that shape human capital acquisition and utilisation. In turn, this analysis of the methods and institutions of human capital measurement, accounting and valuation, leads to the conclusion that improvements to these systems are a key factor in helping a nation's firms to compete. (OECD, 1996, p. 7)

PISA was first administered in the year 2000 in 32 countries, all but four of them members of the OECD (OECD & UIS, 2003, p. 3). By 2012, that number had risen to 65 participating countries and economies, including all 34 OECD member countries, 28 non-OECD member countries, plus the three economic entities of Shanghai, Hong Kong, and Macau (OECD, 2015c). With over half a million 15-year-olds tested in 2012, PISA has become the largest international comparison of the output of educational systems. In the media, PISA results are usually presented as a ranking table from highest to lowest with national flags next to the names of the countries.

Assessment Logic

Central to the PISA test design is the concept of literacy, which focuses on how well candidates are able to apply knowledge to challenges of modern life. PISA consists of three assessment areas, measuring literacy in the domains of reading, mathematics, and science.

Starting from the year 2000, a PISA assessment is conducted every three years, each year, in turn, emphasizing one of the three focus areas. Tests are mostly pencil and paper, lately interspersed with computerized modules. They are conducted in selected schools and last two hours for each student. Each PISA test cycle covers a total of about seven hours of test items, with different candidates taking different combinations of items. Test items are a mixture of closed multiple-choice and open questions requiring candidates to formulate their own responses. Most items are organized in groups based on a real-life setting, with each item designed to be progressively harder to answer. In addition to taking the test, candidates answer a background questionnaire, providing information about themselves, their study environment and their homes. School principals are given a 20-minute questionnaire about their schools.

The data collected during the main test is analyzed separately as well as in combination with the questionnaires on the pupils' social and educational background. Contextual indicators relate results to student and school characteristics, while trend indicators show how results change over time. The data provided by each test cycle is presented in several specialized volumes by the PISA consortium of OECD, treating issues of gender and economic equality (OECD, 2013a), student's motivation (OECD, 2013b), reasons for school success (OECD, 2013c) and others. These analyses[1] often form the knowledge base for policy changes.

PISA's Marketing Machine and the Public Debate

PISA's brochures state very prominently that its results indicate a nation's future prosperity, while they are presented in a sports-like list for international comparison. The resulting media exposure puts enormous pressure on politicians to fix an educational system that so obviously seems to be broken.

PISA is not the first international assessment of its kind. Educational planning depends very much on comparative data in order to be able to learn from the experiences of others. Large-scale international comparisons are a relatively new trend made possible by the globalized cooperation and technical advancements in analyzing large amounts of data. Other large-scale

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[1] Or, since most decision makers do not have the time to read six large volumes of dense data results, their "executive summaries", a 30-plus page compressed version of the results, which is provided for each test cycle and available for download from the official OECD website at http://www.oecd.org/pisa/pisaproducts (visited on 201-01-05).

studies include PIRLS (Progress in International Reading Literacy Study), which runs on a 5-year cycle since 2001, and TIMSS (Trends in International Mathematics and Science Study), which is deployed every four years since 1995. While these two focus on single faculties, PISA claims to cover the whole of school education by evaluating reading, mathematics, and science literacy. Whether PISA actually owns up to this claim will be discussed in a later section, but it is a very powerful argument for marketing purposes that makes journalists and politicians pay attention to its results.

The ultimately new feature of PISA though, which distinguishes it from all other studies, is its easily understandable, sports-like ranking presentation. Although the PISA consortium publishes several thick volumes on the various findings of each assessment cycle, the compact ranking presentation with national flags next to a country's[2] score is what is the most easily picked up on. In combination with this strikingly understandable presentation of complex results, PISA's claim to measuring the success of participating country's educational systems and thereby predicting the future economic well-being of that country's citizens makes for excellent headlines. The above-mentioned volumes published on basic PISA results – six for 2012, together amounting to 2,444 pages of high-quality in-depth analyses – play a comparatively insignificant role in the marketing process. Each of those volumes could be acquired for around 35€, but they are accompanied by a host of readily downloadable brochures, summaries, data tables, blogs, webinars and highlights (cf. OECD, 2015b); these free materials make it easy to ignore the in-depth studies. All of PISA's marketing uses affirmative language, leaving no doubt of its importance for a country's future:

> "What is important for citizens to know and be able to do?" That is the question that underlies the triennial survey of 15-year-old students around the world […] (OECD, 2014, p. 24)
> PISA is not only an accurate indicator of students' abilities to participate fully in society after compulsory school, but also a powerful tool that countries and economies can use to fine-tune their education policies. (OECD, 2014, p. 4)

Once quoted by the press, these claims put enormous pressure on politicians – especially if, as in the case of Germany, their country's PISA results do not match up with its self-image of a leading industrialized nation.

All PISA publications, including the complete volumes, use easily quotable language, which would normally be associated with commercial marketing material. Journalists can take their pick from short bits to more elaborate passages and mix those with all kinds of graphs and pictures – all readily available in high quality from OECD's official website. The media attention creates a feedback loop where the public attention increases the importance of the PISA studies themselves and urges more and more participants to snowball into the testing cycles.

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[2] Not all of PISA's participants are countries (cf. OECD, 2015c). The official nomenclature uses the term economies, but since the vast majority of these are sovereign countries represented in the result tables by their flags, this text uses the terms countries and nations, tacitly including participants such as Shanghai, which are not internationally considered sovereign, or a country.

PISA's Role in Measuring Educational Success

Central to the whole concept of PISA is the claim to measure the success of a country's school system (OECD, 2013c, p. 31). Put simply, the reason for inaugurating such a tool is that schools teach knowledge and skills that prepare pupils for the workforce. The test is designed to measure whether pupils who are about to leave school can employ what they learned to read in order to participate in society, put mathematical knowledge to real world use, and do the same with science. PISA does a very good job of measuring the ability of pupils to apply knowledge acquired in school to real world problems and therefore can make a meaningful contribution to the data on which educational politics aiming to improve these results are based.

By claiming to measure and compare a school systems' success internationally, PISA reduces the role of schools to providing knowledge and skills in the three areas its tests cover. This makes sense from a purely economic perspective but ignores an important part of the educational mandate of schools, which is to convey personal, practical, and political formation in addition to facilitating the capacity for training. The goals set for pupils can be summarized[3] as "attitudes, skills, and knowledge" (KMBW & LEU, 2004, pp. 11–13).

In addition to stressing the value of the tested skills for the economy, PISA publications consistently include references to the future role of students as citizens: In the definition for each of the three test areas, reading literacy is described as "understanding, using, reflecting on and engaging with written texts, in order to achieve one's goals, to develop one's knowledge and potential, and to participate in society" (OECD, 2010, p. 39), mathematical literacy "measured 15-year-olds' capacity to reason mathematically and use mathematical concepts, procedures, facts and tools to describe, explain and predict phenomena, and to make the well-founded judgements and decisions needed by constructive, engaged and reflective citizens" (OECD, 2014, p. 17), and scientific literacy includes "an individual's […] willingness to engage with science-related issues, and with the ideas of science, as a reflective citizen" (OECD, 2007, pp. 34–35).

This paper argues that while reading, mathematics, and natural sciences are indeed essential tools for producing constructive, engaged, and reflective citizens, they can only be seen as an indirect part of the basis for achieving this kind of enlightened citizenship. This is to say that, without reading, it would be impossible to acquire a worldview nourished by literature, art, music, and ethics. In other words, PISA actually tests the foundations on which citizenship can be built, while suggesting measuring the whole building.

PISA's Impact on the Public Debate

The fact that the crudest summary of PISA's results – in the form of international comparison tables – is readily available to the press and easily interpreted by the general public makes PISA and its concept of literacy central to the public debate on education. In 2001, when reports of Germany's pupils' abysmal scores reached the general public for the first time, the news came as a shock. The press had a feast, titling "The Bill for our Outdated Education System" (Lehmann, 2001, p. 2), "Abysmal Report Card for Obsolete School System" (SZ, 2001, p. 8) "Outcome Could Not Have Been Worse" (Schubert, 2001, p. 27), "Many Pupils in Germany

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[3] These citations follow the wording in the school law of the state of Baden-Württemberg, which summarizes the role of primary schools in an exemplary manner. The spirit of schooling having a greater goal than the facilitation of knowledge permeates the school laws of all 16 of Germany's *Länder*.

on Lowermost Level" (FAZ, 2001, p. 4), "A Disaster in Almost Every Respect" (TAZ, 2001, p. 14), and the like. Being in the last third of the overall ranking was a huge blow to the Germans' self-esteem, so there were many protests against PISA's methodology, resulting in the addition of the new category "Problem Solving" to the test round of 2003. Nevertheless, this addition had not the desired impact of improving Germany's results, which stayed very low throughout all subsequent PISA studies. In Germany, PISA became synonymous with educational mismanagement, which was widely perceived to be the main cause of pupils' ineptness in international competition.

PISA's Political Pull

PISA was commissioned by the OECD for assessing and internationally comparing school-acquired skills with regard to their use in job-related settings. The outcomes of each test cycle deliver a basic profile of knowledge and skills across 15-year-old pupils in all participating countries.[4] Decision makers use its results to decide budget allocations for the school system and to consider the policies of other contestants in order to find a method of tweaking their respective systems to accommodate their own agendas. Test results are meant to be interpreted as indicators of future economic competitiveness and welfare in a globalized economy, where a skilled, productive workforce is key to international economic success.

The results are persuasive by design, and the subsequent political pressure is very high, even without considering the public pressure from media reporting. One academic study famously states that if a country succeeds in raising its average PISA score by 25% (and keep it there), "GDP will be more than 3% higher than what would be expected without improvements in human capital" after 30 years, when those higher achieving pupils start playing more prominent roles in the labor market (Hanushek & Woessmann, 2010, p. 22). For Germany, that would mean an increase by over 8 trillion USD in addition to the GDP with "education as usual" (ibid.).

Germany's Educational Shift of Values and PISA's Role in It

The traditional concept of *Bildung* in the sense of self-formation, as envisioned by Wilhelm von Humboldt (1767-1835), sees the role of schools in cultivating socially responsible citizens for a lifetime of learning. On the verge of the 19th century, after Prussia lost its struggle against Napoleon, the Prussian king Frederick William III (1770-1840) was forced to modernize most aspects of his government and administration, including the school system. These modernizations were in part connected to the movement of enlightenment, which was sweeping over all of Europe.

At the time, Humboldt was Prussian minister of education. He took advantage of his King's quest to strengthen his domestic position to start creating a school system consisting of elementary school, secondary school (*Gymnasium*), and university. These schools would be open to everybody and were intended to lead to a society of enlightened citizens. The selling point of this plan was that during the Napoleonic wars Prussian soldiers lacked the spirit and

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[4] The underlying reasoning for choosing 15-year-olds still in school as test subjects is that they represent the outcome of 9 years of basic schooling, which corresponds to the duration of compulsory education in most OECD countries. These pupils are seen as being on the verge of finding their place in the job world, so the reasoning is that if they function well in a professional environment, they will contribute to the economical welfare of their families, their employers, and ultimately the economy they live in.

unifying national identity to resist French *citoyen* soldiers. If a change in the schooling system could be expected to bring about more patriotic thinking citizens, Germany might still be able to compete internationally while at the same time paying large sums in tribute payments to France. In 1809, in a report to the King, Humboldt wrote:

> There is a certain kind of knowledge that has to be made general, and furthermore a certain form of formation of attitude and character, that cannot be missing in anybody. The requirement for being a good craftsman, merchant, soldier, or businessman is being, without regard to one's particular profession, a good, decent, and enlightened citizen according to one's social class. If school education provides all that is necessary for this purpose, he will later acquire the specific skill of his profession easily and always be free to change from one to the other, as it happens so often in life. (Humboldt, 1903, p. 206) [Author's translation][5]

Humboldt promoted a schooling system, which would teach basic knowledge in order to be utilized later in acquiring job-specific skills (Humboldt, 1903, p. 207); on top of that, it would also emphasize ethical values. Based on what they had learned at school, graduates would not only be able to later pick up job-specific skills easily, but society as a whole would draw profit from the fact that all citizens have a similar ethical mindset. Regardless, Humboldt's ideas of universal school attendance were too far-reaching for the King of Prussia, who had half-heartedly implemented some reforms to gain stronger domestic footing against Napoleon. It was not until a century later, in 1919, that the unified Germany of the Weimar Republic made free-of-charge school attendance compulsory until the age of 18.

Today, most Germans think of the Humboldtian view on education as an idealized educational concept which starts with Humboldt's idea that schools should teach pupils to maximize their potentials in order to fully realize their humanity and take an active role in society. The implementation of this concept nowadays includes the teaching of practical skills such as modern languages and natural sciences, which Humboldt was fervently opposed to.[6]

Over time, with its fruition around the Weimar Republic (1918-1933), Germany developed today's school system, which selects pupils at an early age in order to place them into one of three different tiers. At the age of ten, after four years of primary school, pupils who show no ability or inclination to submit themselves to prolonged academic studies are placed into *Hauptschule* (secondary I). Those pupils who do well in practical subjects and show no inclination to pursue further studies at the university are placed into *Realschule* (secondary II). Pupils who show academic prowess and want to prepare themselves for the university are placed in *Gymnasium* (secondary III). Germany's tiered school system with its early segregation is accompanied by an elaborate vocational apparatus; it will be discussed in more detail in the next section.

Shortly after the end of World War II, western countries were wealthy again and international corporations began to emerge; global competition began to challenge western nation's school

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[5] Es giebt schlechterdings gewisse Kenntnisse, die allgemein sein müssen, und noch mehr eine gewisse Bildung der Gesinnungen und des Charakters, die keinem fehlen darf. Jeder ist offenbar nur dann ein guter Handwerker, Kaufmann, Soldat und Geschäftsmann, wenn er an sich und ohne Hinsicht auf seinen besondern Beruf ein guter, anständiger, seinem Stande nach aufgeklärter Mensch und Bürger ist. Giebt ihm der Schulunterricht, was hiezu erforderlich ist, so erwirbt er die besondere Fähigkeit seines Berufs nachher sehr leicht und behält immer die Freiheit, wie im Leben so oft geschiehet, von einem zum andern überzugehen.

[6] An often forgotten oddity about the Humboldtian model of higher education is that practical skills and job-specific training did emphatically not belong in his concept, where schools tach enough basic knowledge and skills that anything specific can be acquired easily when it's needed.

systems. Starting in the 1950s and reaching its first peak in the early 1960s, society began to demand that schools should teach job-applicable skills instead of what was perceived as dead knowledge. Germany's educational system underwent a gradual shift, where output substituted input in the design of school curricula. Formerly curricula were based on criteria concerning the contents pupils should be taught, hours allotted for certain subjects, and teacher qualification; in the hope that this input would naturally lead to the desired result of self-reliant citizens. With the shift towards an output-oriented school education, curriculum design experienced the 180-degree-revolution of crafting curricula to produce pupils with certain standardized skill-sets and knowledge that could be quantified in standardized tests. This revolution culminates in the reforms after PISA and is the key to the shift in values of the whole of Germany's educational system.

In 1964, the educator Georg Picht (1913-1982) declared an educational catastrophe (*Bildungskatastrophe*)[7] for the first time in German history. With a lot of media attention, he voiced concerns that had been building up for some time in German society: Germany's expenses for education were very low in international comparison, not enough pupils reached *Abitur*[8], there was a huge performance gap between rural and urban school districts, and the three-tiered school system needed fundamental reforms. Picht's message got kidnapped by the media, which simplified it into reporting that schools were not delivering the skills and knowledge necessary for their pupils to be economically successful in later life, thus endangering Germany's future prosperity.

The fact that Germany's educational system is undergoing a shift of values by substituting *Bildung* with job qualification can be linked to the usurpation of Picht's warnings by media and politics. While Picht – himself being a music lover and an ardent enthusiast for Plato's philosophy – aimed for equity in education and better school funding, his message was distorted to the need of teaching practical skills for immediate use and thus marginalizing subjects that have no economic application. PISA can be seen in the tradition of this first wave of school criticism and has contributed to the shift of values by focusing on the economic impact of schooling and by marketing to be the most publicly visible test program of its kind. The nowadays ubiquitous term qualification constitutes a direct connection to the workplace; within PISA's publications, it is used synonymously with employability. Consequently, for the German public, PISA 2000 was a wake-up call comparable to Picht's, showing that Germany's next generation would not be able to compete in a globalized economy.

Policy Reactions to PISA

PISA results, if taken as an accurate measurement of a limited resource, have enormous persuasive power. Official reactions of the "Standing Conference of the Ministers of Education and Cultural Affairs" (KMK)[9] were issued the same day as the PISA 2000 results, which had been illegally leaked before their official release date. In their statement, KMK demanded improvements in all major fields of schooling: Language competence should be raised, Kindergarten and primary school were to be interlocked, the lack of reading competence should

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[7] The original series of newspaper articles from the protestant weekly *Christ und Welt* was published in book form as Picht, G. (1964): *Die deutsche Bildungskatastrophe: Analyse und Dokumentation*. Freiburg: Walter.

[8] *Abitur* is the matriculation examination that completes graduation from secondary III, the *Gymnasium*.

[9] As de-facto governing body, the Standing Conference unites the ministers and senators of the *Länder* responsible for education, higher education and research, as well as cultural affairs. It deals with "issues relating to educational policy at school and university level and research policy, was well as cultural policy of supraregional importance, with the aim of achieving joint opinion and decision-making and of representing joint concerns" (KMK, 2015).

be addressed as well as pupils' understanding of mathematical and scientific relations. KMK also stressed the importance of the advancement of educationally disadvantaged children, of common standards and evaluation across all *Länder*, of professionalism in teaching; they also put forward a tentative call for all-day schooling (KMK, 2001).

Although at this stage most of KMK's demands were lip service without practical backup, it was clear that PISA results were as unacceptable for educational decision makers as they were for the general public. One of the early consequences of PISA was the 2002 expansion of educational research; this turn towards using the empirical arsenal of educational research for political planning is similar to the "Realistische Wendung [turn towards realism]" of the 1960s as demanded by educators such as Roth (1962) and Brezinka (1989). After the PISA and TIMSS studies, a significant increase in financial resources allocated to education also followed (Raidt, 2010, p. 247). In 2004, a comprehensive quality offensive called *Bildungsplan 2004* swept all *Länder*, aiming to improve the four sectors of professional competence, social competence, methodological competence, and personal competence. Four years later the German federal government in coordination with the heads of government of the *Länder* proclaimed a "qualification initiative", being a comprehensive educational reform program from kindergarten through university (for details, see Raidt, 2010, p. 114).

It is important to note the vocabulary of 'competencies' and 'qualification' permeating all education-related publications as the new yardstick for defining educational goals. Judging from the increased usage of job-market related expressions such as quality, competence, and qualification, as well as the contents of these proposals, they clearly indicate the utilitarian shift of paradigm in the Germany's educational consciousness, which abandons the traditional values of *Bildung* in favor of utilizing schools as tools towards job qualification.

The Role of Schools in Society

Traditionally, schools convey personal, practical, and political education by facilitating desirable attitudes, skills, and knowledge. This threefold role of schooling for society is reflected in most legislative frameworks around the world. Lately, German *Bildungspläne* (educational roadmaps set by education ministers of the *Länder* to be implemented in public school curricula), tend to contain the term *Ausbildungsfähigkeit* (the ability to receive job training; KMBW & LEU, 2004, p. 11) with the goal of producing graduates who can make economic contributions.

At this point, the KMK, responsible for German educational politics, does not differentiate anymore between *Bildung* and competencies. Their output-oriented standards describe "the subject-related competencies including underlying stocks of knowledge that pupils should have achieved up to a certain time in the course of their training" (KMK, 2005, p. 6), while simultaneously explicitly claiming that

> The mission of school education goes far beyond the functional requirements of educational standards. It aims at personal development and orientation in the world arising from the encounter with the central objects of our culture. Pupils should be taught to be empowered citizens who can responsibly, self-critically and constructively shape their professional and personal lives and participate in political and social life. (KMK, 2005, p. 6) [Author's translation]

Young People Seen as an Economic Resource

The modern need for investment in resources naturally leads to the concepts of human capital and human resources. Human capital theory regards human resources as capital, which is acquired using time and material costs, and indirectly brings increased benefits to the investor. In terms of profit, the benefits must at least compensate for the investments made in human capital. Seen from this angle, *Bildung* shifts its meaning towards fuel for the engine of economic development (Knecht, 1988, pp. 41–43).

The OECD, and with it PISA, sees education in its relation to the economy, focusing on the economic value of schooling, to then generally affirm "the productive utility of human knowledge" (OECD, 1996, p. 22). This view has been characterized by the UN as the "human capital approach" to education (Tomasevski, 2000, pp. 23–24). It stands in opposition to the approach of education seen as a human right, where "education should prepare learners for parenthood or political participation, enhance social cohesion and tolerance" (ibid: 23). Because of the traditional idea of education as the formation of the whole person, German politicians rarely use the term 'human resources'; but the concept has long found its way into political decision making (Raidt, 2010, p. 212).

Accompanying the educational shift from *Bildung* towards qualification are re-interpretations of formerly positive connoted terms, such as equity in education and lifelong learning, in the parlance of PISA. Raidt (2010, p. 209) notes that PISA's demand for equity in education seems to be more accurately described as the demand for efficient use of human resources. The German Protestant Church (EKG, 2003, p. 7) sees the new usage of the traditional concept of lifelong learning gaining new ambivalence by being interpreted as "lifelong adaption to constantly changing economic needs and goals". It demands that "*Bildung* should be more than just knowledge and learning", its goal should be the understanding of self and the world of human beings (ibid: 8).

In 2007/8, with a view to international competition and in order to shorten the time needed for finishing secondary education, many German *Länder* ordered their *Gymnasiums* to reduce schooling before *Abitur* from 13 to only 12 years.[10] This policy entailed the first wave of student strikes since the seventies. Demands of the students were varied, but in essence, they can be perceived as protesting the assigned role of students as human capital. A Stuttgart pamphlet calling for strike stated: "*Bildung* is being streamlined according to economic use. […] We do not want to be turned into *Fachidiots* [one-track specialists] who are being prepped for the job market" (Schüleraktionskomitee Stuttgart 2008: 2, cited from Raidt, 2010, p. 218 [my translation]).

The main fault for PISA becoming the yardstick after which schooling is shaped seems not to lie with PISA's own statements, but with its presentation by the media and public perception.

Cum Grano Salis: PISA results for Germany

Although the title of each PISA cycle's recurrent fourth volume, "What Makes Schools Successful", implies recipes for changing school systems, results and data from the international PISA test have limited value for shaping a country's educational policies. The

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[10] Throughout Germany, this policy is known as G8, because pupils would stay in *Gymnasium* for only 8 instead of 9 years.

industry might base certain location decisions on the comparison of 15-year-olds' answers to PISA's questions, and general statements concerning the strengths and weaknesses of country's youth in global comparison might point to areas where political action is required. Nevertheless, decisions concerning reforms to national educational systems have to be based on data that takes local conditions into account. In order to produce high-quality results and a data basis for specific problems, such an assessment must adapt factors like size of test subject group and participating schools; as well as goals, objectives, and questions of the assessment, to local circumstances.

Three-Tiered Segregation in German Schools

In Germany, Kindergarten is generally available for all children between 2 and 6 years of age, after which school attendance is compulsory. At the age of 10, after four years of primary education in *Grundschule*, teachers suggest one of the three types of secondary school according to the pupils' performance and personality traits. Parents then decide - within certain constraints set by their progenies academic performance and maturity – into which type of secondary school they want to enroll their children. This system of early segregation is unique worldwide and often seen as problematic. Today, only Austria retains a similarly early segregation system, while Switzerland and Liechtenstein switched to segregation after grade six in response to their first PISA rating.

Secondary I (*Hauptschule*) ends after ninth grade. It is the least theoretically oriented of the secondary choices. Education combines traditional knowledge acquisition with practical training in manual skills (Holfelder & Bosse, 1990, p. 612). Graduates mostly choose to go into an apprenticeship, which is a highly regulated combination of schooling and job training called Dual Vocational Training (*Dualer Bildungsweg*). Secondary II (*Realschule*) "provides an extended general education, which is based on real-life situations […] and creates the basis for vocational training programs […]" (Holfelder & Bosse, 1990, p. 52). It ends after tenth grade, whereupon graduating pupils are attested maturity (*Mittlere Reife*). They can then further their studies at the *Gymnasium* or enter an apprenticeship, typically in a white-collar environment. Secondary III (*Gymnasium*) goes onto grade 12 or 13 and focuses on academic knowledge. After grade ten, pupils can decide whether to pursue a career similar to that of Secondary II or enter the upper grades (*Oberstufe*) which lead to the *Abitur*, a nationwide standardized graduation test serving as the qualification exam for entering university (for more details, see Holfelder & Bosse, 1990, p. 55). In some German *Länder*, there is also a fourth type of secondary school called the comprehensive school (*Gesamtschule*). It comprises all three types of *Hauptschule*, *Realschule*, and *Gymnasium* under the same roof. The syllabus offers courses proprietary of all three types of schools and pupils are encouraged to choose according to their inclination. Up to grade nine and ten, all common subjects are taught in mixed classes. After grade ten, *Gesamtschule* turns into *Gymnasium*.

Germany's three-tiered educational system was originally intended to separate pupils at an early age and prepare them for the life that best fits their individual abilities and inclinations. The system allows graduates from every tier of secondary schooling to be economically successful in their professional lives as well as in their personal aspirations. For example, a plumber, having finished three years of apprenticeship after nine years of compulsory schooling, has a good chance of passing the standardized *Geselle* test, which makes her employable at full salary in enterprises throughout Germany. She might then try the more challenging four-year second stage of apprenticeship to attain the *Meister* diploma – a status

enabling her to open her own business and be a voting member of her guild, thus influencing policy in the field of plumbing and beyond.

PISA's defining principle is testing 15-year-olds[11], because they are considered to be "nearing the end of their compulsory time at school" (OECD, 2015a), and – by extension – on the verge of entering the job market. Although the wording has become more cautious than before, when PISA claimed to "measure how well young adults at age 15 […] are prepared to meet the challenges of today's knowledge societies" (OECD & UIS, 2003, p. 12), the underlying suggestion that 15-year-olds are at the end of their education still stands and still contradicts German reality. Germany's tiered school system is inextricably paired with Dual Vocational Training (*Dualer Bildungsweg*). This puts 15- or 16-year-olds into vocational training after leaving secondary I and II (*Hauptschule* and *Realschule*)[12]. In most cases, vocational training takes the form of an apprenticeship in an approved enterprise. Apprenticeships generally last three years, consist of a combination of vocational school and hands-on training in said enterprise and conclude with a formal examination for a nationally recognized degree. This system ensures that under-18-year-olds do not actually work in full-time employment, but stay in enrolled in a form of schooling that has been tailored to prepare them for their jobs, while simultaneously continuing to teach 'classic' school subjects. "Even for the two-thirds of all pupils who leave full-time schooling in Germany at 15/16 to enter an apprenticeship […] part-time attendance at mathematics courses remains obligatory at ages 16–18." (Prais, 2003, p. 142)

PISA-E, the Policy Reaction to PISA

Since Germany does not have a centralized body governing school education, and each of its 16 *Länder* have their own educational jurisdiction, it would be virtually impossible to advocate nationwide changes without collecting detailed data tailored to Germany's specific educational problems. Shortly after the first international PISA test, Germany launched PISA-E, testing a national 'extended' sample many times larger than that of the original international study. PISA-E is tailored to and analyses in detail external factors such as regionally different school systems, curricula, demographics, etc. Data obtained by the tests, which are deployed the day after each PISA test in the same 200 plus six times as many additional schools[13], is used to locate and address differences in educational opportunities for the sexes, socially divergent target groups, children with migration background, regions in eastern versus western Germany, etc.

> PISA-E uses "entirely different mathematical questions […] to reflect better (a) the actual school curriculum in Germany and (b) the spread of attainments of German pupils. In contrast to a total of 31 questions in mathematics in the international inquiry, the German national extended inquiry had an additional 86 mathematical questions" (Prais, 2003, p. 141)

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[11] The official definition of PISA's target population reads: "PISA covers students who are aged between 15 years 3 months and 16 years 2 months at the time of assessment and who are enrolled in school and have completed at least 6 years of formal schooling, regardless of the type of institution in which they are enrolled and of whether they are in full-time or part-time education, of whether they attend academic or vocational programmes, and of whether they attend public or private schools or foreign schools within the country." (OECD, 2014, p. 22)

[12] Graduates of secondary III also do not immediately enter the job market; they decide to either enroll in university or take up studies in an advanced vocational training program.

[13] In 2000, in addition to the 219 schools, which participated in the international study, another 1,466 schools took the PISA-E test (Stanat et al., 2002, p. 4).

If we consider the stated goal of PISA – providing decision makers with a quantifiable base for making changes in the educational system – then it seems strange that the survey is not concerned with mastery of the school curriculum, instead of testing how successfully pupils might cope with 'everyday life' post-school situations (Prais, 2003, p. 142). Especially notable are the 'real life' situations which include items like calculating the arc length of the blades of a revolving door to exclude air-flow between inside and out (OECD, 2014, p. 131) and the age of lichen according to its diameter.[14] It is not obvious in what sense this kind of questions test everyday mathematical literacy.

Conclusion

The PISA study was designed by the OECD – an international organization with the purpose to consolidate the economic well-being of its members. As such, PISA's goal is to determine and compare the usability of future human capital for participating countries and propose changes to the educational systems in order to maximize profits for their economy. PISA results point to weaknesses in the abilities of the current set of human capital and compare its quality internationally.

PISA delivers very detailed and very valuable data for international comparison of the job-related skills of 15-year-olds. The alarmist reception of its results is largely due to over-simplified media coverage – which is facilitated by PISA's own marketing machinery.

Results are indeed disturbing for Germany and should definitely not be ignored; measures must be taken to improve the ability of young people to put their skills to economic use; not only for the benefit of the economy they are part of, but also for their personal economic well-being. One of the most alarming outcomes of the study indicates that a large percentage of 15-year-olds in Germany cannot read. A possible explanation for this phenomenon might be that children with migration background constitute a large part of PISA's test candidates and do not have an adequate command of the German language to follow the classes they visit. Schooling must include all pupils and training in the basic skills must be intensified for weaker students, so they too can move on to other subjects, find their personal fulfillment, and be a contributing part of society.

On the other hand, education – in the *Bildung* sense of the formation of intrinsically human values – is about much more than the preparation of human capital. Human civilization is defined by the development of arts and skills whose values are not readily measured in monetary units. The media and public response to PISA results consisted in blind acceptance of its reductionist message and consequently cutting down the pillars of society's educational system towards a quantifiable, result-oriented supply of human resources to the economy.

The underlying assumption of PISA is that schools should produce students who are able to adapt their skills to the needs of the industrial labor market (Bennett, 2006, p. iii). Following the detailed plans of action PISA's analysts suggest for Germany's school system would help maintain a skilled workforce and doubtless contribute towards a healthier economy. It would

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[14] A sample PISA question, quoted after Prais (2003, pp. 142–143) is given as: "The approximate relation between the diameter (d, measured in mm) of a small plant (called a lichen) and its age (t, measured in years) is $d = 7\sqrt{(t-12)}$. Ann found a lichen of 35 mm diameter. *Question:* What is its approximate age?" Prais' verdict: "[This question is] particularly 'unreal' (even 'imaginary', in the technical mathematical sense): what is here supposed to happen in the first 12 years of the life of a lichen?" (Prais, 2003, p. 155).

not, however, further humanity's path towards a civilized society. What makes PISA a major factor for the ongoing crisis in the German educational system is the misconception of it being a tool for measuring educational success. It tests basic education, not general education and "says something about the preconditions for *Bildung*, but little about [*Bildung*] itself. […] The foundation should not be confused with the building" (Adam, 2004, p. 10). By emphasizing qualification, skills, and standards, we face the danger of neglecting a content-centered debate or a culturally and regionally specific educational canon. Linked to this is the risk of neglecting school subjects with no direct macroeconomic or individual benefit. These include all subjects that are not part of the basic education defined by PISA, such as philosophy, the arts, and music (cf. Raidt, 2010, p. 247).

The shift of values from *Bildung* to qualification is deplorable; Germany's three-tiered segregational school system might be a chance to first deal with a basic qualification and maybe move subjects not directly related to job qualification to the higher grades. In spirit, the German tiered school system is intended to provide each citizen with the opportunity to undergo schooling according to his or her individual abilities and tastes. Unfortunately, the theory does not hold up to modern reality – especially when mobility between the tiers of secondary and tertiary education is concerned; Students mostly stay in the school where they were put at the age of 10 and follow the path of least resistance for their choice of secondary education. Moreover, the social background seems to be far stronger in determining pupil's secondary school than their academic performance or personal inclination.

PISA's focus on the application of factual knowledge in the modern work environment challenges the traditional German understanding of *Bildung* as lifelong striving to achieve a uniquely human mindset. It evaluates schools as a delivery system of skilled workers for the industry. While PISA results are indeed alarming and political action needs to be taken to better prepare pupils for the job world, Germany should not forget that *Bildung* is more than mere qualification. Maybe there is still a chance to keep subjects such as ethics, arts, literature, and music in school curricula while simultaneously renovating the outdated system of tiered segregation, which may keep late developers from getting the education they deserve. Wernstedt and John-Ohnesorg (2008, p. 11) might be onto something when they theorize that German middle-class parents are willing to put up with a flawed educational system as long as *Gymnasium* and *Realschule* keep their children separated from the socially disadvantaged and from foreigners.

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