

# WORLD FEDERATION OF ASSOCIATIONS FOR TEACHER EDUCATION (WFATE)

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## Fourth Biennial International Conference Innovation in Teacher Education within a Global Context

Barcelona, April 21st-23rd 2016



Societat Catalana de Pedagogia  
Institut d'Estudis Catalans



UNIVERSITAT DE  
BARCELONA



Ajuntament  
de Barcelona



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# ■ Fourth Biennial International Conference

## Innovation in Teacher Education within a Global Context

The World Federation of Associations for Teacher Education (WFATE) fosters international collaboration among institutions and associations in order to promote educational research and the teacher's professional development, will hold its biannual conference in Barcelona from the 20th to the 23rd April 2016. The event is cosponsored by the Col·legi de Doctors i Llicenciats en Filosofia i Lletres i en Ciències de Catalunya (CDL) and Societat Catalana de Pedagogia (SCP-IE). This is the first time the Conference is held in Europe.

The WFATE membership currently includes associations for teacher training in Europe (ATEE), the US (ATE-USA), Canada (IAKB), Australia (ATEA), Africa (AATE), Latin America and Hong Kong. The three last conferences were held in Chicago, Nairobi and Beijing.

Our aim is to present to the international community the research conducted in Catalonia in the field of teacher training and to create permanent international working groups in order to develop joint projects with internationally renowned experts.

The Conference central theme is Innovation in Teacher Education within a Global Context, which will be the focus of several lectures, a round table and 15 sub-themes.

We are sure that this meeting will be an excellent opportunity to exchange perspectives with colleagues from around the world and simultaneously develop your career with new international experiences.

This conference has the support of the Ministry of Education of the Catalan Government, the education departments of all the Catalan universities, the teachers' associations Rosa Sensat and Fòrum Europeu d'Administradors de l'Educació de Catalunya, Lingua Pax, as well as many public and private schools and other teacher training institutions.

Invitation

# ■ General Theme and Subthemes

## General Theme

### Innovation in Teacher Education within a Global Context

Teacher Education must target skills for the 21st Century and beyond them to address the needs of a knowledge society. By hosting this conference, WFATE attempts to make an international effort to build educational and cultural capacity for innovation at all educational and socioeconomic levels. Its main objective is to increase the talent supply for innovation and knowledge creation, in order to make a place for everyone in a knowledge society.

UNESCO's Incheon Declaration (Republic of Korea, May 2015) declared 2015-2030 to be a journey towards inclusive and equitable quality education and lifelong learning for all, and WFATE shares this vision through re-thinking teacher education .

This conference is looking for an alignment with the major world education indicators, which point to needed transformation and change. We seek strategies that support the rapid development of innovation in education and in teacher training. We encourage the development of knowledge-building capacities by integrating knowledge education, information technology and communication. We emphasise health/wellness of all children and students as essential for overall development of the whole child in schools. This conference would enhance local, regional and global networks for educational design, jointly with community culture and education planning development to provide sustainability for teacher education development projects

## Sub-Themes

### *1. Multiculturalism and Multilingualism*

The increasing globalization of our educational systems necessitates the preparation of teachers who are comfortable working effectively with a diverse student population. What are the best practices of teacher education programs that can insure outstanding teachers for all students of our global community? Are field-based clinical programs the answer? International clinical experiences? Exchange programs for pre-service teachers? This sub-theme will provide opportunities to share successful preparation programs that result in improved academic achievement of all children.

Chairs: Jane McCarthy, Pascale Mompoin de Gaillard, Martí Teixidó, Mònica Pereña, Llorenç Comajoa

### *2. Technology and Mobile Learning for Pedagogical Innovations in Teacher Education*

Although the coupling of new technologies with traditional modes of teaching and learning may yield incremental improvements in learning, there is growing recognition that the real value of technology is to empower new ways of teaching and learning. This sub-theme provides an opportunity to share best practices and research in the ways that new technologies may support innovative pedagogical practices in teacher education. It is also focused on critical aspects of digital technology applications in education and on serious critical research, the latest pedagogical and psychological findings, and evidence about impact of technology on forming a pupil's cognitive processes.

Chairs: Paul Resta, Miroslava Cernochova, Mercè Gisbert, Ferran Ruiz, Jordi Vivancos, Christian Perreault



### ***3. International - Local Teacher Education Networking Models for Knowledge Building Innovation***

Knowledge-building teams operating as collaborative innovation networks fit Swam Creatvity author Peter Gloor's description of "the most productive engines of innovation ever", demonstrating advances that are noteworthy on several fronts: re-focusing education as a knowledge-creating enterprise; the development of professional networks that believe complex educational change take a decade to develop; a concerted effort to bring innovations and innovators together; and technology that enables self organization around idea improvement, in- and out-of-school.

Chairs: Mireia Montané, Thérèse Laferrière, Javier Valle, Eva Liesa, Mar Camacho, Roser Boix, Paula Mayoral

### ***4. Teacher Education Curriculum and School Curriculum***

What are the intentional and scaffolded structures for a teacher education curriculum that are integrated with field and clinical experiences? How can we integrate research, practice, and a strong social ethic? The relationship of the preparation curriculum with the public school curriculum is another area for discussion.

The basic question is "How should teachers be prepared?"

Chairs: Ann Shelly, Sally Wan, Antoni Tort, Anna Pagès, Àngel Domingo

### ***5. School-University-Educational Administrations Partnerships for Creative Initiatives in Teacher Education***

An understanding of how effective partnerships work is imperative in today's educator preparation programs. To design new and creative initiatives that will best prepare teachers for complexity and accelerating rates of change in current contexts, partnerships among various constituents are needed. Educational agents should collaborate to explore breaking down the boundaries between formal, non-formal and informal education, in order to provide professional flexibility and co-creation networks. This sub-theme is designed to bring together school leaders, university faculty and administrators at all levels for knowledge creation and innovative ideas that will lead to effective partnerships

Chairs: Maxine Cooper, Frances van Tassel, Kay Livingston, Neus Lorenzo, Anna M. de Monserrat

### ***6. A Distributed Leadership for School Innovation Management***

What kind of leadership is needed to implement changes at school and teacher education levels? What kind of learning environments are more convenient for improving learning organisation, and what type of research is needed to foster change processes? What will be the design, the implementation and the sustainability of learning environments for innovation? What kind of leadership is needed at different levels of learners? Researchers, experts, inspectors, principals and teachers will develop a joint analysis of their practices to build new theoretical framework.

Chairs: Esmahan Agaoglu, Elijah Omwenga, Xavier Chavarria, M. Rosa Buxarrais

### ***7. Monitoring and Evaluating Innovations in Teacher Education***

The aim of monitoring and evaluating innovations is to ensure that Teacher Education as a whole is able to benefit from any innovative theory and practice developed through specific programs or projects, by the identification of the innovative key elements, within the context and the conditions of the implementation and development of the evaluation tools, as well as the analysis of the main results. The implementation of innovative features could be evaluated through quantitative and qualitative elements in order to gain insights in Teacher Education.

Chairs: Joan Mateo, Antoni Sans, Joaquín Gairín, Carme Amorós, Francesc Martínez, Coral Regí

### ***8. Change for Innovation in Teacher Education***

The main focus of this sub-theme is classroom practices or education programs and policies that foster student innovation and knowledge creation, thereby making a difference in the teaching and learning process. Local, regional, and global knowledge networks foster innovation in teacher education and address the needs of the knowledge society.

Chairs: Joana Salazar, James Alouf, Patrick Lam, Joan Manuel del Pozo, Miquel Martínez, Joan Rué, Antoni Badia, Christine Hamel

### ***9. Initial and Ongoing Teacher Education for Innovation***

What kind of equilibrium is needed between theoretical and practical competencies in initial and in-service Teacher Education, or at least in the training of teacher trainers? We like to share research, theory and practice in order to change Initial and ongoing teacher education, encouraging innovation and exploring the possibilities of new developments in initial and in-service Teacher Education looking for improved professionalism of future teachers.

Chairs: Asa Molberg, Núria Vivancos, Diego Castro Ceacero

### ***10. Health, Sport, Physical and Plastic Arts Education (circus, dance and theater)***

The emphasis on high stakes student testing has left a void in the health/wellness of all children and the overall development of the whole child in schools. The sub theme provides an opportunity to share both research and practice in the area of physical/sport education, health/wellness, dance, music, circus and the visual arts in our schools and in Teacher Education.

Chairs: Paul Paese, Ian Scott Owens, Marc Franco, Luis Marqués Molías, Albert Batalla

### ***11. Supporting STEM Education through Teacher Preparation and Professional Development***

This sub-theme provides opportunities to share strategies and resources to prepare and equip teachers to satisfy a growing need for STEM (science, technology, engineering, mathematics) education through improved teaching and learning in STEM disciplines for students from kindergarten to graduate-level college studies (K-20), through wide-scale sharing and implementation of effective approaches. Among the approaches highlighted will be the NASA model for professional development of teachers using NASA materials and resources.

Chairs: Araceli Ortiz, Leslie Huling, Virginia Resta, Claudi Alsina, Marianne Cutler, Anna Maria Geli, Xavier Juan

### ***12. Strategies for Overcoming Inertia in Teacher Education***

According to the Oxford Dictionary {[www.oxforddictionaries.com](http://www.oxforddictionaries.com)} the term inertia means, “a tendency to do nothing or to remain unchanged” and the example of its use is “the bureaucratic inertia of government.” Sub-theme twelve provides opportunities to share strategies and resources to reduce inertia and address the

causes of the inertia that may be present in some participants of Teacher Education, including administrators, professors, teachers, students, and others, as well as the inertia that could be caused by fear of change, feelings of inadequacy in using technology, and resistance to leaving one's "comfort zone" in areas of teaching and learning.

Chairs: Elsa C. Price, Elizabeth Oldham, Carme Panchón, Jesús Manso, Valentí Feixas, Jordi Serarols, Laura Calzado,

### ***13. Disability Studies, Inclusion and Social Justice in Teacher Education***

Educational inclusion is a response to diversity within a social justice and human rights framework that seeks to facilitate participation and success in education for all students. Disability Studies in Education encompasses an array of critical traditions and methodologies that interrogate educational issues from a political and social perspective as they relate to disabilities. The concept of social justice is interpreted in the framework of unequal power relations in education. In this sub-theme, attention is directed towards building the capacities of educators, including teacher educators, to respond to, recognise and act on students' diverse learning needs (including high performance students, those with impairments, those who face discrimination based on gender, class, ethnicity and sexual orientation, and under-achievers), and enhancing learning for all students.

Chairs: Jenene Burke, Chandrika Devarakonda, György Mészáros, Monique Leygraf, Josep M. Sanahuja, Ignasi Puigdemívol

### ***14. Innovation in Teacher Training for Early Childhood Education***

The importance Of Early Childhood Education (ECE) and the impact it has on the development and learning of children is very well recognized. Professionals providing this vital training for 0-3 and 3-6 year-old children have a huge responsibility and must have the opportunity to benefit from high-level university studies structured to include scientific training and well-researched and proven theoretical and practical training. It is also necessary to define and include the elements which lead to collaborative work and networking between children, families and professionals from different areas and different social and cultural contexts. In order for this to become a reality, we need the commitment of organizations to ensure that children's rights are defended.

Chairs: Carme Àngel, Montserrat Anton, Sílvia Blanch, Cristina Corcoll, Mequè Edo, Maria Antònia Pujol, Rosa Ferrer

### ***15. Social Sciences Teacher Education for a New Era***

To support educators and student teachers in developing students' historical and geographical knowledge bases and critical thinking skills while promoting civic engagement are the main focus of this sub-theme: to preserve and provide access to Social Sciences, support research, and create interactive programs and exhibits that educate and inspire. The shared mission is to recreate the landscape of Social Sciences Education by providing research-based programs to prepare leaders who will empower tomorrow's citizens as lifelong learners, to develop and disseminate knowledge and contribute innovative ideas and leadership to solve the problems of a diverse and open society. Worldwide Libraries and technological systems can provide information and arouse new interests to advance in research and the pursuit of critical thinking in order to be possible understanding the most important social problems, transform lives and change the world. Transversal themes as Civil and Human Rights, Democracy in Action, Diplomacy and Social conflicts, International Trade, Energy and Environment, Landforms and landscapes, Water in the world, Wars and Conflicts, Terrorism, etc. could be object of joint international projects.

Chairs: Joaquim Prats, Joan Santacana, Alain Blomart, Joan Muñoz

# ■ Organising Committees

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Carl Bereiter, Knowledge Building International Association (KBI), Honour President. Ontario Institute for Studies in Education (OISE), Canada

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Sally Wan, The Chinese University of Hong Kong, Hong Kong, International Collaborator for Knowledge Building, mainly in Catalonia, Canada and UK

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Xavier Juan, CDL Governing Board member, Catalonia  
Sandra Lund, Knowledge Building in Action, Coordinator

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Mireia Montané, WFATE President Elect, ATEE Past President, Director of Centre de Programes Educatius Internacionals, Col·legi de Doctors i Llicenciats en Filosofia i Lletres i Ciències de Catalunya, and member of the Societat Catalana de Pedagogia de l'Institut d'Estudis Catalans

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Enhancing Opportunities for Toddlers Wellbeing through in-service and pre-service training

Cristina Corcoll Lopez, Àngels Geis, Carme Flores

Innovation in Teacher Training for Early Childhood Education

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## *1. Multiculturalism and Multilingualism*

# Teachers' Efforts to Promote Bilingual Intercultural Education in Indigenous Guatemalan Communities

Madeline Milian, Dana Walker

Concerns related to language contact, language shift, and language loss in indigenous communities in Guatemala, as well as the negative cultural and linguistic consequences associated with those trends have been well documented. While important political, cultural, and educational movements and reforms have noticeably advanced the status of indigenous cultures and languages, the implementation of effective bilingual education as a vehicle for maintaining and enriching the language of indigenous children and youth continues to encounter serious challenges. This paper analyzes the perspectives of a diverse group of Guatemalan teachers regarding national, regional, and local efforts to promote bilingual intercultural education in indigenous communities since the inception of federally mandated bilingual education in the 1990's.

### Methodology

Participants in this study consisted of 13 Guatemalan elementary teachers who attended a six-month professional development program funded by the USAID at a public university in the United States. The teachers, representing more than ten different indigenous languages, work in rural indigenous communities throughout Guatemala. We used an interdisciplinary approach to data collection and analysis informed by an ethnographic theory-method. We conducted semi-structured interviews and a focus group with six participants who were on campus when the study took place: all interviews were conducted in Spanish, audio recorded, and transcribed. We also administered an electronic questionnaire to seven participants who participated in the professional development program on our campus, but who had already returned to Guatemala when the study began. For the analysis we conducted domain, contrastive, and taxonomic analyses of the interviews in search of important cultural themes – and outliers – across the data and in relation to existing research literature.

### Results/Implications

Overall, participants viewed the language policies of the 1990 Peace Accords that mandated bilingual education, and the Academia de Lenguas Maya (Mayan Language Academy), as major contributors to the revival and maintenance of culture and language within the indigenous population. Many of them attributed their own bilingual intercultural development to the opportunities they gained through the Academia de Lenguas Maya. Key themes that emerged from our analysis included the following: a) the decentralization of the educational systems created both positive and negative outcomes for individual linguistic communities, leading to uneven support for bilingual intercultural education across regions; b) teachers face significant challenges working with families who were reluctant to have their children maintain the indigenous language and culture and often present barriers to efforts to implement bilingual intercultural programs; c) there is a lack of support for the maintenance of indigenous languages by the media, with the exception of some efforts by local radio stations; and d) teachers reported that the four major Mayan languages have received more support from both governmental and non-governmental agencies, which has allowed members of these linguistic groups to develop more bilingual intercultural programs.

This study is significant in that it presents the perspectives of educators working in indigenous communities in Guatemala. Results of this study indicate that much work remains to be done if Guatemala is to continue as a multicultural, multilingual nation. As such, our proposal is very relevant to the WFATE Conference particularly as it relates to multiculturalism and multilingualism as well as to Teacher Education and School Curriculum.

## *1. Multiculturalism and Multilingualism*

# **A Need for International Teacher Development in the Global Context – A case for Hanban teachers in the K-12 U.S. classrooms**

**Jingzi Huang, Yinyan Huang**

Globalization has made the world much smaller and thus the demand for multilingual/multicultural citizens much stronger. Among the languages that have been viewed as widely useful and economically beneficial, Mandarin Chinese has become the one that draws the world's attention. Recent announcement by the White House of its ambitious goal of having one million American children learning Chinese by 2020 is just an example of such attention. Accompanied the desire for more students studying Chinese is a concern for the shortage of teachers. This teacher shortage is especially profound in the United States where the realization of the importance of Chinese language seems to be sudden and widely spread. Out of desperation, the schools would take any offers for more Chinese teachers. At the same time, with the rapid economic growth in China, the Chinese government, through Confucius Institute operated by its Office of Chinese Language Council International, which is in Chinese known in its abbreviated form as the Hanban, has been sending teachers and volunteers all over the world. In 2014, there were 33745 Hanban teachers in international settings (Hanban 2014), many of whom worked as Chinese teachers in the K-12 American classrooms. While these teachers bring with them into the American classrooms authentic Chinese language and cultural resources directly from the target culture, anecdotally, challenges and issues related to qualification of teachers and teaching effectiveness have become media attention recently.

A wealth of studies exist to explore the Confucius Institute phenomenon, focusing mainly on the diplomatic and political dimensions, (e.g., D'Hooge 2008; Kurlantzick 2007; Scobell 2014; Starr 2009; Yang 2010). Stambach's recent study (2015) is one of the few that looks into teachers and students in the classroom settings, examining how Confucius Institute teachers and students use language to index qualities of Chinese people and culture. While all studies provide an understanding of the Confucius Institute phenomenon, there is a lack of research attention to challenges and issues facing the K-12 classrooms conducted by Hanban teachers. Considering the shortage of K-12 Chinese teachers and the high possibility of the continuous utilization of Hanban teachers by schools world-wide, an examination of teacher quality and teaching effectiveness of Hanban teachers is needed. This paper, with the intention to address a gap in both research and practice in international language teacher development in the global context, examines teacher preparation and teaching effectiveness in the context of Hanban teachers in the U.S. It is a case study conducted in a school district in a western state that relies on Hanban teachers for its Chinese programs. The research question directing the study is: How effective is the preparation of Hanban teachers in the context of teaching Chinese to American K-12 students? Data are gathered from Hanban teachers, U.S. K-12 students, and local program administrators in the form of surveys, interviews, and class observations. The findings of the study shed light on opportunities and challenges for international language teacher development in the global context and point to direction for international-local teacher education networking possibilities.

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## Multicultural Concepts that can Promote Global Competencies

**Timothy S. Fry, Connie S. Schrock**

The principles of multicultural education applied in teacher education programs have helped future teachers create more equitable and inclusive classrooms. Many of these same multicultural principles can give future educators global competencies to interact with a diverse and increasingly interconnected world. The goal would be to enable future educators to be in a position to promote understanding among the world's people and to promote the positive aspects of interdependence. Multicultural concepts that promote global competencies examined in our session include: culture, cultural pluralism, and multiple perspectives.

This session will examine in detail the complex concept of culture that includes both an idealized and working definition of culture. While people around the world are different, as human beings we have much more in common than we have different. Cultural similarities and differences will be highlighted, as session participants will create a personal cultural profile. Many people (pre-service teachers included) often mistakenly think that individuals are members of "a" culture or just one culture. In fact, we are all members of many cultural groups. Culture is an essential concept to explore in that it allows teachers and students alike to see their own cultural background(s) and as a result, have the opportunity to see themselves in the curriculum. By creating their own cultural profile, people realize that they are not members of a single culture and that all people around the world are indeed multicultural! Positive aspects of cultural pluralism will also be addressed including the need to view diversity as a strength. Social studies and the social science disciplines were marginalized in the curriculum during the No Child Left Behind years. As the recognition of the need for education to become increasingly global, the social studies and the social science disciplines will hopefully regain their essential status in the curriculum. An important concept shared by both the social studies and multicultural education is the concept of "multiple perspectives." This concept says that it is possible to view any idea, event, or era in more than one way. Stories from history and important civic issues involving humans can almost always be viewed from more than one perspective, and often involves conflicting perspectives.

Everything can be interpreted through different eyes and from different times and places. If people realize the many different perspectives there are in the world, they can begin to understand the importance of accepting and affirming difference. This session will explore ways that "multiple perspectives" can be emphasized in teacher education to promote global competencies. Several historical and contemporary examples of multiple perspectives will be provided. Strategies to include multiple perspectives in curriculum disciplines beyond the social studies will also be explored. Future educators need to be aware that they are in a real position to promote tolerance and peaceful resolution to conflict around the world through the application of the concept of multiple perspectives.



# Preparing Culturally Responsive Teachers for 21st Century Classes

Yaprak Dalat Ward, Lorie Cook-Benjamin

Currently, traditional beliefs in immigration, diversity and inclusiveness are being challenged by worldwide political turmoil. This paper is a partial response to a potential shift in these values.

Today's teachers work in a continually changing diverse environment that requires constant updating of knowledge, skills and abilities to be able to manage culturally diverse classrooms and implement practices that promotes inclusiveness. The U.S. Bureau of Census marked the year 2011 as a milestone indicating more minority babies were born than white babies. These demographic changes in U.S. schools also show a trend of increased diversity especially reflected in English Language Learners (August, Escamilla, & Shanahan, 2009; Echevarria, et al., 2011; Friend, McCrary, & Most, 2010). In addition to the changing demographics, the significant shift in worldwide immigration patterns coupled with refugee crises force educators to reconsider and assess teacher education programs to urgently respond to the growing need of culturally-responsive teachers.

Teacher education candidates need to be better prepared to engage with diverse environments that dictate not only enhancing teachers' own development but also their students' development. Although 21st century teachers seem to become more connected globally, at a local level, particularly the U.S. teachers' relationships in the classrooms are becoming more short-lived and segregated resulting in isolating students and affecting student achievement. This is due to perhaps inertia or perhaps lack of awareness or perhaps lack of preparedness.

Literature indicates that training teachers to become culturally more responsive and exercise inclusiveness effectively has a significant impact on many student-related issues ranging from constructive learning environments to collaborative efforts which leads to greater student achievement. However, according to Franklin Torrez and Krebs (2012), literature also reveals a gap between university teacher preparation programs and the realities of the K-12 classroom. Acknowledging this gap, teacher education experts believe it is essential for candidates to meet the global demands of changing demographics in today's classrooms.

Today's schools are politically mandated to transmit the basic elements of citizenship and national identity in order to ensure the continuity and endurance of the political community. In addition, schools are institutions for not only the presentation and enforcement of national, ethnic, religion identification, but also the locus of resistance against assimilation to the hegemonial culture (Scherr, 2010). Worldwide institutions must revise their practices in the light of these massive cultural earthquakes and teacher education faculty need to be more equipped to develop courses to better prepare their candidates so that their mental models (Senge, 1990) are reformatted to overcome binary thinking (Bauman, 1990). This is not only a legal obligation, but also a moral obligation.

This presentation will share one undergraduate course, and one graduate course with engagement metrics (Kaushnik, 2014) to demonstrate how a class can be utilized as a laboratory to prepare culturally more sensitive and responsive teachers as social actors who can communicate more effectively to ensure inclusiveness in these environments. This will, in turn, assist in transforming their mental models overcoming the "us and they" tribal mentality in classrooms.



## *1. Multiculturalism and Multilingualism*

# Towards autonomous learning: The European Language Portfolio

Laura Boyd Cahu 

Globalization implies mobility and the possibility of being connected with the world so being competent in other languages has become a need for global citizens. A person who is competent in other languages can bridge the gap between cultures, successfully engage in international studies, find more job opportunities and contribute to international understanding.

The school reality in such a globalized world makes it necessary to rethink the purpose, the process and the result of academic education. The student needs to become autonomous in finding information, in dealing with meaningful learning while interacting with other learners. The main role of the teacher becomes then to help students become independent learners, reflect on their learning process so that they are able to decide their targets, what they need to do to achieve them and how they need to do it.

The Common European Framework of Reference was created by the Council of Europe as a guideline to describe achievements of learners of foreign languages across Europe and the European Language Portfolio (ELP) was created, in its turn, as a personal document to promote reflection on the owner's learning process.

The objective of the development of the ELP in schools is to enhance the concepts of innovation, self-regulation, professionalization, collaboration, networking and lifelong learning in our schools. This presentation gives an overview on Multilingualism and the ELP as a tool to develop the learning to learn competence of language learners and it is addressed to language learners, language teachers, subject matter teachers and educational agents who may be interested in developing strategies to help students reflect on their learning process.

The content of the presentation is organised in four main blocks:

a) Multilingualism and the Common European Framework of Reference.

b) The ELP and its three sections:

- Passport: the learners' linguistic identity, their personal linguistic and cultural experience, certificates and diplomas.

- Biography: the accompaniment to reflective learning, personal targets, and personal linguistic background.

- Dossier: for the owners keep examples of their own work.

c) The ELP functions:

The development of language learning skills such as the capacity of learners to set their own learning targets, reflect on their learning process and evaluate their learning outcomes. It reinforces learners' autonomy, educates for democratic citizenship and develops the sense of lifelong learning.

d) An outline of the ELP course offered by the Catalan Department of Education to teachers of formal and non-formal education, as well as other education agents.

During this session, and time permitting, some activities among the audience may be carried out in small groups to enhance reflection on the ELP.



# Integrating Content and Additional Language in Pre-service Teacher Education

Carme Flores Muxi

One of the main goals in today's European policies is without doubt the consolidation of a multilingual society able to understand and appreciate cultural differences. Internationalization and multilingualism have been given priority in all educational contexts and, thus, in the world's Higher Education (HE) arena. The use of an additional language (AL) to cover academic content has been promoted through practice and by showing some of the positive results obtained in the different research studies carried out in recent years. The aim of this paper presentation is to contribute to the multilingual ethos by presenting a theoretical framework based on Content and Language Integrated Learning (CUL) and how CUL is implemented in HE. Secondly, we aim to show some preliminary ideas regarding the perception and performance of CUL by covering both students' and teachers' dimensions. Our third aim will be to discuss how Effective CUL Teaching Practice (ECTP) can be identified. Our research study has been carried out at the Faculty of Psychology, Education and Sports Science Blanquerna (FPCEE), University Ramon Llull with a group of pre-service Teacher Education students.



## A Training Proposal for Reception and Insertion of Foreign Origin Students

Núria Alba Romà, Maria Teresa Romaguera Güell

This communication presents the principal lines and teacher training actions that the Servei d'Immersiò i Acolliment Lingüístics SIAL (Linguistic Immersion and Integration Service) provides to teachers in charge of foreign students.

This training proposal is part of the actions that, due to demographical changes produced during the last decade of the present century, were implemented in order to accommodate the migrant population which has been coming into our classrooms. During 2000-2001 school year, foreign students accounted for 2% of the total and increased to 13% in 2013-2014.

The arrival of foreign students in the classrooms showed brought about the need to design new teacher training proposals, especially those related to new language acquisition at compulsory education, as well as the access to the contents of the different curricular areas in a second language.

SIAL teacher training proposal for foreign students is linked, on the one hand, to the resource of the aula d'acollida (insertion classroom) which, from 2004-2005 school year, was the most prominent action in this area. Furthermore, since 2015-2016, linguistic support to students once they were fully integrated in their ordinary class is offered as an additional support for those who still do not know the learning language well enough.

From this perspective, SIAL training lines for foreign students' integration were:

- Breakthrough training for insertion classroom teachers in charge of social and linguistic support.
- On-line courses which allow teachers to follow foreign students' evolution since the beginning of their arrival.

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Early integration and linguistic and cultural diversity

Catalan as a foreign language

Teaching strategies for linguistic and curricular support in the ordinary classroom

- Conferences to impulse new methodological proposals and share experiences and orientations.
- Internal work groups
- Seminars and local training
- School training and coaching driven by LIC (Language and Social Cohesion)
- LIC training and coaching to work groups
- Guidance materials

The second part of the communication will be devoted to present a specific experience in one of the previous training modalities, driven by the insertion classroom of Girona's secondary education work group since 2009-10 and coordinated by the LIC adviser of the area. It is a meeting point, peer learning and training for sharing teaching experiences as well as classroom management resources. Every school year, the group designs a working plan and faces new challenges for professional improvement.

Peer-working allows:

- Comparing the activities driven in the insertion classroom with the theoretical policies related to second language acquisition teaching practices.
- Designing curricular proposals linked to theoretical policies, promoting a strong relationship between teaching practice and pedagogical reflection.

At the same time, the work group has become an activities-producer engine which facilitates and potentiates the participation of foreign students in their cities.



## **An In-Service Training Model for Content and Language Integration in Secondary Classrooms**

**Núria Alba Romà, Jordi Domènech Casal**

The following paper presents the teacher training lines of Servei d'Immersion i Acol·liment Lingüístics (Linguistic Immersion and Integration Service), oriented to train teachers who must deal with linguistic diversity in secondary education classrooms in the Catalan educational system.

In order to guarantee the full communicative competence of both official languages by the end of the students' compulsory education, a linguistic immersion programme has been applied in Catalonia since 1983. This programme was updated in 2007, bearing in mind the particular sociolinguistic Catalan situation in order to meet the needs generated by the increasing migrant population which arrived to Catalonia. That demographic change brought in an important number of students to schools, all with their own languages and cultures, which was a completely new situation for Catalan teachers.

Secondary Education centres required a high level of specialization in subject areas and therefore linguistic immersion programmes had to be adapted to these curricular subjects' needs. For this reason, the solution was to apply a methodological option based on the Content and Language Integrated Learning -in Catalan, Tractament Integrat de Llengües i Contingut (TILC)-. This methodology promotes the integrated and systematic work of the academic language within every curricular subject, with the aim of improving academic

achievement of all students, including all foreign-origin students.

Starting from strengths of previous and current models -immersion programme in primary schools, sheltered instruction programs, AICLE contributions-, recent educational research and Council of Europe guidelines, a TILC proposal adapted to the Catalan context has been elaborated.

The general lines of the proposal are divided into six areas:

- Academic language learning
- Integrated planning of teaching proposals
- Multilingual and multicultural classroom management
- Hands-on activities which allow both content and language integration
- Integrated assessment
- Active student's role

Moreover, some other Departmental methodological proposals have also been considered, specifically, training in communicative competences in curricular subjects and enhancing reading skills (Impuls de la Lectura).

Training lines through which we enhance TILC are given as professional development to teachers who are currently in the classroom, as well as new teachers who will soon be entering the classrooms. Learning formats included are: on-line, face-to-face, expert visits, coaching and working teams. Furthermore, we develop guidance materials and documents which are available on our web server for consultation.

This type of training is done by on-line trainers, part time face-to-face trainers and language, social cohesion and intercultural consultants (LIC).

In the second part of this communication we present and assess the first steps in TILC implementation, especially the double role of part time trainers, who provide a focused scope towards the needs of the teacher, and allow them to establish synergies with the trainees and to perceive any raising needs and from both of them and the centres.



## Learning by Doing: Foreign Language Teaching Innovation in Disadvantaged Schools

Inma Piquer, Mònica García Regalado

Learning a foreign language is an exciting premise for children when it is socially and emotionally supported at home and in the educational setting. However, in most educational contexts, the teaching of the foreign language can be coupled with the pressure caused by adults (parents and teachers) as well as the anxiety experienced by the students when the teaching methodology adopted isn't the appropriate one.

The school context presented in this paper counts with an extra pressure which takes place in some specific contexts, that is the fact that "Institut Escola el Prat" is a school serving gypsy children in a neighbourhood of "El Prat de Llobregat", a city near Barcelona. Teachers from the school claim that gypsy children struggle in formal school settings, attaining poor attendance and underachievement. Unfortunately, there exists prejudice and discrimination in many communities, and society frequently misunderstands the gypsy community strengths and traditions. We believe that the school has an important responsibility to explore diverse methodologies

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and, without a doubt, the teaching of English through learning by doing focusing on relevant themes is a paramount one.

The present paper describes and analyses the teaching experience named English as a foreign language teaching / learning, 'Learning by doing': an innovative project currently being carried out at the 'Institut Escola el Prat'. The students of this school, -who are all from gypsy origins-, were in a situation of complete school failure previous to the implementation of this program. After a consultation made to the Servei de Llengües Estrangeres (Departament d'Ensenyament), the teaching team, together with the institutional trainer assigned, PhD. Inma Piquer Vives, designed the present project, in which students practice the contents of the syllabus by participating actively in thematic role plays inside the classroom. This methodological approach allows students to practice their language abilities and competences linked to meaningful performative actions, promoting a highly motivational experience for students. This experience has turned out into a successful one where students' achievements, parents' interest and teachers' satisfaction guide its continuity and improvement.



## Plurilingualism in Romance Europe

Martí Teixidó

Learning different languages is an opportunity and a need for all, not only for demand of the labor market is because, after all, learning foreign languages and cultures opens the door to understanding the world from other perspectives and sensibilities, while that helps us to understand the different ways of segmenting the reality, since every linguistic system provides its worldview and its symbolization filters.

Although efforts, language learning in Catalonia has been not quite effective in a intercommunicate world where citizens need, at least, three languages. First, because the uniform treatment of language can not respond to a society as diverse as ours. Often the program is teaching the language to middle level students.

Secondly, because we wanted to transplant models from other countries, without taking in account our socio-cultural reality. This has become in a model of language learning which requires the child to learn a language from known thus discouraging the impression that it's done with total ignorance, instead of taking advantage of the proximity between languages.

Taking in account the proximity between languages in learning recipes, allow the child to state that any language is not totally unknown, if they are accessed using the wealth of knowledge that can be of a certain language, for knowing another one belonging to the same language family.

Societat Catalana de Pedagogia, an affiliate of the Institut d'Estudis Catalans, is promoting research and development (R + D + I)

The Marc d'Ensenyament de Llengües Vives (Framework for modern languages) is a framework for the development based project of plurilingual education at schools in Catalan, open to the romance languages with English as a transnational language.

It is divided into:

- Principles as a bases scientifically accepted.
- Aims of plurilingual learning.
- Balancing the polarities .
- References that should guide decision making.

All these sections deal with issues such as:

- a) Oral language, articulation, for configuration of thought.
- b) The language transfer between languages.
- c) The introduction of foreign languages.
- d) The consolidation of foreign languages with plurilingual approach.

This document proposes three different path according to linguistic competence of children that could be identified with a pedagogical diagnostic also developed by the SCP and named Termòmetre Lingüístic. The framework for teaching modern languages offers three models for reference that are intended to guide schools in making decisions for designing itineraries and specific actions to move towards plurilingual teaching practice approaches and involving all stages and all the staff. Also point to a flexible organization that change the concept of class group to take the treatment of diversity from new perspectives.

The proposal has been discussed and prepared by a group of professionals and scholars of various disciplines met in the XLVI Catalan summer university 2014 organized by the Catalan Society of Pedagogy and Delegation in Perpignan of Institute d'Estudis Catalans and was presented at the Catalan summer university 2015.

Grup Promotor Santillana publishing excellent materials with the support of Fundació Carulla.



## Multilingualism in our Classes

**Carme Serrano Jiménez**

As a member of the GEP (Group of Experimentation of the Multilingualism), which is a two year training programme here in Barcelona for teachers, I started creating my project for the Science class to make our students learn English in a more natural way, learning content through a language, at the same time they were also improving their own language.

I was really engaged with the choice of my topic. It was matter. I discovered on the Internet a list that goes from the smallest particle of matter (electrons, protons neutrons) to the biggest particles of matter which is the Universe, and this really was my inspiration and starting point. I did a lot of research to find suitable websites and materials to make my students start thinking and have the motivation for this topic.

This is the list:

You could start really small... Particles of matter. Atoms. Molecules. Macromolecules. Cell organelles. Cells. Tissues. Organs. Systems. Organisms. PopulationS. Ecosystems. Biomes. Planets. Planetary Systems with Star. Galaxies. The Universe  
...And finish really big.

Because we were talking about small particles of matter, one of my students brought a microscope to the class, and also trying to help another student that didn't know what tissues were, we stopped on the idea of tissues. We spent some time working on them, we observed them in the microscope and reached the conclusion that they are like cloth, different kinds of cloth our body is made of.

This year we are back on this list again and trying to develop my second year of the training programme, I decided to stop on the idea of atoms but not related to living things but about non living things. So I fell deep inside the idea of rocks and minerals. I needed to design my driving question for the project and it was "What

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minerals are behind the objects we have in our houses?”

At that moment I also discovered why this huge area of research in California is called “Silicon Valley”, because the mineral that supports our electronic devices is silicon. Our tablets come from this material, however, latterly there is a revolution for a new mineral, graphite, and we are now entering the era of the graphene.

As a result of all of this, but with the methodologies of CLIL and KBIP (using the Knowledge Forum and the Videoconferences), we are working seriously, this topic of rocks and minerals, in our Science class.

I’m now in touch with a school in Quebec and we have started working together with this idea of rocks and minerals on the basis of really making our students appreciate what these materials represent in our lives. If we look around us, everything has a mineral in it, from petrol to iron, to sand and gravel, glass, decorative rocks (marble, slate, and granite), clay to make to make bricks, tiles and so on.

Our students can share their research through Videoconferences and collaborating together and learning more about this valuable natural resource we have around us. They are learning about the Cycle of rocks, minerals identification and properties, the minerals we have in our area, which is our industrial inheritance, the manufacturing of these objects and the reflection on how a place that has been mined needs to be turned back into a natural place similar to how it was before.

To conclude I would like to show you some pictures, which unconsciously made me appreciate these natural resources. They are from my last trip to the West Coast of the USA. I discovered these Wonders of Nature there. All the formations of the rocks and minerals that make this magnificent scenery.



Bryce Canyon



Horse Shoe Bend



Antelope Canyon



Death Valley



A Palette of color



Borax Mountains



## Plurilingualism as a Social and Personal Goal: a New Role of Education Systems?

Mònica Pereña

Contemporary European societies are characterised and enriched by linguistic and cultural diversity, by migration and mobility. Being able to speak and to communicate in a complex and globalized world in different languages enhances personal development, employability and academic and professional success. As education administrations, only truly value and treasure these characteristics by recognising and responding to the associated challenges.

If the purposes of education are preparation for employment, preparation for life as active citizens in democratic societies and personal development, it is necessary to ensure quality linguistic education for ensuring equity and social inclusion.

Educational failure is partly determined by an inadequate command of a wide range of linguistic forms. Mastery of the language(s) of schooling is one of the ways to achieve the goal set by the European Commission and by a wide range of national authorities of reducing the number of learners leaving the education system without qualifications. Academic success is strongly connected to students' command of the language of teaching and the fact that students can use their own language and perceive that it is recognized, accepted and valued, generates positive attitudes towards foreign language learning.

A strong domain of the language(s) of schooling is essential but the importance that the host society gives to newcomers' languages is very important as well, especially considering medium and long term repercussions. These are crucial aspects to ensure equal opportunities and to avoid school conflict and social marginalization. And it is also very important that the students can learn, apart from their familial languages, at least one foreign language.

In this context it is essential to set up a real plurilingual educational model and face the big challenge of being able to communicate in different languages. To achieve this goal, transforming language teaching and language learning is the only way.

On one hand through methodological changes:

Learning languages to communicate (functional learning, use oriented), to do things with them (meaningful

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learning, action oriented) and to solve real life problems (competencies and collaborative learning),

Assessing to learn (assessment oriented learning, reflexive learning)

Maximizing the efficiency of learning (avoid duplication)

Recognising and validating informal and non formal learning instruments

On the other, promoting structural changes in the school system:

Changing the relation between teachers and students and their roles facing the learning process.

Changing the relation between teachers . Coordination between language teachers and subject teachers.

Changing the classrooms. The classroom must be a flexible structure that allows students leadership and team collaborative work.

Changing training strategies and professional teachers' development.

## *2. Technology and Mobile Learning for Pedagogical Innovations in Teacher Education*

### **Enhancing teaching practice through mobile learning**

**Davide Parmigiani, Marta Giusto, Francesca Passadore**

This research is the prosecution of a study, conducted during last academic year, focused on the mobile devices' affordances, in order to improve the Italian teacher education programmes. The most critical point, highlighted by that study, was represented by the poor development of the students' learning strategies. For this reason, we carried out a further research aimed to analyse the opportunities offered by the mobile devices to enhance reflective thinking of student teachers during teaching practice. The student teachers went to some primary schools to observe the teaching styles of the teachers; then, subdivided into groups composed of four members, they discussed online and share ideas and materials about the observed teaching strategies; finally, each group worked online and created various digital materials on the pros and cons of the observed teaching strategies. After each of these activities, we administered an online questionnaire to the participants, in order to examine the development of reflective thinking. The questionnaire was composed of both closed- and open-ended ones. We chose a mixed approach to collect both quantitative and qualitative data because we wanted to stress distinctive benchmarks for the mobile learning activities in teacher education and to profoundly understand the reasons for these points of reference. The study is still ongoing but the first quantitative data analysis shows a progressive development of reflective thinking. In addition, the qualitative data analysis is showing interesting remarks made by the students who underlines the opportunities but also the issues related to the use of mobile devices at school.



### **CLIL 2.0 Teachers: the Integration of Technologies into CLIL In-service Training programs Developed by the Departament d'Ensenyament**

**Rosamaria Felip Falcó**

In the digital era, CLIL in-service teacher training programs must empower teachers by providing them with the abilities and tools needed to integrate technologies effectively into their lessons so that communication, collaboration and creativity are fostered. CLIL teachers need to know the pedagogical uses of technologies and, especially, of mobile devices, as well as where to find suitable online resources and materials.

Technologies have a great impact on every aspect of students' lives; they affect the way they communicate, collaborate, play, socialize and learn. When learners are allowed to use web 2.0 tools and apps, lessons become more engaging and motivating and well-thought and planned tasks are increasingly relevant and real for students.

In CLIL settings, technology also provides access to virtual experiences, situations, times and places which are otherwise beyond students' reach (i.e. experiments in virtual labs, remote places to explore, historical moments, the interior of the human body, etc.).

This presentation will offer insights into how technologies are an integral part of in-service CLIL training programs, courses and modules developed by the Departament d'Ensenyament. We'll see how the Integration of technologies into such programmes has evolved since the early times in 2007 when they were first included in the

CLIL sessions designed within the ANIP programme (L'Ensenyament de l'anglès a l'educació infantil primària) up to the present times when they are key in the GEP CLIL training (Grup d'Experimentació per al Plurilingüisme). Nowadays, CLIL teachers are trained in the use of web 2.0 tools and apps such as social bookmarking, podcasting, videocasting, interactive timelines, blogs and wikis, infographics, online visual organizers as mindmaps, tutorials, interactive maps, virtual reality, augmented reality, virtual labs, interactive games, social media, and tools for flipping their classrooms, among others.

Trainees are also presented with online multimodal and authentic materials and resources suitable for CLIL lessons and they are encouraged to become content curators and to share their resources in a network with their colleagues. Creating their own Personal Learning Environment (PLE) is also part of their CLIL training. CLIL programs and courses that integrate the use of technologies and online CLIL resources aim at offering training on how to provide the best learning environment for 21st century CLIL learners. This fact is highly valued by the trainees and it is often highlighted that, despite the difficulties they sometimes have to overcome, using tools that promote collaboration and communication along with methods that promote these skills can be truly transformational for their teaching and motivating and rewarding both for them and their students.



## The concept of DIY as a base for a teaching approach in ICT teacher education for the development of pupils' digital literacy

Miroslava Černochová, Tomáš Jeřábek, Petra Vaňková

The paper introduces empirical research carried out by authors from the Department of Information Technology and Technical Education at the Faculty of Education, Charles University in Prague who have drawn inspiration from the EU project, 543177-LLP-1-2013-1-ES-KA3-KA3MP, "Do It Yourself in Education: Expanding digital competence to foster student agency and collaborative learning (DIYLAB)".

The concept of DIY is not totally new. "DiY culture can be defined as 'a youth-centred and -directed cluster of interests and practices around green radicalism, direct action politics, [and] new musical sounds and experiences... a kind of 1990s counterculture'" (McKay, 1998, p. 2). DIY promotes the idea that everybody is capable of completing a wide variety of tasks, by finding resources and interpreting available information. The DIYLab project wants to transform deeply what takes place in schools and to create substantial change in learning and teaching practices.

"Everyone has a capacity to think and to learn, to make and to act, to sense and to feel; these processes constitute something enduring about being and becoming" (Atkinson, 2011, xi). According to Kafai and Pepler (2011) in DIY activities we can include e.g. programming subroutines, apps for mobile technology, webpages design or manuals how to do/make/perform it or how to know to do/make/perform it. DIY implemented into learning process can considerably contribute to discovery and the acquisition of new digital technology facilities and improve digital literacy. Most significant is that DIY creators to share with others through digital technology a process of doing/making/performing it and provide others with instruction how to proceed to solve a similar problem. For school education it is a challenge to document in a visible form (animation, video, etc.) and to produce intelligibly a recipe for creation a similar artefact which we can appreciate as a way of self-reflection of learning process how to achieve an idea to do/ make/ perform something.

To apply DIY in schools is to enable our pupils to bring interesting ideas from their out-of school environment

into school and to create appropriate conditions at school as to how to realise these ideas as a problem, which has not yet been solved in school, which can be applied as an opportunity to collaborate and to share experiences with others, which can serve as a new resource for others to learn how to do/make/perform such ideas, and in which pupils can apply inquiry-based-learning and gain knowledge from different scientific branches and school subjects to discover interdisciplinary contexts (Sancho-Gil, J.M. et al., 2015).

In the Czech Republic, there are several examples of how young people apply DIY in their extracurricular activities, entertainment, life, informal learning or business plans. This begs the question: How can we educate (ICT) student teachers to apply the DIY philosophy in their teaching to a digital generation?

The paper introduces a model of DIYLab activity for implementation into teacher education which has been applied in didactics courses for MA ICT student teachers at the Faculty of Education in Prague in academic years 2014/15 and 2015/16 and summarises experiences gained based on analysis of artefacts produced in DIYLab activities, interviews, questionnaires and focus group methodology with ICT student teachers.

Keywords:

DIY philosophy, DIYLab activity, digital literacy, ICT student teacher, digital generation, teacher education

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## mSchools programme. A new way of teaching and learning

Roser Cussó Calabuig, Albert Forn Palacín

mSchools programme is a multi-faceted mEducation initiative of the Mobile World Capital Barcelona in collaboration with the Generalitat of Catalonia, Barcelona City Hall and GSMA.

Launched in 2012, mSchools support students and teachers effectively integrating mobile technologies into the classroom. Mobile enables access to up-to-date materials, improves collaboration and strengthens learner engagement, opening up new ways of teaching and learning that improve achievement and employability.

The mSchools programme brings together private and public institutions to help students build important new skills and prepare them for today's digital world.

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The programme is focused in three main areas:

1. Improve learning with Mobile Technologies.
2. Promote Digital Competences and Entrepreneurship.
3. Build an open environment for mEducation.

In 2013-2014, were over 6500 students participating in mSchools. In 2014-2015 there has been a huge increase to over 20000. Schools involved correspond to all levels of education from primary to high school and VET. The programme includes five different initiatives to motivate students to learn using mobile technologies and helping teachers to take advantage of the possibilities in using mobile devices at schools.

1. An App Education Course, offered in Catalan High Schools to teach students about mobile application design and prototype development from a computational thinking approach.
2. Mobile History Map, an app developed to advocate the use of mobile technologies in non-technical subjects allowing students to collaboratively create content about points of interest within one kilometre of their schools.
3. The Mobile Learning Awards recognising the integral role of mobile technology in education and rewarding innovative teacher-led projects and student produced mobile videos about the “School of tomorrow”.
4. mSchools Toolbox, a virtual platform to showcase teacher validated educational apps. These apps are classified into categories and they have associated educational proposals ready to carry out in the schools.

An Entrepreneurship support programme, mSchools Lab, to help entrepreneurs in the development of mEducation solutions and the promotion of local initiatives in the area.



## **Teacher Training in the Use Of Digital Tablets to Promote Inclusion and Participation of all Students**

**Maria Macià Golobardes**

The inclusion of all students in mainstream schools is a priority for the Catalan Department of Education. For this reason, teacher training is fostered in several formats with the aim of spreading the knowledge of Universal design for learning (UDL) and develop teachers’ skills in the use of digital tools to respond to students’ diverse learning needs.

One of the actions carried out in this sense is a blended working group for teachers and other support professionals to advance in the use of digital tablets for promoting the inclusion of all students. This group is composed by 40 educational professionals who are trained in the use of tablets and later can borrow some devices to develop original experiences in their classroom. Once the practice has been developed in the classroom, the participants in the group meet in order to share the experiences. Finally, the practices developed are published in a collective blog (<http://blocs.xtec.cat/mobilspereinclusio/>) in order to share the accumulated knowledge with all the community. During the last three courses more than 30 experiences have been developed and disseminated. Surveys to the course participants, and qualitative and quantitative analysis of the teaching evidences developed by the teachers and professionals have provided us with valuable data to understand how teachers can advance in the knowledge of digital inclusion and professional development.

The results of the study have inspired a set of guidelines to develop courses which can foster the knowledge of methodologies and resources to successfully promote students’ learning and participation, reducing environment barriers and promoting opportunities for success.



# Creating and sharing Open Educational Resources in the Catalan Education Service: current situation, challenges and strategies

Francesc Busquets

The Department of Education of Catalonia promotes since late 80s the Catalan Educational Telematic Network (XTEC), which is both a hub of online services to schools and professionals, a place to facilitate communication, training and teamwork, and a big repository of Open Educational Resources (OER) created and shared by teachers.

Some of this OER repositories are based on open source authoring tools (JClic, Virtual Notebooks and La Prestatgeria), collections of Moodle courses and interactive whiteboard activities (Alexandria) or portals with selected resources organized by topics and levels (edu365.cat and edu3.cat). Most of this resources are tagged, structured and classified in LOM metadata banks (Merlí and ARC) that have specific search engines.

XTEC also contributes to the European Learning Resource Exchange with a wide selection of resources.

Some of the main strengths and features of OER are:

- Teachers are (usually) enthusiastically engaged with the creation, sharing, adaptation and use of OER.
- Wide range of contents, formats and topics covered.
- OER can fit well into specific curricular needs.
- Budget savings.

Moreover, their main weaknesses and challenges can be:

- Irregular quality of the resources created by teachers.
- Copyright issues in assets used in some OER, due to lack of knowledge about legal issues.
- Resources with poor or null metadata
- Some repositories have oversized metadata profiles
- Dispersion of formats and publishing platforms
- Interoperability issues (also using standards!)
- Lack of feedback. Users can comment and rate resources, but usually don't do it

In order to optimize the creation, sharing and use of OER, our current strategies and actions go through the enforcement of Merli as a common pool of metadata and central search engine, link networks and repositories allowing extended and specialized search of resources, simplification of user interfaces and metadata mandatory schemas, official recognition of the work made by the authors of OER, and give more information about legal issues, copyright, licensing, user and author rights and duties related to OER in in-service teacher training programs.

In parallel, we intend to strengthen the use of virtual learning environments based on Moodle and WordPress (Àgora) as a central point of delivery and interaction with OER.



## 2. Technology and Mobile Learning for Pedagogical Innovations in Teacher Education

# Technology and Mobile Learning for Pedagogical Innovations in Teacher Education

Esther Ninou Rodríguez

We are a cooperative of teachers. Our school has got students from nursery school to Sixth Form (from 3 to 18 years old) and this allows us to follow a coherent educational and pedagogical project. Our model is based on compromise and on the collective responsibility of our students. We firmly believe in innovation as part of education.

We believe in digital literacy more than in Technology on its own. Our daily routines as modern human beings take place through mobile appliances that are used anywhere and at any time and we are, therefore, interconnected. As we want our students to be digitally proficient, we must include this digital connectivity in our teaching and learning methodology.

We are transforming the way we teach and learn, our learning and teaching environments and our times. To do so we are using I pads, netbooks and programming language in our different areas and in our daily work.

The teachers at Sant Gervasi are constantly taking training programmes in order to look for new ways of working, new solutions, new projects and innovation is part of it all.

We hereby present a couple of examples of activities that are taking place in 4th of Primary and 3rd of ESO (Secondary Education) and which we will present at the conference together with our students.

**Smart Cities (Primary):** The students of 4th of Primary are carrying out an interdisciplinary and collaborative project using programming Language. The class is working on a scale model of a city with recycled materials (buildings made with tetrabriks, street signs made with cardboard...).

This city measures 2mx1m and has been divided into 6 parts which correspond to 6 groups of students working per class. Each group is responsible for a part of the city where they have incorporated intelligent



elements made with LegoWeDo pieces, engines and sensors programmed with Scratch. Some examples of intelligent elements that students have included in their cities are: railroad crossing gates, carpark crossing gates, traffic lights, indoor lights, street lightning, etc.

**Drawbridge (Secondary Students):** The students of 3rd of ESO working in groups of 4 are carrying out a project that consists of building an automatic drawbridge with a UNO Arduino card. This card controls car crossing gates on both sides of the bridge. This is controlled by servomotors, led traffic lights and electric limit switches that detect if the platform is raised or lowered. Moreover, there is a DC engine and an LD293 chip that raises or lowers the platform of the bridge.



## 360° of Immersive Learning

Francesc Solans, Tere Viscasillas

Nowadays teaching means something different from 10 or 20 year ago. When we, as teachers, prepare a new activity to enhance / improve our students learning process, our first thought is probably to introduce devices like smartphones or tablets in the classroom. Of course this can help but if we want to make a step forward, we have to think in introducing or promoting softskills like group work, leadership, getting information from experts (not teachers), creativity, critical thinking and communication at least; altogether with ICT.

However, not all we do using these devices is relevant, sometimes we just use them and the final result maybe worst than using paper and pencil. Therefore, we think that an activity is good when it adds some extra value like softskills mentioned above. Moreover, this activity has to be scalable and not depending of any subject, level and student capacities. Definitely, it is best if it is cheap and all schools can afford it. When on top of that it includes the WOW factor, then the activity is on the track to be a success. The experience we developed in our school moves in this direction and we use technology and mobile learning for pedagogical innovations to use virtual reality to make students learn any topic. We just need a camera able to take 360° pictures, some googleglasses and the tool that every single student has with him: the smartphone, combined with a software developed in our school by one student, that lets us make virtual tours directly from the web without installing any APP to our smartphone.

How did we do/ achieve it? First of all we decided to change the students and teachers roles promoting a different learning breaking some “standard rules” like working in the same classroom and with students of the same age, learning at the same time from the teacher, who is the owner of the information. As a result, using a smartphone together with some virtual reality glasses, students learn about solar energy which is the learning topic. It’s important to know that in a biking distance of our high school we have a thermosolar plant where everything starts. This topic is common for old students (who ara between 16-17 years old) and for young students (who are between 14 years old). On the one hand, for the old ones it is a PBL where they have to understand how the Thermosolar power station works. In addition, they create immersive pictures, make a clear and ordered sequence of them and finally they create the QR code to be delivered as learning material to the young students. On the other hand, when young students deal with the topic, the old students will be the ones who will accompany them in the process of understanding how it works. It is worth highlighting that the final exam isn’t the goal for none of the students. However, the great goal is to have an active learning that for sure it will last longer than seeing it on a book or even watching it on a video and answering a quiz or being tested. At the same time, teachers “just” need to be there coaching the learning process of both groups, nothing else and nothing more!



## School Research in Catalonia: Between Tradition and Innovation

Ivan Nadal Latorre

The research work (RW) is part of an official school curriculum in Catalonia. Academically, it represents a subject (named Research Project, RP) in the final year of secondary education (4th of ESO), and a 10% of the

## *2. Technology and Mobile Learning for Pedagogical Innovations in Teacher Education*

final qualification of high school (2nd year of Baccalaureate, named School Research Work, SWK). There are no legislation for other educational levels.

The relevance of the proposal focuses on the fact that it complements the traditional tutoring project and open to all educational levels with a same methodology. It is increasingly important to use the Information and Communication Technologies (ICT) throughout its implementation, monitoring and evaluation in a different areas, such us STEM education, based in an interdisciplinary and applied approach. This is intended to improve it as the tutor/s and student/s interact and communicate more efficiently and achieve the best results. Young people are very friendly with the ICT, so that motivation in the performance of work increases. It allows other tutors to keep track of research in/out the school, provided they have an internet connection. A set of supporting written information accompanying the development of research, similar to a digital portfolio.

The main goal of this method is that the students enter on the world of research as a bridge between school and university. The project gives priority to the methodology of teaching and learning in the development of research. It increases the knowledge of certain skills (technological, communication, etc.) by students, always in collaboration with his tutor. Other projects in the university sector have similar goals, such as project RIMA at UPCBARCELONATECH and supported from Catalan Society of Technology (SCTIEC).

The proposal presented combines the two lines in an investigation: written work and oral presentation. You can be divided into:

- Choose the theme.
- Search and process information.
- Raising the initial questions.
- Research Plan.
- Synthesize and evaluate.
- Presentation of the report.

It uses different free services platform of Google (Gmail, Drive, Calendar, Blogger and Sites). If the school has a corporate mail, included in the Google Apps for Education, we use Google Classroom, a suite of free productivity tools for classroom collaboration. The set of applications can be used in computers and mobile devices, as needed. At the same time to the realization of the RW, the student can be present it voluntarily to the national and international events to evaluate externally their learning process.

This method opens the educational community to approach the world of research and allowed them to have some freedom to organize, under the supervision of a tutor, and meeting presentations defined in the calendar. The dynamism that allows remote system and that they can be evaluated by people outside the centre, increasing the media quality of RW. This makes for an increase in the degree of motivation while academic work is done. It also enables develop multidisciplinary skills. In short, it allows students to create a line of learning that begins at school and continues throughout life.

Keywords: researchwork, ICT, online platforms, education, skills, cooperative learning, CATTECH, RIMA.

### *3. International-local Teacher Education Networking Models for Knowledge Building Innovation*

## **Partnerships for Innovation in Teacher Education. Developing Designs for Deep Understanding - From Local Collaborative Learning Communities (COMconèixer Project in Catalonia, Spain) to International Networks (KBIP project)**

**Mireia Montané, Sandra Lund-Diaz**

A different kind of education is needed to prepare people to respond to needs – of modern societies facing challenges requiring innovative solutions and of industry needing access to a global workforce with different skills than those of previous eras. A primary driver of change and reform has been the scale of change in our world - the rapid advances in information and communication technologies, the shift to economies based in knowledge and the emphasis on the skills required to thrive in them. Schools and education systems around the world are having to reconsider their design and approach to teaching and learning, and many international organizations have stepped in to address these issues by proposing standards for competencies to be achieved in learning and teaching. Prime examples include OECD's Innovative Learning Environments Project volume, "The Nature of Learning: Using Research to inspire Practice" and UNESCO's Information and Communication Technology (ICT) Competency Framework for Teaching (CFT). These provide a powerful knowledge base for the design of learning and teaching environments for 21st Century education. Methodologies utilized for teaching around topics have supported a more collaborative approach to learning. These methodologies stem from designs for deep understanding, in particular those that have been at the core of knowledge-building pedagogy for over a decade in preparing children with skills needed to tackle tomorrow's challenges.

In interpreting educational issues through local-global comparison and the use of analytic frameworks, the designs for deep understanding relate to implementing changes based on empirically-tested methods. Teaching around topics through collaborative learning has been highly researched during a period of 25+ years in the form of knowledge- building pedagogy. Currently, a multi-nation design research project aims to go beyond 21st century skills to address the needs of a knowledge society, reflecting the work of scientific and research communities utilizing collaborative learning mechanisms and the sharing of ideas toward deep understanding of problems. In this manner, research is used not only to evaluate but also to create innovations, dedicated to the 21st-century principle of knowledge for public good. The practical application of this research in primary and secondary education is computer-supported collaborative learning, most apparent knowledge-building classrooms. The pedagogy was first institutionalized on a system-wide basis in Catalonia, Spain through COMConeixer, translated as a "common building of knowledge." Here, the teachers' role is more of a facilitator of learning rather than a transmitter of pre-determined knowledge, with an eye on promoting UNESCO ICT standards for teacher education.

With knowledge building, teachers direct student research on issues through the Knowledge Forum (KF), an electronic workspace for the collection of notes and multi-media presentations produced by the students. Common topics are selected for student research, such as climate change, water, sustainability, smart cities, etc. When students are partnered with their peers in other countries, the topics studied from a local perspective become global when research results are shared through the KF and videoconferencing.

In knowledge-building classrooms world-wide, pupils work in small groups collaborative learning environments to apply critical thinking skills in researching issues. They engage in problem-solving through the contribution of ideas and theories. In effect, they are achieving deep understanding while mastering 21st Century skills – the 4C's of future education: critical thinking, collaboration, communication and creativity.

# Do It Yourself in Education: Expanding Digital Competence To Foster Student Agency And Collaborative Learning (DIYLab)

José Luís Tourón Morris, Robert Pujol

DIY, or Do It Yourself, is a philosophy that puts the student at the center of the learning experience, by turning them into the maker of their own learning materials.

A group of three universities and three primary and secondary education schools, from three different European countries: Spain, Finland and the Czech Republic've worked together to develop that Project funded by the Lifelong Learning Programme of the European Commission and led by the University of Barcelona. We started the project analyzing the curriculums of the different countries and schools or universities, and conducting focus groups with students, teachers and parents, to see where DIY can fit in their daily work. To prepare the implementation, the University run a series of weekly workshops with teachers to introduce the pedagogical approach we are proposing, and to review and solve the technical issues that they may encounter. The result was an implementation plan for each school and university.

During the second year of the project each school and university have run a pilot implementation with a group of students. Schools have worked with 5th and 9th grade students, while universities have tailored the implementation to any level. In our school students of 5th grade have developed a Project on the Evolution of the communication tools along History which finished with the design of their future technology devices and the 9th graders they have analyzed the issues of City they are living in and developed technological apps to overcome them to make from our city a more sustainable and friendly one for all town-dwellers.

The materials produced in the DIY Lab are linked to different school subjects and projects, giving added value to DIYLab as it affects the daily life of the centre. All these DIY products are shared in the Project Hub so that students for all the countries can enjoy and learn from them fostering new collaborations. Now we are at the end the project assessing the implementation and proposing improvements for future development and for spreading this philosophy to all the school context.

Along this Project students've develop their agency, collaboration and digital skills, using the technologies they already have access today, to make them lifelong and lifewide learners.

DIYLab has connected the experiences of learning and teaching in and out of school, so that there has been feedback between different learning environments.



## Study Abroad for Preservice Teachers: Building Networks in a Competitive Global Context

Allison Witt, Mauricio Pino Yancovic

In our globally connected world, teachers need an awareness of how local contexts of diversity are tied to global, transnational influences on education. As scholars have noted, global economic competition has dominated much of the discourse in the emergent global education policy field (Rizvi & Lingard, 2010). In the

rhetoric that defines and drives a knowledge economy, educational systems are increasingly characterized as a means for nations to produce human capital capable of the kind of productivity that will ensure the global competitiveness of the national economy. In this neoliberal framing, education systems are competitors with rankings on international testing comparing national education systems interpreted as indicators of national economic potential for economic success (Sellar, & Lingard, 2013). Moreover, teachers' performance is competitively measured against other nations, placing teachers in a competitive global frame.

Though much has been written about the neoliberal framing that dominates this emergent global education policy space, what is less clear is to what extent educators themselves are able to navigate this space and harness global networks as a means to work collaboratively within the global education field. Using technology to span distances and time, teachers and administrators can draw expertise from each other and collaborate across cultures like never before. Somewhat ironically, the isomorphic global education policy scape results in similar policy pressures on a global scale. Such similarity can be a point of collaboration for local administrators and teachers as they respond and adapt to similar global policy pressures in local contexts. Indeed, evidence suggests that networks of teachers are developing on a global scale. The value of international professional learning communities is increasingly recognized by scholars and practitioners (Stoll, & Louis, 2007; Leppisaari, Vainio, Herrington, & Im, 2011); however, to date, there is little evidence to show how study abroad can be a conduit to global networking and the development of a transnational professional identity amongst preservice and in service teachers.

The objective of this research is to present a program designed for preservice teachers and then critically analyze the study abroad experience to better understand the potential as well as the challenges of preparing teachers for a diverse and global society. Drawing on critical analysis of study abroad, preservice teacher education and professional development, we interrogate the perceptions of preservice teachers' experience. On the one hand, we examine the possibilities for study abroad to live up to the promises of transformation within the context of neoliberal globalization which reverberates through higher education, including internationalization efforts. In addition, we consider what the participants themselves find to be relevant to their own future classroom. Based on their photo documentation essays and photo elicitation interviews, we consider what the preservice teachers themselves bring home to their own imagined future classrooms. Established by their perceptions, we then pose recommendations for those planning study abroad for preservice teachers.



## **International knowledge building development: A conceptual and pedagogical design of intangible cultural heritage (ICH) project through international collaboration**

**Patrick Hak Chung Lam, Rafael Benlliure, Sally Wai Yan Wan**

The empowerment of the young generation is regarded as an important approach of preservation of cultural heritage, particularly on intangible cultural heritage (ICH). As the cultural heritage conservation is a common concern across nations, international collaboration is regarded as a powerful platform to stimulate and support the development of students' awareness, passion and sustainable practice of cultural heritage conservation. However, few student-centred cross-cultural programmes were carried out yet most were done in the western context. In the educational context of Hong Kong, teaching cultural heritage is still ignorant and understated in the curriculum development. In order to raise students' awareness and increase their understanding in this

### ***3. International-local Teacher Education Networking Models for Knowledge Building Innovation***

subject area, in accordance with the educational philosophy of situated learning, an international collaboration programme was initiated and commenced in October 2015, involving 17 Hong Kong students and 15 Barcelona students in junior secondary levels. The programme included various stages, namely discovery of both tangible and intangible cultural heritage and conservation in the school neighbourhood, exchange of inquiry results through video conference, and collaborative efforts in writing proposals of heritage conservation through international knowledge building. The purpose of this paper is to share the conceptual framework and pedagogical design of the programme. Discussion and implications for the development and practice of student programmes through international collaboration are presented.

Key words: international collaboration, cultural heritage, knowledge building, pedagogical design



## **COMconeixer + KBIP project in Dolors Monserda-Santapau school**

**Laura Calzado Villavecchia, Merce Bernaus**

The presentation “COMconeixer + KBIP project in Dolors Monserda-Santa Pau school” addresses the collaboration between the University and Dolors Monserda-Santa Pau Primary school and then establishes how innovation is being developed by the implementation of two collaborative projects known as COMconeixer project and Knowledge Building International Project (KBIP). The aim of these two projects is to work for sustainability using the Knowledge Building methodology and the new technologies such as videoconference and a digital forum in order to create networks between students and teachers.

The first project “COMconeixer” is a Catalan project where students from Dolors Monserda-Santapau school in Barcelona work together with students from Sant Gervasi school in Mollet. While students in 2nd level focus on giving proposals to the town hall about how they would like the new local library to be, students in 5th level deal with how they could share their findings about the history of the Pedralbes Monastery related with the Medieval Barcelona and how it is today. So far, one videoconference has been taken place in each level with students in Mollet in order to introduce themselves and their schools.

The second project “Knowledge Building International Project (KBIP)” is an international project where students in 2nd level work with a school in Hong Kong. In their videoconference from last November, they dealt with the ideas of Green School and Carbon Footprint. On the other hand, students in 5th level have exchanged some video presentations with a school in Quebec and are thinking about how to share with them their cultural product in order to understand history throughout our cultural heritage. In a nutshell, there is no doubt that a strong collaboration between an experienced university teacher and primary school teachers willing to innovate in the classroom enhances Education in the 21st century.



## **Excellence in education: the European challenge.**

**Mercè Travé, Montserrat Montagut**

Excellence in education is probably one of the greatest challenges of our society. The relationship between quality in education, economic development and social cohesion has probably never before been so evident.

It is clear that these elements are closely related to each other and not at all opposed. Within the European framework of education, the efficiency of training systems in general and European policies aimed at young people in particular, can help to meet this challenge. In this sense, the European Commission Erasmus+ program enables young people in Europe to acquire the skills they require for success and empowers them to develop an active and responsible role in society. At the same time, Erasmus+ means new opportunities for cooperation and mobility, and contributes to a more efficient use of the European potential and talent.

But what determines excellence in education? What distinguishes one school from another from the point of view of quality? Finding an answer to these questions is not a simple task because excellence depends on several factors, not always easy to measure. Excellence might be associated to pedagogical practices aimed at increasing creativity, initiative and the entrepreneurial spirit of students, for instance. Maybe excellence could be linked to the students' capacity to solve real problems and complex situations in an efficient and collaborative way. Perhaps excellence in education means to empower students to adapt to unexpected changes. Maybe excellence is related to all that and much more...

The truth is that many and divers indicators are used when evaluating schools and school systems across Europe. However, if we concentrate in excellence, some similar indicators are observed. And methodologies and practices like project based learning, empowering students with an active role, student centred learning, international projects involvement, teachers' team cooperation, students' collaborative work, etc. seem to be factors that clearly contribute to the quality of education and with a direct impact on the students' academic success. Interestingly, all eTwinning and Erasmus + quality projects meet these characteristics mentioned before. The aim of the presentation will be twofold. First of all, we'll try to make explicit these common criteria that help to identify pedagogical practices aimed at fostering excellence in education. On the other hand, we will explore how some Erasmus + and eTwinning projects are developed in schools of Catalonia where creativity and innovation are at the core of their school development plan. The analysis will lead us to consider the contribution of these programs to the European challenge of excellence in education.



## **Extending collaborative networks to build capacity: innovative teacher education partnerships between the United Kingdom and Catalonia.**

**Helen Clarke, Alba Ambròs i Pallarès, Barry Harwood**

The relationship between theory and practice in Initial Teacher Education (ITE) is integral to all training programmes. We share an overview of an exciting collaboration between university programmes: primary education at the University of Winchester, UK and two partners in Catalonia - the University of Barcelona and the University of Lleida. We give an overview of comparative provision regarding vision, curriculum design and student experience. We then focus on the preparation of teachers as they negotiate their journeys between university based learning and school based development; as they explore putting theory into practice and practice into theory. Finally we recount our experience of Erasmus mobility activity, where tutors from both universities have benefitted from sharing and evaluating comparative practice and Winchester student experience is further enhanced through enrichment school placement opportunities in partner schools in Catalonia.

We are all learners. We adopt a collaborative, participatory frame, where professionals take a responsible approach to their work (Owen et al. 2013), involving all stakeholders, and supporting a rights-based, inclusive

### *3. International-local Teacher Education Networking Models for Knowledge Building Innovation*

approach to practice and to the learning of and with students (Fielding 2011). In this presentation we hear the voices of learners in a new and exciting professional network, which involves tutors, student teachers, school teachers and, of course, children. We value the development of all partners as individuals, as members of a community of practice and as professionals (Bell 2005). Curriculum innovation and development is a research activity (Cordingley and Bell 2007); it is more than a simple application process.

We share the intended and emergent outcomes of this collaboration, which has enhanced the professionalism of all parties involved by:

- enhancing local and international relationships
- extending networks in exciting and sustainable ways
- deepening communities of enquiry and practice
- broadening perspectives on learning.

ITE programmes must respond to change and rethink provision on a regular basis. This is best achieved collaboratively and through innovation. The Incheon Declaration suggests a journey of lifelong learning – our ITE journey is part of this. Networks involving such a range of partners have the potential to transform experience for all. We propose that such innovation contributes to how teachers are prepared and develops knowledge building capacity.

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## Community Partnerships For Developing Teachers' Responsiveness to Stressful Factors that Impact Learning

Regina M. Mistretta

The proposed presentation shares an initiative, entitled the Community Partnership Project, that is part of a four-year teacher preparation program at a university in the Metropolitan area of New York, USA. The project utilizes Lave & Wenger's (1991) concept of situated learning where teacher learning is viewed as part of the process of participation in social practice. Pre-service teachers' attention is focused on conditions existing outside classroom walls that can influence teaching and learning within those walls.

The project's ultimate goal is to prepare graduates for the complexities of teaching in today's diverse classrooms and communities, particularly circumstances that bring young people and adults added stress. The impetus for the project's creation stemmed from findings noting neighborhood and home conditions, along with physical health, nutritional choices, and fitness as factors impacting academic achievement.

For example, poor neighborhoods are stressful and dangerous (Kling, et al. 2007), tend not to cultivate a sense of community support, and can inhibit children's language development due to a lack of peers and adults who speak English (Pong & Hao, 2007). Guo & Harris (2000) concur with findings that show children from lower socio-economic households experiencing a) poorer home physical environments (i.e., housing and safety), b) less cognitive stimulation, c) poorer health, d) worse child care, and e) less consistent and warm parenting styles.

The proposed presentation will include explanations on how the Community Partnership Project develops teachers' knowledge of, and responsiveness to such stressful factors that can impact upon learning. Clinical experiences at ten nonprofit community organizations, along with related learning outcomes for 80 undergraduate pre-service teachers, will be shared. Community organizations to be discussed address hunger's underlying causes, child welfare services, individuals with disabilities, children's nutritional health and fitness, environmental education, children's creativity, and parental engagement.



## Glocalizing Knowledge: Innovation and Creativity in a School-University Young Authors Partnership

Deborah Romero, Aldo M. Romero

This paper examines the structure, practices, and transformative knowledge and outcomes of a successful afterschool multiliteracies partnership, engaging pre-service English as Second Language (ESL) teachers, immigrant-refugee students and their teachers. The Young Authors program, now in its fourth year, not only promotes language, literacies and new technologies, but also empowers high-school students and pre-service teachers as social entrepreneurs and change agents through the authoring and publishing process. The presentation supports the conference by illustrating the unique ways in which this partnership program prepares pre service teachers to engage with teachers, and multilingual multicultural learners, in ways that expand upon and enrich both the in school and afterschool curriculum.

Founded on research that experiential learning constitutes a high impact practice (Kuh, 2008), benefiting both

pre-service teachers and the English language learners with whom they engage, the Young Author partnership supports the interests and needs of teacher preparation programs with those of schools, teachers and community partners (Ramaley, 2000), by promoting meaningful pedagogies of engagement that result in transformative, as opposed to transactional, relationships (Enos & Morton, 2003). The partnership recognizes narrative and story telling shape our lives (Heath, 1983; Sacks, 1974), serve as powerful vehicles in education (Dyson & Genishi, 1994; Martínez-Roldán, 2003), and promote community engagement by teaching about cultural diversity and social justice (Fraizer, 1997; Meyers, 2010; Rosaldo, 1986; Solinger, Fox, & Irani, 2008).

This partnership enables students to develop linguistic and communicative competencies, to build self-confidence, and metacognitive thinking around real life problem solving: writing for a real audience for publication and dissemination. The project repositions students as generators of knowledge, not mere consumers, and supports students and teachers as entrepreneurs in three specific ways: a) Creating new values and understanding of immigrant voices and experiences; b) shifting traditional classroom and paper-based patterns of learning and literacy production to technology enhanced forms; and c) exploiting new, open source, and relative low-cost high-efficiency technologies and publishing software processes, thus empowering participants as authors and publishers; creators of new knowledge.

For the pre-service teachers from the local university, the partnership and leadership opportunities enrich their instructional practice and professionalism, especially through advocacy experiences. For the English learners, writing and publishing the book empowers them as authors, sharing their voices. The vibrant print and e-books include texts in English, Spanish, Arabic, Thai, and Karen, that are accompanied by photographs and artwork depicting students' diverse cultures and languages; memories of homeland and the challenges faced in adapting to new lives in the U.S.

This model partnership represents a symbolic catalyst, inspiring the next generation of pre-service teachers and immigrant students to reimagine writing and reading the world (Freire, 1987), and to engage for mutually beneficial transformative teaching and learning.



## Preparing Reflective Teachers Through Integrated Teacher Education Curriculum and a 21st Century Schools Partnership

Jane McCarthy, Linda F. Quinn, Lois Parette

Well prepared, thoughtful teachers are essential to the development of any country. As societies change and the manner in which student learning is augmented by the Internet and technology, teacher education programs must also explore innovative ways to prepare teacher education candidates to become highly skilled and knowledgeable.

Teaching is a “multidimensional” act (Doyle, 1986) that requires teachers to know content, to know how to teach it, to know how to engage students in the process of learning, and to know how to assess that learning. Teaching requires mastering a formidable set of complicated events. Learning to teach is a process that also requires the authenticity of working with students from diverse backgrounds with a range of abilities in clinical settings, (Hart, Research Associates, 2010). Situated learning in K-12 classrooms has been viewed as a way to better structure teacher preparation to support candidates’ growth and development, (Levine, 2009; Layton, 2015). Three critical features of teacher preparation directly tied to practice are identified in the

recent (March, 2010) policy brief from the American Association of Colleges for Teacher Education (AACTE). These features include: 1) integration among courses and between course work and clinical work in schools; 2) extensive and intensive supervision of clinical work; and 3) proactive relationships with schools to develop and model good teaching (Boyd, et.al, 2008). This paper on preparing teachers in partnership with a local school district describes a three-fold process of providing integrated curriculum between university courses and field experiences, helping candidates develop competence and confidence when working in schools in cohorts and with experienced site-based facilitators, and through the requirement of a digital portfolio that encourages candidates to reflect on their personal growth as teachers. The paper will also describe ways, through a scaffold of field experiences, candidates recognize the rationale of the teacher education curriculum and develop knowledge of state and national standards as they are introduced in the school based curriculum.

A newly developed program, Quality Urban Expedited Supported Teaching (QUEST), will be highlighted. It provides increasing levels of supervised field experiences combined with full-time substitute teaching and university coursework. Assessment of candidate practical knowledge using the Nevada Educator Performance Framework (NEPF) will also be discussed as a means to prepare candidates for the evaluation process as they become teachers of record. Examples of candidates' digital portfolios will be provided to illustrate the integration of learning and reflective practice achieved by the candidates in the 21st Century Schools Partnership. This proposal is relevant to the conference theme of "Global Innovation in Teacher Education Beyond 21st Century Skills" and to the conference strands of "Change for Innovation in Teacher Education", "Initial Teacher Education for Innovation", and "Teacher Education Curriculum and School Curriculum".



## Ten Skills Teacher Educators Must Provide for Pre-Service Teachers as a Part of the Global Community

Connie S. Schrock, Timothy Fry

Important questions are "What are the critical skills teachers need for success in the classroom? What format is best to help our pre-service teachers learn these skills?" Ten important skills pre-service teachers must possess in our global classrooms; a growth mindset, enthusiasm, real relationships, ways to motivate reluctant learners, efficient planning, coachability, competence with technology and social media, skills to create a Personal Learning Network (PLN), strong content knowledge and a variety of teaching and assessment strategies. Our presentation will share current research, best practice, and the format our programs use for pre-service teachers to demonstrate their abilities.

The importance of a growth mindset will be explored from both the perspective of the learner and the teacher. Great teachers demonstrate enthusiasm and passion for both what they are teaching and whom they are teaching. We must help candidates find their passion and learn how to excite their learners. They need to be provided with tools to establish real relationships with the learners, parents and faculty. Within their diverse classrooms this will include differentiation and a variety of teaching strategies. They must know multiple ways to motivate reluctant learners as there is never only one way to reach a child and all children are not motivated in the same way. Teachers are not teaching if their students are not learning. We will share how changes have been implemented to assure planning for learning focuses more on what the learner is doing in the classroom. A part of coachability involves accepting feedback, analyzing and reflecting on feedback, and finally to implementing changes into their teaching. Pre-service teachers should be using technology and social media to enhance learning. When research supports the technology is effective it should blend smoothly into the lesson. Our new

#### 4. *Teacher Education Curriculum and School Curriculum*

teachers need the skills to differentiate when technology is beneficial and when a traditional solution would better help their students learn.

Collaboration is a big part of setting up their PLN could include a Professional Learning Community (PLC). In addition to that they need to know how to create their own network to continue to grow and learn. New teachers have higher expectations now than ever before. When they enter the classroom they need to be prepared to share what they know as well as learn from classroom veterans.

Another component to this presentation will be examples of how to help pre-service teachers respond to a drastically changed curriculum, in this case, the United States Common Core State Standards. When curriculum changes pre-service teachers do not anticipate how different the classrooms where they will teach is from the classroom they experienced. A strong content knowledge is part of this and it also contributes to better classroom management skills. A teacher that becomes lost when explaining a topic will not be able to make required transitions. And finally on the list of ten they must be able to ascertain what their learners know in a multitude of ways. Formative assessment is vital to continued learning.



## Reasons for Hong Kong ESL Learners' Pronunciation Problems: Curriculum, Teacher Training, and/or the Mother Tongue?

Barry Bai

In recent years, Hong Kong English learners' pronunciation problems have been of great interest. Various pronunciation problems (e.g., vowels, consonants, tones, rhythm, and stress) have been well documented. Some of these problems are universal to second/foreign language (ESL/EFL) learners in different countries. Some are unique to Hong Kong English learners. Although some problems may be treated as features of a Hong Kong English accent within World Englishes, these pronunciation problems can cause potential intelligibility issues. Pronunciation researchers generally attributed the onset of these problems to the negative influence of Hong Kong students' mother tongue, i.e., Cantonese. Therefore, Hong Kong English teachers are provided with a myriad of teaching implications through such empirical research. For example, relative stressing of syllables in speeches can be the focus of pronunciation teaching, which can help students sound more native. Teaching individual segments of a consonant cluster successfully first before introducing the consonant cluster. While these teaching implications may help teachers see a focal area in their pronunciation teaching, these problems are not solved effectively. One major issue is English teachers have not received sufficient teacher training with regard to pronunciation teaching. However, very little research has been undertaken on the issues that English teachers are faced with in the Hong Kong context. In order to fill up this gap, the present study aimed to investigate Hong Kong English teachers' perceptions of pronunciation teaching. In particular, this study set out to address two research questions:

1. What are English language teachers' attitudes, perceived challenges, and confidence levels towards pronunciation teaching?
2. How can future teacher education/training better help teachers to teach pronunciation in Hong Kong schools?

The participants were 38 English teachers from 10 primary schools and 13 secondary schools in Hong Kong. The participants completed a survey of 28 items that investigated teachers' perceptions and challenges on

pronunciation teaching. The participants also wrote a reflection on the statements in the questionnaire. Most of the participants wrote a full A4-size page of reflections. Two researchers coded the teachers' reflections by identifying key words and phrases which could be classified under the same themes. Meetings were held in order for the two researchers to reach clear agreements on the analyses. The inter-rater agreement reached 90%. Three general themes of the teachers' reflections were identified, i.e., teachers' attitudes, teachers' confidence levels, and perceived challenges. The data from the questionnaire and teachers' reflections were well correlated. The findings suggest that Hong Kong English teachers receive little training on pronunciation teaching. In their school curriculums, very little time can be used for addressing their students' pronunciation problems. In addition, many teachers have pronunciation problems. Therefore, Hong Kong English teachers are not confident in pronunciation teaching. Implications on teacher training and school curriculums are discussed.



## What are the primary teachers' concerns and perceptions about implementing flipped classroom approach?

To Chan, Ching Ying, Chui

Flipped classroom is one of the hot issues in education and regarded as a different approach to promote eLearning. Lesson materials are firstly posted the lesson materials to computer networks and students read them before coming to class. The class then becomes opened-up for interactive activities for the applications and problem solving. Different sorts of flipped classroom concepts and designs such as "inverted classroom" or "flipped mastery" have been introduced and researched worldwide.

Although many journal articles and educational blogs on flipped classroom have been published recently, teachers' perceptions, especially novice school teachers' perceptions on this new instructional design still remain under-researched. Moreover, the effectiveness of the flipped classroom is affected by different social and cultural factors, e.g., educational systems, cultural background, and parents' involvement and understanding. All these factors may contribute to promoting flipped classroom in East Asian countries, thus calling for the need to look into the relationship between these factors and the effectiveness of flipped classroom.

In this study, two research questions were set out:

- 1) What are the teachers' perceptions, especially novice school teachers' perceptions on flipped classroom?
- 2) What are the parents' concerns when schools implement flipped classroom approach in primary education?

In this study, 34 primary school teachers from 28 primary schools in Hong Kong were interviewed to explore teachers' concerns and perceptions about the implementation of flipped classroom in primary education. The participants were from different school subjects, e.g. Chinese Language, English Language, Mathematics, and General Science etc. in primary school. Most of the participants were with less than two years teaching experience. The interviews were conducted in groups, with semi-structured questions for open discussion. The data were coded processed by NVivo 10. Four analytical dimensions were generated from the interview data, i.e., teachers' efficacy, psychological wellbeing, curriculum coordination, and parents' support.

The results suggested that novice school teachers regarded flipped classroom as a different set of pedagogical skills which rely heavily on integration of ICT into teaching and learning activities. And the stress with implementation of flipped classroom was not just from the demanding workload in preparing the electronic learning resource, but also from the uncertainty about the effectiveness of this new teaching approach. To cope

## 4. *Teacher Education Curriculum and School Curriculum*

with the challenge of adopting flipped classroom, it required more holistic curriculum coordination among different school subjects and teachers, from curriculum design to implementation, from teaching strategies to learning activity evaluations. Especially for primary education, parents played an important role for students to attend flipped classroom activities at home. The interview data revealed that parents had hesitation in recognizing the effectiveness and usefulness of such a new instructional approach.



### **Impact of Public Policy and the News Media on Teachers and Teacher Education**

**James Alouf**

Education at all levels has been one of the most contentious and hotly debated area in both the government and the new media in the United States for the last three decades. Since the publication of *A Nation at Risk* in 1983, schools and teachers have been in the crosshairs of the politicians, business people, and many of the think tanks in the United States. This is echoed by the news media publicizing each and every study of education and educational achievement. The emphasis over the years has changed but the headlines and the political actions have continually been critical of the quality of schools and of teachers.

There has been a litany of laws and actions with acronyms (ESEA, NCLB, Race to the Top, etc) that seek to improve schools and teachers. The development of the Common Core (curriculum) and the consequent testing (PARCC and other testing systems) is one result of the combined pressure from news media and politicians. The constant criticism of teachers has had a demoralizing impact on the profession and has led to the development of new accreditation processes (CAEP) with much more quantitative standards and more rigorous review processes. The confounding factor is that these decisions were made with little or no data to support them but a great deal of rhetoric. Added to the challenges are the international testing (PISA, TIMSS, etc) which is reported religiously by the press.

The impact of the constant pressure and the intense criticism has made it difficult to recruit new teachers into teacher education programs, to keep new teachers in the profession, and to keep high quality teachers beyond induction. Teacher education programs are charged with helping teachers cope with this environment as well as teaching them to teach. We will conclude with the new Every Student Succeeds Act (ESSA) and the potential challenges of the newest legislation.



### **Preparing teacher candidates to become change agents for marginalized student populations: Collectively sharing ideas and experiences to transform curriculum**

**Dorene Huvaere**

Education is a powerful force that has the potential to transform lives. It provides individuals with the knowledge and power to make changes in their community and personal lives to improve the society in which they live and

work. From the researchers' experience, many teacher candidates empathize with the challenges experienced by marginalized populations; however, teacher candidates generally continue to seek out jobs working with populations similar to their own background.

There are many theories and approaches of how best to reach marginalized students--from the popular Ruby Payne and Eric Jensen to political leaders such as George Bush and No Child Left Behind to research-based theories such as resiliency theory, asset theory, or attribution theory. The need to address the persistent achievement gap present with socioeconomically disadvantaged students is an ongoing struggle in the field of education. For many years researchers have examined this problem from the perspective of why students from lower socioeconomic stratus fail in academic settings. More recently researchers are examining this problem by examining what contributes to academic success (Morales, 2010).

Resilience theory in education recognizes that schools play a significant role in children's lives and have the potential to create an environment that can help individuals recover and move forward from negative life experiences. Although there is no universally agreed upon definition of resilience, most would refer to the ability to recover from adversity and the development of social and academic skills that are needed to succeed in today's world (Henderson, 2003). Resiliency theory as it relates to the classroom emphasizes that resilience is a part of everyone's genetic make-up. In other words, the potential for human growth and development is innate, the capacity to develop social competence, problem solving skills or a sense of purpose (Bernard, 2004). The potential to maximize one's resilience is unmistakably associated with the characteristics and context of the student's family, school and community environment (Thomsen, 2002).

This session will present recent research related to the development of resilience within students, most notably adolescents in high-need communities. Information about "best practice" when working with marginalized students and how these practices can help students develop resilience will be shared. In conclusion, the session will examine how pre-service candidates exposure to resiliency theory may help the pre-service teacher candidate recognize the strengths students from marginalized environments bring to the classroom and therefore increase their willingness to consider working with marginalized student populations.

#### **Relationship to Conference Themes**

##### **Teacher Education Curriculum and School Curriculum**

This session will consider the potential to use resiliency theory as part of teacher candidates preparation and whether exposure to this theory helps candidates consider the strengths marginalized students bring to the classroom.

##### **Monitoring and Evaluating Innovations in Teacher Education**

The presenter will share resources (print and web based) that are being evaluated for their potential use in exposing teacher candidates to asset and resiliency theory in three distinct locations (USA, Mexico and the Philippines).

##### **Change for Innovation in Teacher Education**

The goal of this session is to explore the potential of exposing pre-service teacher candidates to theories that recognize the strengths individuals bring to the classroom and how capitalizing on these strengths may increase students motivation and persistence in academic settings.



## Impact of Educational Reform on Teacher Education: A Comparative Study of U.S. and Chinese Practices

Binyao Zheng

The United States and China are both reforming their basic educational systems. A common goal of the reforms is to improve student learning achievement. Target of the reforms has been aimed at helping students to become knowledgeable and qualified citizens who can meet the work challenges and demands in the new century. Focuses of the reforms in both countries share some core curricula – content knowledge, instructional skills, and achievement assessment. However, what is surprising is that in some areas the two nations are moving in opposite directions but toward the same destination such as in achievement assessment. This presentation explores current reforms in these two countries and their impact on teacher education. The presentation is based on the findings as part of an on-going grant research project awarded by Kennesaw State University, U.S.A.

### Methods and Procedures

A mixed-method study with qualitative data as primary source and supportive quantitative data. Data collection has been conducted in the U.S. and China. Activities for data collection included:

- Observing classes and school activities.
- Interviewing teachers, students, administrators, and fellow researchers.
- Documenting information and literature through database, media and publications.
- Conducting surveys with teachers, students and administrators.

Data collection and analysis started from August 2014, and this presentation will report major findings up to the end of 2015. The presentation will address the following topics:

- Major educational reforms in the U.S. and China in the 21st century.
- Major changes in teacher education curricula in the U.S. and China.
- How Chinese faculty members, students and administrators view educational reforms in China and in the U.S.

### Major Findings

#### 1. Curriculum and Instruction:

- U.S.: More student-centered to emphasize diversity and individual differences. Constructivism as a popular theory, and multiculturalism as part of core curriculum.
- China: Change from teacher-centered to student-centered. Multilingualism as part of the core curriculum – required foreign language competence.

#### 2. Assessment:

- U.S.: Standardized tests being enhanced in K-12 schools, and assessment as a required competence in teacher education.
- China: Standardized tests being reduced in K – 12 schools. Ability in organizing classroom activities and talent development are more emphasized in teacher education.

#### 3. Teacher education core curricula:

- U.S.: More weight on field/clinical experience to foster teaching competences – edTPA.
- China: Continue to emphasize content area knowledge. Ability of organization and talent development being encouraged.

### **Relevance to the Conference and to the Selected Themes**

This presentation directly addresses the theme of the conference as it introduces and analyses innovation in teacher education with a global and comparative perspective. The presentation focuses on three specific themes: Multiculturalism and multilingualism (diversity in the U.S. and required foreign language acquisition in China); teacher education curriculum and school curriculum (field experience in the U.S. and content deepening in China); and changes for innovation in teacher education (assessment skills in the U.S. and talent development in China).

### **Audience Participation:**

Audience will be involved to share their information and perspectives regarding educational reform and teacher education. The session will also facilitate discussion on global communication and collaboration. Questions for the discussion:

1. How will you comment on current practices in instruction, assessment, and teacher education in the U.S. and China as presented by this session?
2. What are the major issues and innovative practices in education in your home country?  
What can we do as international and global collaboration with our common interests in teacher education?

## *5 and 6. School-University-Educational Administrations Partnerships for Creative Initiatives in Teacher Education. A distributed leadership for school innovation management*

# Promoting the integration of Inquiry based science and English learning in primary education through triadic partnerships

Núria Carrillo Monsó, Mariona Espinet, Laura Valdés

In September 2014, university professors from UAB (Universitat Autònoma de Barcelona) and teacher educators from CESIRE (Support Centre for Innovation and Educational Research) started to collaborate in the design of a primary teacher development program called “IBSE and English learning in primary education”. The primary goal of this program was to support primary science teachers and primary foreign language teachers to develop instructional units that promote the integration of Inquiry Based Science and English learning.

The secondary goal of this program was to create sustainable triadic partnerships which foster educational innovations and research in the integration of primary science and language teaching and learning in Catalonia.

The triadic partnership was constituted by:

- Primary school teachers who were experiencing Science in English in their classrooms.
- UAB university professors who contributed with theoretical inputs and primary student teachers who gave support as “teacher’s assistants”.
- CESIRE’s teacher educators who bridged the gap between university and schools with a theoretical and practical framework for both inquiry based science and language learning.

The teacher preparation model was framed under the construct of Learning Communities inspired by the work of Wenger (1998) on communities of practice.

The triadic partnership was built around two axes: (a) the educational institution of reference (schools, university, and educational administration), and (b) the discipline of reference (Science and English). The intention was to design a teacher development program in which all partners had the opportunity to experience professional development through their participation in the community. The triadic partnership was managed with two types of activities: (a) staff meetings to promote collaborative research and innovation in Science and English teaching in primary education, and (b) teacher development meetings to promote reflective practice in teaching inquiry based science and English in their own primary schools and with the help of primary student teachers.

The triadic partnership, piloted for the first time in the academic year 2014-5 as a way to promote the integration of Inquiry based science and English in primary education in Catalan schools, has provided a scenario for successful collaborative and innovative teacher development processes. The first strength of the teacher preparation model has been the explicit theoretical support provided by university and teacher educators from both science and foreign language education. The theory acted as an arena where to create a boundary object that was shared and negotiated among all participants. The boundary object was supported by the theoretical framework of the program and by the development of a tool used by all participants. This tool was designed to guide the planning of the Inquiry Based Science instructional unit in English and it will be refined in the next future theoretically and practically. The second strength of the program has been the composition of the learning community including school teachers, student teachers, university professors and teacher educators from both science and language education disciplines. All participants have developed a positive attitude towards the collaboration within such a diverse community and want to continue the work in the future.



# Managing the complex adaptive learning organisation

László Horváth, Éva Verderber

The aim of our proposal is to highlight the connections between specific leadership roles and learning organization behavior in the context of educational institutions which can foster innovation.

According to Keshavarz et al. (2010) schools can be considered as social complex adaptive systems as they show characteristics of nested systems, continuous change and adaptation, distributed control, emergent changes and unpredictability.

This implies that the organization comprises of diverse, rule-based agents who are located in a multi-level network and their behavior include interactive learning and knowledge sharing. From these characteristics emerges the concept of learning organization (Senge, 1990) which is an adaptive, self-organizing entity (Segall, 2003), able to manage knowledge (Garwin, 1993) with the appropriate cultural aspects (vision, values, behavior) supporting the learning environment, processes supporting learning and development and structural aspects enabling the support of learning activities (Armstrong & Foley, 2003) in order to continuously learn, develop and adapt to the ever changing environment (Ali, 2012).

A key question is how can these organizations perform dancing at the edge of chaos? In earlier researches the concept of distributed leadership showed positive contribution towards improved school performance (Elmore, 2004; Fullan, 2006; Spillane, 2006) and organizational learning (Silins, Zarins & Mulford, 2002; Mulford, Silins & Leithwood, 2004). Distributed leadership connects with the notion of distributed control aspect of complex adaptive system and it utilizes the approach of organizational learning theory, distributed cognition and complexity science (Leithwood, Mascall & Strauss, 2009). Distributed leadership can be interpreted as “practice distributed over leaders, followers and their situation and incorporates the activities of multiple groups of individuals” (Spillane et al., 2001, p.20).

Our one year research aim was the examination of organizational behavior and development of learning organizations in Hungarian public education selecting 82 high performing institutions in the South Great Plain region. Based on literature review, expert workshops, and initial organizational diagnosis, we proposed a model for schools as learning organizations which was empirically tested and validated. With 62 participants on the questionnaire for leaders and 1192 participants on the questionnaire for teachers, we managed to connect institutional, leadership and individual characteristics to identify main aspects of learning organization behavior and its positive correlation with organizational learning, innovativeness and competitiveness.

Based on the competing values framework, we also analyzed the connection between learning organizational behavior and different leadership roles and we found that mainly the facilitator and coordinator roles supports best all the aspects of learning organization behavior. This implies an internal focus and an unpredictability between flexibility and control which also supports the complex adaptive system and distributed leadership approach.



*5 and 6. School-University-Educational Administrations Partnerships for Creative Initiatives in Teacher Education. A distributed leadership for school innovation management*

## School-University-Educational Administrations Partnerships for Creative Initiatives in Teacher Education

Judith Harford

Teacher education programmes in top-performing countries emphasise the significance of preparing teachers in structured, appropriate and supportive clinical settings. Recent reform of initial teacher education in Ireland has resulted in a move towards a master's level qualification for teachers, with school placement as a cornerstone of the reform agenda. The Irish Teaching Council, the professional standards body for teaching in Ireland, has recently called for the development of new and innovative school placement models developed using a partnership approach. The cornerstone of the reform agenda is a more sophisticated experience of the practicum which requires a more structured relationship between schools and university education departments. The blueprint for the school-university partnership reform agenda is laid out in the Council's Guidelines on School Placement. The guidelines, while detailed and the result of extensive consultation, are largely aspirational, however, with little or no mention of exactly how any sea change in the school-university partnership model is to be realised, operationalised or resourced. Most significantly, the Guidelines represent a missed opportunity in explicating the key role of the host teacher in the professional formation of the student teacher.

This paper reports the results of a national survey of host teachers. It is underpinned by the following research questions:

Who acts as a host teacher?

What is their motivation for taking on this role?

How do they characterise their role?

How does being a host teacher impact on their own professional practice?

What are the key professional development supports which host teachers require to adequately fulfil this role?

The majority of those surveyed [N = 150] recognised the value of this role, in particular, how it helps build strong communities of practice in schools and aids in the dissemination of new concepts and methodologies across the wider school. Among the key professional development supports which host teachers identified to adequately undertake their role were: ICT for teaching and learning, inclusive pedagogies and training in observation and feedback on practice

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## The Application of New Discoveries from Cosmochemistry in Science Teaching in Primary and Secondary Education

Milan D. Stojkovic

Cosmochemistry as a separate scientific discipline within chemistry was founded in the mid-19th century in Serbia. This discipline developed independently, and before other disciplines of natural science in Serbia. Its

development was closely linked to the development of astronomy in the early 19th century, and above all represented the merit of the first South-Slavic scientists Rudjer Boskovic and Atanasija Isakovic Stojkovic, and their pioneering scientific research. In the mid-70s of the 19th century, the first chemical analysis of meteorites it was conducted: Jelica and Sokobanja, which was found in the territory of Serbia. The analyses of meteorites were released by one of the first modern Serbian chemists, Sima Lozanic, in European scientific journals in German.

Teaching topics from cosmochemistry were studied within the school subject Chemistry with mineralogy in high schools until the Second World War in the Kingdom of Yugoslavia. From 1945, these teaching topics were studied in astronomy in the reformed Yugoslavian high and secondary schools. Today's chemistry teaching programs and text books for primary and secondary schools almost do not contain, and do not deal with teaching contents from cosmochemistry, unlike the curriculum of astronomy in secondary schools.

This paper, will discuss possibilities of use of new scientific discoveries from cosmochemistry in the teaching of natural science (chemistry), primarily arising from NASA space research programs: New Horizon, Cassini–Huygens, Mars (Exploration Rovers, Pathfinder, Polar Lander), Deep Impact etc. In addition, specific examples of the implementation and processing of teaching contents from cosmochemistry within the contents of teaching chemistry for the 7th gr. will be presented (Teaching topics: Chemistry and its significance Basic chemistry concepts, Solutions) and the 8th gr. (Teaching topics: Metals, Non-metals, hydrocarbons, biologically important organic compounds: alcohols, saccharide, amino acids, proteins) of primary schools in Serbia.

The main goal of this paper is to present an alternative form of learning chemistry, with the help of contents from cosmochemistry, based on discoveries from astronomy. In addition, it could contribute to the increase of students' interest in learning of natural science, especially the disciplines astronautics, astrophysics, astrobiology, cosmology etc. The research work in the field of cosmo- and geochemistry served as basis inspiration for the implementation of contents from cosmochemistry in teaching of natural science.

The application of contents from cosmochemistry, as well as recent discoveries in astronomy, does not only aim at popularisation of natural science, i.e. their teaching, but it also has significant educational character in general. It is reflected in civilisational, technological, economic and social importance of the current international cosmic research. Terraforming, colonisation of other planets, finding new raw materials, planets with conditions for life similar to Earth or new life forms are only a part of the future tasks of the new generation of young researchers. The solutions for their future realisation could lie in the endless possibilities of processing and implementation of integrative teaching contents of cosmochemistry and natural science.



## **Dynamic Partnerships in Professional Learning: A case study of a creative initiative in a school/ university partnership**

**Maxine Cooper, Joan Stewart**

Universities and schools have cooperated with each other on a one to one basis over many years at Federation University Australia. In 2014 the Master of Teaching (Primary), a two year post graduate course, that qualifies graduates to teach, was introduced. The idea of a close partnership with a few local primary schools was planned and developed. This paper is part of a larger research project that examines dynamic partnerships in professional learning, through a case study of the ways one small primary school in a working class area of a regional Australian city worked in a close and productive relationship with Federation University. The intention

## ***5 and 6. School-University-Educational Administrations Partnerships for Creative Initiatives in Teacher Education. A distributed leadership for school innovation management***

of the partnership was to bring theory/practice interconnectedness to develop ‘classroom ready’ teachers, through the avenue of literacy, teaching reflectivity and teacher professional learning.

Using the idea of cultural and professional capital, this specific case study examines multiple ways the school/university partnership worked to meet the needs of teacher education students in establishing their professional identity. The learning community of school leaders, university faculty, classroom teachers and preservice teachers combined to form a dynamic process that valued the diversity and complexity of the professional community. Learning about literacy is a complex process that takes time, effort and engagement. This paper presentation will discuss the challenges and constraints in connectivity of theory/practice initiatives and school based workshops that develop teacher reflectivity and classroom readiness.



### **Making an Impact: A description of a collaborative partnership between a university teacher preparation program and an urban school district.**

**Ashlie Jack, Shirley Lefever-Davis**

This presentation will describe an existing partnership between a university teacher preparation program and an urban school district that has a mission to jointly prepare teachers. The presentation will begin with a brief overview of the development and evolution of the partnership over the years followed by a discussion of current practices and policies in the partnership that have led to positive outcomes for student learning. Specifically, the presenters will describe the teacher preparation program with an emphasis on the curriculum and clinical field experiences that comprise the program. The program is built on the premise that effective teacher development occurs over time in conjunction with in-depth field experiences closely aligned with the teacher education and school curriculum as well as co-teaching expectations. In addition, the teacher preparation program relies heavily on established relationships between teacher educators and clinical educators in that the two parties work closely together to monitor and support teacher education candidates’ professional development. The presentation will share data regarding the outstanding partnership between a university and an urban school district that has had a positive and significant impact on student achievement. Participants will also experience the journey of the final year-long field placement in the program and learn how this along with the other factors in the partnership results in teacher education candidates who are confident and highly sought after by employing school districts.



### **The Role of the General Teaching Council for Scotland in Encouraging Innovation in Teacher Education**

**Tom Hamilton**

Following an invitation from Mireia Montané (who I met at a European Commission and Government of South Africa seminar on Teacher Professionalism in Brussels in late October 2015) I submit this proposal for the Innovation in a Global Context conference to be held in Barcelona in April 2016.

The proposed presentation will outline the form and status of the General Teaching Council for Scotland which is that of an independent Professional Statutory Regulatory Body.

The make-up of Council will be explained and how the Council operates will be outlined.

As well as keeping a register of teachers, it is the GTCS which establishes and reviews the standards of education and training appropriate to school teachers in Scotland and it establishes and reviews the standards of conduct and professional competence expected of a registered teacher. GTC Scotland also investigates the fitness to teach of individuals who are, or are seeking to be, registered and can also remove people from the Register if they are deemed unfit to teach. The Council has a statutory duty to maintain a scheme of Professional Update for teachers, which is a five yearly sign-off that appropriate standards are being maintained .

These various aspects will be explained.

In terms of teacher education, GTC Scotland has various functions including the determination of what constitutes a recognised teaching qualification for individuals seeking registration as a school teacher. It also makes provision about the education and training required to attain such a qualification as it thinks fit. In other words, the GTCS decides what a teaching qualification is and sets the parameters for programmes leading to such qualifications. As well as setting the Standards for teachers (which range over the teacher journey from being a student to being a head teacher) the GTCS publishes a set of Guidelines for all Initial Teacher Education (ITE) programmes and an Entry Memorandum which sets the necessary qualifications for entry to ITE. It then accredits all programmes which lead to the award of a Standard in Scotland.

GTC Scotland has an ongoing role in supporting the education of teachers as they progress through their careers. It has a system of Professional Recognition to celebrate particularly innovative or successful educational practice from teachers and a strong role in encouraging the development of leadership capacity within the education system, including at head teacher level.

How the GTCS carries out these aspects will be at the heart of the presentation and this will link directly to the conference theme of encouraging innovation in Teacher Education.



## Improving the quality of education through Induction Programs

**Peñalver Fa, Marc, Guinovart Pedescoll, Montse Palau Martín, Ramón Félix**

In our country, there are many outcomes which claim for the imperious need of improving the quality of our education system: a high rate of school drop-out, our assessed school results are well below average in an international context, there is a clear lack of a prestigious professional training, a shortage of quality in our bilingual teaching system and a dearth of connection between the school and the labour world (Marina, 2015). Investing in teachers is essential to improve the quality of education (UNESCO, 2015). And there are several evidences which proof the poor quality of our teachers: 40% of the principals from ISCED 2 in Spain consider that teachers in their schools have a lack of pedagogy qualification (European Commission, 2013). Moreover, the Spanish society perceives a lack of support towards teachers, but they do not specify which type of support would be the most suitable (Fundación Europea Sociedad y Educación, 2013). Therefore, it is essential to

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promote initiatives which unify the education agents and improve the teacher's preparation.

In the last years, in Europe, the integration period in schools of newly qualified teachers has been emphasised, and there has also been a tendency to implement support measures for beginning teachers through induction programmes. Its purpose is to help beginning teachers develop efficacious teaching practices (Educational Council of Aotearoa, 2015). Using the literature review methodology, this study aims to describe the fundamental guidelines so as to develop a coherent induction program (European Commission, 2010) and to collect a wide range of induction program designs from different countries, as well as describing their most distinguished aspects (PAEDEIA, 2014; European Commission, 2010 and European Commission, 2015).



## Getting Engaged: Transferring Leadership

Neus Lorenzo Galés, Ray Gallo

Preparing students for an increasingly complex, pluricultural, and plurilingual world requires us to rethink what we understand by "leadership." Our educational goals, and the values behind them, need to be the product of collective reflection, culture, and decision-making. It requires buy-in all along the line, from top administration to individual students. Educational policies must be supported by data and analysis, and must be sufficiently forward-looking to promote desired change, and flexible enough to adjust rapidly when unexpected changes surprise us.

This presentation will suggest ways for educational organisations to develop their own leadership styles, taking advantage of individual strengths of each stakeholder, with an emphasis on engagement. To train leaders, we need to develop new leadership environments, with authentic projects that implicate and engage people at all levels. Most importantly, we need to be providing the students themselves with the equipment to become the new leaders that will take society forward in a positive manner.



## Emotional education in Catalunya

Rafael Bisquerra

### Justification and need for emotional education

Emotional education is a response to social needs that are not adequately addressed in mainstream academic areas. These needs are the prevalence of anxiety, stress, depression, suicide, bullying, drug use, risk behavior, conflict, violence, etc. All this has a very strong emotional charge. Therefore it is important to address the emotional dimension in education. Acquire emotional competencies favors social and interpersonal relationships, facilitates positive conflict resolution, promotes physical and mental health, and also helps to improve academic performance. Many social and personal problems are a manifestation of emotional illiteracy. The development of emotional competencies through emotional education may represent an improvement that positively affects many aspects of life.

### What do we mean by emotional education?

Emotional education is an educational ongoing process, which aims to promote the development of emotional competencies as an essential element of human development, in order to increase personal and social wellbeing. Emotional competencies should be understood as a kind of basic life skills, essential for the overall development

of personality. Emotional education aims to optimize human integral development (physical, intellectual, moral, social, emotional, etc.).

Applications of emotional education can be felt in many life situations: effective and affective communication, conflict resolution, decision making, specific prevention (drug use, AIDS, violence, anorexia, suicide attempts), etc. Ultimately it comes to develop self-esteem, with realistic expectations of yourself, develop the ability to flow and the ability to adopt a positive attitude towards life. All in order to make possible a greater emotional well-being, resulting in greater social welfare and social wellbeing.

### **Emotional education in Catalonia**

In the mid-90s we decided to promote projects of emotional education at the University of Barcelona. In 1997, the GROPC (Research Group Counseling) was born with the intention to investigate emotional education. In 2002 was established the first Postgraduate in Emotional Education. In the 14 years of experience, we have trained some 500 professionals from different countries (almost all communities of Spain, Mexico, Costa Rica, Venezuela, Colombia, Ecuador, Chile, Argentina, Brazil, Italy, Greece, China, Andorra, etc.). These people have developed emotional education programs in their respective schools. The First Conference on Emotional Education were held in 2004, since then is held annually. This is a dynamic element in the diffusion of emotional education, to such an extent that today we can say that emotional education is a movement of educational innovation that is spreading through various countries.

## 7. Monitoring and evaluating innovations in Teacher Education

# Innovation: Understanding, assessing, and acting with purpose

Neus Lorenzo Galés

Innovation in education has usually been a reactive response to unexpected emerging problems. Do we need to teach kids in a foreign language? Let's try CLIL. Is ICT stimulating the development of new media spaces? Let's use Webquests to explore information sources on the Internet. Are kids getting bored at school? Flipped classrooms will switch theory and practice sessions. As interesting as they are, these remain band aid solutions. Only when we start to focus on creating innovative visions and goals in the education system as a whole, will we see a continuous stream of innovative suggestions for teaching and learning, born out of the wish for a deeper and wider prospect for the future.

In this context, the need to assess innovation is forcing education systems to rethink their purposes, processes and results. Assessment of innovation cannot be seen as simply the description of novel teaching techniques that spring up to solve a particular problem. It must be rooted in what an education system itself is able to learn, apply and achieve. We must stop thinking of transformation as the reaction to an ephemeral challenge, and shape it as a collective vision for generating ambitious aims to change the world, plan for a better society, and implement equity when developing new learning strategies. When measuring results, our objective must be a deeper understanding of reality, which informs that vision and leads to new actions.

The European Strategies for Education and Training 2020 (ET 2020), and the UNESCO global education agenda (Education 2030), part of the 17 UN Sustainable Development Goals (SDGs), are two examples of innovative visions for education based on values and principles, leading to specific defined results with specific indicators. These documents promote the changes that we would like to see in the next generations, to empower them to both enable the continuity of cultural evolution and avoid errors of the past.

In this presentation we reflect on common needs in educational systems throughout the world, and outline the main principles that help:

- Identify innovation in education
- Understand how innovative theories are applied in real practice
- Analyse what are the best procedures for generating coherent assessment criteria for innovation.

These three steps correlate to the basic levels of competency used in the OECD's international assessment frameworks for PISA (literacy, maths, science and collaborative problem-solving). They can be used as a departure point for developing guidelines for assessing the innovative capacity of educational systems going forward.



## Teacher Evaluation

Anna Anglès Virgili, Ramon Palau Martin

Our proposed presentation is about Teacher Evaluation. Regarding the general theme "Innovation in Teacher Education within a Global Context", we consider that it is at our disposal to rethink the teacher education. This topic could be included within the "Monitoring and evaluation innovations in Teacher

Education” or “Change for innovation in Teacher Education” frames. Our study is based on the literature review methodology. First of all, we are going to present a brief introduction about the importance of teacher evaluation in schools, in order to improve the educational systems and the professionals’ conduct (Paquay, 2008).

We are conscious of the great change that will occur in the school in the next few years; thus, and so as to guide this process, it is necessary to have an impartial item of control on the teaching staff that improves the weak point and reinforces the positive practises. Secondly, we are going to analyse different methods of teacher evaluation, among which we may find the “performance-related pay” system (Podgursky and Springer, 2007), the “Rate Assessment ofTeacher Effectiveness” (Strong, 2011) or the “Standards-based method” (Bolívar, 2008).

Moreover, we are going to present a report on how different countries belonging to the European Union evaluate the current teaching staff, considering aspects such as the external, the internal and the individual teacher evaluation (Hadjukakou and Michaelidou, 2010). Finally, we are going to expose the benefits that the teacher evaluation reports at the individual level (professional expectations) but also the general level (improvement in the educational system) (Ministerio de Educación Cultura y Deporte, 2015), as well as the risks that this evaluation could cause unless there is a later feedback (Duffet, Farkas, Rothertham and Silva, 2008).

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## Educational Excellence and Equity: A Look at Accountability, Pisa, Poverty, and the Reform Of Teacher Education in Finland, Korea, Poland, and The United States.

**Timothy Abraham**

Accountability in Education has become a great concern of policy makers as well as administrators and parents. While most persons agree to its merits, many efforts to increase its enforcement have to often unintended consequences and, thereby, some pushback.

Looking at individual countries (Finland, Korea, and Poland respectively) we can find approaches to reform, especially reform of teacher education, that merit attention of all concerned about upgrading of academic standards and employability and work for all populations, especially for those in minority or difficult socio-economic situations. Some efforts like PISA, getting serious about education (Finland), increasing rigor for education (Korea), and strengthening the preparation of teachers (Finland) can provide exemplars for other nations and communities aiming to improve the lives of the young facing a complex 21st century world.



## 7. *Monitoring and evaluating innovations in Teacher Education*

### APEI-Catalonia: Peer Review of Teaching

Maria José Miranda, Xavier Chavarría, Coral Regí Rodríguez

During the last 8 years, the FEAE (European Forum of Education Administrators) of Catalonia has designed, developed and evaluated the APEI Project (Peer Review of Teaching) adapted from the ALP Project which has been previously applied in Goteborg.

It has been fostered throughout interactive networks made up with a reduced number of schools of both Primary and Secondary state and subsidized schools. The first network was provided by the Steering Committee of FEAE Catalonia among schools that have been recognized for their good educational practices, later on the network was built with the schools that showed their interest in joining the Project.

The main objective of the Project is to contribute to the improvement of the Educational Practices emphasizing the strengths and suggesting some changes to implement in order to reach the goals every institution decides. The first step of the Project for every participant school is to decide the evaluation objects and select the observers and the observed. The objects have been very varied: from the implementation of a new methodology regarding the whole school to the coordination between two teachers of the same discipline. In any case, the objects were relevant for all the participants. About the participants it's important to notice that they must voluntarily express their wish of taking part of the process either if they observe or being observed.

How did we organize the observations?

A pair of observers (one from a Primary State School and another from a Secondary subsidized school or vice versa) per observation that can involve more than two observed teachers. It's highly recommended that the observers belong to different disciplines to the observed.

Framework for the peer review:

- a pre-observation meeting with the Headmaster/mistress or Deputy Head to learn about the school context.
- a pre-observation meeting with the observed teacher to deal the terms of the observation.
- two observation sessions. During these sessions according to a previous plan the two evaluators take down all their observations in a form. Afterwards they discuss and arrange a common report
- a feed-back session. In this session the evaluators present their conclusions to the observed teacher who in their turn give their own opinion
- final report. With the collection of notes from the observations and feed-back session the observers write a report which is submitted to both the teacher and the School Director.

These reports, always based on the strengths and the good class management, are good points for the improvement and the reflection not only for the teacher and the object but for the whole school because the observers often provide with some worth elements that kept hidden to everyday school life.

In conclusion, the peer review of teaching is a great tool for evaluating the teaching practice as well as for promoting the personal improvement and of the whole institution. As a result, this practice is now a regular evaluation tool inside the participant schools.



# A Description and Reflection on the different stages of the Evaluative cycle of the Educational Innovation

Joan Mateo Andrés, Joan Estruch Tobella, Francesc Ranchal, Carme Amorós

Evaluation involves a specific form of educational research and aims primarily at developing and improving the reality in which it operates. It is a transforming practices that, in order to have a deep impact, it requires the activation of the most relevant cultural, social and political wherewithal of the context in which it works. From the methodological point of view, the modern evaluation incorporates new logics that enable its adaptation to changing needs and addressing emerging spaces such as the educational innovation.

Thus, evaluating thinking contributes to new learning by providing evidence to map and monitoring the progress, successes, failures and roadblocks in the innovations as it unfolds. It involves thinking about what evidences will be useful during the course of innovations activities, establishing the range of objectives and targets that make sense to determine their progress. It is also considered one of the best strategies to develop a new form of teacher training.

We will provide a description and reflection on the different stages of the evaluative cycle of the educational innovation and we will present actual experiences on this issue.



## An Evaluation Model for Educational Innovation Programmes

Francesc Ranchal Collado, Míriam Margalef Boada, Joan Estruch Tobella,

Joan Mateo Andrés, Carme Amorós Basté

There is currently a boom of innovative education programmes promoted by schools or school networks, research groups or the education administration. All these projects wish to improve student outcomes, to engage students in the learning process and to adapt these programmes to the needs of the educational setting.

The evaluation of these innovation projects and their results are an essential tool in order to guarantee suitable decision taking as well as to incorporate improvements. With this in mind, presented herewith is a model which enables the standardisation of the evaluation process.

The proposal addresses a first conceptual distinction between monitoring and evaluating educational innovation. It also differentiates the concept of innovation with clear implications for outcome improvement from that of simply change.

### The Evaluation Process

What is understood as innovation process, with relation to the evaluation process, is described in depth by outlining a basic intervention sequence --without losing sight of the basic innovation objectives which, ultimately, are intended to improve students' abilities and get them fully engaged in learning.

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It focuses on the relation between development stages, the type of relevant information being sought and the instruments for obtaining and analysing that information .

Finally, it deals with the formalisation stage of results and recommendations.

### **Intervention Organization for the Stakeholders Involved**

It also presents an example of the organisational structure for a complex management model taking into account the intervention of various stakeholders: the corresponding education administration unit in charge of promoting the innovation programme, the local support agents - which in the case of Catalonia are the CRP (Pedagogical Resource Centres), and the school centres involved as well as the instructors directly responsible for the project deployment with the students.



## **Linguistic Thermometer**

### **Carme Rider**

The Societat Catalana de Pedagogia, as a filial of the Institute d'Estudis Catalans, is promoting research and development (R & D) a test for making a pedagogical diagnostic and proficiency of the breadth of languages children can learn. This instrument called Termòmetre Lingüístic, program should allow the teaching of foreign languages in different ways according to the possibilities of languages arxivement. It's an instrument for the teachers, so they are who know the children to assess their competence at five years age in a normal classroom situation.

Termòmetre Lingüístic –its composed for four exercises that allow the teacher to assess the phonetic ability, auditory memory, lexical richness and the expression ability. Is becoming a useful tool that is integrated into the regular classroom activity for its diagnostic and power quality supplementary material of interest to teachers when placed parameters of normal development in terms of the different elements that make up the elements of the language, among others.

### **Materials**

Each folder contains six posters, two class sheets, the master guide and one notebook per student .

### **The posters**

The material consists in six sheets so the centers of interest to active language of child and check their oral skills. The posters – based in Decroly globalitation methode- allow children to talk from their own experiences.

Observation of elements, phenomena or activity, association of ideas to assimilate and into inclusor concepts and expression to improve sentences with more precision.

The posters may be usually in the classroom and be used for oral activities along the school year and be used as a test in the second term of 5 years graders.

### **The notebook student registration:**

The test is composed for four activities.

1. Thermometer of sounds
2. Thermometer of auditory memory
3. Thermometer lexical richness

#### 4. Thermometer of free expression

##### **Master Guide**

This guide includes five annexes for teachers' support as a contribution to improve the oral expression of their pupils by introducing the supplementary material as follows:

- phonetic equivalents and approximations
- Vocabulary 5 years old
- Semaphore acquisition of sounds
- Map oral language development
- Teach good to talk: the speech at school and in the family

The Termòmetre Lingüístic is included in the Marc d'Ensenyament de Llengües Vives (Framework for Modern Languages) for the development of plurilingual education projects in schools in Catalan, open to the Roman languages with English as the transnational language.

Grup Promotor Santillana is a publishing collaborator in the publication and distribution, and Fundació Carulla are supported.

## **Differentiated instruction: Comparing Hong Kong and Romanian prospective teachers' teaching beliefs and perceived readiness**

**Sally Wai-Yan Wan, Cristina Tulbure**

Differentiated instruction (DI) is nothing new and commonly recognized as one of the most effective ways to cater to learner diversity. DI has been promoted in educational policies in different countries. It is essential to prepare pre-service teachers for catering to the diverse needs of students in pre-service teacher education. Yet there is a lack of studies about how DI is understood and perceived by pre-service teachers across different cultures. The purpose of this quantitative study is therefore to investigate Hong Kong and Romanian prospective teachers' teaching beliefs and perceived readiness of the use of differentiated instruction. With the application of a survey in one Hong Kong university and one Romanian university respectively, prospective teachers' teaching beliefs and perceived readiness for the use of differentiated instruction strategies are compared and contrasted. Implications for teacher education and research are discussed at the end of the paper.



## **Promoting the integration of Inquiry based science and English learning in primary education through triadic partnerships**

**Núria Carrillo Monsó, Mariona Espinet, Laura Valdés**

In September 2014, university professors from UAB (Universitat Autònoma de Barcelona) and teacher educators from CESIRE (Support Centre for Innovation and Educational Research) started to collaborate in the design of a primary teacher development program called "IBSE and English learning in primary education". The primary goal of this program was to support primary science teachers and primary foreign language teachers to develop instructional units that promote the integration of Inquiry Based Science and English learning.

The secondary goal of this program was to create sustainable triadic partnerships which foster educational innovations and research in the integration of primary science and language teaching and learning in Catalonia.

The triadic partnership was constituted by:

- Primary school teachers who were experiencing Science in English in their classrooms.
- UAB university professors who contributed with theoretical inputs and primary student teachers who gave support as "teacher's assistants".
- CESIRE's teacher educators who bridged the gap between university and schools with a theoretical and practical framework for both inquiry based science and language learning.

The teacher preparation model was framed under the construct of Learning Communities inspired by the work of Wenger (1998) on communities of practice.

The triadic partnership was built around two axes: (a) the educational institution of reference (schools, university,

and educational administration), and (b) the discipline of reference (Science and English). The intention was to design a teacher development program in which all partners had the opportunity to experience professional development through their participation in the community. The triadic partnership was managed with two types of activities: (a) staff meetings to promote collaborative research and innovation in Science and English teaching in primary education, and (b) teacher development meetings to promote reflective practice in teaching inquiry based science and English in their own primary schools and with the help of primary student teachers.

The triadic partnership, piloted for the first time in the academic year 2014-5 as a way to promote the integration of Inquiry based science and English in primary education in Catalan schools, has provided a scenario for successful collaborative and innovative teacher development processes. The first strength of the teacher preparation model has been the explicit theoretical support provided by university and teacher educators from both science and foreign language education. The theory acted as an arena where to create a boundary object that was shared and negotiated among all participants. The boundary object was supported by the theoretical framework of the program and by the development of a tool used by all participants. This tool was designed to guide the planning of the Inquiry Based Science instructional unit in English and it will be refined in the next future theoretically and practically. The second strength of the program has been the composition of the learning community including school teachers, student teachers, university professors and teacher educators from both science and language education disciplines. All participants have developed a positive attitude towards the collaboration within such a diverse community and want to continue the work in the future.



## Supporting the re-balancing of initial teacher education within school-university partnerships

Elizabeth White

The change in emphasis in the leadership of initial teacher education (ITE) within school-university partnerships means that experienced teachers in schools are taking on more responsibility for educating teachers in many countries (Whitty, 2014). Concerns have been expressed within the European Commission report (2013) that there is a risk of fragmentation within the system, with considerable challenges in ensuring consistency and quality in the content and delivery of teacher education. Within this new landscape we are seeking to develop a school-university partnership in England that transforms ITE through new ways of partnership working that are 'characterized by a culture of inquiry, reflection, and effective collaboration among all stakeholders' (Ikpeze, Broikou, Hildenbrand, & Gladstone-Brown, 2012, p.276).

Our research in this partnership context involved school-based and university-based teacher educators and the student teachers who worked with them. We used a phenomenological approach, seeking to identify the meanings being constructed by the participants through use of a questionnaire, semi-structured interviews and a focus group. Findings suggest that the participants recognised the unique contribution made by both school and university-based teacher educators and of the value of working collaboratively in teacher education. We concur with the ethos of Henneman, Lee and Cohen's (1995) understanding of collaboration:

'Collaboration is a complex, sophisticated process. It requires competence, confidence and commitment on the part of all parties involved. Respect and trust, both for oneself and others, is key to collaboration. As such, patience, nurturance and time are required to build a relationship to the point where collaboration can occur' (p.108).

In this presentation we will describe the nature of the new partnership between schools and a university and

## ***8 and 9. Change for innovation in Teacher Education. Initial and ongoing Teacher Education for innovation***

some of the challenges and benefits of this way of working. The implications for the development of effective partnerships for a sustainable model of ITE will be explored.

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## **Physical Education Teacher Candidates' Perspectives of Field Experiences.**

**Adolfo R. Ramos, Seidu Sofo**

**Purpose:** The purpose of the study was to examine physical education teacher candidates' (PETC) perspectives of a field experience (FE).

**Method:** Participants included 33 PETCs (26 males and 7 females) enrolled in a secondary physical education methods course. A 5-item open-ended questionnaire served as the main data source. The questionnaire assessed PECTs' perspectives on three components of their teacher education program: PE methods/techniques courses and professional education courses (Block I, Block II, & Block III). In addition, it sought PECTs' suggestions for future Block II students. The questionnaire was administered to the PETCs twice, at the beginning (pre-test) and at the end (post-test) of the semester. Data were analyzed utilizing qualitative content analysis, consisting of inductive category development and a deductive category development. The inductive analysis identified seven categories: content knowledge (CK), instructional strategies (INS), planning (PL), self-efficacy (SE), technology (TL), classroom management (CM), and professionalism (PL).

**Results:** The deductive analysis indicated highest percentage of comments for both pretest (50.21%) and posttest (32.76%) were related to physical education methods/techniques and early experiences, followed by suggestions for future students, 21.28% and 25.00% respectively. The lowest percentage of comments were related to Block I experiences— 9.36% and 16.38% for pre- and posttest respectively. However, the highest percentage of PECTs' comments were in the professionalism (9.79%) category under the "Suggestions for future students" followed by self-efficacy (8.09%) under "PE methods/techniques." Similarly, the highest percentage of comments post-intervention were under PE methods/techniques (32.76%), and the lowest in "Block I (10.32%)." Post-intervention data shows that highest percentage of comments were in the professionalism (16.38%) and self-efficacy (10.34%) categories under the suggestions for future Block III students and PE methods/techniques courses components respectively. PECTs made not comments (.00%) pertaining to classroom management under the Blocks II, Block III, and suggestions for future Block III students components both before and after the intervention. **Conclusion:** PECTs in this study perceived professionalism to be the most critical disposition/competency for the secondary techniques course and field experience, followed by self-efficacy they developed in the PE methods/techniques component of their program.



# Teaching Beyond Borders: International Service-Learning in Teacher Education

Burcu Ates, Helen Berg, Diana Nabors

Universities around the world are increasingly recognizing the challenges of globalization and pressures for internationalization (Maringe & Fosket, 2010). Internationalization has become an integral part of strategic and curriculum planning initiatives across universities and colleges in the U.S. with the goal of global competency and success in a world that is only becoming more diverse (Sharma & Phillion, 2014). Many universities have adopted a two-pronged approach of internationalization, “home-based (internationalization at home) and overseas-based (internationalization abroad)” activities. Thus far, teacher preparation/education, remains the least internationalized in U.S. colleges and universities (Alfaro, 2008; Cushner, 2007; Stewart, 2013).

An extensive body of literature exists with study abroad programs that highlight the experiences of students in general (e.g., Le, Raven, Chen, 2013), yet a lesser number of studies focus on the experiences of preservice students in such programs (e.g., Rodríguez, 2011; Sivakumaran, Sutton, Todd & Garcia, 2011). An even smaller number of studies focus on the experiences of preservice teachers who have been specifically involved in international field experiences (e.g., Sharma, Rahatzad, Phillion, 2013). The review of studies which focuses on the experiences of preservice teachers who were involved in a study abroad indicate that study abroad provides preservice teachers the opportunity to go beyond their own culture and involve them in cross-cultural experiential encounters they may not necessarily attain or have access to in their home towns or college campuses (Palmer & Menard-Warwick; Rodríguez 2011; Sharma, Phillion, & Malewski, 2011; Pray and Marx, 2010). Our study and presentation focuses on the study abroad/international service-learning (ISL) experiences.

In an attempt to internationalize one teacher education program in the U.S. faculty collaborated with one school and community in Naples, Italy and created an English summer school program where 9 American pre- and in-service teachers taught EFL to underprivileged children in grades 4 through 6 in summer 2015. Journal entries and interviews were the data sources of this qualitative case study. The study explored the experiences of 3 American pre-service teachers and analyzed how they perceived the local context the ISL project before and after the program. Through thematic analysis, the results revealed that through various encounters and interaction with the local community, school, teachers and students they have learned more about the culture and language more than any textbook or teacher education course could teach.

In this presentation, the presenters will discuss the results of the study and share tips in creating successful ISL programs (i.e. Belize, summer 2016) where pre- and in-service teachers teach English or serve the community based on their needs (i.e. create a library or literacy centers) in underprivileged schools as well as share how other teacher educators can find the right community for an ISL experience for their own pre- and in-service teachers.

Our presentation has a direct relevance to the conference theme and other subthemes. Three teachers from the U.S. with different backgrounds will share their teaching and learning experiences regarding ISL with other teacher educators from around the world.



## **Integrating knowledge for teaching and knowledge of teaching in a teacher education programme involving a “teaching school”: Lessons learned**

**Sarah Gravett, Nadine Petersen, Sarita Ramsaroop**

Successful teacher education programmes underscore the integration of knowledge for teaching with knowledge of teaching (Feiman-Nemser, 2008). The design of such programmes aims to counteract the disjuncture between the ‘world of theory’ and ‘the world of practice’ and draws optimally on collaboration between teacher educators and teachers who supervise student teachers in schools.

The Faculty of Education at the University of Johannesburg (UJ), in collaboration with the local (Gauteng) Department of Education, established a school in 2010 on the UJ Soweto Campus to serve as a practice learning site for student teachers – a “teaching school” – the first of its kind in South Africa. The establishment of the teaching school coincided with the implementation of a new four year foundation phase (elementary school) teacher education programme at the UJ. The design of the programme was guided by a central organising principle of child study, or put differently, a “pedagogical stance rooted in knowledge of how children learn and develop” (Feiman-Nemser 2001:1018).

This paper reports on the combined findings of two qualitative research studies on participants’ experiences of the teacher education programme designed to integrate the university coursework curriculum with student-teachers’ involvement in the teaching school. The paper also reports on the different iterations of the developing teaching school “model” since its inception. Data comprised the views of Faculty leadership, university and teaching school staff and student-teachers as well as programme documents. The method used for data-analysis combined approaches suggested by Charmaz (2003) and Maykut & Morehouse (1994).

A main finding is that integrating the teaching school in the teacher education programme enabled significant student teacher learning for the teaching profession. The teaching school as “learning site” holds great promise for integrating knowledge for teaching with knowledge of teaching. In particular, the activities designed for student-teachers to enable the realisation of the child study focus of the programme, proved to be successful.

The twinning of the coursework focus from the first year of study in the programme with student teachers’ placements in Grade R (kindergarten), and progressing to Grade 3 in their fourth year of study, enabled consistent opportunities for studying children’s development and the implications for teacher pedagogies. However, the programme designers and university staff under-estimated the complexity of bringing together the world of the university and the world of the school. Consequently, there were missed opportunities for using the teaching school experience optimally to integrate knowledge for teaching with knowledge of teaching.

In interpreting the findings we use elements of activity theory (Engeström, 1993, 2001; Anagnostopoulos, Smith and Basmadjian, 2007), specifically invoking the the concept of “horizontal expertise”. We also employ the notion of “third space” (McNamara, Jones & Murray, 2014) arguing in agreement with Zeichner (2010) that “third space” allows for “a rejection of binaries such as practitioner and academic knowledge and theory and practice”.



# International knowledge building development: A conceptual and pedagogical design of intangible cultural heritage (ICH) project through international collaboration

Patrick Hak Chung Lam, Rafael Benlliure, Sally Wai Yan Wan

The empowerment of the young generation is regarded as an important approach of preservation of cultural heritage, particularly on intangible cultural heritage (ICH). As the cultural heritage conservation is a common concern across nations, international collaboration is regarded as a powerful platform to stimulate and support the development of students' awareness, passion and sustainable practice of cultural heritage conservation. However, few student-centred cross-cultural programmes were carried out yet most were done in the western context. In the educational context of Hong Kong, teaching cultural heritage is still ignorant and understated in the curriculum development. In order to raise students' awareness and increase their understanding in this subject area, in accordance with the educational philosophy of situated learning, an international collaboration programme was initiated and commenced in October 2015, involving 17 Hong Kong students and 15 Barcelona students in junior secondary levels. The programme included various stages, namely discovery of both tangible and intangible cultural heritage and conservation in the school neighbourhood, exchange of inquiry results through video conference, and collaborative efforts in writing proposals of heritage conservation through international knowledge building. The purpose of this paper is to share the conceptual framework and pedagogical design of the programme. Discussion and implications for the development and practice of student programmes through international collaboration are presented.

Key words: international collaboration, cultural heritage, knowledge building, pedagogical design



# Leadership for change: An empirical study of ecological model for school-based gifted education development

Patrick Hak Chung Lam

Ecology is regarded as an important metaphor of change process as it provides a holistic framework for understanding the change mechanism. The paper "Towards an ecological model of understanding educational change in schools" presented at the 3rd WFATE Biennial International Conference 2014 provides a theoretical framework with literature review and research agenda for understanding school change in the context of school-based gifted education with an ecological perspective. The ecological approach is important nowadays as schools are considered as open systems, involving non-linear interactions, rapid changes and fluid solutions. With multi-case studies of 3 primary schools in Hong Kong, the ecological model of school-based gifted education (GE) development is analyzed through their species (GE practices) and the niche (environmental conditions) associated with them. Niche, includes school background, principal's roles, school strategies as well as government and community support. Architecture for interaction, an indispensable element of niche, will also be analyzed. It is the interaction amongst the key players of GE in school and interaction between them

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and the contextual conditions. Competition (the choice of GE as developmental priority) and emergence (the initiation of GE practice), important features in ecology, will also be examined. Given the similar nature of change that school-based execution is emphasized, the study may provide insights for school leaders and policy makers in understanding change mechanism of other educational reform initiatives that share the same nature of school-based implementation.

Key words: leadership, change, ecology, species, niche, architecture for interaction, gifted education

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## **Discovering Hong Kong prospective teachers' perceptions of teacher leadership and professional learning communities**

**Sally Wai-Yan Wan, Eunice Wai-Po Wan**

Most of the literature discussed that the important roles of teacher leadership (TL) and professional learning communities (PLC) for classroom improvement (e.g., Leithwood, Louis, Anderson, & Wahlstrom, 2004; Mangin & Stoelinga, 2008; York-Barr & Duke, 2004). Few studies explored positive influences of TL and PLC on student achievement (e.g., Supovitz, Sirinides, & May, 2010), whilst most studies emphasized the investigation of in-service teachers' perceptions and experiences on TL and PLC (e.g., Muijs & Harris, 2006; Silva, Gimbert, & Nolan, 2000). Yet little was known about how prospective teachers perceive teacher leadership and there is lack of information that supports the development of future teacher leaders in schools. This study thus aims at filling in the research gap by exploring prospective teachers' perceptions of teacher leadership and professional learning communities. Using mixed-method approach, the study uses a survey and individual interviews with a group of prospective teachers (N=92). Key themes of the findings include teachers' key aspects of TL and PLC, as well as anticipated challenges in actualization of TL and PLC. Future directions for the TL development in teacher education programmes and curriculum development, together with research on TL and PLC in teacher education are discussed at the end of the paper.

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# Readiness of pedagogical practice of differentiated instruction: From Hong Kong and Spanish prospective teachers' perspective

Sally Wai-Yan Wan, Joana Salazar Noguera

Differentiated instruction is widely accepted as an effective approach to catering to learner diversity in the global world. Yet scarce research has been done to understand if prospective teachers are ready to use differentiated instruction in different cultural settings. This quantitative study investigated and compared Hong Kong and Spanish student teachers' teaching beliefs and teaching efficacy regarding differentiated instruction by surveying Hong Kong student teachers (N=59) and Spanish student teachers (N=45). Findings include comparisons of teaching beliefs and teaching efficacy between Hong Kong and Spanish student teachers. Implications for teacher development are discussed.

Keywords: differentiated instruction, catering to learner diversity, perceptions, readiness, comparative study, Hong Kong, Spain



## Encourage a cooperative organization of students; creativity, entrepreneurship and values.

Joan Ramon Boixaderas

In order to prepare meaningful entrepreneurial activities we have designed a project in which Primary and ESO students have to create and manage a cooperative school during a whole year. This school cooperative will develop a productive and economic activity. The final goal will be to sell a product or activity at the end of the process.

We will use an active methodology, based on the work on projects. In this case, the implication and participation of the students will be a key factor in the process, as they will be the ones taking the important decisions. The role of the teacher will be to assist and guide students throughout the process. There will also be specialists who will monitor that all actions take place according to plan.

### Why should we promote a student cooperative at the school?

The Cooperative wants to promote the cooperative movement among students. This is one of the main characteristics of the cooperative organizations and it is always stated in the pedagogical project for this type of schools.

Student cooperative working process wants to promote creativity, entrepreneurship and cooperative values.

- Entrepreneurship training. The future of all teens that are still in the educational system will depend more on themselves. Their future will be less tied to a third party (company and Administration) and will be more based on the capacity they have to share a project with others.
- Values. They learn values by practicing them; values are not learnt as abstract concepts. This is the only way students can incorporate them to their own ethics.

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- Dissemination of values and cooperative principles. They are universal values that are useful for everyday life: democratic management, self-help, social and environmental responsibility, justice, equity, solidarity, transparency and honesty.



- Pedagogical method. Students are the key roles in this activity. The teacher encourages, guides and supports students but they are the only ones who build the project (learn) and lead it.

It is a social learning (a necessarily shared activity) that promotes different social skills: capacity to communicate, leadership, empathy, negotiation skills, conviction... This activity has an impact on the community, it has a shared outcome and it results in an acknowledgement of the students. It is

an interdisciplinary activity that integrates different content: management, organization, economy, legislation, social and natural environment, learning and service, always with a great variety of procedures and values.

At the school we have two students cooperative: Pinetons in Primary School and Les Oliveres in High School. Pinetons is a production cooperative. Students prepare handicrafts, with an original design, recycled materials and skills learnt from their grandparents. This way it promotes creativity, sustainability, intergenerational relationships and the inclusion of the families into a school activity.

The activity begins with the creation of a cooperative. That is to say, writing the statutes, choosing positions for the Advisory Board and understanding how we make decisions democratically in an assembly. Accounting is a key subject because students provide capital to be able to make an investment and begin the activity, calculate the selling price necessary to cover production expenses and to obtain a benefit that will be assigned to charity.

Les Oliveres is a service cooperative. There are different commissions that manage activities designed to produce a social or environmental benefit: activities for the children of the blood donors, food collection campaigns for the food bank, recycling of waste oils, parties to raise funds for research in different illnesses (Marató de TV3), collecting second hand clothes, collecting books and school material for a Guinean orphanage or campaigns to raise funds for schools in North Cameroon.

Students working with donor's children as their parents give blood.



## **Obstacles and Opportunities at Learning How to Inquire and Model with the Gowin V Diagram in Science Teachers in Initial Training**

**Edith Herrera San Martín, Mercè Izquierdo Aymerich**

This preliminary research describes the process by which prospective science teachers from Universidad del Bío-Bío, VIII Region, Chile, experienced an innovation in inquiring and modeling with the use of Gowin V diagrams (1981) adapted to school science teaching, before starting their first teaching practice.

While there exist extensive research in initial teacher training related to the study of beliefs, conceptions or difficulties posed by future teachers (Fernandez et al., 2002) or essential characteristics (Gil, 1991), questioning (Mellado, 1996) knowledge (Mondelo et al., 1998), skills (Couso, 2013) that should be developed in an adequate initial teacher training program (Schibeci and Hickey, 2000; Loughran, 2007), little is known about studies on innovation design, how to go about it in initial teacher training and how to monitor its development in the school reality.

The approach we propose to future teachers is framed on two aspects: school science teaching in which researching and modelling is at the core of the process (Izquierdo, 1999 and Caamaño, 2011) and the teacher is a researcher and a reflective practitioner (Shön, 1993); and the dilemmas that this situation creates in prospective teachers regarding their role as a teacher to address a different lesson to the traditional one.

The proposed innovation uses the V Diagram as scaffolding during the learning process. The lesson, at the initial phase, is characterized by integrating a modelling strategy of key ideas about science so that an interesting phenomenon or fact is selected by the students who are free to explore and explain their ideas and preconceptions about the observed phenomenon, arriving thus to a research question, one which can lead them to propose a response strategy. The intention behind selecting or generating a “research question” is to make pupils think that when we are involved in a research endeavour, it is possible to visualize a response beforehand and thus propose a strategy to answer the question and justify the response on scientific grounds (Izquierdo, 1995).

The multiple case study consisted on a methodological induction and the monitoring of five science student teachers’ learning with the purpose of analyzing how they organized their explanations when solving a problem by using each side of the V Diagram: thinking, doing and communicating. The results show that student teachers have difficulties in understanding how to organize theoretical and practical knowledge to solving problems by using the V Diagram, which has implications for implementing changes in classroom teaching and the planning of innovative educational proposals for developing scientific thinking skills.

The innovation proposed can be considered the starting point in the “change” process to the initial training of science teachers since through reflecting and questioning the traditional model of teaching, the future teachers have been able to “rethink” about how to teach school science.



## One Institution, three Curricula, 1600 learning Approaches

**Maria Teresa Solé Clavero, José Gabriel Lluís Queralt**

One Institution, three Curricula, 1600 learning Approaches wants to provide our educational centre with a holistic organisation capable of fulfilling the needs and expectations of every member in our community. This main aim is basically achieved by the implementation of a number of projects and innovation plans, to allow an improvement of the academic results and a socially cohesive school. Through their own management software, the promotion of foreign languages, the introduction of recreational activities and the incorporation of new technologies in everyday work, INS Baix Camp School is prepared to focus on the individualization of learning. Back in the early 2000s, the school was neatly diversified in their three different curricula: compulsory secondary education, baccalaureate and vocational students. There was a need for reunification, shown by a deep study of the school which involved all sectors in different improvements actions.

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The analysis showed a totally divided school (academic/vocational students and teachers) and the severe need for a management system able to plan, act, evaluate. Moreover, there was a lack of clear, achievable goals as early school abandonment or a poor relationship between the school and its environment.

The first objective was give a boost to the school with a project-centered knowledge acquisition, where each individual takes an active part in their process of learning and becomes socially active in any school activity. The school faced precise targets for each of the three general objectives of the educational project; the academic improvement, social cohesion and the development of IT skills in everyday learning process. Special care was taken in providing the areas with a wider room for improvement.

Materials, academic issues and human resources were used to meet the needs. The teacher training schedule was devoted to the use of new technologies, conflict resolution and mediation, and group dynamics. The participation in innovation projects provided the school with IT hardware and software, and the parent-teacher association funded the school with human resources such as an IT assistant, or a social integration assistant. A leading management board has led to proactive team work, and the technical knowledge of the vocational school teachers has allowed to forward knowledge to the business environment.

The final processing of all the resources was devoted to solve the problems that had been previously detected, resulting in a strong holistic organization, which aims at the individualization of learning.



## **Discussing the Entrepreneurial Education: Roots and Branches of This Concept**

**Mariona Masgrau Juanola, Alex Forasté Arissa, Karolin Kunde**

The term entrepreneurial education is strongly rooted in our educational system, from the highest authorities as well as from the basis: entrepreneurial education is a preferential line of the Agenda for the Modernisation of Europe's higher education systems (2011) of the European Commission, and it is being emphasized in many other European documents; on the other hand, it has become an optional subject in secondary education in many states and lands (see, for instance, Decree 51/2012 of 22 May published in the DOGC no . 6135 - 05/24/2012 p. 26905 of the Catalan Government),

and many secondary schools make use of external services to organize entrepreneurial education courses (see for example, in Spain, the programmes offered by Valnalón, Kit Caixa or Trilema, among many others). Far away from being a temporary trend, entrepreneurship education is establishing itself as way to innovate in many education systems.

However, it is necessary to discuss this concept, defining it properly by analysing all the specific definitions that have been emerged from practical experiences, as well as to choose and deepen in the most appropriate option. The European Union gives some generic definitions based on the ability to devise and activate projects: "Entrepreneurship in Education is about inspiring entrepreneurial potential. People need the mind-set, skills and knowledge to generate creative ideas, and the entrepreneurial initiative to turn those ideas into action." ([http://ec.europa.eu/education/policy/strategic-framework/entrepreneurship\\_en.htm](http://ec.europa.eu/education/policy/strategic-framework/entrepreneurship_en.htm)). This is a cross-curricular approach, which is promoted, especially in primary education. Other more extensive and specific definitions emphasize in economic perspectives: "Reinforcing entrepreneurial education in schools, vocational education institutions and universities will have a positive impact on entrepreneurial dynamism of our economies. Indeed,

besides contributing to the creation of social enterprise and business start-ups, entrepreneurship education will make young people more employable and more ‘intrapreneurial’ in their work within existing organisations, across the social, public and private sectors” (Entrepreneurship Education: a Guide for educators, 2013). This concept focuses on employability and permeates most of the private programmes that are carried out in secondary education, except noteworthy initiatives.

Our research project Teacher 2020 (Erasmus + 2014-1-ES01-KA201-004463) –which involves nine institutions of six European countries with all educational levels represented– promotes entrepreneurial education as an active and participative methodology, in which students have a high degree of empowerment in their learning processes, they work out and learn from real community challenges, so that this way we may be able to build a new more sustainable and equitable society.

We believe that it is also necessary to map the roots of this didactic approach and its future ramifications in different areas of knowledge, as entrepreneurship education has often been defined against the pedagogical tradition, as if it was a breakup movement that would do a tabula rasa with all previous educational legacy. Far from this point of view, our project believes that the faculties of education and pedagogy must contribute to delve into the entrepreneurial education, recognizing the authors and the methodologies in which it is inspired: the concept entrepreneurial education must be enriched with all the know-how, not only of the universities, but also of primary and secondary schools. Authors like Dewey, Freire, Piaget and Papert, or relatively recent methodologies in our educational system, such as service-learning, cooperative work and project work, are fundamental to define it properly and it is important to make these hybridizations emerge explicitly.

In this sense, if we consider that entrepreneurial education can become a global approach that could permeates all educational levels and areas of knowledge, we must ensure that it doesn’t become a pretext to target education to the nowadays labour market needs. In favour of economic dynamism, we cannot forget the importance of humanistic education (useful in a more subtle and longer-term way), nor the importance to promote a critical spirit, neither the sense of ethics, that should allow students consider not only financial gain, but also the social impact of his initiatives, while developing his creativity and entrepreneurial sense. Only if entrepreneurial education is defined as an educational initiative for social change, it truly becomes innovative.



## Los maestros cuentan. Informe de los Encuentros entre Maestros 2015

Macarena Verastegui Martínez

“Los Maestros Cuentan” report is the result of Encuentros entre Maestros Project, which was made by Promaestro Foundation. Meetings are reflection spaces where the target is professional exchange between teachers about elementary aspects from their profession. Promaestro Foundation is fostering a national professional networking among teachers based on report results. This is a project to promote continuous teacher education based on reflective practice.

The aim of the research project is recognizing key professional aspects in teachers’ conceptions and opinions about education and their profession. To reach this target, the researching team has organized several focus groups. Participants of these groups were sixty-two teachers from different education levels, schools and cities. They were carried out in four Spanish cities (Barcelona, Madrid, Sevilla and Murcia) from January until June 2015. The methodology used was discourse analysis around a question: What aspects, dynamics, relationships and structures empower teacher profession?

## ***10. Health, Physical/Sport Education and Physical Arts Education (including circus and theater school education, in relation with music, dance and visual arts)***

Results show that professional situation is very similar between teachers from different education levels. The most important difference between them is social and economic contexts of students and families. Teacher voice was collected concerning fortitudes and weaknesses of their profession. Aspects that empower teacher profession are the relationship between teacher and student, belonging to a visible and united professional group, innovation and autonomy, reflective practice and professional evaluation. On the other hand, teachers report that debilitating aspects are professional isolation, burn out and overburden, lack of social prestige and acknowledgement, missing professional evaluation and absence of differentiation between good and bad professional praxis.

For teachers, ideals are a source of motivation. However, negotiation between ideals and reality may weaken their profession. Its resolution, and used actions and mechanics determinate if teacher profession loses strength or gets stronger. This resolution is more effective when teachers meet, professional networks are created, teachers have a representative social participation and there is a reflective atmosphere about the own practice. This report expects to gather information about teachers' voice and experience which is necessary and relevant in every research and initiative that seeks to change and improve education system. When teachers have the opportunity to express their own view, their experience and knowledge there is a better understanding about the education system complexity. Mainly, it is necessary to incorporate communal deliberation to the most important professional force in the education system: the teachers.



## **The role of social capital in preservice teacher performance**

**Mireia Civís, Jordi Díaz, Susana López, Jordi Longás, Jordi Riera**

The social side of teacher performance has been studied lately by scholars around the globe, underlying the importance of social capital as a relational competence. Studies show how preservice teachers perform better if their social networks facilitate their acces to resources, concluding that one's relationships with others are a source of material, information and emotional aid. A crucial question for our universities and schools is what type of learning climate is needed to empower the access of preservice teachers to learning in their professional path. Thus preservice teachers' social capital has mostly been studied in a theoretical context, and research suggest the importance of empirical research that inform and shed some light to educational reform and educational improvement.

This presentation claims to study the incidence of a collaborative innovation climate in preservice teacher performance, focusing on their social capital as a mediating variable of their success. This is based upon a research addressed to a sample of 320 students enrolled full time either in Teacher Training Preschool Education or Teacher Training Primary Education program at the FPCEE Blanquerna-University Ramon Llull. All of them responded to a questionnaire regarding their social networks and their perception around the learning climate and their success. Students responded to social network questions and to a variety of measures related to the learning climate -trust, innovation and satisfaction-.

Findings show the relationship between student's social networks and student's performance, indicating that when students are more closely linked to each other have more success -self efficacy and academic achievement-. Also, results show that a collaborative innovation climate (understood as learning climate with collective and individual innovation and collective and individual trust) is positively related to academic success

(final grade) and professional competences (Practicum Grade and self efficacy) through student's social capital. Implications of this study may suggest changes in teacher education programs addressed to increase social capital of preservice teachers by promoting a collaborative innovation climate based on trust between students, and between students and teachers, so as an orientation to innovation from a practical standpoint.

## *10. Health, Physical/Sport Education and Physical Arts Education (including circus and theater school education, in relation with music, dance and visual arts)*

# Physical Education and Health Education: an integrated approach

Marc Franco-Sola, Sara Figueras

Physical Education is the most effective and inclusive way to provide all the children, no matter their level of ability, sex, age, culture, race/ethnicity, religion or cultural background, with skills, attitudes, values, knowledge and understanding about the importance for a lifelong participation in physical activity and sports (International Council of Sports Science and Physical Education, 2010). Physical Education helps child to develop their physical competence and health, but also enhances cognitive, social and emotional development. Understanding Physical Education through a comprehensive paradigm encourages us to reconsider new aims, practices and methodologies. At the same time, health has also broadened its own conceptualization. Health is not merely the absence of disease or infirmity (World Health Organization, 2006), but we understand that it is also the state of somatic, psychological and social well-being of the individual and the community. In addition, «Physical activity can serve to promote health and function in individuals, while also lessening the health and economic burden placed on society» (Hillman, Erickson, & Kramer, 2008).

Blanquerna Faculty (Ramon Llull University) offers a Physical Education and Health Education conception based on these new approaches, introducing an innovative point of view on our subjects for all Primary Teacher Training students. We teach both subjects in a modular way, introducing co-teaching and sharing active and participative methodologies in order to guide our students to learn and understand the importance of providing experiences in ages from 6 to 12 years. This paper presentation will focus on two significant tasks that we developed with our students as a integrated way of understanding Physical Education and Health Education.

1) My Big Challenge! During the semester they must set a personal challenge related to any physical activity and share some evidences to their classmates. They have to explain carefully the challenge they choose and why did they choose it. They may use some pictures or videos for their explanations. The students choose challenges as a climb a mountain, run a 5km or 10km race, hiking long distance, and learn a new sport... Through this activity they can work a good purpose, health habit, effort and tolerate the frustration feelings. When they finish and share the evidences with their mates, we conclude the importance of the effort to get it. It's not only a physical learning, they learn many attitudes in a emotional and social way.

2) Also They design, organize and implement a cooperative, inclusive and healthy Physical Education activity for Primary schools. This task is a Service-learning methodology. The neurorehabilitation hospital Institut Guttmann offers to the University the possibility to collaborate in a day that Primary Schools visit the facilities. This day is called "Move and you'll see it!" ("Mou-te i veuràs!", in catalan, or "¡Muévete y verás!", in spanish). Our students design a cooperative and inclusive activity with a healthy approach. The children with different mobility capacities have to participate in the activities (integrated model of learning or universal design for learning). As well as cooperative model tasks, so students must work in groups to complete tasks collectively toward shared goals, structuring positive interdependence between them.

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## Theatre at school

Escola Andersen / M<sup>a</sup>Rosa Jané Lligé, Maria Cortés Pujol, Ridge Smith

We envisage to talk about how theatre works in our school from the very beginning of preschool to secondary school. We will also explain the benefits of theatre on people in general. We will speak about how to improve oral and body expression doing theatre. Theatre is beneficial because it helps them to learn many different themes in life in a very practical and motivating way.

Health, Physical/Sport Education and Physical Arts Education (including circus and theater school education, in relation with music, dance and visual arts)



## Emotional Theatre: an innovative educational tool

Lorena Casal Valdés

In this work I'm presenting a classroom practice of theatre as an educative tool. For the last five years we play Emotional Theatre (E.T.) as an optional subject in the public secondary high school, INS Alexandre Galí, placed in Roquetes, at 45 km to Barcelona. E.T. is a combination between social theatre, psychodrama and dance/movement bases through which the development of artistic and creative activities, aims to improve empathy and emotional regulation.

We begin the class working with physical exercises that enable students to develop their sense perception, non-verbal communication skills and confidence with others. The main part of the practice consists in an approach to different themes related with students' interests. We play these activities performing psychodrama and scenic dynamics: the students are divided in actors and audience and all of them go through both roles. They are free to investigate about themselves, using guided improvisations, that raise insightful issues. Thus facing them with emotional struggles, which generate creative responses and alternative points of view. During and in the end of the session teacher and students talk about the issues that have been raised. The teacher work consists in to be aware about the behaviour of the students, detect the weaknesses and strengths, propose strategies and new actions and guide the group in the research of answers and solutions. Students and teacher built theatre pieces with the resultant material and show them in school events like Christmas Concert or Saint George celebration. In this work I will present, using a case study, the methodology, programme and results analysis of E.T.

Playing E.T. enhances the wellness of the students and the overall development of multiple intelligences and emotional regulation. Also generates changes in a personal level: improving the self-image and the sense of living. In a social level E.T. increases the feeling of belonging to the group, resulting in personal role changes, and in an inner and outer improvement of communicative skills. Some students testimonies are: "I have learned

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to be more confident”, “I have a place to understand better my emotions”, “I enjoy a lot and I learned lot of things of my mates”.

This proposal also wants to think on the relevance of arts in human being development, especially in children and in educational contexts. Nowadays there is a growing social need to be creative, to be understanding and having a tolerant behaviour towards others in order to be happier and build a better world. All these educational values are related with the artistic development.

It is very important to implement this kind of teaching innovation in the compulsory curriculum areas in Spain. One way to do it may be trough art or language classes. It could be considered from school to high school educational levels and also could be included in all range of teachers education at university.



## **The training of pre-school and infant school (0- 6 years) Physical Education teachers from a comprehensive perspective: practical experience from university to school**

**Juanjo Rodríguez Yáñez, Dolors Ribalta Alcalde**

This study aims to present a model of physical education in the training of pre-school and infant school (0- 6 years) physical education teachers which enables them to educate using the body and movement viewed from a comprehensive perspective.

Taking into account that the scientific evidence is very clear about the significance of education within the first six years of life, and about the importance of movement in the developmental process of infants, reflected in the current educational curriculum, we consider it necessary to train physical education in a way which allows the teacher to select, create teaching materials and to build them into the syllabus, while respecting the needs and characteristics of the children at this stage. It is in this sense that the content of physical education should be integrated into all areas of the curriculum of pre-school and infant education (0-6 years), according to its principles of comprehensiveness and its interdisciplinary nature; especially, relating to the development of motor skills, in the field of “Descoberta d’un mateix i dels altres” (Discovery of oneself and of others).

The current model of physical education, based on scientific knowledge of the origin and development of human movement, as in universal knowledge of human development, has great educational potential in early childhood education. Thus, in an educational paradigm that considers the person as a unit and where its different content, mainly motor skills, have an impact on different areas of the person, physical education in early childhood education becomes a discipline with a high educational value. Within a holistic paradigm of education it should be noted that when we refer to motor skills, we consider its impact on the person as a whole, resulting in physical education which is essentially: bio-motor, socio-motor, psycho-motor, expressive-motor etc; and which contributes to valued learning taking place within experiences which occur in its very practice.

That is why we consider that physical education must be understood as a discipline that is integrated into the design and comprehensive philosophy of the infant stage, putting into use all its epistemological and didactic wealth. And thus, no longer a simple subject which is done for one or at most two hours a week, taught in many cases by a figure of a specialist, but an educational subject which plays an integral part within different areas of the curriculum, putting it to use in early childhood education, its different content, methodologies and teaching

resources. The result is physical education which is present and integrated into everyday life, and carried out in an interdisciplinary way within a comprehensive educational framework.

Finally we present some practical experience developed in centres of pre-school and primary school education relating to the step from the theory received at university to the educational practice carried out in schools.



## Enriching education with Intelligent Physical Arts: CirSchool european project. Moving beyond 21st Century Learning?

Ian Scott Owens, Trea Owens, Mireia Montané

Context of the research: The CirSchool project has been founded with the support from the European Commission (Reference: 539954-LLP-2013-CH-COMENIUS-CMP, Comenius Multilateral Projects/2013-4921)

Aims: CirSchool project offers an emergent model to develop physical competence for lifelong participation in physical activity that supports children and young people's development as competent, confident and healthy individuals.

The emphasis of high stakes Student testing has left a void in the Physical Education, Physical Arts Education and Health/Wellness of all children and the overall development of the whole child in schools.

CirSchool project aims at developing, testing, systematizing and disseminating an innovative cross-level and transnational learning environment based on circus and intelligent physical arts curriculum and practices. The project wants to integrate the circus pedagogy, which can already count on a consistent research and intellectual production, into formal education settings from pre-primary, primary and secondary schools levels. CirSchool intend to consolidate a complex pedagogical approach based on a knowledge building creation classrooms interconnected. In such contexts, teacher educators and teachers will have the opportunity of acquiring a new approach to enhancing their role as innovative facilitators of teacher students' education.

Within an integrated physical educational curriculum, teacher educators and teachers could teach circus as an intelligent physical arts activity. An intelligent Physical arts curriculum could be defined as a process through which students learn and consolidate transversal skills using activities which are kinesthetic and healthy in nature. These activities are specifically aimed at the acquisition of physical, mental, social and health skills.

Focus on enquiry, a common framework has been developed for Teacher Training Seminars with the same approaches but in different cultural contexts and countries with focus on observation and evaluation. We have produced a Guidelines for Teachers Educators as results of this workshops.

Collaborative international innovation networks "are the most productive engines of innovation ever" according to Swarm Creativity author Peter Gloor. We guess he is right: CirSchool teams operate in this mode and are demonstrating advances that are newsworthy in several fronts: the refocussing of education as an integrated knowledge of physical, mental and social capacities; the development of teacher educators professional networks that believe that complex educational changes for a more balanced curriculum that integrates Health and Physical Arts Education takes time to be implemented but we need to start now; school-university-government partnerships that demonstrates the power of multilevel engagement as experienced on snow ball seminars; and collaborative learning communities that enables self organization around the idea of improvement education

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through CirSchool project, in-and-out of school, and internationally, with the technology support.

The CirSchool project provides an opportunity to share both research and practice in the area of intelligent physical arts education through circus activities and provides guidelines to integrate these activities on the whole school areas curriculum.

The CirSchool project aims to provide teacher educators, teachers, student teachers, students and pupils and those involved in education with didactic model and the relative pedagogical instruments based on activities which could increase the acquisition of key competencies and promote the integration of Physical Arts on the whole school curriculum.

## *11. Supporting STEM Education through Teacher Preparation and Professional Development*

# Teaching Curriculum of the Natural Sciences in Primary and Secondary schools in Serbia

Milan D. Stojkovic, Vanja Manitasevic, Jelena Andjelkovic

From a historical point of view, the first curriculum of natural science for the Serbian national schools was created in the first half of the 19th century, under the influence of the curriculum of West European countries: Austria-Hungary, Swiss, Prussia (Germany) and France. Between the First and Second World Wars the first common Yugoslavian curriculum was developed that was based on the pre-war Serbian curriculum. After 1945 radical changes occurred in the curricula under the influence of the Soviet education system. Between 70s and 80s of the 20th century the so-called curricula of Yugoslavian socialist-oriented education were developed, which were applied in the teaching education to the beginning of the 90s of the 20th century. Current curricula of natural science have are based on a reformed Yugoslavian curriculum, where ideological-political goals and tasks from previous period have been deleted.

Here will be presented the current curriculum of natural science in primary and secondary schools in Serbia. Its structure, contents, objectives, and tasks will also be presented. The development and connection of this curriculum with the former Yugoslavian educational programmes from the beginning of the 90s of the 20th century will be briefly explained using an example of the current chemistry curriculum.

The main aim of the article is not only to present the development and continuity of teaching of natural science in the former Yugoslavia and Serbia today, but also to discuss and analyse the contents of the curriculum. It will also be consider the current problems of implementation goals and tasks of the curriculum in teaching practice, encountered by teachers. In addition, it will compare the contents - topics of Serbian curriculum with the curriculum of integrated teaching of natural science (Man, Nature, Technic) and chemistry (the Thuringia school curriculum, Germany), as well as identify mutual similarities and differences.

Although the curriculum of natural science in Serbia has retained the basic structure of the Yugoslavian school programmes, it has also made partial changes and amendments to teaching contents - teaching themes and units. Despite the changes, the curriculum still reminds of the Yugoslavian school programmes by its contents, volume and complexity. In order to modernise science teaching it is necessary to implement radical changes of the contents of teaching programmes, reducing the volume of teaching themes and units, adapting teaching contents to the age of pupils, emphasising the importance of the application of practical knowledge of science in everyday life. In addition, it is necessary to increase the engagement of teachers in the curriculum development. Certainly, the above mentioned changes could be implemented based on the experience based on the experience of other (European) countries regarding the reforms of natural science curriculum in Serbia.



## The Application of New Discoveries from Cosmochemistry in Science Teaching in Primary and Secondary Education

Milan D. Stojkovic

Cosmochemistry as a separate scientific discipline within chemistry was founded in the mid-19th century in Serbia. This discipline developed independently, and before other disciplines of natural science in Serbia. Its

development was closely linked to the development of astronomy in the early 19th century, and above all represented the merit of the first South-Slavic scientists Rudjer Boskovic and Atanasija Isakovic Stojkovic, and their pioneering scientific research. In the mid-70s of the 19th century, the first chemical analysis of meteorites it was conducted: Jelica and Sokobanja, which was found in the territory of Serbia. The analyses of meteorites were released by one of the first modern Serbian chemists, Sima Lozanic, in European scientific journals in German.

Teaching topics from cosmochemistry were studied within the school subject Chemistry with mineralogy in high schools until the Second World War in the Kingdom of Yugoslavia. From 1945, these teaching topics were studied in astronomy in the reformed Yugoslavian high and secondary schools. Today's chemistry teaching programs and text books for primary and secondary schools almost do not contain, and do not deal with teaching contents from cosmochemistry, unlike the curriculum of astronomy in secondary schools.

This paper, will discuss possibilities of use of new scientific discoveries from cosmochemistry in the teaching of natural science (chemistry), primarily arising from NASA space research programs: New Horizon, Cassini–Huygens, Mars (Exploration Rovers, Pathfinder, Polar Lander), Deep Impact etc. In addition, specific examples of the implementation and processing of teaching contents from cosmochemistry within the contents of teaching chemistry for the 7th gr. will be presented (Teaching topics: Chemistry and its significance Basic chemistry concepts, Solutions) and the 8th gr. (Teaching topics: Metals, Non-metals, hydrocarbons, biologically important organic compounds: alcohols, saccharide, amino acids, proteins) of primary schools in Serbia.

The main goal of this paper is to present an alternative form of learning chemistry, with the help of contents from cosmochemistry, based on discoveries from astronomy. In addition, it could contribute to the increase of students' interest in learning of natural science, especially the disciplines astronautics, astrophysics, astrobiology, cosmology etc. The research work in the field of cosmo- and geochemistry served as basis inspiration for the implementation of contents from cosmochemistry in teaching of natural science.

The application of contents from cosmochemistry, as well as recent discoveries in astronomy, does not only aim at popularisation of natural science, i.e. their teaching, but it also has significant educational character in general. It is reflected in civilisational, technological, economic and social importance of the current international cosmic research. Terraforming, colonisation of other planets, finding new raw materials, planets with conditions for life similar to Earth or new life forms are only a part of the future tasks of the new generation of young researchers. The solutions for their future realisation could lie in the endless possibilities of processing and implementation of integrative teaching contents of cosmochemistry and natural science.



## Cooperative Networks of Experts Facilitating Teacher Professional Development with NASA STEM Resources

Araceli Martinez Ortiz , Leslie Huling, Virginia Resta

International literature reveals a united concern for improving student and educator preparation in Science, Technology, Engineering, and Mathematics (STEM) subjects. However, while there are many research-based practices and resources that teachers can use to expose students to STEM careers and subjects at an earlier age, teachers are challenged to find the time and professional development opportunities to enable them to best integrate these resources into their teaching practices.

A large-scale teacher education enhancement approach proves effective in supporting teacher professional preparation and instructional change by offering online learning experiences and targeted orientation and micro certification in areas of focus. Such an effort requires coordination across a wide spectrum of stakeholders and the organization of a collaborative network of experts. This presentation will review theories of social change in light of education and its role in society. Kania and Kramer's theory of "Collective Impact" is used as a framework to analyze a NASA supported project that is guided by the mission of providing relevant STEM resources for all Educators while respecting the culture and experiences of the various target student groups. A new effort, led by the authors, called The NASA STEM Educational Professional Development Collaborative is presented as a successful model for collaborative professional learning and educational social change.



## Training program for science, technology and mathematics

**Sergi Muria Maldonado, Julio Pérez Domingo, Rosana Fernández Ruíz, Fina Guitart Mas, Lluís Mora Cañellas**

Since the 2012-2013 academic year, the Departament d'Ensenyament de la Generalitat de Catalunya started an upgrade program about Science, Technology and Mathematics (CTM) for secondary school STEM teachers with the collaboration of the Instituts de Ciències de l'Educació (ICE) of several Universities (UPC, UdG, UdL, URV), in order to foster science, technology and mathematical teachers' updated knowledge and didactics with the overall objective of facilitating the transfer of this training to their classrooms and to improve both their teaching and the development of students' competences and learning outcomes.

To carry out the program, some institutions and organizations dedicated to research and scientific communication have given support in order to take advantage of the amount of existing resources and to draw near the teaching action to the social, scientific and technical reality to promote innovation from the interaction between teaching and research. The training is currently organized into two levels: in the first year, teachers participate in a cross-training to improve communication, interaction in the classroom, guided construction of knowledge and evaluation. Moreover, they attend sessions about activities proposed by the different centers and research institutions in order to upgrade and to enrich their teaching with the introduction of new school dynamics that promote interest in science and technology and foster methodologies that encourage research, and students' creativity and wit.

In addition, students from schools where teachers participate in the training program have access to the support program for conducting high school students' research with the help of researchers from different collaborating research organizations. Already in the second year of training, the main objective is to create interdisciplinary work groups, associated to CESIRE (Specific Educational Resource Centre for Innovation and Educational Research), to design and experience CTM type classroom activities with the aim of improving educational practice and based on peers collective reflection work.

With this type of training, it is intended to promote communication and cooperation among different CTM subjects' teachers within schools and promote the creation of stable working groups of CTM secondary teachers.

The main task of participating teachers is to design, implement and evaluate educational materials, practices

and experiences with an interdisciplinary approach in their schools.

To summarize, the program's main objectives are to promote interdisciplinary work in the CTM subjects, to make available to teachers a bank of educational materials that have been implemented in the classroom and to promote cooperation between secondary schools and research organizations and institutions.



## Developing key skills for working scientifically through immersive cross curricular resources ‘Why You’ll Never Catch Smallpox’

**Marianne Cutler**

This session will introduce teachers to the ‘Why You’ll Never Catch Smallpox’ resources and will share feedback, including impact on children’s learning and engagement, from some of the teachers who took part in the trials of these resources. Background information: <http://www.schoolscience.co.uk/whyyoullnevercatchsmallpox>

Transport your pupils back to a time when smallpox stalked the world and introduce them to Dr Jenner, James Phipps, and the experiment that has probably saved their lives.

Through this innovative set of resources, pupils learn about Dr Edward Jenner’s pioneering work with smallpox vaccination and the impact of vaccinations today, using a variety of cross curricular approaches including data analysis, exploring primary and secondary history sources, art appreciation, creative writing, simulations, role play and film-making.

There are four core resources and five enrichment resources for children aged from 9 to 11. The resources are designed to develop pupils’ skills in ‘working scientifically’, mathematics, English, history and ethics. Children take on the roles of science advisors, health care workers, data analysts, journalists, researchers, script writers and film makers. The resources are fully linked to Learning Outcomes drawn from the relevant National Curriculum (England) documents.

These resources have been developed and produced by the Association for Science Education in partnership with James Films, with support from the Wellcome Trust.



## The Language of Mathematics in Science: integrating mathematical skills and thinking into science teaching for students aged 11-16

**Marianne Cutler**

Concerns have often been raised by teachers about the level of understanding of the mathematical aspects of science amongst students. Confusion may be caused, for instance, when mathematics and science teachers use different terminology or approaches when explaining ideas. With a greater emphasis on mathematical skills in

science in new science examinations at age 16, the project aims to provide teachers with effective support to prepare for the changes and embed good quality assessment of mathematics in science.

Working with a small group of leading science and mathematics teachers and their schools, academics and representatives from the examinations awarding organisations, the Language of Mathematics in Science project has objectives to provide guidance on what mathematics content should be assumed and taught in science (11-16 years); to harmonise the pedagogic approaches taken by teachers of science with those of teachers of mathematics; to promote common approaches to the use of language and processes across curricular areas to enhance pupil learning and achievement; and to develop and exemplify good quality assessment items of mathematics in science.

Working towards these objectives, the project team has developed two guidance publications for teachers, which are available from the Association for Science Education website: 'The Language of Mathematics in Science: A Guide for Teachers of 11-16 Science' provides an overview of key ideas and approaches in this area, along with a glossary of relevant terms. The second, 'The Language of Mathematics in Science: Teaching Approaches', uses teachers' accounts to illustrate different approaches to teaching mathematical terms and applications. <http://www.ase.org.uk/resources/maths-in-science/>

This presentation and workshop will explore some of the key ideas and approaches raised in the two publications. The Language of Mathematics in Science is developed by the Association for Science Education with support from the Nuffield Foundation.



## Research focused teaching resources to inspire students in STEM careers

**Marianne Cutler**

The Association for Science Education is developing a series of teaching resources (for 11-16+ aged students) in collaboration with researchers from the UK's seven Research Councils. The resources are set in global contexts covering areas of concern for all the Research Councils including energy, global food security, lifelong health and wellbeing, and living with environmental change. All the resources have involved classroom teachers in their development and trials in the classroom; and the resources to date have been very well received by teachers. Topics include isotope analysis in identifying life styles, healthcare associated infections in hospitals, factors involved in the spread of malaria, growing crops in contaminated crops, and trialing new vaccines. <http://www.schoolscience.co.uk/site/scho/templates/generallist.aspx?pageid=8149&cc=gb>

This presentation and workshop will introduce the resources and provide an opportunity for suggesting topics for new resources.

This series of teaching resources have been developed with support from Research Councils UK.

## *12. Strategies for overcoming inertia in Teacher Education*

# **Outcomes, Challenges, and Benefits of International Field Placements in Non-English Speaking Countries: Collected Perspectives from US Student Teachers and their Spanish Mentors**

**Laura Stachowski, Sonsales Sanches-Reyes Penamaria, Gabriela Torregrosa Benavent, Amara Stuehling**

International student teaching has been identified as an effective means of influencing prospective educators' thoughts and actions in substantive, transformative ways. Specifically, our presentation will address conference Themes 1 and 12, in that we will base our discussion in the context of a successful "overseas student teaching" program that prepares teacher candidates to meet the needs of their pupils in increasingly multicultural and multilingual classrooms, and that responds to the challenge to overcome inertia by requiring participants to step outside of their comfort zones to become active participants in both school and community contexts. Underlying our program's success are effective partnerships, as described in Theme 5, with host nation collaborators who recognize and appreciate the value of such experiences and the benefits that can be gained by all involved.

The Global Gateway for Teachers places student teachers in their choice of 18 host nations on every continent, including both English-speaking and non-English speaking countries. True to the program's model, placements are nearly exclusively in host nation schools as opposed to international schools, American schools, or Department of Defense schools on US military bases. For student teachers who select locations where English is not the national language, a potential language barrier may amplify challenges they face in adapting and adjusting to their responsibilities in the hosting school and to their interactions with people in the local community.

In part, this presentation will examine perspectives collected from 22 student teachers who participated in the Global Gateway's Overseas Program in recent semesters, specifically, those placed in Avila, Spain, where several primary and secondary schools have graciously hosted them time and again. Our intent is to explore how deep immersion into Spanish schooling and local life shaped the student teachers' thinking about and understanding of Spanish culture and lifestyles, influenced their relationships with Spanish citizens, informed their professional practice, and broadened their scope of the world and their role in it. Among the topics to be addressed are expected and unexpected assumptions they had about Spain prior to their placements and how these were challenged; changes in their cultural perceptions as a result of sustained time in Spain; and the benefits they accrued that they believe will impact their subsequent, professional and personal practice.

However, many reports on international field placements stop there, highlighting only the impact on the US student teachers who went overseas. We must be mindful to include the perspectives of the host nation teachers themselves - those who have opened their classrooms to our students, mentored them, and provided guidance and support. Thus, our presentation will also include the Spanish teachers' specific feedback on such topics as the difficulties or challenges they have experienced or observed, areas in which they have identified the most growth or impact, and what advice they have for us as we continue our work of preparing emerging educators for placements in Avila.

The story is not complete without both sets of perspectives and the insights we can gain from one another as we continue our important work of building a global context in teacher education.



## Diversity and inclusion: concepts to learn and unlearn as a teacher

Chandrika Devarakonda

In the current context, the demographics of population has been changing significantly globally as a result of immigration. This included mainly families with young school age children. Considering these changes, schools admit children from diverse backgrounds and a wide range of skills and abilities attend schools. Teachers are expected to teach all children to reach the best of their potential and achieve well. This paper explores the tensions and challenges faced by teachers in teaching children from diverse backgrounds. Teacher education programmes prepare with theoretical base and practical experience. However, are teachers aware of the concepts around diversity and inclusion to learn and unlearn. From the perspective of diversity and inclusion, is it obvious for a teacher or teacher educator to relate to what to learn and unlearn. What do young teachers need to unlearn – attitudes, stereotypes, prejudices, homogenising diversity. Do children from familiar backgrounds have diverse needs? In the contemporary society, is it always possible for a teacher to teach children who are from familiar backgrounds? Diversity is heterogeneous but is more likely to be conceived as homogenous that leads to several misconceptions. It is essential and relevant for teacher educators to emphasise and familiarise the heterogeneity nature of different children from similar background but need diverse resources and appropriate strategies to include them. Further, it is a challenge for the teacher educators to prepare teachers adequately to identify and meet the needs of children. Does the concepts of 'learning and unlearning' need to be seriously considered by teacher trainees or teacher educators to be incorporated if there is limited experiences of diversity and inclusion among the staff? In the NQT survey (NCTL, 2015) the newly qualified teachers in the UK have expressed their lack of confidence in teaching children from ethnic minority groups or who speak English as additional language. The associate teachers or preservice teachers need to relate to the needs of children from multicultural, multilingualistic and multi religious backgrounds. This raises some pertinent question about how much can the courses and training help teachers to prepare teachers to teach diverse range of learners. Do teacher educators have the knowledge and understanding of diverse backgrounds and needs of the children? Is it feasible to prepare teachers to the full range of diverse needs of children? What are the ways in which all children are provided with opportunities to access education as a right.

NCTL (2015) Newly Qualified Teachers: Annual Survey 2015 Research report. London, United Kingdom: Department for Education



## Making the Uncomfortable Comfortable: Five Key issues for change

Ray Gallon

Problems of inertia in teacher education are reflected at each level of the educational system. We find self-similar units in which the same elements - teachers, students, and the surrounding system - suffer from the same unwillingness to change.

## *12. Strategies for overcoming inertia in Teacher Education*

- Teachers are afraid of methods and technologies they have not been trained to use. Students are reluctant to become proactive and collaborate in groups for fear of misevaluation.
- Systems are weighed down by procedures, timing, and content that have often lost their meaning.

In a world where information often changes in the time it takes to validate it, the traditional mode of assimilation of “facts” becomes counterproductive. The university risks losing its role as an agent of innovative change (social, political, economic) unless it is able to refocus on improving processes as much as on achieving results, and to stimulate students into taking a more proactive role in their own development. It is essential to create new dynamics in teaching and training at university, in order for it to be replicated throughout.

For example, some teachers are afraid to engage with digital technology in the classroom because the students often know more than they do - an inversion of roles in the traditional model. But when students are proactive in their own processes,

They can bring their own knowledge and creativity with these technologies to a project, and the teacher is also enriched. Instead of the teacher having to leave her or his comfort zone, the student brings the technology into it.

In this paper I present several examples of university level teaching that illustrate five key issues that are essential for implementing this change.

- The in-class time is dedicated to preparing the independent work of the students.
- The role of the professor is less as a dispenser of information, and more as a facilitator for learning.
- Content is flexible, and grows or adjusts as a function of group dynamics, interests, and needs.
- Students, working in groups, must engage in knowledge building, collaboration, and negotiation in order to succeed.
- The criteria for evaluation are developed collaboratively by professor and students at the beginning of the course,

Real cases from my own teaching experiences in different countries (Europe, North America, Asia) will illustrate the talk.



## **Addressing Stress Caused by Inertia in Teacher Education**

**Elsa C. Price**

According to Oxford Dictionaries (2016) Inertia is defined as 1. “A tendency to do nothing or to remain unchanged –‘the bureaucratic inertia of government’ and 2. A property of matter by which it continues in its existing state of rest or uniform motion in a straight line, unless that state is changed by an external force.” Inertia in education is displayed as “much ado about nothing” with lots of discussion in meetings but little action or results. There are many challenges in teacher education such as attempts to make improvements in curricula, programs, and organization of the educational systems in question with little progress. This lack of progress can cause the stress caused by inertia in the teacher education field.

The numerous challenges in teacher education relate to frequent ups and downs of school financing, changes in educational policies and practices, actions and/or lack of action of school boards, community leaders, and state

and federal legislative bodies (Taylor, 2015). “I do believe these groups play a significant role and responsibility for much of the existing inertia. The question is this: Can you cure inertia from the bottom up?” (Taylor, 2015).

Sometimes the inertia is related to too many groups trying to solve the educational problems with little control or influence to make appropriate changes. To solve the problem of inertia due to lack of influence California saw the merger of several educational organizations, the State of California Association of Teacher Education (SCATE) and the California Association of Colleges for Teacher Education (CATCTE) to become the California Council on Education of Teachers (CCET) for a more effective voice for teachers and teacher education. With the merger of these two organizations into one the possibility of building relationships between the preparation of teacher education programs and the programs for the development of education policies is increased and inertia decreased.

An individual in the field of teacher education may feel stressed due lack of control of policies, finances, and curricula or may have feelings of inadequacy in using technology or working with students of different abilities and learning styles. While addressing these different challenges individuals may need to practice several stress management techniques to enable each one to handle or cope with the stressors until those stressors can be eliminated or reduced. The stress management techniques to be presented include the following:

1. Deep Breathing technique;
2. Muscle Contraction-Relaxation technique;
3. The Three-Tens Method technique;
4. Visual Imagery technique.

Attendees will be asked to share their experiences related to inertia in teacher education as related to lack of control of policies, local and school politics, and any other causes of inertia in the teacher educational realm and how these problems can be overcome to decrease inertia in teacher education.

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## Power relations and inertia in initial teacher education: Reflections from Hungary

György Mészáros

Hungarian teacher education has gone through several changes in the past 10 years. These, through new laws in educational policy, forced teacher education institutions to make constant improvements in their training structures and curricula. In our country, these changes in several ways have been connected to international, mainstream tendencies (learning outcomes approach, need for continuous professional development) but at the same time they have showed some specificities: e.g. identifying the role of professional communities in curriculum-development. Actual TE policies in Hungary represent a clear turn back to the approach of a „traditional” subject-based teacher profession. Several professionals stay by the concept of teachers as professionals. In spite of the continuous constraints of innovation because of the changing curriculum in TE, there are obstacles of a deeper innovation process for initial teacher education. This presentation will inquire the case of our Institute at the Eotvos Lorand University in Hungary that was involved in several innovation

## 12. Strategies for overcoming inertia in Teacher Education

projects, and tries to identify some problems in connection to the different levels of power relations.  
Theoretical framework

The paper will draw upon international literature about learning community, curriculum development in TE, participatory research and identity construction (Trent), and particularly about power structures and relations in education explained by critical theorists (Hill, McLaren, Torres, Darder). For the interpretation of glocal context Wallerstein's world system theory will be used.

### Research questions

- how the process of innovation, knowledge construction of a learning community is embedded in social processes permeated by power relations?
- how a learning community is situated in the wider context (on different levels: society, TE policies, university, faculty, institute)?
- how power relations between the different actors on different levels can influence the structures, hierarchies, interactions during the process of innovation?

### Method

This presentation is not one empirical study, but will offer a summary of several research and development projects held at our Institute in relation to TE. It will reflect on how power relations influence the innovation projects. The particular case of a semi-peripheral Hungarian institute might shed light on more general processes in TE.

### Findings

Innovation is often interpreted in neoliberal terms, but the same neoliberal context makes difficult the building of real collaborations and a learning community in teacher education. The typical semi peripheral position of Hungary influences the academic context and TE especially regarding funding, filters of knowledge and practice. The wider and contextual power relations (on a global level, between the government and the university, inside the university, between the teachers and students) might impede the innovation of teacher education, but at the same time might serve as starting points, contextual possibilities to fight against the oppressive structures and to build in this way a learning community. The possibilities and the obstacles of such common action will be identified with some lessons for a global audience, especially about the importance of learning communities in the academia.



## Studying the relation between initial teacher education and induction in teaching professional development in Spanish compulsory education.

Jesús Manso Ayuso, Marta Moreno

Teachers' professional development constitutes a high relevant challenge in contemporary educational systems as it is repeatedly tied with the quality of education. Different international organizations and consequently national governments, focus on this issue as they show in the wide range of efforts done during the last decade. It has been highly considered the importance of teachers' education as a key factor of impact in teaching

and learning processes as well as students' achievement. In this framework where we considered teachers' development as a systemic and holistic whole. Thus, we would like to highlight the initial teachers education and the processes for career induction as an important factors for teachers' success.

Initial Teachers Education is strongly recognized as an essential period for teachers on their establishment as experts. In a globalized world, in a knowledge-based era, is necessary for educators to develop the skills that would help their future students to turn information into knowledge. However, this stage is not the only critical period for teachers' development, the induction program conforms an important stage on novels teachers identity, as their first year of practical appliance of their knowledge. For that reason, it's a clear common point to take a closer look at these two central periods, where teachers define their professional identity.

This paper constitutes an important stage for a future and deeper research . Thus, the main goal followed by this project, is to offer a clear diagnosis about how in the current educational context, Initial Teachers Education is related to the first years of teachers work at schools. Additionally, an intensive, extensive and systematic literature review, in the Spanish context, of the empirical research apart from theoretical essays, would be the methodology carried out for this paper.

As a result of the correlation found between Initial Teachers Education and induction processes, and the main factors that show this interaction, we can observe and discuss those key aspects and their presence in the university study plans for teachers' education offered by Spanish universities.

This future research would attend to the critical analyze of the different study plans of Primary Education Degree as well as Secondary Education Master, besides the competences showed in these programs. Through that accurate diagnosis and analysis of the actual higher education teaching programs, it would be possible to contribute to the implementation of better study plans orientated to create better and more effective induction processes, and as a final goal it would help to suggest recommendations for educational policies oriented to teachers' improvement and wellbeing at mandatory education level.



## **Horitzó Project: A commitment based on knowledge, care and enthusiasm**

**Maria de Montserrat Oliveras, Jaume Basseda**

At L'Horitzó School, educating means providing students with the necessary tools for them to be able to shape their future. Therefore, the educational philosophy of our School has always focused on the child's benefit.

At our School, we respect and care for local socio-cultural heritage, maintaining an open view to news paths of knowledge in line with Human Rights.

The Horitzó Project originated in the mid-20th century with a commitment to helping our students develop the uniqueness in them.

The name of our School reflects our belief that there is always a horizon to reach which will lead us to new challenges. And that's the way it has been since the beginning of our journey as a school in 1968.

An educational project that stimulates the desire to learn.

From the age of three, children at L'Horitzó School learn through experience by observing, analysing

## *12. Strategies for overcoming inertia in Teacher Education*

and drawing conclusions from what they do. Work that is presented to their classmates and becomes part of the academic syllabus and curriculum. This not only helps them to learn how to think, but to reason, communicate in public and have a critical spirit to achieve the freedom and wellbeing that human beings have always longed for.

Open spaces, properly monitored, lead to dynamic learning. With the guidance and support of skilled teachers, students learn to work together in a climate of freedom and responsibility, improve how they study in each area of knowledge, and develop their own creativity while nurturing a positive relationship for all based on mutual respect.

The rooms of the School (all multifunctional) are equipped for students to develop different skills and learning: languages (English and German), music (singing, history, instruments, etc.), swimming (swimming pool), sports and gymnastics (gym), theatre (puppet room, stage...), robotics and IT, natural sciences (laboratories), general knowledge (projection room, library, workshops...), etc.

Our professional commitment focuses on this educational project, which follows an educational continuum from childhood to youth, a time when students can decide their own future and start to accomplish their goals.

L'Horitzó School stands as an example of educational innovation and best practice in education in the 21st century

An educational project in an environment that favours the growth of children and adolescents in every aspect of their life, in which families play an important role, and the strengths of each student are established as a starting point.

More about our school and our vision...

- The student is not a statistical figure; she or he is unique and unrepeatable. The reduced number of students allows us to know them, educate them, teach them, motivate them and love them.
- Faced with the danger of knowing too much of nothing, we believe it necessary to acquire scientific knowledge carefully, methodically and rigorously. Nothing should be left to chance, as our aim must be to develop competent people.
- Initiative, besides being a quality in itself, allows teachers to know their students, who they are and what they are like, so as to help them in every way and tailor demands to their
- capabilities.
- Assessment serves as a guide, an educational act, never a punishment, always with the aim of improving the learning process and helping students.
- We have always been committed to promoting creative education in a constantly changing world. Every new situation we can offer to students is unique and therefore require answers as yet unknown.
- Moral values are essential for our students to become free men and women. These are universal principles that help us build a happy and desirable coexistence based on, among other values, respect, generosity, responsibility, commitment, and tolerance.
- A profound self-knowledge is essential to the acquisition of know-how. It brings self-confidence and emotional stability.



# Recognising and addressing inertia affecting teacher education: a case study

Elizabeth Oldham, Lorraine Fisher, Richard Millwood, Ann FitzGibbon,  
Pamela Cowan

In recent years, teacher education and other aspects relevant to the teaching profession in Ireland have undergone considerable structural change. However, in this paper it is argued that some forms of inertia in the structures affecting teacher education pose severe barriers to development. This is done via consideration of the drive to introduce Computer Science (CS) as a subject in the second level curriculum, particularly in its senior cycle. Key aspects of the problem are investigated, and data from two studies in which the authors are involved are examined to scope the issue with regard to teacher qualifications. The research question addressed is: where is there significant structural inertia in the system, and how does it affect teacher education for the introduction of Computer Science to the school curriculum?

The structural inertia is investigated first. Stakeholders, notably from the worlds of business and third-level computer science, have pressed for the introduction of CS, and the National Council for Curriculum and Assessment is addressing the matter. However, all such agencies recognise an obstacle: shortage of teachers who have the subject knowledge to teach CS to an appropriate level and who can be recognized as suitably qualified by the state Teaching Council. This latter body has tackled what historically was a rather loose system with regard to teachers' qualifications for teaching school subjects. As well as demanding professional certification, the Council now makes detailed requirements about prospective teachers' academic degree programmes; candidates for recognition must have passed modules, the content of which matches and extends material in the school syllabuses. Few CS graduates have taken professional teacher education courses; additionally for CS, the Teaching Council requirements may not keep appropriately synchronised with university course developments or indeed with those of school curricula. Initiatives are needed to address the issue.

To quantify and address the shortage of qualified teachers, the authors have taken part in two initiatives: one at the first four authors' university, and one spanning both jurisdictions in the island of Ireland. Each involved surveying purposive samples of teachers who might be interested in teaching CS, as well as offering them CS education (to improve subject knowledge, but not yet within a format that would obtain Teaching Council recognition). The survey data for respondents in the Republic provide the second thrust of the paper. Respondents were asked about their computer expertise, qualifications for teaching CS, knowledge of various programming languages, whether they were currently teaching any CS-related courses, preparedness to teach students and teachers, and barriers they perceive to introducing CS in schools. Other relevant variables explored include age, gender, and years of teaching experience especially in the area of CS. The findings underline the gap between current teachers' qualifications and the state's likely requirements for recognition for teaching CS, and hence the need for more flexible structures for teacher recognition. They also highlight challenges with regard to addressing subject content in both initial and continuing teacher education programmes for new subjects in the second-level curriculum.



### *13. Disability Studies, Inclusion and Social Justice in Teacher Education*

## **‘Invisible’ multiple dimensions of a child – overlooked or ignored?**

**Chandrika Devarakonda**

In the contemporary society, the multidimensionality of children is explicit. Children are often labelled under different boxes such as gender, ethnic minority groups, English as additional language, special educational needs, etc. Are professionals and practitioners aware of the multiple dimensions of a child? Are professionals focussed on the visible dimensions (usually weaknesses) and overlook the invisible ones (especially strengths) of a child. Are the decisions influenced by the stereotypes to judge the capabilities of a child?

This paper will explore the conflicts and tensions of a professional in meeting the needs of a young child. What is the impact of emphasising on a weakness on a child's self-esteem and achievement?

The statistics emphasising on poor achievement of boys, Children from Ethnic minority and EAL backgrounds and Gypsy Roma and Traveller families have been reported by several research studies and alerted by the media. What are the issues that needs to be considered in enabling the teachers, practitioners and professionals to identify the needs of children in a setting? Are staff prepared with appropriate knowledge and understanding and continuing professional development on their job to be able to relate to the multiple dimensions of a child?



## **Diversity and inclusion: concepts to learn and unlearn as a teacher**

**Chandrika Devarakonda**

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# Teachers with impairments: Including and supporting a ‘vastly marginalised population’

Jenene Burke

Teachers who are identified as having impairments have been described as a “vastly marginalised population” (Pritchard, 2010, p. 43) within the broader population of teachers in Australia. Prichard attributes this marginalisation to ‘deeply held socio-cultural attitudes’ (p. 43) that impact on access and achievement in education for those identified as having impairments. While equitable access to teacher education offers one argument in favour of teacher diversity, there are a number of other compelling reasons for ensuring that people with impairments are included in the teaching profession, such as the unique knowledge standpoints (Pritchard, 2010) offered by those who have personal experience of disability and the importance of accessible school-based adult role models for children with impairments. These arguments have been effectively side-lined in teacher education in Australia unlike in some other parts of the world.

In Australia, the benefits of teacher diversity is an issue that have been largely ignored, homogeneity of the workforce being the seemingly desired objective seem to have neglected or ignored the importance of teacher diversity with respect to disability. Literacy and numeracy testing of graduate teachers and more stringent teacher education entry requirements threaten to marginalise and disadvantage those with impairments who might wish to enter the profession. So far, questions about any reasonable adjustments that might be applied to teachers identified as having impairments have not been satisfactorily addressed on a broad scale.

This presentation will examine the important roles that teachers with impairments can play in contemporary schooling. Further, drawing on a social model of disability theoretical perspective and some of the academic literature, the presenter will argue that universities should do not overlook recruiting disabled pre-service teachers and that schooling systems must support teachers who are identified as having an impairment. The presenter posits that deep-seated negative attitudes about the abilities, competencies and relevance of disabled teachers may be responsible for the lack of attention to this issue. International perspectives, where a diverse teacher workforce is actively sought and encouraged, will be scrutinised and offered in contrast to the silence around this issue that seems to be prevalent in Australian teacher education policies and practices.

Pritchard, G. (2010). Disabled people as culturally relevant teachers. *Journal of Social Inclusion*. 1(1), 43-51.



## Learning with diagnosis of dyslexia: an insider account of secondary education

Jenene Burke, Alanna Bushby

Insider accounts of schooling and disablement that are constructed as narratives can aid our understanding of how individuals negotiate their learning and how teachers and schools might empower or marginalise students on the basis of a specific learning disability. This paper retrospectively examines the lived experiences of one of the authors, who has been diagnosed with dyslexia, and who was studying teacher education at university. This graduate teacher negotiated her learning at secondary school in two contrasting Australian schools and reflects on how her learning was supported and limited within these educational settings. The authors, employed a

## *14. Innovation in Teacher Training for Early Childhood Education*

process where one asked questions to draw out responses from the other which was co-constructed and analysed as a narrative. They then utilised the concepts of structure and agency within structuration theory as an analytical framework to organize the data. The authors of this paper draw on the social relational model of disability and the principle of educational inclusion to attempt to make sense of these experiences, teasing out how schools and individual teachers can create conditions for learning that contribute to the success of a student diagnosed with dyslexia in a secondary education setting and how a learner can ultimately take control of her own learning.



### **Chinese Teachers' Self-efficacy in Implementing Inclusive Education**

**Zhouyuan Wu**

Teachers' opinion and capacities could be viewed as an important component in the success or otherwise of inclusive education practice. Although inclusive education has been operational for some time now in China, concerns about the effectiveness of teacher preparation to meet its challenges has risen. Therefore, this research focuses on teachers' attitude and self-efficacy towards inclusive education and aims to contribute to the implementation by determining and solving the problems encountered in the inclusive practices.

The study sample consists of 876 in-service teachers working at 15 elementary and high schools in Heze - a small and underdeveloped city of China. Data were collected using a self-administered questionnaire containing three parts: self-efficacy for inclusive practices, respondents' background factors and attitude (concerns, affection and behavior intention) towards inclusive education. Multidimensional Attitudes toward Inclusive Education Scale (MATIES) and Teacher Self-Efficacy for Inclusive Practices (TEIP) scale were modified and translated for data collection. Confirmatory factor analysis gave evidence to a structure of three self-efficacy factors, efficacy in using inclusive instructions, efficacy in collaboration, and efficacy in managing behavior.

The current study shows teachers' most critical practical concern is the sense of efficacy in collaborating with other teachers, professionals and parents. Having experience in teaching students with special education needs predicted a positive efficacy in managing behavior. Another interesting finding is that teachers' ability to manage student behaviors predicted more negatively attitude towards inclusive education. These results suggest that future teacher education programs should emphasize developing teachers' self-efficacy, particularly collaboration skills and giving more teaching and supporting strategies towards inclusive education, which may require changes in initial teacher training programs.



### **Shared teaching: looking for inclusive practices in the classroom**

**Patricia Olmos Rueda, Òscar Mas Torelló, Josep M. Sanahuja Gavaldà**

Inclusion in terms of education for all becomes a crucial axis for educational intervention. Working for an inclusive education should be for changing teaching and learning environments in order to make possible pay attention to students' diversity and support both students and teachers for being comfortable in front

of these diverse and inclusive situations. This inclusive perspective becomes a challenge for teachers' training and working as well as a good chance for innovating into collaborative, innovative and efficiency educational practices faced with these challenges linked to inclusive educational practices. The study presented here emerges within this framework. This has been designed and developed in collaboration with both the support teaching staff and non-support teaching staff of a Secondary School. The goal was to know the role of both teaching staff (support and non-support) in the same regular classroom (through recoding method of shared teaching moments) for developing innovative and collaborative teaching methods and strategies and improving not only these teachers' methods but also the learning and inclusive processes of all the students.

## **Personal and prosocial competences during the early Childhood Education degree Internship developing Engagement and Service Learning projects at nursery and preschools**

**Sílvia Blanch Gelabert, Mequè Edo Basté, Gemma París Romia**

The basis of this presentation is to demonstrate the success to date of Social Commitment Education (SCE) in nursery school (or Kindergarden), specifically in Service Learning projects developed by future teachers of Early Childhood Education Degree at the Universitat Autònoma de Barcelona (UAB). Service Learning describes an educational approach that explicitly values the culture of social involvement and professional training, treating future teachers as agents of social change. This research was awarded by the AGAUR (2014 ) at grant ARMIF2.

Therefore, in the Faculty of Education at the UAB we understood that during the practicum IV, the last stage of the initial training process of future teachers, it would be more appropriate to introduce the context of Service Learning.

PIV objectives are:

1. To become very familiar with the educational reality of a nursery school or kindergarten.
2. Find or create, and participate in an innovation project on institutional approaches to school.
3. Design and implement an educational project in a school or classroom.

We have seen how by being involved in Service Learning projects in schools, students excel in completing demanding challenges which in turn leads them to develop a professional competence with greater social involvement education (Blanch, Edo y Comes, 2013; Edo y Blanch, 2015). Therefore, we propose researching this approach in greater depth, basing the research both on the experiences of students in our own university and in collaboration with other universities, with a view to improve internship in teacher training.

To facilitate this research, we have implemented an assessment tool of professional competence with special emphasis on skills related to social commitment. This shows the results of the students' perception of their personal and pro-social competences development. Early Childhood Education students (n=97) completed a questionnaire to be used to evaluate their competences, before, after and during their internship.

This research also analyses the changes of 23 students in depth, comparing with the perception of their tutors at the university and the school. These results show us that students, perhaps not surprisingly, tend to perceive their own competences very highly. It also demonstrates that the students who implement Engagement projects, such as Service Learning, feel that they have improved their competences to a greater degree. Preliminary results show that, according to tutors and teachers who have guided students to develop these types of projects, SCE demonstrates tangible development of their personal and pro-social skills compared with their peers who have worked with different projects.

**KEYWORDS 4-6:** Service Learning, Engagement, University Internship, Early Childhood Education.

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# Self-assessment of professional psychomotor competences in Teacher Training Early Childhood Education

Lurdes Martínez-Mínguez

In Higher Education a new conception emerges in the scheme of work based in competencies and learning swinging on them and not on the contents or objectives.

On one hand, Francino (2010) concludes, in his study, that there are different elements at the schools that make it difficult for the development of psychomotricity. Martín and Rodríguez (2010) detected that formation is essential in order for teachers to feel ready to develop the psychomotricity in the schools.

On the other hand, in order to obtain professional competences, it is essential to design and evaluate the subjects through a dialogue between academic contents and practical competences (Cano, 2007; Fernández, 2014) that can only be obtained in real situations of intervention (Rodríguez, 2004). Which professional psychomotor competences should the teacher acquire? How we can evaluate those professional psychomotor competences? The aim of this study was to analyze the suitability of a self-assessment scale ad hoc elaborated, to know whether students Teacher Training for Early Childhood Education were able to evaluate their level of acquisition of professional psychomotor competences during their initial teacher training.

The research methodology combining quantitative and qualitative data was mixed. The sample was composed of 96 students who were enrolled during the course 2014-2015 the subject of “Psychomotor Education” in the “Universitat Autònoma de Barcelona”. Students first acquire the theoretical and conceptual framework underlying psychomotricity and then design a session. Finally they put into practice first with his fellow college and then in the real context of a class of a school group. As an initial assessment, after the session with peers, and at the end of the course, they respond to a self-assessment scale to be aware of the developments that are taking in the acquisition of professional psychomotor competences.

We have been analyzed for this partial study 8 of its 13 items that correspond to all of which the student must respond attending a Likert scale of 1-4 (where 1 indicated nothing, 2 little, 3 fairly and 4 much). Ethical principles and the anonymity of the data have been respected during the whole study.

The results indicate that the students in the sample consider that they have assimilated the professional psychomotor competences very well (an average of 3,48 out of 4) and that the auto-evaluation scale has been very

## *14. Innovation in Teacher Training for Early Childhood Education*

useful to realize it (3,27 out of 4) because it facilitates the recognition of the outcomes achieved, becoming conscious about the academic evolution made in different phases of the subject through the auto-evaluation, allowing to detect the improvements through recognising strong and weak points and encouraging the reflective capacity.

It concludes that all the indicators, categories and psychomotor professional competences can be learning in the Teacher Training Early Childhood Education; self assessment is like an efficient assessment to evaluate the psychomotor professional competences; and students are satisfy with the scale because it's helpful and the can be conscious about their learning process.

It is recommended to use these types of scales in other subjects, degrees and universities.



# Innovation in Teacher Training for Early Childhood Education

**Silvia Morón, Rosa Ferrer**

The Teachers' Association Rosa Sensat, throughout its 50 years of activity, has built lifelong learning proposals and also initial teacher training (special plans).

It is from this long journey that reflection on initial teacher training has always been in our sights.

What kind of teacher does our society need, from which idea of education, school and curriculum?

The Teachers' Association Rosa Sensat has always positioned from a perspective of critical paradigm. We believe that teachers' training must be committed to a transformative action of knowledge.

The aim of a teacher's training must be collaborate in building critical citizens, thoughtful, supportive, curious and willing to learn, to transform, to investigate and to contribute to the society.

Our referents, Appel, Kemmis, Freire, Soler, Dewey, Piaget, and especially Foucault, Morin, Marcuse, among others, have helped us to build a theoretical and practical perspective, which makes us believe that the person who brings it to reality better during the 60s is Loris Malaguzzi and his teams in the Italian area of Reggio Emilia, which are still nowadays a worldwide referent.

If we review the current curricula of teacher training, there is a large influence of other paradigms concerned basically about the contents and their teaching or didactics.

Future teachers come to the internships' centers with no knowledge of the social realities of the centers, of the children and their families. In return, they are very skilled in preparing out-of-context plannings. They have a technocratic knowledge where the perception of the act of educating / learning is undermined.

Train teachers from a critical paradigm, makes you work in a democratic and complex way. It is necessary to change roles, leave power spaces and unique knowledge.

We believe in the idea that the teacher should be trained with and for the commitment and the ethical, professional and political responsibility for the transformation of society.



# Enhancing Opportunities for Toddlers' Wellbeing through in-service and pre-service training

Cristina Corcoll Lopez, Àngels Geis, Carme Flores

The aim of this presentation is to describe an Erasmus + international project entitled “Enhancing Opportunities for Toddlers' Wellbeing” in which universities and practitioners work together to understand and improve practices regarding four different aspects which relate to children's wellbeing. The universities that participate in the project are University of Stavanger (Stavanger), Kingston University (England) and Blanquerna, Universitat Ramon Llull (Spain). The aspects that are developed are:

- first, understanding the multidimensional concept of wellbeing and defining strategies to ensure it at the settings;
- second, understanding communication and play for toddlers, paying special attention to children's interaction and non-verbal communication;
- third, understanding meal times as educational time for the setting and improving them from the point of view of communication (adult-child and peer-to-peer), children's autonomy and physical and materials resources;
- and fourth, understanding additional language learning both from the point of view of including home languages at the settings and bringing in new (foreign) languages to the settings.

Working closely with practitioners will ensure that the whole project has an impact on practitioners (in-service training), on the children and families in each setting, and on student teachers (pre-service training). This last factor will be ensured in two different ways: on the one hand, the settings involved in the project have student teachers with them for their internship so students will learn about the project, about how it is being implemented at the setting and about the impact it is having; on the other hand, training materials are being produced for each one of the projects above. These materials will be available in English, Norwegian and Catalan on the project website and university lecturers will be using them for their teaching.



## Innovation in Teacher Training for Early Childhood Education

Montserrat Prat, Yuly Marsela Vanegas, Mequè Edo, Kaouthar Boukafri

Students in pre-service Early Childhood Teacher Training have different profiles, and different relationships with mathematics. Their previous studies, their access path to the university or the comprehension level of mathematics, are some important aspects to take into account as university teachers, in order to plan the contents and the way to teach the Didactics of Mathematics Subjects in the Early Childhood Education Degree.

Our purpose as a Didactics of Mathematics Teachers is to reflect on what means to be a teacher; but also to be rigorous about concepts and mathematical procedures. In this presentation our aim is to share some of the activities we propose to our students.

The first concern of early childhood pre-service students is about what means to do mathematics from 0 to 3 years. For many pre-service students, mathematics is mainly numbers, so their first big challenge is to discover

## *14. Innovation in Teacher Training for Early Childhood Education*

that mathematics in early childhood education is more than numbers.

The first subject about Didactics of Mathematics in the Early Childhood Degree is in 3rd year. The first issue is about mathematical logical-thinking.

Mathematical logical-thinking in Early Childhood Education not only allows children to develop their mental structure and the ability to reason, but also to interpret the world around them. Mathematical logical-thinking at this stage works primarily from the sensory qualities: colour, shape, size, sound, smell... This can be done from three points of view that match with three human capacities: identify; define and / or recognize qualities; and analyze the relationships established between them.

The task we are presenting and that is proposed to the pre-service teachers is aimed at children from 0 to 3 children. The goal of the task is that 0 to 3 years old children work mathematical logical-thinking from unspecified materials. We understand as unspecified materials those materials that initially have no educational purpose. The aim is to get the children manipulate, to experience with all their senses, and make actions with objects. The action on the objects will make the children creating mental patterns of knowledge. The materials proposed are: lights and shadows, sensory circuits, sound buckets, pillows sensory, among others.

The task has different stages. First of all we ask the pre-service students to investigate on the materials and its pedagogical possibilities, about which kind of proposals can be done, about the adults' role, and the relation with the child's evolution. Secondly we propose the pre-service teachers to carry out his proposal with children from 0 to 3 years. This second stage is really rich because the pre-service teachers can observe children's reactions. Then, the pre-services teachers shall make a report relating what they see from a mathematical point of view. The last stage is to prepare a personal and group reflection about what they have learned during the proposal.

This activity together with others activities, allows pre-service teachers to realise what means mathematical logical-thinking but especially what provides to children, and the importance to work this issue in early childhood educations, specifically from 0 to 3 years.

## ■ Posters

### **Carme Hernández Escolano and Montserrat Alguacil de Nicolás**

Monitoring and evaluating innovations in Teacher Education: Impact model of the design, development and evaluation of a teaching training program directed to the development of a transversal skill, the oral communicative competence.

### **Ivan Nadal**

This poster presents the legal status of nonprofessional research in Catalonia, as well as the methodology and the results of working with students in the proposal.

### **Roser Vendrell, Mariona Dalmau i Àngels Geis**

Results from the validation of an ad hoc questionnaire, which was developed for a study to get to know the teachers' perception on free play in Early Childhood and Primary Education in the context of children's rights.

### **Knowledge Building Project**

### **Maite Díaz (Betània Patmos)**

Internationalisation: km 0

# ■ Practical Guide – General Information

## The Conference Venues

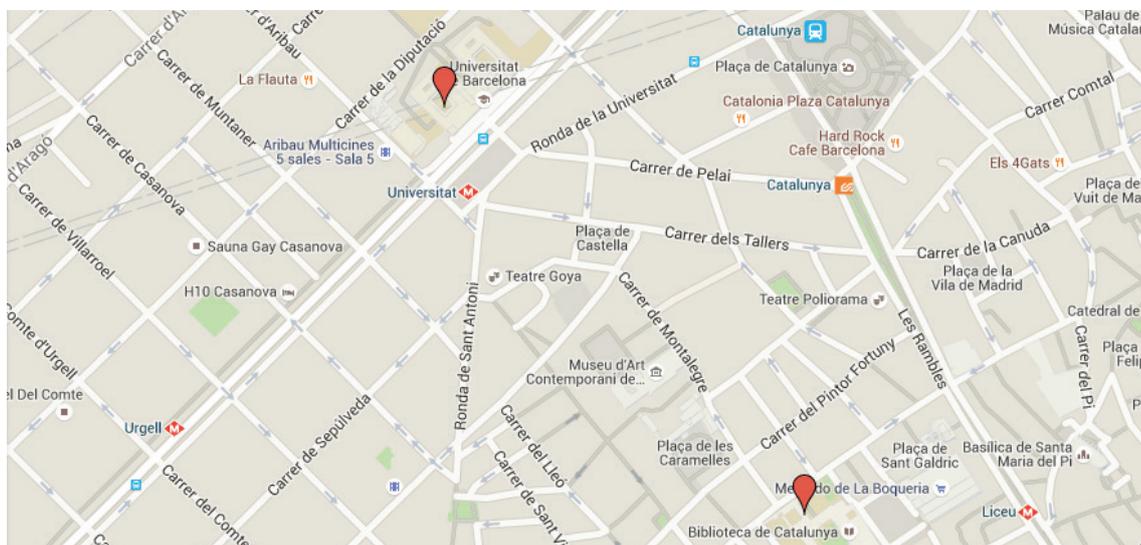
– Universitat de Barcelona (UB)

Grand Hall of the University of Barcelona. Registration and information desk  
Gran Via de les Corts Catalanes, 585, 08007 Barcelona

– Institut d'Estudis Catalans

Carme, 47, 08001 Barcelona

Conference venues will be identified with banners displaying the Conference image.



### Opening hours

Tuesday 21st - From 14:00 to 20:30hrs

Friday 22nd - From 08:00 to 20:30hrs

Saturday 23rd - From 08:00 to 15:00hrs

## Conference Services

### Lunch

Lunch is not provided by the Organisers.

The University Bar is open to Conference attendants and a reserved area will also be available at Restaurant L'Oliva (wide variety of dishes and set menu 15€), just opposite the University main entrance (Gran Via de les Corts Catalanes, 596)

There are many other options to choose from around the Conference venue.

### Conference telephone number

The Organisation contact telephone number is + 34 609 578 381

### Accreditation

Accreditation is compulsory in order to attend all Conference activities.

Your identification card is personal and non-transferable.

### Attendance certificate

Attendance certificates will be handed out on Saturday at 11:00 hours.

### Programme alterations

Any alteration that may take place after the publication of the program will be announced on the Conference website <http://en.cdl.cat/wfate-barcelona2016>.

## Useful information

### Languages

Catalan and Spanish are two official languages in Catalonia.

### Transport

- Getting from the airport to the City centre

Transport by metro, taxi, bus and train is available from Barcelona El Prat airport terminals (T1 and T2) to Barcelona city centre. All information is available at <http://www.aena.es/csee/Satellite/Aeropuerto-Barcelona/en/Page/1237554338469/>.

- City transport

Metro and bus: Barcelona offers an excellent public transport network. Travel cards - valid for the Metro and bus networks – can be purchased at the Metro transport ticket office and ticket machines. Further information is available at <http://www.tmb.cat/en/home>

Taxis: Taxis can be booked by telephone at the following numbers: 93 358 11 11, 93 490 22 22 and 93 330 03 00.

### Useful telephone numbers

Airport 902 40 47 04

National information 1002

International telephone information 1025

Medical emergencies 112

Local police 092

National police 091

Lost Property 010

Post Office 93 318 38 31

Fire Brigade 080

Catalonia Tourist Information Centre 93 238 40 00

## Excursions

Post-conference tours are available on Sunday 24th April.

- Option 1 - Barcelona tour. Departure at 9 am from Plaça Catalunya.
- Option 2 - Montserrat visit. Departure at 9 am from Sants Estació.
- Option 3 - Dalí Museum, Figueres, and visit to Girona city. Departure at 9 am from Plaça Catalunya

More information is available on the Conference website <http://en.cdl.cat/wfate-barcelona2016>



