

6TH INTERNATIONAL SYMPOSIUM ON NEW ISSUES IN TEACHER EDUCATION



Abstracts of Presentations



L-Università ta' Malta
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6TH INTERNATIONAL SYMPOSIUM ON NEW ISSUES IN TEACHER EDUCATION (ISNITE 2019)

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ABSTRACTS OF PRESENTATIONS

Conveners: Prof Simone Galea and Dr Michael A. Buhagiar

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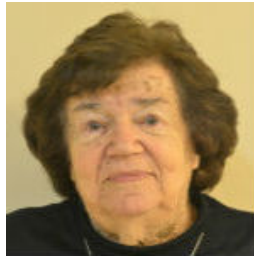
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KEYNOTES



Professor Miriam BEN-PERETZ
University of Haifa, Israel

Challenges of teacher educators

Every generation depends on its school system to prepare its future citizens. Living in a changing world where technological developments, as well as political upheavals, create changing and flexible environments in which student teachers are going to work, requires a special kind of teacher preparation. The process of teacher education depends on a double approach: on one hand, becoming teachers require sound knowledge in the discipline they are going to teach, and on the other hand, they need acquaintance with the nature of their future students. Both these domains are not stable, and require adaptation of the process of teacher education. The best kind of such an adaptation depends on two basic features: the first is the perception of teachers as learners who continue to develop their knowledge base throughout their career as teachers. The second feature is related to teachers' perception of students. Because of large scale demographic changes in many parts of the world, the nature of students tends to be flexible. Any wave of demographic movement, such as from African countries to Europe, will express itself in the composition of classrooms. As an outcome of such demographic changes, a classroom might include students from different cultures, religions and mother tongues. This situation creates enormous difficulties for teachers, who as experienced professionals acquire some expectations concerning their students and develop their own individual style of teaching. Both these features develop overtime, and are resistant to change. Still, preparing teachers for the next generation cannot be divorced from the notions of political action and social change. Teachers have to learn to recognise the specific nature of the students, and to adapt their teaching to the perceived needs of students. Such knowledge includes awareness of cultural background, hopes and fears, and a basic trust of the education system. A central implication of this situation is the development of innovative ways of teacher preparation. Instead of conducting this process in one educational environment, student teachers will have opportunities to get to know a variety of educational circumstances. This process has to be planned carefully so it includes different environments from teaching new immigrants to teaching of students with outstanding abilities in certain domains. The outcome of such a carefully planned process of teacher education is not the creation of experts in teaching diverse populations. Such expertise can be achieved only after practicing in concrete environments. Still, student teachers who have some experience with diverse student populations will be aware of the fact that teaching in present day complex societies requires flexibility in adapting the teaching process to student needs. Teacher education is a proper environment for experiencing such adaptation attempts. At the end of each programme of teacher education, teachers will have more knowledge concerning adaptation of teaching to learners. Another positive outcome will be a literature of documenting the different adaptation processes.



Professor Zelia GREGORIOU
University of Cyprus, Cyprus

Outside Diotima's educational matrix: Queer remains in Socrates' silenic enfoldings

"Did you know that the Ancient Greeks had homosexual sex?" The tactical gesture is amongst the most predictable ones to occur in Greek Cypriot classroom debates over the compromised, feminized masculinity of the homosexual, as well as over the minoritarian vs. universalist (Sedgwick 1985) nature of homosexuality's spread. The gesture is as likely to embarrass the homophobe's vocal claim that sodomy is un-national as to sharpen the reticent policy maker's view that one should always be careful which Ancient Greek texts to include in the curriculum. A feminist reclaiming of Diotima's speech in Plato's *Symposium*, like Halperin's (2004) historicism, could help contain homophobic panic against the *Symposium* and create possibilities for a comprehensive reception of the work's pedagogical ideas and pathos. The shifts and twists of teacher-student roles, the corrosion of their asymmetry, the egalitarian redistribution of ignorance and desire, the metaphors of birthing, nurturing and enabling, the parody of banking notions of education and the deliberate leading of the search for comfort zones to misfire, resonate with poststructuralist approaches to learning and critical pedagogy. In fact, such a pedagogical reading inspires a textual reorientation of the whole text around the pedagogical matrix, since Diotima's speech gestates and births, anew, phantasms from the previous speakers' eulogies of Eros. The pedagogical matrix of Diotima, this paper argues, drains the *Symposium* of misogynist male homoeroticism but also drains the imagination from queer affect. Outside the female erotics of gestation and birth, which overlap with heteronormativity's dream of immortality through reproduction, the paper traces remains of queer affectivity and precarity, such as the silenic self-figurations of Socrates and the rupturing, childish erotics of Alcibiades' shame (contrasted to shame as a disciplinary apparatus in Phaedrus' praise of the loved-lover homosocial bond). A backwards reading (Love 2007) of the *Symposium*, around and outside Diotima's pedagogical matrix, indulges in the queer affect that remains alive so long as it remains incongruous and irreconcilable to pedagogical promise.

*Silenic: relating to, or characteristic of Silenus or the sileni.

"Silenuses were little figurines split down the middle (imagunculas ... sectiles) and manufactured in this way so that they could be opened to display their richness, whereas, when they were closed, they showed the ridiculous and grotesque outline (ridiculam ac monstruosam ... speciem) of a flute-player. Open (apertae), they suddenly revealed the figure of a god (numen) [...], a great soul, a sublime and truly philosophical soul (animum ... sublimem ac vere philosophicum)" (Erasmus, *Sileni Alcibiadis* (1527), pp. 3-8, in Usher (2002).



Professor André MAZAWI
University of British Columbia, Canada

Statelessness, human displacement, and the prospects of teacher education

Teacher education has remained aloof from the painful lived experiences associated with statelessness, exile, displacement, refugeedom, asylum seeking, and resettlement which mark the human condition in our time. In the face of these lived experiences, states have erected militarized borders into lethal spaces, equipped with technological and administrative vigour and determination to keep those perceived as “invaders” or “security risk” at the City’s gates. In Giorgio Agamben’s (1998) words, these ‘biopolitical borders’ (p. 94) are dotted with the power to suspend life, to delineate life from death, and to reduce life to ‘bare life’. For many educators and policymakers, these lived experiences are reified. They are primarily relegated to the domain of politics, geopolitics, and international law, with only peripheral technical consideration given to their implications for teacher education programmes. When addressed, the lived experiences of stateless and displaced people are engaged in the guise of humanitarian and emergency responses, international aid, and development packages, at best.

In this address, I approach statelessness, displacement, migratory flows, and the emergence of biopolitical borders in terms of their pedagogic implications for teacher education programmes. I emphasize the need to conceive of these lived experiences as cornerstones in the strategic articulation of an approach to teacher education that considers teaching beyond the conundrums of exclusivist notions of state, market, and citizenship, and beyond the colonizing discourses associated with humanitarian international aid and development packages. I reflect on what this articulation would entail for teacher education programmes both within the Global North and the Global South. My aim is to call for an engagement of teacher education programmes with pedagogies that go beyond discourses of social justice, diversity, multiculturalism, and anti-racism education towards pedagogies anchored in strategic human solidarities.



Professor John P. PORTELLI
Policy Advisor, Ministry for Education and Employment, Malta

Neoliberal elements in Canadian teacher education: Challenges and possibilities

This presentation offers a critical reflection of the changes experienced in teacher education across Canada in light of the neoliberal impact on educational spaces. It also seeks to disrupt the neoliberal narrative and problematize a rationality that has permeated teacher education programmes. This is a rationality based on the neoliberal agenda that is incompatible with critical educational practices based on a robust understanding of social justice. As a mode of critical resistance to educational instrumentalism and standardization, the presentation offers an argument for the ethics of subversion.



Dr Pasi REINIKAINEN
Education Consultant, Finland

Experiences on exporting education evaluation practices

It was 1959, when large scale comparative international assessments of students' learning outcomes started. Ever since, the number, the magnitude and the coverage of these studies has grown enormously. Finland's success in one of these studies, namely in OECD PISA, has raised international interest towards Finnish education system and the society as whole. Finland has not only hosted tens of thousands of so-called PISA 'tourists', including teachers, education policy makers and journalists from all over the world. It also started, little by little, this education export business in an attempt to sell best Finnish practices and education know-how to other countries. This is very true also when education evaluation practices are concerned.

In my speech, the focus will be on evaluation of education. Firstly, I will discuss the fundamentals of evaluation, answering the questions like: What should be evaluated? Why should these things be evaluated and how? Who should carry out these evaluations and when should evaluations take place?

Evaluation practices have a more pragmatic side. Based on today's trending slogan of evidence-based decision making and unlimited information needs, the number of internal and external evaluations of students and schools will grow so large, that they end up stealing time from 'normal' teaching and learning and everyday school work. In Finland, for instance, we have more than 50 internal evaluations during school year (eight months). I argue that it is very important to make a distinction between the kind of evaluations taking place; whether one is working on evaluations of learning, or if evaluations should consider the learning situations.

I will take up the socio-cultural background of Finland to explore the workings of the Finnish education evaluation system; all the way from the national, to school, teacher and student level. Since the conference is about the innovations in teaching and teacher education, a Finnish classroom teacher's pragmatic evaluation work will be demonstrated.

In the last part of my speech the focus will be on the dynamics of exporting the best education evaluation practices from one country to another. I will share my own experiences about the challenges and success stories of adopting external and internal evaluation practices in various countries. These stories aim to inspire participants to reflect their own evaluation practices and continue the discussion on: What is good in existing practices, what should be changed and how these changes could take place?

PRESENTATION ABSTRACTS

ABSTRACT 1

Abdullah AÇAR¹ & Azmi TÜRKAN²

¹ Bursa Uludağ University, Turkey

² Siirt University, Turkey

Examining the relation between teachers' education levels and their students' PISA scores in terms of residential area, region, school type and school funding

This study aims to make certain domestic investigations on teachers' education levels and their students' scores in PISA. Firstly, students' PISA mathematics, reading and science scores are examined to determine whether residential area, region, school type (vocational vs. non-vocational high school) and school funding (public vs. private) have a bearing on the scores. After that, analysis is focused on teacher education level to interpret whether it can be an explanatory variable or not for changes in the scores with respect to the factors. Motivation of this focus is that teacher education level is seen as one of the most critical factors affecting change in student achievement. PISA 2015 Turkey data retrieved from official website of OECD is used. The study also combines PISA School Data Set and Student Data Set by matching up school id variable available in both data sets. This made it possible to analyse student achievement in terms of the factors including teacher education level. Teacher education level is derived by calculating percentage of teachers having a higher degree (Master or PhD) in each school, and mathematics, reading and science scores are given in PISA data set. Because all of them are continuous and have normal distribution, parametric tests were used to compare means of the categories. Results showed that Turkish students' each three PISA scores changes significantly according to the residential area, region, school type, and school funding. Education levels of teachers of these students are also changing significantly according to residential area and region but changes in scores and changes in teacher education level area not parallel. For school type and school funding, teacher education level changes in favour of non-vocational schools and private schools respectively so changes in score and changes in teacher education levels are compatible.

Considering all results, it is seen that students' PISA scores and education levels of teachers in these students' schools vary according to the factors of residential area, region, school type and school funding. It can be said that most of the variation in each single dependent variable is not surprising. However, compatibility of changes in students' PISA scores and education levels of their teachers is ensured only for school type and school funding and not for residential area and region is sort of surprising. This make teacher education level look like an inadequate variable to explain the change in Turkish students' PISA scores and this may question graduate level education of teachers.

Socio-economic level and cultural diversity can be intervening variables affecting factors of this study so research focusing on these variables is suggested. Looking for a better measure for teacher education level is also suggested. Percentage of teachers having master or PhD is not a sufficient measure in the Turkish context, due to the fact that there are Master's degrees without thesis programmes, the quality, and very low quantity of teachers having higher degrees.

ABSTRACT 2

Abdullah AÇAR & Sedat YÜKSEL
Bursa Uludağ University, Turkey

The role of pre-service teacher education on prospective teachers' ideological beliefs affecting their preparation for diversity

Preparing teachers for diversity in both pre-service and in-service teacher education is one of the crucial aims today (OECD, 2010). According to Gay (2010), ideological beliefs of teachers is an important topic that is not sufficiently discussed in details in terms of its disturbing effects on teachers' behaviour and attitude towards diverse students. It is thought that these beliefs can be identified and shaped best in pre-service teacher education (Cochran-Smith, 2004; Gay 2010).

Considering these, the aim of this research is to reveal what kind of role pre-service teacher education has on such beliefs of prospective teachers. Is it struggling with these beliefs to contribute to teacher candidates' preparation for diversity or is it consolidating these beliefs because of intentional or unintentional processes?

Defining ideology is difficult, but it can be seen as a set of beliefs, values and norms that act as guides for action (Örs, 2009). In the course of discussing ideological beliefs in educational contexts "school", "curriculum" and "teacher-student" relationships are featured by Althusser (2014), Apple (2004) and Bernstein (2000) respectively. The present study focuses on the last issue with specific concerns to teacher education. Therefore, the relationship between teacher candidates and teacher education gains importance.

In the research, ideological beliefs are limited within political ideology, religious ideology and gender ideology. Among these, political ideology is well-known and obvious. When it comes to the other two, religious ideology concerns certain beliefs and expectations which vary between religions and sects in the same religion (Glock, 1962); and gender ideology is defined as 'sets of widely taken-for-granted cultural beliefs about the essential natures and relative worth of men and women' (Chatillon, Charles and Bradley, 2018). How teacher candidates' political, religious and gender-based beliefs are addressed in preservice teacher education is important in terms of their preparation for diversity based on these issues.

Design of the research is determined as qualitative phenomenology. The role of teacher education on ideological beliefs of the teacher candidates is the phenomenon experienced by both teacher candidates and teacher educators so their views will be examined. To increase richness of the data, maximum variability sampling is utilized in terms of departments and sexes of the participants. To reveal the views about the phenomenon, semi-structured individual interviews (average length of 30 minutes) were made with four teacher candidates and four teacher educators. Analysis of the data is continuing.

ABSTRACT 3

Bülent **ALAN**
Anadolu University, Turkey

Teachers' standards across countries: What do they tell us?

Enhancing the quality of teaching is the primary concern of countries all around the world. However, as is well known, the quality of teaching cannot exceed the quality of teachers. Therefore, in order to improve the qualifications of teachers, some educational institutions and also many countries have determined competency frameworks or teachers' standards consisting of various competencies that teachers must have before they are legally employed as full-time qualified teachers. Some of these teachers' standards and competency frameworks are official documents that have been put into effect by the Ministry of Education of the countries. Some competency frameworks and standards, on the other hand, are just advisory documents to inform the stakeholders about the necessary knowledge, skills, and dispositions a teacher must possess. These teacher standards and competency frameworks vary across countries in terms of content, structure and length. Some of these competency frameworks are very detailed; whereas, some are just basic guidelines for teachers. As part of a larger study, this study focuses on the similarities and differences among the teachers' standards and generic competencies of various countries. To this end, the researcher has analysed different teacher competency frameworks and/or teachers' standards across countries from five continents including, Australia, Nigeria, Malaysia, The Philippines, Chile, Canada, England and Turkey. This particular study, which relies on document analysis, revealed that the generic teacher competencies of various countries share some similar features. These features fall under three broad categories. They are multiculturalism and individualization of teaching, the constructivist approach, and professional development and life-long learning respectively. The differences among the generic competencies of countries vary depending on the political and social structures of the countries and also reflect the prevailing regime of a particular country. In short, the study showcases sample competencies and/or teacher standards concerning both the similar and different issues on which the countries focus and give importance to, while training and employing teachers. In this way, the participants might be informed about the teacher competencies of different countries and contribute to a discussion in which they will be able to make comparisons between teachers' competencies of their own countries and those of others.

ABSTRACT 4

Michelle **ATTARD TONNA**
University of Malta, Malta

An evaluation of the mentoring experience of NQTs in Malta

New teachers need support. They do not yet have the knowledge and wisdom to take effective action in situations which result as difficult, ranging from the pedagogical to the practical and mundane. Yet, they often have to do the same job as their more experienced colleagues: they are given full responsibility for their students' learning (Shields and Murray, 2017). For this reason, their colleagues, and members of the school management team, need to help them do the best that they can, and this is the purpose behind induction (Daly and Milton, 2017; Howe, 2006). Induction does not benefit only NQTs but also those who support and assess them, together with current and future pupils that new teachers work with, as these will learn more and be happier. Education systems develop induction programmes with the aims of diagnosing the strengths and needs of Newly Qualified Teachers (NQTs), giving advice and facilitating these teachers' learning and growth. This research study focuses on the induction programme in Malta, a system which has been in place since 2010 and is principally based on the support these NQTs receive from their mentor, a member of the school management team and their college principal. In particular, it will explore the challenges but also the benefits of mentoring as experienced by a group of NQTs and their mentors in a number of Maltese schools. The term teacher mentor, in this research study, refers to a teacher of some experience who works with a beginning teacher during her/his early experiences in the classroom. The teacher mentor will be in a position to offer support through observation, being an inquirer and a critical thinker. Rather than being there to give advice and solve problems, the mentor's role is to question, to listen, and to model reflective thinking (Kim and Silver, 2016). The institutional programme and what it aims to achieve is assessed against the reflections of 5 mentors who were given the role of supporting a NQT in their school for one scholastic year, and 5 NQTs who were mentored. An inductive approach of comparing data to the research questions (Creswell and Creswell, 2018) was used. The aim was to evaluate this experience, as perceived by the mentors and the NQTs, regarding the induction phase and the way schools were being engaged as part of this induction programme. Codes were developed from the reflections, which were then compared against the research questions, using an inductive approach. The NQT induction programme needs to be adequately understood and acknowledged by schools and the education authorities in order for it to reach its aims of supporting beginning teachers. Physical spaces and opportunities for collaboration can enhance what the mentors are trying to achieve. This research is the first of its kind in Malta as it explores the perceptions and experiences of mentors who are actively participating in the induction programme for NQTs.

ABSTRACT 5

Barbara **BASCHIERA**¹, Colin **CALLEJA**¹, Elena **TANTI BURLO**¹ & Fiorino **TESSARO**²

¹ University of Malta

² University Ca' Foscari, Italy

Becoming an inclusive teacher: A comparative study between Malta and Italy

This paper is a comparative study between Malta and Italy aimed at defining the competences required of an inclusive educator. 288 Italian subject teachers trained by the Ca' Foscari University of Venice and 88 Maltese subject student teachers following their studies at the Faculty of Education, University of Malta were asked to fill in a questionnaire with closed-ended questions, multiple choice questions and rating scales. Through filling in the questionnaire participants identified the areas of competence that subject teachers need to nurture to develop their epistemological, pedagogical, didactic and organizational tools, for the inclusion of students with disability.

The Italian sample consisted of 202 female teachers and 86 males; 75% belonged to the age cohort 31 to 40 years; 58% were employed on a fixed-term basis and 20% on a permanent contract basis. On the other hand the Maltese sample consisted of 69 female subject teachers and 19 males; 80% of these are under 30 years of age, while the rest of the cohort were between 31 and 48 years of age. Only 20% of the participants had between 2 to 5 years of work experience in the sector.

The study analysed the data using previously established competencies, identified as Relational, Organizational and Specific competencies (Baschiera, 2014; Tessaro, 2014). The analysis showed that there are some major differences between Maltese and Italian Subject teachers and it concluded with a number of recommendations for changes in the approaches used to prepare inclusive teachers and educators.

On the relational level, Italian teachers seem to give a lot of importance to relational competences towards the students, his family and the classroom; the most striking evidence points to the importance the Italian cohort gives to empathy. On the other hand the Maltese cohort seems to value highly external supportive networks, a reflection of the centralized support system still very dominant feature of the Maltese Education.

Italian teachers, tend to have a more strategic function on the organizational competencies while for the Maltese educators the focus is more technical. In regard to Specific competencies Italian teachers insist on the need for adopting a research approach, while the Maltese seem to focus on the use of technologies that has been greatly facilitated in the Maltese education system.

ABSTRACT 6

Şule **BETÜL TOSUNTAŞ**¹, Emrah **EMIRTEKİN**² & Kagan **KIRCABURUN**³

¹ Bursa Uludağ University, Turkey

² Yaşar University, Turkey

³ Düzce University, Turkey

Focus on coding for teacher education: An empirical study

In the world, coding education has gained importance in recent years with the emphasis on using technology not only as a means of consumption but as a means of production. Coding education is added to primary and secondary school programmes all over the world in order to develop cooperation, critical thinking, algorithmic thinking, creative thinking and problem solving which form the basis of information-processing. (Yükseltürk & Altıok, 2015). Although individuals use information technologies continuously, they do not contribute to information technologies and they are very much like “being able to read and but not being able to write” (Resnick vd., 2009). In Turkey, coding education is included in the Information Technology and Software curriculum using approaches such as computer-free activities, block-based programming, robotics programming, game-based learning and pair programming. In spite of this coding education is not taught to service and in-service teachers. This deficiency is attempted to be covered by in-service training provided by the Ministry of National Education or non-governmental organizations to focus on logic of coding teaching and develop field-specific approaches and instructional designs. In this context, the aim of the study is to determine the attitudes, opinions, and needs of pre-service teachers and secondary school students towards coding teaching. Within the scope of the study, answers to these questions were sought. 1. How is the attitude of the students towards cooperative learning?

2. How is the attitude of the students towards coding? 3. How are pre-service teachers' attitudes to teach coding? 4. What are pre-service teachers' views on coding teaching approaches? 5. What are the pedagogical needs of prospective teachers to teach coding?

The research was designed using the convergent parallel model, one of the mixed research methods. The convergent parallel model is a model in which quantitative and qualitative data are collected separately, analysed, compared and correlated (Creswell, 2005). In this study, qualitative data was collected from prospective teachers, and quantitative and qualitative data was collected from 220 students who participated in coding applications within the scope of 6th Grade Information Technologies and Coding course. The other part of the study was conducted with the 3rd and 4th grade 40 pre-service teachers in the Computer Education and Instructional Technologies Department. Inductive analysis, descriptive and content analysis, were used in the analysis of qualitative data.

ABSTRACT 7

Stephanie **BUGEJA**
University of Malta, Malta

Students' 'voice' within the educational system: Complexities, challenges and possibilities for educational psychologists

The relationship between teacher and student has always been a central interest of the educational process. While the nature of this relationship can be understood from various theoretical frameworks, presentation that seeks to understand the “lived experience” of this relationship is less prevalent. This presentation explores the phenomenological nature of the teacher-student relationship in the context of teacher education. Stories of the lived experience of this relationship were hermeneutically interpreted against the philosophical writings of Martin Heidegger.

The presentation answers the question: what is the meaning of the teacher-student relationship? Relationships are essential to the educational experience whether this is recognised or not, and whether we are consciously aware of this or not. Once established, relationships continue to exist beyond the time and space of the individuals influencing future relational experiences. In addition, a teacher's comportment has been found to have a communicative aspect that is felt and sensed by others. A further essential understanding opens the play of relating. That is, the teacher and student experience their relationship as a play that is unscripted, uncertain, and lived beyond the rules of engagement. In this play, teachers who are attuned to relationship show a *phronesis*, or practical wisdom, as they relate moment by moment.

The outcomes of this presentation call into question technicist and instrumental models of teacher education which are presently underpinned by the dominant neoliberal ideology. Consistent with critical and humanistic approaches to education, this presentation calls for the humanising of the educational experience through the educating and re-educating of teacher educators and teachers towards essential understandings of relationship.

Michael A. **BUHAGIAR**
University of Malta, Malta

Insights into the teaching of reflective practice during initial teacher education

Over the last few decades, the notion of reflective practice flourished across various fields of professional practice, including education, becoming in the process one of the defining features of professional competence (Finlay, 2008; Meierdirk, 2016). Teaching professionals, in particular, welcomed the philosophy of reflective practice as it opposes the traditional notion of teaching as a technical activity in which teachers simply carry out what powerful classroom outsiders think they should be doing (Zeichner & Liston, 1996). The recognition that “teachers have ideas, beliefs, and theories too, that can contribute to the betterment of teaching for all teachers” (Zeichner & Liston, 1996, p. 5) elevates teachers from consumers of curriculum knowledge to creators and evaluators of such knowledge (Zeichner & Liston, 1996), to become in the process agents of their own learning (Thomas & Griggs, 2011). In view of these professional benefits, the notion of reflective practice is given prominence in initial teacher education (ITE) programmes around the world (Jay & Johnson, 2002; Russell, 2005; Dye, 2011; Meierdirk, 2016; Ramos-Rodríguez, Flores Martínez & Ponte, 2017). In reality, however, there is a general lack of attention to the actual teaching of reflective practice in these programmes (Russell, 2005; Ryan, 2013).

My foray into the teaching of reflective practice at the Faculty of Education, University of Malta, happened when I realized that although our ITE students are constantly urged to engage in reflective practice, no one helps them to develop the specific skills needed for reflection. Knowing how crucial these skills are to teacher development (Darling-Hammond, 2006; Korthagen, Loughran & Russell, 2006), I decided to do something about it, at least for the student teachers of mathematics for whom I am directly responsible at the Faculty. This led me to design and teach a study-unit entitled *The Reflective Mathematics Teacher*, which presents student teachers with the history, theories and practicalities of reflection and coincides with their first six-week block practicum in schools. It is assessed through the submission of individual assignments written in the form of a *Reflective Diary*.

In this presentation, I revisit a number of these assignments to gain insights into the teaching of reflective practice during ITE. The thematic analysis of the reflective diaries suggests that: (i) although reflective practice can be taught, it requires time; (ii) group reflection reaps very positive results, particularly during the practicum period; (iii) positive critical incidents need to be emphasised; (iv) student teachers should be presented with different models of reflection; and (v) an individual written assignment might not be the ideal tool to assess a study-unit that intends to teach reflective practice.

ABSTRACT 9

Leonard **BUSUTTIL**, Lorraine **PORTELLI** & Therese **CAMILLERI**
University of Malta, Malta

VET teacher training in Malta: A case study

During the past decade, the Maltese education system was increasingly becoming influenced by a number of EU policies, namely Education & Training 2020 (2009), the Bruges Communiqué (2010) and the Rethinking Education Communiqué (2012) driving the Ministry of Education & Employment to parallel these initiatives, namely through the Framework for the Education Strategy for Malta 2014-2024, the Strategic Plan for the Prevention of Early School Leaving in Malta and the National Policy for Vocational Education and Training. 2014 witnessed the launch of a pilot project introducing four vocational subjects at MQF Level 3 within mainstream secondary school curriculum, with the target to offer a total nine vocational subjects by 2019. The impact of these reforms and introduction of vocational subjects within the secondary school mainstream curriculum created a vacuum for teachers professionally trained within the field of vocational education. While the increasing number secondary schools offering vocational subjects together with the increasing number of students opting for vocational options further heightened the necessity for professional teacher training in the field of vocational education. This paper provides an outline of teacher training initiatives undertaken by the Faculty of Education in Vocational Education during 2018/2019 and compares these initiatives to others offered in different countries. A review of these initiatives and the process undertaken shall be presented in this paper. This paper will focus on the development of a retraining programme for the upskilling and reskilling of in-service educators who were interested in teaching VE subjects in secondary schools. This paper will also review the different stages of the programme design, development and implementation, bringing together qualitative data collected from respective stakeholders including Ministry for Education and Employment Senior Administrators and Education Officers, Teachers and Industry partners. Thematic analysis was used to identify the main themes. The paper will be concluded by providing a list of challenges faced and available opportunities.

Karen **BUTTIGIEG**
University of Malta, Malta

Educating teachers for transformation

Teachers often struggle to understand the diversity of thoughts surrounding education and habitually resort to the same concepts that they were exposed to during their school years to make sense of their own teaching. They consider the big questions surrounding education and its aims, irrelevant as these do not address classroom practices within systems that are highly standardised, subject and exam oriented. At the same time teachers are aware of the moral, ideological and ethical aspects of education that can transform their students into successful lifelong learners and positive contributors to society. This scenario is especially true of the post-secondary education in Malta because success is solely measured in terms of grades which are used to move students towards a desired career. The assumption is that the more subject content one knows, the more successful she will be. In the academic post-secondary sector, this assumption is also made on teachers. This often eradicates any time to focus on students' character formation, morality, originality and other social, political, and ethical dimensions of knowledge.

My paper will draw on the German notion of *Bildung* and transformative learning theory to argue that teachers need to be comfortable in asking broader educational questions and challenging dominant pedagogical discourse that is highly standardized and utilitarian. Such inquiry draws on the notions of education as an experiential personal journey that is lived with others, a transformative and inclusive practice that encourages the active agency of both teachers and students. My paper argues that such inquiries should not be ignored in teacher education and teacher development practices. Although many practicing and student teachers are critical enough to identify faults in the system they are often powerless to bring about change that looks at the holistic development of students. They are extremely conscious that their students are entitled to be supported in getting their qualifications, but even if at the end, it all boils down to sitting in an exam hall, the student's ability to cope in this situation comes from having developed autonomy and resilience, not from being a passive recipient. In such a context, the notion of reflective practice in teacher education has to foster the two-fold teacher responsibility towards the students, namely giving them the best chance of succeeding in their exams and giving them an education that goes beyond exams. This paper suggests how teachers can be educated to bridge the two by suggesting ways in which teachers can engage in transformative and inclusive pedagogies. It draws on empirical examples to argue for an educational shift towards *Bildung* and transformative learning, whereby humanity, solidarity and social justice are reclaimed through communities of learning.

Therese **CAMILLERI** & Suzanne **GATT**
University of Malta, Malta

Formalizing the informal? Teachers' challenges in adopting and assessing learning outcomes within an applied and work-based learning context

Malta has experienced a national curricular shift towards a learning outcome approach which resulted in a reform in local apprenticeship schemes and the introduction of vocational and applied subjects within mainstream secondary school curriculum, all of which possess a work-based component. The Maltese government has consolidated this shift through the Work-Based Learning and Apprenticeships ACT (WBLA) (Government of Malta, 2018) which recognises different forms of learning occurring within the workplace and explicitly conditions all VET providers and programme designers to formulate learning outcomes in terms of knowledge, skills and competences as an integral part of their quality assurance process. Such changes present teachers - within both secondary and post-secondary education - with new challenges in terms of identifying learning outcomes and assessing their attainment when teaching within an applied or workplace context. This paper is part of Doctorate research on the impact of learning outcomes in work-based learning in apprenticeships and presents some insights in the challenges identified by teachers in adopting a learning outcomes approach within a work-based learning context. Following a review of the learning outcomes approach, which is considered to provide the optimal learner-centred pedagogical conditions (Harden, Crosby & Davis, 1999; Smith, Dollase & Bose, 2003; Hussey & Smith, 2008; Prøitz, 2016), it discusses how adopting a learning outcomes approach is often considered as "...ill-defined and problematic" (Schon, 1983) in its pedagogical effectiveness when adopted to workplace context where learning processes are inseparable from the actual daily work routine processes (Eraut et al, 1998). Insights from interviews with assessors (VET teachers) in the current apprenticeships which have been using such an approach for the past few years will be provided as reflections into issues such as: learning within different work contexts; evidencing the applied learning; as well as quality assuring the process across the different work-based and applied contexts.

Louise **CHIRCOP**
University of Malta, Malta

Educators' practices: Towards a politics of difference or a politics of exclusion?

The social and demographic changes in Maltese society have transformed schools from perceived homogenous spaces into diverse ones. Consequently, it is expected that educators respond to the shift in student population by putting in place practices that acknowledge and address the social diversity within their schools. The National Curriculum Framework (NCF) (2012) refers to social justice 33 times. One of the aims of the NCF for secondary schools is to "Work towards strengthening social cohesion and ensuring social justice", which is linked to promotion of equality of opportunity and access to a quality education. It also states that, "All students, irrespective of background and ability, are provided with an education that will allow them to develop to the maximum of their potential" (p.25). With these claims of the NCF in mind, I examine the stance taken by nineteen educators with regard to their socially diverse student cohort. In what ways, if any, do they take a social justice approach in teaching the diverse students in their classes? Do national education policies and specific school policies guide educators toward achieving the social justice aims set by the NCF? Theoretical Framework: Young's (1990) vision of a just society is one that recognises culturally differentiated and group based politics. Thus her theory proposes a politics of difference (Young, 1990) to address injustices in society. I shall apply this theoretical framework, particularly the five faces of oppression which are mentioned to provide a critique of educators' practices in secondary schools. Research Methods and Methodology: Data was collected through in-depth interviews with 19 educators. Participants were recruited through snowball sampling. They were teachers, assistant Heads of School and Heads of School who work in the State, Church and Independent school sectors. Critical Discourse Analysis (CDA) was used to analyse the data, as this research tradition enables one to access the ontological and epistemological assumptions behind the study. Findings: Many educators were insensitive to issues of social justice that are linked to policies and practices. Some of the participants showed a certain detachment from their students and were selective about who to include. As they considered only particular groups of students as worthy of their teaching, they refrained from engaging in issues tied to the social diversity embodied by their students. A few educators did their utmost to acknowledge social diversity and engaged their students in discourse about it through the activities they organised. They recognised the different needs of their students based on culture, faith, sexual orientation and dis/ability difference based needs of the students and tried to adapt their practices to provide a socially just educational experience. School and national policies also influenced educators and their practices. Since the only direction the Education Directorates offered regarding socially diverse students was often that of exclusion (streaming, setting, banding, hubs for migrant students, Alternative Learning Programme, Learning Zones and so on), educators either did not see these practices as unjust and inequitable, or else felt that they did not have enough agency to act in opposition to them. This presentation calls for a rethinking of how to engage pre-service and in-service educators in a more critical reading of their practices, to provide their students with an educational experience that recognises their diversity.

Alessia **CILIA PORTELLI**
University of Malta, Malta

From reflection to diffraction in teacher education

For over 3 decades, the notion of teachers as reflective practitioners has been pervading the field of professional teacher education and enjoying widespread popularity and endorsement in both policy and practice. Indeed, reflective practices as Zembylas (2014, p. 210) puts it “have become part and parcel of teacher professional development internationally”. Despite their ubiquitousness, reflective practice frameworks are not void of critique. That which was originally acclaimed as an apparatus for researchers to challenge traditional positivistic thinking, became a rather stagnant tool that displaces the same elsewhere through a mirroring exercise, reproducing and normalising, rather than moving understandings and practices forward.

This paper delves into an emerging body of research that draws on new materialist thinking to problematise and disrupt the abovementioned supremacy of ‘reflection’ in both pre-service and in-service teacher education, advocating instead a practice based on yet another optical metaphor, i.e. that of ‘diffraction’. This shift, put forward first by Donna Haraway (1992; 1997) and expounded subsequently by Karen Barad (2007), distances us from assumptions premised on the cognitive ability of teachers to enact desirable changes through cyclical processes of observation, evaluation and self-reflection. From a new materialist positioning, such practices are only believed to mirror sameness. Diffractive practices, just like the bending and dispersion of waves when an obstruction is encountered, on the other hand, can generate something ontologically new by evidencing differences and blurring boundaries.

Allowing diffractive forces to permeate our practices essentially entails a shift from the epistemological to the ethico-onto-epistemological (Barad, 2007), where ethics, knowing and being constitute a unique process, each shaped and informed by the other. This paper engages with important aspects of the concept of diffraction and explores how diffractive practices can be enacted in formal teacher education contexts. It focuses in more detail on the material and relational rather than the cognitive aspects in conceiving education to argue for their importance in teacher education. Examples of how these can be pedagogically enacted are also given.

Ismail **CIMEN**
Bursa Uludağ University, Turkey

Evaluation of new teacher qualifications in Turkey from the perspective of teacher candidates

Teacher qualifications can be considered as one of the most discussed topics in the field of teacher education in recent years. The ever-changing social demands call forth studies to develop new models in that area. In this regard, Turkey also published a draft regulation named 'General Qualifications in Teaching' in 2011 and put it into force in 2017 with some changes. Teacher qualifications in that regulation were divided into three groups as 'Professional Knowledge', 'Professional Skill' and 'Attitudes and Values' and specific qualifications were determined for each group. It is aimed to evaluate teachers' qualifications regarding new regulations named as 'General Qualifications in Teaching' in the present research. To carry out this descriptive study, quantitative methods were used. The study population includes student-teachers of Uludağ University in the spring semester of 2017-2018. In the last part of the formation programme, students did a fourteen-week internship observing teachers within the frame of new teacher qualifications. The qualifications related to qualification groups of 'Professional Skills' and 'Attitudes and Values' were first transformed into expressions of expectation and observation, and then two different scales of 49 items were created. Here, the expectation statements are the opinions of the teacher candidates about the qualifications that the teachers should have; while the observations reveal the current situation. During the data collection process, the expectation scale was distributed to participants during the 2nd week of the formation programme and data related to the expected qualifications were collected. At the 13th and 14th weeks, observation scales were distributed and data were collected about participants' perceptions about teachers' current qualifications. An EFA was conducted and both scales were found to be valid measurement tools. The data obtained from the scales were compared and converted into actual observation results, and evaluations were made according to the teacher qualification parameters. According to the teacher candidates, the teachers can show the attitudes of general teacher qualifications to 60 %. In terms of parameters, the teachers' behaviours in the planning instruction parameter are 64%, 56% in the setting of learning environments, 59% in the teaching and learning process management parameter, 57% in the measurement and evaluation parameter, 63% in national, spiritual and universal values, 59% in the approaching students' parameter, 60% in the communication and cooperation parameters, and 62% in the personal and professional development parameters. As a result of the research, it can be said that teachers' qualifications related to creating an effective learning environment are lower and they need to be supported in this area.

Zühal ÇUBUKÇU & Tuğba İNCİ
Eskişehir Osmangazi University, Turkey

Determination of science teachers' success in building a context-based learning environment

Studies on the nature of science and scientific knowledge, as well as research in the field of education, lead to the emergence of different learning approaches. One of these approaches is constructivism. Therefore, interest in approaches related to constructivism has increased. Context-based learning approach is an approach used in the teaching of science and adopts context and applications as a starting point in the development of scientific ideas (Bennett, Lubben and Hogarth, 2007). It establishes a connection between the events in daily life and concepts related to the subject (Acar and Yaman, 2011). In addition, it enables students to relate topics to real life and increases their level of interest in the course. Therefore, it increases the academic achievement of the students.

Teachers don't pay enough attention to building context-based learning environments. There are studies indicating that context-based learning environments are important for academic success. At the same time, there is no research in the literature that determines the success of teachers in building context based learning environments. Consequently, it is important to determine success of science teachers in building context-based learning environments and to indicate what teachers should do. The aim of this study is to determine success of science teachers in building context-based learning environments.

The research is structured according to the descriptive design from quantitative research approaches. Within the scope of the research, the success of teachers in creating context based learning environments was determined by collecting data from male and female students. The population of the research consists of 4866 students studying in 34 public secondary schools in the Odunpazarı district of Eskişehir in the 2016-2017 academic year. The sample of the study consists of 572 eighth grade students studying in nine different secondary schools selected by stratified sampling technique. Data of the research were collected through Context-Based Learning Environment Perception Scale developed within the scope of this research. Descriptive statistics, t-test, correlation and confirmatory factor analysis were used to analyse the data.

Within the scope of the research, it was determined that the students received a medium level score from the behavioural participation, learning-teaching process and evaluation subscales of the Context-Based Learning Environment Perception Scale. Therefore, science teachers can enable students to participate in classes, associate real life with subjects, conduct student-centred lessons, ask questions to which students can relate real life with subjects, and assign assignments accordingly. For this reason, science teachers can enable students to participate in the science course, can associate topics with real life, and can build a student-centred environment. It was determined that students' perceptions of context-based learning environment differed according to gender. Therefore, in-service training programmes and teacher training programmes can be aligned with the context-based learning approach. We argue that context based approach is to be reflected in all the processes related to education, from preschool to higher education and the curriculum, to textbooks and teaching materials.

Maria **CUTAJAR**
University of Malta, Malta

Networked learning for teacher education: Rising above digital landscapes

Networked learning started to evolve within the teacher professional development field when information and communication technologies were still in early development. In the span of 20 years, alongside rapid technological developments, networked learning matured into a strong learning approach. It has been adopted for taking forward diverse learning and training ventures, in different disciplinary and multidisciplinary learning settings, with learners of different age groups, knowledge and experience. The purpose of this presentation is to briefly outline the networked learning approach and set forth the argument that in today's rapidly changing digital landscapes, networked learning continues to be an expedient approach for teacher professional development and teacher education generally.

Networked learning evolved in parallel and in relation to technological developments particularly the Internet with its multi-way communication possibilities. From the beginning, learning was emphasised as incorporating a social aspect as much as cognitive and meta-cognitive processes. Although digital technologies unquestionably feature in networked learning, the focus is primarily on learning. Networked learning advances learning as mediated by information and communication technologies connecting learners and other learners, learners and tutors, and the learning community and its learning resources. Networked learning proponents insist on openness in networked learning and teaching enterprise embracing democratic processes, diversity, inclusion and e-quality. In its earlier days, networked learning came under scrutiny for its potential to provide cost-effective quality distance education capitalising on the knowledge, experience and skills different participants bring into the learning setting but, rooted in the field of educational theory and practice, the main concern of networked learning researchers and practitioners remains fixed on learning and the support of learning within the ever-changing wider context. Networked learning practices invite both disruption and continuity from conventional lecturing and dissemination attitudes. Learning and teaching processes are advanced as opportunities for individual and collective development responding to learning needs in place, space and time. In a world where the human and the digital are increasingly recognised as seamlessly entangled, networked learning arises as a teaching and learning approach which transcends the latest digital tools and related trends (such as immersive technologies and artificial intelligence) to focus on the fundamental substance which constitutes learning. In deepened awareness that technologies are an integral part of our lives and increasingly ourselves, networked learning offers teacher education initiatives direction and means for leading teaching and learning development; to exemplify teaching as a current, constructive and on-going design process intertwined and interlinked to participation in emergent human and non-human assemblages physically, epistemically and socially situated. Networked Learning is a malleable learning approach with a solid theoretical base which, in an uncertain world struggling to humanise itself and achieve a sustainable existence, potentially serves as a point of reference and stability through that which touches the very crux of what makes us enduringly human - learning and teaching for the present and the future.

Ali **ERSOY**¹ & Muhammet **ÖZDEN**²¹ Anadolu University, Turkey² Kütahya Dumlupınar University, Turkey*Using video diaries in teaching practice*

Teaching practice courses should have an effective evaluation system since it is very important in terms of the pre-service professional development of teacher candidates. In Turkey, teaching practice is being evaluated and assessed by supervisor teachers and faculty members together. However, the grades of the teacher candidates mainly depend on the assessment of the supervisor teacher. Apart from this formal assessment, the professional development of the teacher candidates is formed in the mastery apprenticeship context in the practice school with the supervisor teacher. On the other hand, teacher candidates should undertake the evaluation approach in the teaching practice so that they can systematically reflect on their teaching, perceptions regarding the situations and events they confront at school and class, and experiences which contribute to their professional development. One of these approaches is a diary. Particularly, diaries related to teaching practice may be highly functional and effective. Diaries are one of the important components of the professional development of teacher candidates in terms of reflecting on their lecturing experiences and making inferences for their future career. Furthermore, diaries can reveal implicit information under behaviours. For example, it can be understood better through diaries why teacher candidate chooses a specific teaching method in his/her instructional practices or the source of the decisions when he/she implements chosen method incompletely or incorrectly. Diaries can help one to understand not only implicit information but also teacher candidates' perceptions regarding a situation they confront and their future actions. In order to keep a diary, teacher candidates should plan at the start how to configure the diary and how to record it. Literature identifies two different types of diaries, namely open diaries and structured or standardized diaries in the literature. Also, it is possible to keep diaries through writing, recording audio and visual images. Video diaries which enable audio and video recording together can be widely and easily used because they are also compatible with the latest technological tools. In this study, it was aimed to explain how video diaries can be used to reflect the teaching practices of prospective teachers and systematic review design was used. For this purpose, in this paper, studies on using video diaries in teacher education were reviewed and combined. In conclusion, how to use video diaries in teaching practice lessons, the roles and responsibility of teacher candidates and faculties, feedback process and follow-up for video diaries were discussed and functional suggestions were made.

Josette **FARRUGIA**
University of Malta, Malta

Teaching science in multicultural classes: Teachers' experiences, challenges and opportunities for intercultural learning

Learning science is one of the eight key prerequisites for active participation in society according to the EU framework for key competences (European Communities, 2007). However, 17% of 15-year-olds in European countries, underachieve in science. This is more pronounced among students from low socioeconomic backgrounds (European Commission, 2015). Increased migration has led to a considerable increase in the number of migrant students in European schools and Malta is no exception. Teachers need to find ways of helping students from diverse socioeconomic and cultural backgrounds learn science. Recent policy documents also consider intercultural learning to be a highly desirable outcome of education. In this educational scenario, teachers need help and support to develop skills required to promote learning in students of different competence levels and diverse cultural backgrounds. This paper reports a case study carried out with seven Maltese science teachers who followed a teacher continuing professional development programme (CPD) over several weeks as part of the MaSDiV (Supporting Mathematics and Science teachers in addressing Diversity and promoting fundamental Values) project. Among other things the programme promoted the use of inquiry based learning as an approach for teaching diverse students and supporting intercultural learning. This paper explores Maltese science teachers' experiences of teaching in multicultural contexts and their attempts at promoting intercultural learning as part of the CPD programme. The research question addressed in this paper is: What challenges and opportunities for intercultural learning do Maltese science teachers experience in multicultural classrooms? The data presented were derived from several sources that provided a means of triangulation. Seven classroom observations were carried out in which field notes were taken. Each observation was followed by an audio-recorded, semi-structured interview with the teacher. Lesson plans and tasks created by the teachers who participated in the CPD programme together with their reflective writing were also included. The different sources provided "cross-data validity checks" (Patton, 1990 p. 188). The teachers who volunteered to participate in the study were seven female teachers from different school sectors out of the 50 science teachers who participated in the CPD programme. Their teaching experience ranged between five and 16 years and they were all teaching secondary level students, aged 12-16 years. The challenges reported by the teachers can be grouped into three broad categories. Systemic changes related to administrative practices and policies were often mentioned. These included the continuous enrolment of new students all year round and the practice of placing newly arrived students in low achieving sets which resulted in very diverse classes. Language proved to be another challenge. Both Maltese and English are usually used in science lessons but migrant students are often competent in neither language. Moreover, some Maltese students were unhappy with the predominant use of English in class. Students' and teachers' own beliefs and attitudes were also found to be influential. Several strategies were used to maximise learning and encourage intercultural learning in the science classroom. The study highlights a number of issues that may help or hinder teachers' attempts at improving student learning.

Mark **FARRUGIA**
University College London, UK

Teacher agency in professional learning and development

Schools have all attributes to be characterized as complex adaptive systems. The amount of interactions between their agents and the unpredictability of their outcomes make it hard to manage in a linear way. Consequently, applying linear theories of behaviour and learning is not always sufficient. The complex context with all its variables makes it more intricate and open for interpretation when resolving any challenge. Teachers who are working within such a complex and ever changing environment need to be empowered more to resolve pedagogical and behavioural conflicts. A linear method of professional development, though often content rich, may not be generalizable due to the context variability. The latter is perhaps a reason why reforms and theories often struggle to situate themselves in schools. The myriad of variables such as the students with their natural dispositions and backgrounds, the teachers' capacities and their identities, resources, the school culture and leadership style and other direct or indirect pressure agents create complexities in a classroom, which deserve their individual perpetual considerations. Thus, an understanding that schools are not simple absolute linear systems makes us aware that applying theory in context is complex. Against such arguments, traditional professional development based on the 'deficit mastery model' is challenged on its effectiveness to support such complexity. This paper, thus, presents some findings that have emerged from a case study when a bottom up process of professional learning and development was applied in a primary school. The process builds on teacher 'agency' where teachers themselves plan and enact their professional learning and development in context. Their choice of professional learning and development is conditioned by contextual and personal needs. In this study, teachers are considered as complex intelligent adaptive systems able to self-organise when challenged with unpredictable situations. The latter was assumed to give better outcomes and improve self-efficacy. A mixed methodology was adopted to answer three main research questions that look into what happens when teachers are given the opportunity to have more agency in their PLD; what impact does this PLD approach make on their practice; and what difference does it make to their self-efficacy. Semi-structured interviews, focus groups, field notes, documents and a learning style inventory were the main tools used to probe into these questions. The main outcome from this research is that 'agency' needs time to be trained and refined. Planning a personal professional learning and development is a growing skill in itself. The training of agency is conditioned from a mind-set that teachers and students have a co-participative relationship in learning, meaning that there is a symbiotic relationship that helps both agents grow. Moreover, a coupling belief that should also model teacher training is that professional learning and development starts at the instant when an individual opts for the profession. The latter implies that teacher training is modelled on continuous self-regulated search for growth.

Jennifer **FORMOSA**
University of Sheffield, UK

The Spider Web Analogy: Supporting trainee teachers in their philosophical engagement with the process of educational research

This paper presents the Spider Web Analogy, a tool which I argue can be used by teacher educators to support trainee teachers to metacognitively and philosophically engage with the research components of their studies. The analogy was developed inductively as an offshoot of my unrelated postgraduate research study, on account of my problematization of the process of educational research and of its philosophical component, in particular, which resulted in my numerous efforts to diagrammatically represent the interrelationships between its main components. This endeavour led to the construction of a reticular illustration that unexpectedly bore a striking resemblance to the spider's orb web; and through a blend of structural and metaphorical comparisons, iteratively informed by ongoing philosophical and literary considerations, this reticular structure eventually morphed into the Spider Web Analogy as it is presented herein. The analogy draws parallels between the development and structure of the educational research process and those of the orb web, thus illuminating the functions of the former's key components in doing so. The key features-in-common shared by both of the systems represented by the analogy include their Framing, Supporting and Capture Strands, which respectively encompass contextual factors, philosophical and literary considerations, as well as inquiry-based procedures. Finally, this paper proposes the integration of the analogy's structure into the research report itself, in order to bring to light and reinforce the more enigmatic philosophical and literary considerations of the conventional research report via the inclusion of the aforementioned key strands as its three core considerations and chapters.

Petra **FRIDRICOVA**, Ivan **PAVLOV** & Alena **TOMENGOVA**
Matej Bel University, Slovakia

Personal competences development in pre-service teacher education in Slovakia

In recent years, we have seen a decrease in the quality of education in Slovakia. The main evidence are results of international and national research. The number of students in PISA assessment increased in bottom levels (Level under 1, Level 1) between 2012 and 2015, not only in reading, mathematical and science literacy, but also in problem solving and financial literacy. One of the causes seems to be the quality of teacher education and training. The pre-gradual teachers' curriculum has not changed since the 1990s and does not reflect the demands for new developmental needs. The aim of the paper is to analyse the legislative intentions in the field of teacher education and training, the curriculum, and the results of research in the field of personal and self-developmental competences of student-teachers. The paper presents qualitative content analysis of curriculum documents of teachers' study programmes and the analysis of the results of nationwide questionnaire among university students. Our data analysis is focused only on student-teachers. Quantitative research has been conducted as an online survey focused on student reflection of content and forms of teaching. Analysed items contain a spectrum of 22 competences. We describe personal and self-developmental characteristics of student-teachers in detail. The results of the analysis indicate that the student-teachers' education and training is focused on subject knowledge, pedagogy and psychology. The smallest proportion of respondents reported development in the area of self-knowledge, motivation, learning to learn, work in the field, teamwork and collaboration, critical thinking and the ability to discuss. Students also reported little support for the development of ethical behaviour. The content analysis of curricular documents confirms the views of student-teachers. Findings confirm indirectly other online survey items (teaching methods), which indicate predominantly lecture, little teamwork, and project work linking to practice. The findings from the analyses are in line with previous research knowledge in ITEL/OECD survey. This research has shown a low level of pedagogical knowledge not only of student-teachers, but also in-service teachers and teacher educators. As problematic are self-developmental characteristics but also level of methodology of teaching. Several researches carried out in Slovakia, but also in international comparisons, point to widespread problems in the preparation of future teachers. Teacher education and training in Slovakia does not reflect enough the needs and time requirements; transversal competences are not developed sufficiently and it has no potential to contribute to positive change in education. Based on previous analysis research team propose changes in pre-gradual teacher education and training.

Michael **FULLARD**
University of Birmingham, UK

Teachers' standards in the UK: The need to engage with character education

Education policy in the UK has recently reflected an increased commitment to the wider goals of education specifically in regards to the character development of children. The indication that schools should seek to develop character in their pupils is not surprising as providing a holistic education is the longstanding aim of education; however, recent findings suggest that teachers are not being adequately prepared to meet the moral demands of their roles. This paper argues that in order to address the gap between policy and practice, the UK's Teachers' Standards, should seek to develop the moral agency of teachers. More specifically, it should explicitly address the development of both the character development of the teacher, as a professional, and the character development of the pupil. The suggested changes to the Teachers' Standards would help to ensure that teacher training programmes, such as university-based Initial Teacher Education, provide teachers with opportunities and experiences which enable them to not only develop the character of their pupils but equip them to better tackle the ethical and moral dimensions of teaching. This paper presents findings from an ongoing UK research project: Teacher Education: Character, ethics and the professional development of pre- and in-service teachers, which aims to facilitate the advancement of character education in university-led teacher training programmes and to inform future in-service teacher training and development. The findings presented further demonstrate the need for character development to be emphasised within the Teachers' Standards. To date, 389 pre-service teachers from two UK universities have participated in the research project. Data was collected before and after the completion of a reflective journal activity and a workshop lecture based on character education. Surveys and semi-structured interviews were conducted which centred on perceptions and experiences of reflective practice and character education. The main findings from the surveys indicate that the overwhelming majority of student teachers consider character to be very important or important in the development of their own professional development, and the development of a pupil's character is considered very important or important in relation to their academic attainment yet less than a quarter of student teachers felt prepared to develop the character of pupils in their classrooms. This paper will also discuss the next phase of the research project, data collected from 500+ in-service teachers and will provide analysis of their perceptions and experiences of character education. The findings presented in this paper provide further evidence that Teachers' Standards, within the UK, must engage explicitly and more actively with character education.

Aristea **FYSSA**¹ & Athanasios **KOUTSOKLENIS**²¹ Frederick University, Cyprus² Democritus University of Thrace, Greece*Mapping the policy framework for becoming a special education teacher in Greece*

The primary purpose of this presentation is to craft the mosaic, or in other words, map a policy framework for understanding the pathways for becoming a special education teacher (SET) within the Greek educational system. Greece is an interesting arena for several reasons. Based on the available teacher qualification policies for SETs published by the State, teachers may enter the field of special education by holding an undergraduate degree either in special education or in general education. In respect to an undergraduate degree in general education, prospective SETs may have also completed a 400-hour course in special education offered by various university programmes or a master's or a PhD in special education as well as educational psychology. There are also cases of experienced general education teachers who have attended a two-year in-service training programme in special education. Therefore, the beginning SETs may start their career with no teaching experience at all or with teaching experience in mainstream settings. Except of the diverse educational backgrounds and working experiences of the beginning SETs, a deeper analysis would reflect that SETs form three occupational groups in Greece. In particular, following a recent national re-organisation of school resources, there are: special educational needs coordinators (SENCOs) located within the Regional Centres for Educational Planning (PEKES) of the country which are responsible for planning and evaluating educational work across schools as well as organising professional development opportunities for teachers; special education teachers who participate in the national processes of screening, assessment and designing individualised supports for pupils with disabilities (Centres of Educational and Counselling Support - KESY); and special education teachers with their occupational roles varied depending on their placement in mainstream (pull-out programmes and in-class support) or segregated forms of education (special school, hospital school and home schooling). Such diversities illustrate that SETs' work arena is a challenging environment. Those challenges will be further discussed in relation to the interpretation of 'teaching students with special educational needs' as offered through the official websites of the related University courses (graduate and post-graduate); the available professional development practices for SETs; and national policies. Subsequently, we will endeavour to frame the rise of the teacher education programmes in light of the existing (if any) national standard, that lead in accreditation for SETs within the wider socio-economic context. Finally, we will reflect on tensions that arise among SETs with different training backgrounds and qualifications in relation to their participation in the labour market.

Simone **GALEA**¹ & Tania **BORG**¹ University of Malta, Malta² Malta College of Arts, Science and Technology, Malta*Mentoring as a technology of the teacher's self*

In recent years, discourses of teacher professional development have flourished mostly through the idea of lifelong learning. Grounded in the belief that learning is the most desired effect of education and that it generates fair opportunities towards equitable outcomes for or all, education has become increasingly conflated with learning. Teachers' professional development has also become complexly captured within the social discursive regimes of learning, not only because of the social constructed need for teachers to learn new things within a rapidly growing information society but also to ensure that they are well equipped to help students achieve the desired learning outcomes. This paper presents technologies of the self (Foucault, 1988) as alternatives to the more familiar and established methods of teachers' self-development that mimic the very same teaching learning dynamics they are involved in with their students. Foucault describes technologies of the self as "an exercise of self upon the self by which one attempts to develop and transform oneself, and to attain a certain mode of being." (Foucault, 1997: 282). These practices indicate that there is more to the education of teachers than the carefully planned courses that channel teachers towards the milestones of professionalism. These form part of a controlling mechanism that determines what teachers should need to learn and be able to do. As Foucault's later works indicate technologies of the self are practices of freedom, self-creative acts that resist the very plays of power that subject human into conformity. Teachers' practices of the care of the self, therefore are not acts of protection from the coercive and disciplinary mechanisms that objectify them. They are acts of freedom and courage that expose teachers to the world, challenging the very regimes of professional development that sentence them to learning for life (Mc William, 2002). In conjunction with a detailed theoretical explanation of the philosophical, political and ethical tenets of the ontological aspects of the technologies of the self as described above, the paper will draw on research conducted with women teachers about their own practices of the care of the self. It will describe one participant's relation with her mentor and the exercise of parrhesia (Flynn 1987, Peters 2003) to argue that and explain how mentoring as a technology of the self, can go beyond the idea of self-development within existing teacher education and teacher development programmes.

Suzanne **GATT**¹ & Naomi **ATTARD BORG**²¹ University of Malta, Malta² Directorate for Education Services, Malta*Implications to teacher training in supporting students' learning in how to 'talk science' while talking about science*

Learning science is not possible without learning the technical language and specific mode of expression used in science i.e. 'talking science'. In countries like Malta, where the official policy for learning and assessing Physics is English rather than Maltese, students find themselves learning the subject in their second language. Limited proficiency in the language of instruction, and thus in the language of science, may be 'a major barrier (if not the major barrier) to most pupils learning science' (Wellington and Osborne, 2001, p.66). Inquiry-based learning is the main pedagogical approach advocated to support students' understanding of Physics concepts. An inquiry-based approach to learning science is based on the social construction of knowledge which requires students to discuss and express their opinions as part of the meaning-making process. This raises concerns on whether or not students are to be allowed to discuss in the language they feel most comfortable in (English or Maltese) or else encouraged to 'talk science' (in English) while still in the process of developing conceptual understanding. This paper presents the experience of one teacher carrying out action research with her own class in the teaching of Physics. The main research question focuses on whether there is a relationship between the language used in the classroom during inquiry and the students' understanding of Physics concepts and in how they develop their proficiency in talking about scientific ideas. Two inquiry-based lessons were developed and implemented with fifteen year-old students in their fourth year of secondary school and in their second year of learning Physics. The intention of these two lessons was to obtain insights in the students' use of language during inquiry which promotes reflection, and how the teacher could promote conceptual understanding alongside improved proficiency in 'talking science' through scaffolding the learning process during group work. The lessons were audio-taped and the teacher kept field notes. Students were also interviewed after the lessons. The analysis of data showed that students tended to switch from one language to another at different points in the lesson. The students tended to use the Maltese language, the one they felt more comfortable in, when expressing themselves, as they struggled to make sense of the Physical phenomena they were investigating. However, there was a tendency to switch to English when talking about specific Physics concepts as they were more familiar with the scientific technical language in English. Students were also aware when they were expected to officially talk 'Physics'. The insights and implications to teaching raised in this study are discussed from the perspective of teacher training. Teacher training needs to tackle the language issue in the case of students learning Physics in their second language such that teachers are sensitive to potential learning barriers which may result due to not being proficient in the language of instruction, and to learn how to allow flexible language use during the process of conceptual understanding while also taking on the responsibility of supporting students to learn how to 'talk science'.

Feyyat GÖKÇE
Bursa Uludağ University, Turkey

Teachers' perception of change

This study aims to reveal teachers' perceptions on changes in schools. 453 teachers working at primary schools, secondary schools and high schools in Bursa province are included in the study. A five-point Likert scale was developed by the researcher and used for the aims of the study. The validity and reliability measures confirmed that the scale is valid and reliable at acceptable levels. According to the findings of the study, the mean of the teachers' willingness to change is $X=4.108$, the mean of their behaviour against change is $X=2.483$ and the mean of their views on organizational structure and function affecting change is $X=3.503$. The analysis results showed that there is no significant difference in teachers' willingness to change according to their sex, level of education, school type, branch, being a teacher or an administrator, age, level of income and attending a course or seminar about change or not. There is also no significant difference in teachers' perception of resistance toward change according to the personal characteristics mentioned above, with the exception of branch variable. It is seen that teachers' perception of resistance toward change varies depending on branch at a significance level of $P=.008$. On the other hand, it is determined that there is a significant negative correlation with a coefficient of $r=-.265$ between teachers' perception of willingness to change and their perception of resistance toward change. Further analysis showed that there is a significant positive correlation with a coefficient of $r=.116$ between teachers' perception of resistance toward change, and organizational structure and functioning. According to the findings of the research, it can be said that teachers have increased willingness to change and low resistance toward change. Additionally, the more willing teachers are to change, the less resistant they are toward change. On the other hand, it is seen that teachers' perception of resistance is directly related to the organizational structure, functioning and resources of the schools they work at. Based on all these results, it can be said that teachers can be more willing toward changes in schools if they are provided with better structure, functioning and resources at educational institutions.

Feyyat **GÖKÇE** & Gizem **GÜNÇAVDI**
Bursa Uludağ University, Turkey

The effect of family on students' success and teachers' professional development

The aim of this study is to examine the effect of the family on students' success and on teachers' professional development in the primary school according to teachers' views. We know that there are factors that increase students' academic success. Family-related factors were found as attitudes and behaviours of parents, parents' participation in education, parents' educational status and socio-economic level of the family. It is believed that the effect of family is dominant in primary school ages because of developmental characteristics. The effect of family on students' success is believed to affect teachers' professional development as well, since the impact on schools by family and other stakeholders is important for teachers' development. It is believed that professional development can occur not only with in-service training, but also through factors related to the various aspects of the students' family background. Answers to the following research questions were sought:

- 1) How do demographic features of family affect students' academic success?
- 2) How does socio-economic level of family affect students' academic success?
- 3) How does the value given to students affect students' academic success?
- 4) How does interaction in family affect students' academic success?
- 5) How does parents' participation in education affect students' academic success?
- 6) How does parents' encouragement about cultural activities and sports affect students' academic success?
- 7) How does parents' engagement in the teaching and learning process affect teachers' professional development?

The research design of this study is a qualitative one. Participants consist of 29 primary school teachers who work at public and private schools in Bursa province, Turkey. Data were collected through a questionnaire with 6 open-ended questions included two parts. In the first part, the demographic information about students whom teachers evaluate was included. In the second part, 6 questions related to research questions were included.

The data were analysed through content analysis. At the end of the analysis, 6 themes were found out. These themes are: the effect of demographic features of family, the effect of socio-economic level of family, the effect of respect to students in family, the effect of interaction in family, the effect of parents' participation in education, the effect of parents' encouragement about cultural activities and sports.

For the first theme, teachers mentioned that students in a crowded family or who have divorced parents are usually less successful. Also, teachers underlined that students from family with low socio-economic level are less successful. Moreover, if students are respected, they are more successful according to teachers. Teachers also stated that students can be more successful if they have strong communication with parents. Teachers said that students feel supported and become successful if their parents participate in the education process. Lastly, teachers believed that if students attended cultural activities or sports, their academic success increase accordingly with the increase of cognitive skills. All of these factors are believed to support professional development of teachers according to their views.

Yoshiko **HANBARA** & Pauline Anne Therese **MANGULABNAN**
University of Fukui, Japan

Designing models for international collaborative inquiry through reflective practice records: Case of a Bhutanese science teacher trainee's learning programme in Fukui, Japan

Globalization is challenging higher education institutions' protocols and programmes to accommodate and maximize the flux of human resources — and Japanese universities (including the University of Fukui) are no exception. To address this demand, the University of Fukui (UF) has been designing models to support collaborative inquiry among its local and international students, researchers and professors in various international cooperation programmes and agreements. The Department of Professional Development of Teachers (DPDT) annually accepts teacher training students from different countries under the Japanese Government (MEXT) Scholarship Programme. This programme is intended for international teachers who wish to conduct research in Japanese schools; furthermore, each university is autonomous in creating suitable programmes for its accepted students. With its commitment to cultivate professional learning communities (Wenger, 2002) and build reflective institutions (Schon, 1983, 1987) to foster future-ready teachers, DPDT unceasingly re-shapes its collaborative inquiry design (Matsuki et al, 1999) to incorporate its international projects. Furthermore, foreign trainees and students are also collaborating with DPDT's partner schools, DPDT-JICA Knowledge Co-Creation, etc. creating a mutual capacity building system. This qualitative ethnographic study focuses on the case of a Bhutanese Science teacher trainee scholar's learning journey in DPDT as narrated in his final written reflective practice records (RPR). The analysis of the RPR (and his learning process) was triangulated with the actual interaction field notes, discussions, etc. between the researchers and the Bhutanese teacher taken during the one and half year programme in Japan. Hence, the first part tackles the conceptual design of international collaborative inquiry, followed by the learning story and process of the Bhutanese Science teacher, and the researchers' proposal for the design for international collaborative inquiry model. In the RPR, the teacher recounted his practices in his home country, described classes observed and different educational experiences in partner schools and the university, detailed the long span learning process of students and teachers of the schools visited, inquired about student inquiry and reflection process, among others and related all these back to his own identity as a teacher. The reflection in the RPR also included his future plans of cultivating communities of practice and utilizing collaborative inquiry in his respective school in Bhutan. An essential part of the analysis is inquiring into the learning systems behind the whole process of international collaborative inquiry which also impacted on the writing and final results of the RPR. The learning process and writing of RPR of the Bhutanese teacher is a pioneering challenge for DPDT which is advocated as an alternate practice-based research for developing teacher's competence and professional capital. Hence, the conclusion of this research proposes a reconstructive model for international collaborative inquiry in the university through RPR writing.

Domna **KAKANA**¹, Styliani **GIDARI**¹, Christina **ROUSSI-VERGOU**² & Maria-Rafaela **TZIOUVARA**³

¹ Aristotle University of Thessaloniki, Greece

² University of Thessaly, Greece

³ Hellenic Open University, Greece

Exploration of Greek kindergarten teachers' beliefs and practices regarding developmentally appropriate practice

Research findings show that high-quality early childhood education and developmentally appropriate programmes promote long-lasting positive outcomes on children's learning and development, and can predict academic success and adjustment to school environment. Over the last decades, the Developmentally Appropriate Practice has been identified as the foundation of the optimal practices for preschool education. These practices tend to influence preschool programmes worldwide and research supports their positive impact on children's overall development and academic performances. Early childhood teachers are the key to the implementation of developmentally appropriate approaches in preschool education. Their beliefs about children and learning act as the 'filter' through which teachers manage their classrooms, evaluate their students' development and learning, and adapt their decisions and teaching practices. The exploration of teachers' beliefs and practices is very important in order to understand and improve the teaching procedures and to enhance the quality of such programmes. The aim of the current study is to examine Greek in-service early childhood education teachers' beliefs regarding Developmentally Appropriate Practice, as stated by NAEYC (Bredekamp & Copple, 1997) and how these beliefs affect the practices implemented in their classrooms. A total of 203 teachers working in Greek public Kindergartens participated in the study. Teachers completed the Teachers' Beliefs and Practices Survey 3-5 year olds (Kim, 2005) (in online and pen-and-pencil version). The questionnaire's structure is theoretically based upon the NAEYC guidelines concerning the Developmentally Appropriate Practice in early childhood education teaching and learning, and consists of three parts. The first part includes a teacher demographic questionnaire. The second part consisted of the Developmentally Appropriate Practices Principle Beliefs (DAPPB) and the Developmentally Inappropriate Practices Principle Beliefs (DIPPB). The third part includes the Developmentally Appropriate Practice Activities (DAPA) and Developmentally Inappropriate Practice Activities (DIPA). According to data analysis, teachers systematically scored very low in developmentally inappropriate beliefs and practices, and relatively high in appropriate beliefs and practices, showing a systematic consistency between beliefs and practices. Correlation analysis with age and years of in-service experience, showed that the more experienced teachers hold more developmentally appropriate beliefs. No other significant correlations were found. Our findings may contribute in better understanding of early childhood education teachers' beliefs and the way these affect their teaching practices. This information may be exploited by teachers' education programmes or by professional development programmes for in-service teachers, in order to target the development and growth of specific beliefs that connect to desirable behaviours and teaching practices on behalf of the teachers.

Gamze **KARBI**
Middle East Technical University, Turkey

A blended approach to in-service teacher training: Promises and perils

This study presents an in-service teacher training model for teachers of German in a blended learning format. The 11-week DLL course (Deutsch lehren lernen) was offered to Turkish German teachers by the Goethe-Institute Ankara. I have tutored this online course and would like to present the in-service teacher training concept and share my experiences from the tutor's perspective. The course consists of two face-to-face meetings at the beginning and at the end of the course, as well as an online live session via Adobe Connect during the course. The training offered the combination of theoretical components and coordinated practical sessions. The DLL-Course for German language teachers uses methods from action-oriented classroom-based research and teacher-observation studies to provide teachers with the best possible, practical training. This means that in addition to gaining new pedagogical knowledge during training and continuing education programmes, teachers are also continuously encouraged to observe their own and other teachers' lessons and to identify and try out new methods in the classroom. This allows for research-based and reflective experiential learning to complement the acquisition of theoretical knowledge. The online course includes three specific components to be discussed in detail:

- Lesson videos: A collection of video recordings from actual lessons helped the teachers gain authentic insight into teaching and learning processes. The video recordings from real German language classrooms on three continents with different target groups are an important part of the training. These classroom documentaries are not meant to be considered best practice models, but instead are intended to facilitate reflection about lessons in a general context.
- Exchange with colleagues and tutor on the learning platform Moodle: The exchange allowed the course participants to deal with the course content in detail, to learn from the others and to motivate each other. Another advantage was the opportunity for networking with participants from the region.
- A research done by the teachers: During the course the teachers explored their lessons. "Practical Exploration Projects" (Praxiserkundungsprojekte - PEP) make it possible for teachers to observe, evaluate, and possibly make changes to their lessons while taking their specific context and limited time and energy resources into account. In a group of two to three people and under professional guidance, the teachers are given the opportunity to share their experiences in person, broaden their possibilities for taking action, and gain new and interesting insight into various situations in the classroom.

Beata **KARPIŃSKA-MUSIAL**
University of Gdansk, Poland

Functional job analysis in higher education: Can Human Resource Management assure quality academic teaching and research?

The contemporary neoliberal turn in Higher Education enforces specific narratives in research, but also specific practices within institutional life of a university in Europe. The highest quality of scientific research and quality teaching have usually been, in every historical epoch and in every country, highly respected academic values and priorities. Nowadays, what has become equally important, are administrative and organizational practices related more to credentialism, massification and marketisation of education. The proposed paper will pose a thesis that although the neoliberal approach to education has as many opponents as advocates, especially among representatives of humanities and social sciences, it can equally well lead to quality education and research achievements. Moreover, it can turn out to be more successful from a traditional, liberal (libertarian?) approach. The author contends that especially Human Resource Management components have a potential to restructure the functioning of the university as an institution in favour of the above mentioned criteria. Particular attention is paid to Functional Job Analysis (cf. Kleiman, 1997)) and elements of Ability Requirements Approach, which require a very consistent and structured diagnostic and training-oriented actions taken by the university rectors, deans and other heads to assure the professional development of academic teachers and researchers. The paper will present some proposals of how these concepts of practice (highly neglected or non-existent in practice so far) can be transposed from the scientific field of management into the field of education and professional development in the academic profession. The proposed discussion will offer two perspectives: one referring to the qualified teachers and their career paths at the university; another referring to teachers-to-be, students who prepare to become teachers of a foreign language (due to the author's specialization). This part will discuss the option of academic tutoring as space for students to develop and self-manage with the help of qualified tutors. In both options it is the development of teachers' didactic and research skills, as well as social attitudes that are a case in point. It is claimed that they are crucial for academic achievements of individual academics, which in turn helps the institution to become a learning organisation. Finally, results of a short empirical research will be presented, in which qualified teachers and trainee teachers express their opinions as to the ways professional development can be improved thanks to some HR strategies and approaches. Presented research is based on an anonymous online questionnaire distributed to target groups of Polish teachers and students, with some key variables included (such as research discipline, age, gender and type of a HE institution). The presented research has a diagnostic, optimizing character and analyses respondents' opinions rather than processes hard experimental data. Results are presented graphically and should verify the thesis that HR strategies, such as 1) needs assessment process (organization, task and person), 2) strategic training and development strategies, and 3) training design process – are very effective and helpful in raising teaching and research standards at a university. The research will be finalized in May and June 2019.

Lisa **KASMER** & Reva **McDOWEL**
Grand Valley State University, USA

Resources used by teachers to inform instruction

The decisions that teachers make as they plan and enact instruction hold considerable implications for their students' opportunity to learn. In their role, teachers make a number of instructional decisions that shape the overall implementation of the lesson. These decisions are guided by a number of influences, ranging from the teacher's beliefs regarding teaching and learning and their own knowledge to the resources that teachers have at their disposal, such as their school-adopted textbook and the standards that influence the content of their lessons. But what guides teachers when these resources offer multiple approaches to address certain mathematical ideas? Schoenfeld (2015) describes resources as the available assets (intellectual, material and social) that teachers draw on during planning and teaching. Resources are one factor that assist teachers in providing detail into all the decisions they make when planning and implementing their lessons. Researchers at four institutions situated across the United States, as part of a National Science Foundation funded project, are examining the decisions of grade 8 mathematics teachers as they plan and teach geometric transformations. In this paper, we share results from our study to answer the following research questions: What resources are teachers utilizing as they make curricular decisions? What reasons do teachers provide for their choice of resources? Eight teachers were provided the USCMP geometry curriculum (Benson et al., 2009) to plan and guide their lessons. They were instructed to use these materials as they saw fit along with any other supplementary materials they needed to teach a unit on geometric transformations. Each teacher participated in a lesson cycle consisting of a pre-interview prior to the lesson being taught, an observation of the taught lesson, and a post-interview after the lesson. Teachers participated in 3-7 lesson cycles depending on the number of lessons they taught in the unit. After data collection, each interview was coded and analysed for different aspects of curricular reasoning. For the purpose of this paper, we report on resources, as described above. Resources are one factor that teachers draw upon as they make and enact instructional decisions in their mathematics classroom (Schoenfeld, 2015). For example, one teacher was given USCMP to guide her instruction. She found that her students were struggling and that guided her decision to use her school curriculum instead: Connected Mathematics Project. In this resource, she found a discovery activity that she believed allowed students to notice and connect multiple properties of transformations. Another example explains the absence of resources. For example, this teacher explained how before using the UCSMP materials, she had never understood the orientation of a figure and why it was important for students to understand. The teacher decided to not teach the concept of the orientation of a figure, reasoning that if she did not understand it, she would struggle in teaching this idea to her students. Therefore, the teacher's absence of knowledge about the orientation of a figure influenced her decision to not teach specific content to her students. We also found that teachers often relied on other teachers in their school, the school assessment, their prior experience and knowledge, or the adopted standards as resources. The resources teachers draw upon, and their reasoning behind utilising these resources is an important paradigm to consider in both pre-service and in-service teacher education/professional development. Understanding the rationale teachers use can inform teacher educators to support teachers' awareness and development of their reasoning of why they make the decisions they do with regards to the resources they use to plan and implement their lessons.

Ceyhun KAVRAYICI
Anadolu University, Turkey

Communication skills and classroom management: The mediating role of problem solving skills

Changes in social structures have made some skills such as communication, entrepreneurship, using information technologies, productivity, etc. compulsory. Recent developments in mass media have caused obligatory changes on communication skills. Today, social structures need individuals whose entrepreneurship and communication skills are strong. Those skills are really important in teacher education, and communication skills of pre-service teachers are correlated with their expertise in managing classroom and problem solving skills. Teaching problem solving to pre-service teachers could improve their skills on managing undesirable behaviours in the process of classroom setting (Farres, 2004). Classroom management is commonly believed to be the key to the success of instruction. This success could be achieved with effective communication and sufficient problem solving skills (Ragawanti, 2015). So, based on the literature, I hypothesize that problem-solving skills may play a mediator role on the relationship between communication skills and classroom management. In other words, it was expected that those who reported a high level of communication skills would report a better ability at classroom management, and problem solving skills would thus exert a mediator effect on the impact of communication skills on classroom management. This study was designed as correlational survey research in quantitative research paradigm. Participants of this study were 432 pre-service teachers who were studying at one of the universities in central Anatolia region of Turkey. Of the participants, 297 (68.8%) were female and 135 (31.3%) were male. The mean age of the participants was 20.99 (SD = 1.76) with a range of 18–34. Of the participants, 87 (20.1%) were freshmen, 117 (27.1%) were sophomores, 79 (18.3%) were juniors, and 149 (34.5%) were seniors. The data collection tools applied were as follows. The Communication Skills Scale: The scale developed by Korkut–Owen and Bugay (2014) includes 25 items and each item of the scale is rated on a 1 to 5-point rating scale in which 1 indicates strongly disagree and 5 strongly agree. The total score can range from 25 to 125, with the higher score indicating higher communication skills level. The Problem Solving Inventory: The inventory developed by Heppner and Petersen (1982), and adapted to Turkish by (Şahin, Şahin and Heppner 1993) includes 35 items and each item of the scale is rated on a 1 to 6 point rating scale in which 1 indicates strongly disagree and 6 strongly agree. The total score can range from 35 to 210, with the higher score indicating higher communication skills level. Internal consistency coefficient of the scale was found as $\alpha = .89$ (Heppner and Petersen, 1982). The Classroom Management Scale: The scale developed by Gökyer and Özer (2014) includes 16 items and each item of the scale is rated on a 1 to 5-point rating scale in which 1 indicates strongly disagree and 5 strongly agree. The total score can range from 25 to 125, with the higher score indicating higher classroom management skills level. Internal consistency coefficient of the scale was found as $\alpha = .93$ (Gökyer and Özer, 2014). Before examining the combined and separate predictive power of communication skills and problem solving skills on classroom management, the three variables were analysed. The results show that all three variables have a meaningful relationship ($p < 0.01$). After the analysis, which was used to detect simple mediation effects, it was found that there was a full mediation in the model. The indirect effect of communication skills on classroom management mediated by problem solving skills was significant.

Ceyhun **KAVRAYICI**
Anadolu University, Turkey

Linking self-efficacy to possible selves: The mediating role of teacher identity

Recent studies suggest that the development of a professional identity promotes a teacher's educational philosophy (Mockler, 2011), decision-making (Beijaard, Meijer, & Verloop, 2004), well-being, and effectiveness (Sammons et al., 2007). Teacher identity can also be regarded as an answer to the question "Who am I now?" Likewise, Sachs (2001) underlines that thinking about what kind of a teacher they want to be in the future is essential for teacher candidates with respect to development of their professional identities. In this regard, Possible Selves Theory may very well provide a crucial theoretical ground for future research since it focuses on future selves (Hamman et al. 2013). So it would be easy to claim that teacher identity is also highly related with self-efficacy and possible selves of pre-service teachers. Based on previous literature, a hypothetical model was proposed in this study. Based on the model, (a) whether self-efficacy and professional identity can predict possible selves as separate variables, and (b) whether professional identity have a role as a mediator between self-efficacy and possible selves, were investigated. This study was designed as correlational survey research in a quantitative research paradigm. Participants of this study were 516 pre-service teachers who were studying at one of the universities in central Anatolia region of Turkey. Of the participants, 360 (68.8%) were female and 150 (29.1%) were male. 6 (1.2%) of the participants didn't state their gender. The mean age of the participants was 21.04 (SD = 2.07) with a range of 18–45. Of the participants, 67 (13%) were freshmen, 178 (34.5%) were sophomores, 160 (31%) were juniors, and 102 (19.8%) were seniors. 9 (1.7%) of the participants didn't state their class level. Various data collection tools were used. The Teacher's Sense of Efficacy Scale: "Teacher's Sense of Efficacy Scale" developed by Tschannen-Moran and Hoy (2001) and adapted to Turkish language by Capa et al. (2005). The scale is a nine-point Likert type scale including 24 items, in which 1 indicates inefficient, 9 indicates highly efficient. The Teacher Identity Scale: The scale developed by Friesen and Besley (2013) and adapted to Turkish by (Arpacı and Bardakçı 2015), includes 17 items and each item of the scale is rated on a 1 to 5 point rating scale in which 1 indicates strongly disagree and 5 strongly agree. The total score can range from 17 to 85, with the higher score indicating higher pre-service teacher identity. The New Teacher Possible Selves Questionnaire: The questionnaire developed by Hamman, Wang and Burley (2013) and adapted to Turkish by Tatlı-Dalioğlu (2016) comprises of two different scales entitled "Expected Teacher Possible Selves Scale" and "Feared Teacher Possible Selves Scale." The Expected Teacher Possible Selves Scale includes nine items with two factors (first one, professionalism; second one, learning to teach): The Feared Teacher Possible Selves Scale includes another nine items with three factors (first one, uninspired instruction; second one, loss of control; and third one, uncaring teacher).

Before examining the combined and separate predictive power of self-efficacy and teacher identity on expected possible selves and feared possible selves, the four variables were analysed. The results show that all of the four variables have a meaningful relationship ($p < 0.01$). After the analysis, it was found that in the first model there was partial mediation. The indirect effect of self-efficacy on expected possible selves mediated by teacher identity was significant and proved partial mediation. However, in the second structural model there was full mediation. The indirect effect of self-efficacy on feared possible selves mediated by teacher identity was significant.

Ali Ulus **KIMAV**
Anadolu University, Turkey

Experiences of a professional development programme designer

Today, many teachers participate in professional development activities about the integration of information and communication technologies and web tools into their courses as a requirement of their profession, changing working conditions and expectations at international and national level. These professional development activities can be in online or blended environments, as well as in the form of opportunities teachers create on their own or participating in programmes prepared in or outside the institution they work for. When the literature about curriculum and professional development programme design is reviewed in the context of the preparation of the training programmes for teachers, it is seen that it is composed mainly of programme development models and the steps to be taken when they are used. Moreover, the literature review also mentions people and experts who take part in designing and developing a training programme, although these are mentioned less frequently. However, the literature review does not seem to refer to the experiences that a programme designer may acquire during the process of curriculum or programme design that can guide other researchers in designing or developing a curriculum or a professional development programme. Based on this gap in the literature, this study aims to share and discuss the experiences of the researcher as a curriculum designer in the context of the problems he faced while designing, testing and developing a professional development programme for integrating web 2.0 tools into English language courses in an intensive English language programme at a state university in Turkey. This study was designed using auto-ethnography and the researcher had a full participatory role to establish a close relationship with the 12 participants of the professional development programme. The researcher aimed to conduct this study in a training environment as natural as possible in order to test the correctness of the decisions and measures he took during the design and testing of the programme. The data obtained from the needs analysis, researcher's notes, documents produced by the participants, videos of the face-to-face sessions and in-class practices of the participants were analysed descriptively using document analysis. The data from the semi-structured interviews with the participants before and after the programme were used to support the researcher's findings. The ongoing results of the data analysis suggest that having a sound theoretical background to the programme and working with experts in the field will help design an effective and successful programme. Additionally, the results also suggest that the researcher had difficulty in preparing a content relevant to the outcomes of the programme and expectations of the participants, and planning learning and teaching activities. Moreover, the researcher sometimes trusted his experience, gained through his work with his colleagues, rather than what the literature suggests. Thus, the researcher hopes the results of the study will contribute to the literature related to the professional development programme design from the view of a curriculum designer.

Penelope J. **LISTER**
University of Malta, Malta

Future-present learning and teaching: A case study in Smart Learning

This paper concerns how smart learning is perceived by future educators, for relevance to their own practice and how they engage with it as a concept. I discuss the experiences of students studying education degrees in relation to smart learning and smart learning environments in the context of their participation in 'Malta Democracy', a smart learning journey situated in Valletta, Malta. Examining teaching approaches to introduce the topic, and the individual and collective experiences garnered from interviews conducted with some of those who participated in the smart learning journey, emerging observations are made. Phenomenographic methods are employed for interview analysis to discover categories of experience variation for participation in a smart learning journey, and how these contribute to developing a pedagogical structure of relevance for smart learning. The smart learning journey that students participated in forms part of ongoing University of Malta doctoral research investigating smart learning activities conceptualised as real world journeys. These journeys manifest as smart learning environments in authentic locations using ad-hoc free mobile apps and online open source digital knowledge content. Considering connectivist inspired learning activities as most relevant to this type of learning (Lister, 2018, p. 3), emphasis is placed on autonomous, creative, participatory and collaborative learning rather than specific learning designs. This permits the hybrid (Gros, 2016) permanent beta (Garnett & Ecclesfield, 2011, p. 13) of these learning scenarios to embrace the flexibility associated with a post web 2.0 (ibid, p. 13, Cochrane & Antonczak, 2014) data society. Smart learning in these ad-hoc technologically enhanced 'smart enough' (Green, 2019) environments offers a future-present (Husman & Lens, 1999) mechanism by which learning can be supported and encouraged in today's growing culture of learning cities, as part of initiatives such as the UNESCO Sustainable Development Goal 4 (SDG4), to "promote lifelong learning opportunities for all". This work is conceptualised as additionally situated within a context of the European Commission 2018 DigComp 2.1, The Digital Competence Framework for Citizens.

Li MA

Stockholm University, Sweden

History of mathematics in special teacher education

History of mathematics can be integrated into special teacher education to various degrees in different ways. In a project, special teacher trainers, students, and in-service teachers work together to develop reading texts that aim at facilitating pupils with special needs to learn mathematics. We present an example of using historical sources from ancient Egypt to address area related geometrical concepts with stories and cartoons. The pupils got fascinated, and achieved better understanding of related mathematical concepts, and found alternative methods for area calculation of various figures. Diverse issues in mathematics special teacher education will be discussed.

Miriam **MAGRO**
University of Malta, Malta

The impact of globalisation in Malta: Challenges and innovations for teacher education in the 21st century

Globalisation has radically transformed the world in every area. Few would deny that processes of globalisation have influenced education around the world in many important ways. Education plays a pivotal role in the era of globalisation by shaping society and determining the quality of life of its citizens. Globalisation is also affecting teacher education. Despite the various manifestations of globalisation in our lives, examinations of teacher education policies and practices in the context of globalisation remain relatively uncommon (exceptions include Rodriguez and Tillman, 2008; and Blomeke and Ayadora 2016). To address this gap, I propose to discuss how the movement of people, ideas and policy-makers have positioned local teacher education at the intersection of global forces. As a term, 'globalisation' captures the growing sense of the world becoming more interconnected than in the past. It refers to the integration of the economies and societies through international flows of information, ideas, technologies, goods, capital, finance and people. The result is an intersection of knowledge between nations, regions and ethnicities.

There are many ways to look at the relationship between globalisation and education. Scholars often look at global convergence around educational policies, practices and values in the early 21st century. However, educational conjunctions are not that straightforward in practice, as cultural differences across social contexts will produce unique effects, depending on the country's economic position, values, perspective and priorities. It is therefore crucial to understand how dynamic global intersections of people, values and ideas have positioned teacher education locally. Using qualitative modes of enquiry, I will first discuss what constitutes globalisation and why it has become relevant to teacher education in Malta. I will then explore the movement of ideas and people by discussing three prominent features: (1) the implications of migration on teacher education, and the challenges it poses to educators locally; (2) the effect of globally-circulated ideas about teacher education and teaching; and (3) the consequences of closer connections between globalised networks and policy-makers engaged in reforming teacher education. The discussion concludes with a critical consideration of new strategies that can be employed in teacher education. The findings of this study show that there is a particular need for the promotion of new forms of teaching to prepare teachers to deal with increasing diversity in classrooms, as a response to the rise of migration to Malta. They also reveal the need to standardise teacher education policies, as envisioned by the National Curriculum Framework of 2012. Finally, they reveal the expansion of international assessments based on learning outcomes initiated by the Framework for the Education Strategy for Malta 2014-2024. There is also the need for continuous consultation between educators, teachers and policy-makers to enhance teachers' professional development. This has given rise, for example, to the recent Community of Professional Educators (COPE) sectoral agreement, requiring every school teacher to follow a forty-hour training programme each year, as a means of gaining new teaching strategies and insights in line with today's global trends in education.

Pauline Anne Therese **MANGULABNAN** & Takuo **NISHIMURA**
Nara Women's University, Japan

Interpreting lived experiences through reflective practice records: Case study of in-service documented teacher reflection

Dewey (1938) described education as the quality of experiences attained through conscious construction of meaning towards lived experiences. Schon (1987) and Argyris (1993) added that reflection is deepened and professional repertoire is accumulated as a practitioner iteratively considers underlying principles and assumptions, and connects it to the obtained results of the actions. In the classroom, teachers go through different forms of reflection in and on action to maximize learning. However, not all of these actions and reflections are documented; so they would remain tacit and rarely consciously transmitted. Reflective Practice Records (RPR) are practices that resulted from a longitudinal collaborative inquiry about students and learning (Mangulabnan, 2017) as supported by a community of practice in schools. The RPR model used in this study is patterned after the community of inquiry and RPR writing of a Japanese school and has learning design, learning story, and reflection as its main parts. This phenomenological study focused on the lived experiences of three Filipino teachers who wrote RPR and engaged in a school-based interdisciplinary collaborative inquiry for the first time. The duration of the study lasted for one full academic year in which researchers worked closely with the participants in grasping student learning situations and understanding personal, professional identities through a collegial reflection in and on action (Schon, 1983, 1987). All of these led to the teachers' interpretation of classroom episodes which they narrated in their RPR. Hence, this research probed how teachers described and interpreted their practices, and narrated the story of learning in their RPR. During the one-year study, data were triangulated with field notes, focus group discussions, transcripts of meetings, etc. Moreover, the researchers' interpretation of the RPR was re-discussed with the teachers to ensure the objectivity of the arguments developed over time. Initially, teachers struggled with how to grasp student voices and behaviours and how to put this into words to share with colleagues. At the next stage, they struggled with linking their pre-conceived ideas to their practices over a relatively long period. However, with the support of colleagues and inquiry structure, teachers were able to reflect on the experiences and transfer it into writing. In the learning design, teachers tried to integrate their beliefs about learning and the nature of the content to their understanding of student learning background and the expectation of the curriculum from the Department of Education. Their learning stories focused on the scaffolding of the teacher as a result of the interaction between the students and the learning material. They have summarized this part using student reflections. The reflection in the RPR included gaps between teacher expectations and student learning output, creation of a contextualized approach to teaching, and an appeal to the education system that regulate their classroom practices.

Elena **MARIN**
University of Bucharest, Romania

A critical look at the portfolio as a tool for reflective learning: Students' perception

The new challenges that prospective teachers are facing make them assume a new role, that of a reflective practitioner who is able to critically reflect while being able to link theory and practice. That is why university programmes must offer student teachers the opportunity to not only engage in practicum experiences, but they must also equip them with the right reflection skills that can help create and sustain a strong and authentic teaching career. In this respect, several teaching simulations were put into practice by students enrolled in their 2nd year of study in Pedagogy from the University of Bucharest. After witnessing several teaching simulation and then engaging in writing a reflective portfolio based on all the teaching simulation held during an academic semester, focus groups were conducted with students. The methodology used in this study consists of focus groups conducted at the end of the university course after student teachers had gone through a full semester of teaching simulation. The focus groups took place every year for 4 years until the end of the course. The focus group study was conducted with the aims to: identify student teachers' attitudes and beliefs towards using a reflective portfolio as a way to develop understanding through reflection; find out how relevant the reflective portfolio is, as viewed by the student teachers; identify the level of autonomy of the student teachers in handling the reflective process; and to specify the possible benefits from using this tool in their future teaching career. Results show that not only it is important to critically reflect on personal and professional experiences, but this practice also has a significant role in building better and more meaningful learning experiences by using and translating the data that arose from the reflection process into evidence based methodological decisions. All in all, using the data that prove the importance of a reflective portfolio teacher training programmes can open the possibility to create a bank of experiences that teacher students go through and this can be seen as extremely useful in the process of updating and upgrading the existing teacher training programmes.

Ana **MARQUÉS**
University of La Laguna, Spain

Artistic practices based on activism and cyberactivism

Contemporary art education practices are engaged in dialogue with social, political and virtual realities. Initially, these were tangible and physical actions that responded to and challenged established practices in the form of activism. Activism as a public social practice started in the mass media and subsequently evolved through digital platforms. With the evolution of visual culture, the collective imagination and the images corresponded to the relationship between the physical and virtual worlds, eventually gave rise to cyber-activism. This has led to the democratisation of media networks involving virtual reality with computer programmes, hackers, and interconnected art. The artworks conveyed through cyberactivism question established ideas and serve as a form of expression in the classroom to uphold rights and freedom. In this presentation, several art practices related to social themes are proposed aiming at positive cultural change, displayed visually through cartography and timelines.

In the 21st century, activism and cyberactivism have become more based on a multifocal perspective and including the cultural, economic and political components as well as the social. Their relevance to teacher education and professional development of teachers lies in the empowerment of communities not as artefacts of protest, but rather for building and improving the common welfare. My paper argues that it is fundamental to explore how these educational art forms engage teachers and teacher educators in a more active public role within communities. Examples include, leading through the *Hack for Good* platform as a means of avoiding climate change and optimising available resources and *Games for Change* dealing with contemporary social issues.

Many narrative forms have been developed and they have been transformed into different formats, such as transmedia. Their analysis helps one understand how information presented in a complex and interconnected way can provide a challenge and improve the dissemination of a restricted knowledge. Since these platforms have an underlying positive approach aiming to improve the social well-being of school communities in rural, urban and suburban areas, my presentation will also reflect on how they can open up new aspects to be addressed in the formal and informal education contexts for teachers.

David **MÉNDEZ**, Miriam **MÉNDEZ**, Juana **ANGUITA** & Carolina **SUÁREZ**
University Alfonso X el Sabio, Spain

Correlation between reading skills and logical reasoning of future elementary school teachers

Understanding scientific and mathematical concepts is necessary to develop reading and reasoning abilities, and these should be addressed during teacher training. Student teachers reveal that in numerous instances where they do not understand scientific concepts, they are unable to apply them in out-of-school contexts. Furthermore, student teachers tend to use intuitive knowledge about science phenomena that makes it very difficult and sometimes impossible to learn scientific concepts.

This paper draws on a research project that measured reading speed, comprehension and logical reasoning, testing the correlations between these variables during a class test of one hour. The instruments used were one text with questions from PISA to measure speed of reading and comprehension, and the "Test of Logical Thinking" (TOLT). The sample consisted of 180 student teachers in their first, second and third year of university, all of them studying to become elementary school teachers; 34 in the first year, 49 in the second and 100 in the third. The results, were not satisfactory, indicating the need for improvement of their reading speed and logical reasoning and that there is a correlation between these variables and the age of the student teachers. This paper argues that study programs for future elementary school teachers should be modified in order to develop these essential educational competences.

Josephine **MILTON** & Michelle **PANZAVECCHIA**
University of Malta, Malta

Shifting from bilingual to multilingual classrooms: Considerations about the teaching of English in Malta

The Maltese education system relies on the bilingual use of language by educators and learners. Teachers in Malta generally share similar language backgrounds that feature both Maltese and English, as do the pupils. We have lived within the reality of societal bilingualism, where almost all citizens are bilingual in both Maltese and English. This scenario is now being challenged through the presence of learners in our schools with very diverse cultural and language backgrounds. Hence, this development changes and challenges the pedagogical use of Malta's L1 and L2 as languages of instruction and as the two languages the students live with, and through, in both the classroom and community. The population has increased in the past decade, in spite of the fact that the island currently has the lowest birth rate in Europe, as asylum seekers are increasingly arriving in Malta in search of refuge. Additionally, there has been an increase in transnational migration following Malta's accession into the European Union in 2004. This paper presents a brief overview of Malta's language history and education system to contextualise the role of language in education. It then discusses how both teachers and students are facing new challenges as recent demographic changes are shifting Maltese classrooms from bilingual to multilingual settings since these perspectives may have significant implications for the teaching of English in our schools. In Malta children learn English alongside Maltese from the Early Years and throughout their compulsory education. Early Years and Primary school teachers use both languages as medium of instruction as well as subjects in their own right. Both Maltese and English are official languages of Malta, with Maltese being the national language whilst English is the official second language. The teaching of English in Maltese schools is an important feature of our educational system, not only because English is our official L2, but also because it is a global language, a lingua franca that can provide access to international literature and many opportunities on the educational and employment front. Teachers are presently not adequately equipped with the necessary skills required to mitigate these new challenges which they are facing in the classroom as a result of the demographic shift on the island. The prior experiences and lived experiences of our educators have not prepared them for this rapidly changing multilingual and multicultural reality. We explore how this new scenario requires a move from teaching English as a second or first language, to teaching English as an Additional Language. The shift and transition from bilingual to multilingual classrooms necessitates the recognition of the universal value of the English language, the preservation of the Maltese language, together with the provision of support for the pupil's own mother tongue. It is clear that a 'new' way forward for teacher education needs to be explored to cater for this very complex situation that poses unforeseen challenges to the language and literacy provision in communities and in schools.

Doreen **MIZZI**
University of Malta, Malta

Empowering science teachers to teach across specialisations

Integrated science is part of the core curriculum in the first two years of secondary school in Malta. Science teachers are required to teach the three science subjects even though during initial teacher education they only specialise in one area. This suggests that teachers may require further support to teach outside their science specialism; teaching a subject area that was not studied at University or Advanced level. This study focuses on the design and implementation of a professional development programme that was developed with the aim of supporting teachers teaching outside specialism. It also explores the science teachers' experiences as they participated in this programme that focussed on the teaching of chemistry topics. Following a qualitative methodology data were collected over a year-long period using semi-structured interviews, focus group interviews and the researcher's journal. The professional development programme was a two-tiered programme that started during a summer workshop and was followed by ongoing workshops throughout the scholastic year when the science teachers were teaching, or about to teach, a chemistry topic. The aim of the professional development programme was to enhance the teachers' professional knowledge in chemistry, transform the teachers' beliefs and engage them in hands-on activities that could easily be implemented in their classes. It also promoted a collaborative culture where teachers learned together, reflected and developed their knowledge base. The first part of the programme was intended for teachers to familiarise themselves with the teaching of chemistry and to support them to overcome the common challenges experienced when teaching an unfamiliar area. The second part of the programme was developed with ongoing collaboration and discussion with the teachers. The teachers' learning needs were taken into consideration in order to address the challenges and issues they were coming across in their daily practices. The programme was developed using a participatory approach to professional learning and teachers also had the opportunity to implement what they were learning in practice since the workshops took place during the scholastic year. The research findings show that professional learning was enhanced when teachers were engaged as learners as they actively participated in different activities. They generated and negotiated knowledge when they developed lesson plans based on inquiry-based practices and when they shared and reflected on their lessons within the community of learners. This was an opportunity for teachers to learn from one another, inquire on their practice and implement changes in their classrooms. The outcomes show that the design of a professional development programme and the role of teachers are fundamental to enhance professional learning. By focusing on the teachers' strengths rather than their limitations and weaknesses, teachers developed their professional knowledge base and reviewed their beliefs about teaching chemistry. This type of professional development programme did not only support teachers but empowered them to overcome their challenges, take control of their own personal learning and expand their teaching identity as science teachers.

Emanuel **MIZZI**
University of Malta, Malta

Accompanying along the way: The cultivation of inclusive attitudes in business education mentoring in Malta

Mentoring in pre-service teacher education has been formalized at the University of Malta's Faculty of Education in October 2016. The Postgraduate Certificate in Educational Mentoring involves both generic components whereby mentors reflect on the nature of their role, and subject-specific training dealing with subject-based pedagogy and methodology which encourages reflection vis-à-vis the respective area of specialization. In the case of business education, the latter form of training involves lectures and discussions which deal with the role of mentoring students in the area of business education encompassing the subjects of accounting, business studies and economics. This aspect encourages reflection on contemporary issues with respect to the business, financial and economic environment and their link to educational practices. Concurrent with this programme, students following the newly established Masters in Teaching and Learning course are prepared by Faculty members to undergo a mentored school experience and teaching practice assisted by the newly recruited mentors. In this process, business education lecturers, student teachers and trainee mentors are all actively involved in critical reflection about mentoring and business education pedagogical content knowledge. This research study attempts to bring to the fore the voices of the participants involved in this triad since October 2016, namely business education student teachers, trainee mentors and lecturers. The aim is to engage in a process of reflection inspired by the need to research and review practice and to disseminate research findings in the field of educational mentoring in business education. The study adopts a qualitative research methodology, underpinned by critical realism as the philosophical framework. Critical realism offers an understanding of the world that is real but which may be differently experienced and interpreted by different observers (Bhaskar, 1979, 2015). Through an anonymous Google form, six trainee mentors and eight student teachers have been asked to write about their mentoring experiences. The emerging themes describe the benefits reaped out of this mentoring experience, the positive attitudes adopted, the challenges encountered in due course, and the factors that facilitated the mentoring experience and relationship. This presentation focuses upon the positive and inclusive attitudes embraced in this mentoring relationship. In particular, mentors and student teachers have been keen upon cultivating a supportive attitude towards each other, become critical friends, view the mentoring relationship as an enriching experience, are available to each other, and share of practice. These results provide valuable insights to mentoring relationships in other subjects and areas.

Maria **MONTEBELLO**
University of Malta, Malta

'Thinking without a banister' in a Maltese college network: A myth for teacher education in the local context?

This paper proposes the view that problematizing teacher education in a networked educational setup is much more complex than 'what works'. Prescribing a top-down concept of teacher education and steps that teachers can take in a policy, regardless of wherever and whoever they are, eliminates one of the most significant educational resources we have – teachers' capacity to understand, analyse and enact within our local context. As educational leaders, teachers must, in Arendt's view, be able not simply to follow policy descriptions in an unquestioned manner. It is a fine irony that these required critical and problematizing thinking practices are precisely the ones that education systems are designed to inculcate in the next generation. Following Hannah Arendt's controversial thinking approach bravely exposed during the Second World War, this paper argues that in our times, those who are engaged in teacher education need, more than ever, to think about their work – its purposes and processes as well as its effects and outcomes. Teachers need to be able to critically analyse policy directions, assess and evaluate their own institutions and to call on a rich set of ideas in order to develop directions for their school in particular and for education more general. This paper supports this kind of reflective educational inquiry on the actualization of teacher education in the local context through the latest educational reforms based on Arendtian influences. Utilizing a phenomenological approach, this paper uses Arendt's theoretical contributions to examine whether a reflective inquiry on the *College Network Reform Policy in Malta* (Ministry of Education, 2015) could reveal any changes in teacher education perspectives in the local context. Three reflection points from the policy document *For All Children to Succeed* (Ministry of Education, 2015) are selected for discussion and focused analysis. An Arendtian thinking attempt on these reflection points enables the reader to think deeply on the proposed experiences of teacher education within the framework of the new reform. The process of change in teacher education is expected to find a revamped significance in the formation of networks that were expected to give our local education system the needed makeover to make it compatible with the globalized world. Following Arendt's concept of 'thinking without a banister', it results that the desired move presents us with two major challenges. If the College Network Reform which addresses the themes and issues of autonomy, decentralization, and collaboration is to bear fruition, the development of new work ethic, in and beyond schools is needed. The central administration has to truly move away from a command-and-control mindset to a supportive and collaborative mentality, while teacher education needs to inculcate a change in professional approach from one of isolation to that of collaboration and collegiality. The Arendtian analysis of teacher education in a College Network Reform in Malta is a means of knowledge/contribution not only to teacher education in the national field but to other education systems on an international level. Utilizing Arendt's concept of 'thinking without a banister', this paper recommends a shift from what Arendt calls a 'preliminary understanding' or a 'basic grasp of a situation' to a 'true understanding' based on getting to understand the judgments and policy discourse that precedes the actual implementation of teacher education.

Matthew **MUSCAT**
St Michael's College, Adelaide, Australia

Teaching and mentoring pre-service and early career teachers

This paper will address the ways that teachers can support and mentor pre-service and early career teachers. Drawing upon the author's own experiences of teaching and mentoring over 260 pre-service Senior high school History teachers and guiding many early career teachers over the years, an overview and discussion of methodological practices will be examined. Additionally, the features of the University courses that are delivered will be provided. This includes gearing pre-service teachers towards unit and lesson planning, resourcing, professional development, joining professional associations and networking with colleagues and experienced teachers in the field. Different teaching methodologies, in general will be featured, which relates to education, classroom management, feedback mechanisms and results analysis. Also, specific methodology related to the teaching of Senior History subjects in the Australian curriculum courses will be discussed, with a view of transferring these to any other educational system in the world and similar teaching areas. As a practising teacher, practical advice and examples of experiences of mentoring pre-service and early career teachers will be given with ideas and suggestions for best practice in allowing beginning teachers to effectively and confidently transition into classroom teaching, along with the variety of other demands of the teaching profession. Some brief case studies of this practice will also be discussed and explored. The paper will conclude with a recap of best practices for guiding pre-service and early career teachers based on evidence and experience undertaken by the author in his work.

Pipit **NOVITA**
University of Bristol, UK

What makes initial teacher education effective? Exploring stakeholders' views on the quality of pre-service English teacher education in urban areas in Indonesia

Teacher quality is a key educational issue that has remained a central focus in Indonesia for years. Indonesia ranking low on the results of PISA (ranked 62 out of 72 countries in 2015 and 64 out of 65 in 2012) has been one of the wake-up calls to improve the quality of teachers. The reviews of national policies for education in Indonesia in 2015 reported that Indonesia's poor education is caused by the poor quality of teachers and therefore calling for more effective teacher education. However, there has been dearth of literature about the quality of teacher education in the Indonesian context which explores the point of views of Heads of institution programme, teacher graduates and future employers. For this reason, the aim of the proposed study is to explore stakeholders' views on the quality of Initial Teacher Education (ITE) in urban areas in Indonesia. Essentially, the study comprises of a programme outcome evaluation of ITE which investigates the perceptions of newly qualified English teachers, Heads of English departments and school principals. It focuses on their views regarding the effectiveness, strengths, weaknesses, and possibilities for improving Initial Teacher Education and teaching practices in urban areas using mixed-methods explanatory sequential design (questionnaires, interview and focus groups). The study participants include eight school principals, four hundred English teacher graduates graduating from 2016-2018 and their head of English departments from four universities. The study emphasises the following elements of teacher education programmes: the content of teacher education, the learning process and the learning context. This study has important implications for the practice policy and further research on teacher education in Indonesia.

Olatunbosun Emmanuel **OGUNSEMI**
College of Education, Ikere, Ekiti State, Nigeria

Effects of self and peer reflective teaching observations on pre-service science teachers teaching skills and attitude to teaching in southwestern Nigeria

Teacher training institutions should aim at producing teachers with the requirements for teaching responsibilities. However, the majority of pre-service science teachers in Colleges of Education in Southwestern Nigeria have been found to exhibit poor teaching skills and attitude to teaching. This may negatively affect science teachers' performance in the classroom and inhibit the attainment of the objectives for teacher training as stated in the National Policy on Education. Many studies have focused on the problems in the training of science teachers and their challenges in the classroom but their experiences in training to become reflective teachers have not been explored. Therefore, this study determined the effects of self-reflective and peer reflective teaching observations on pre-service science teachers' teaching skills and attitudes to teaching in southwestern Nigeria. The moderating effects of science teaching efficacy and gender were also examined. The study adopted a pre-test-post-test control group, quasi-experimental design using a 3x2x2 factorial matrix. Purposive sampling technique was used to select three government owned colleges of education. One hundred and forty-four pre-service science teachers (70 males and 74 females) from three intact classes were used for the study. They were randomly assigned to self (48) and peer (36) reflective teaching observations and conventional (60) groups respectively for the duration of 11 weeks. Instruments used were: Microteaching procedure ($\pi = 0.73$), reflective teaching observation checklist ($\pi = 0.78$), Attitude to teaching questionnaire ($r = 0.88$), Science teaching efficacy scale ($r = 0.86$), Teaching skills evaluation scale ($r = 0.83$) and instructional guides. Data were analysed using Analysis of Covariance and Scheffe post-hoc test at 0.05 level of significance. There was significant main effect of treatment on pre-service science teachers teaching skills ($F(2,120) = 4.06$, partial $\eta^2 = 0.74$) and attitude to teaching ($F(2,120) = 12.10$, partial $\eta^2 = 0.18$). There was significant effect of science teaching efficacy on pre-service science teachers' attitude to teaching ($F(1,120) = 5.49$, partial $\eta^2 = 0.02$). There was significant main effect of gender on pre-service science teachers' teaching skills ($F(1,120) = 5.17$, partial $\eta^2 = 0.04$), with males (52.12) and females (63.34). There was significant 2-way interaction effects of treatment and science teaching efficacy on pre-service science teachers' teaching skills ($F(6,120) = 2.21$, partial $\eta^2 = 0.10$) and attitude to teaching ($F(2,120) = 3.92$, partial $\eta^2 = 0.09$). There was significant 2-way interaction effects of treatment and gender on pre-service science teachers' teaching skills ($F(2,120) = 3.91$, partial $\eta^2 = 0.03$) and attitude to teaching ($F(2,120) = 3.20$, partial $\eta^2 = 0.06$). There was significant 2-way interaction effects of science teaching efficacy and gender on pre-service science teachers' attitude to teaching ($F(1,120) = 4.05$, partial $\eta^2 = 0.06$). Self and peer reflective teaching observations enhanced teaching skills and attitude to teaching. Conventional microteaching was more effective on teaching skills than peer reflective teaching observation due to inadequate training to provide helpful feedback. These strategies with best practice should be adopted in teacher training institutions for teaching practices.

Emine ÖZDEMİR
Balıkesir University, Turkey

Investigation of mathematics prospective teachers' views on problem solving in mathematics

The increasing role of science and technology in our lives has increased the need for mathematical thinking and problem-solving skills. The Council of National Mathematics Teachers stresses that the goals of school mathematics for all students should focus more on increasing their skills and motivation in problem solving by students. Many studies have revealed necessity to provide different experiences and environments in which teachers will deepen, develop, and share their knowledge and advance their mathematical knowledge as is requested from the students. Teachers can only fulfil what is expected from them if they are competent in doing so through their undergraduate education. It is important to educate students who can use mathematics in their daily lives and who can catch up with real life while solving mathematical problems. The Program for International Student Assessment (PISA) emphasizes mathematical literacy and Turkey has not been able to achieve the desired results. In this context, problem-solving activities for current and future mathematics teachers offer an opportunity to effectively teach students to become mathematically literate.

Problem solving provides a problem situation for teachers at each grade level where they have the opportunity to use pedagogy and field knowledge together. Teachers who are not aware of the problem-solving strategies cannot help students explore the various ways in which a maths problem can be solved. In many cases, for example students think that they can solve a mathematical problem in only one way, based on the nature of the problem being taught (e.g. age problems, profit-loss problems, mixing problems, etc.) or that some computational processes or formulas are the only approaches that can work.

As a result, it is important to explore prospective teachers' thinking on the integration of problem solving into mathematics education.

The paper presentation will draw on a qualitative research study conducted in the spring semester of 2018-2019 academic year with fourth-grade student teachers at the Necatibey Mathematics Education Department, Faculty of Education, Balıkesir University. The sample, including prospective teachers who had successfully completed mathematics field education courses, was asked to provide written answers to open-ended questions. Descriptive statistics were used for the qualitative data. The findings of the study will be given in the full text.

Emine **OZDEMIR** & Filiz Tuba **DIKKARTIN OVEZ**
Balıkesir University, Turkey

The investigation of teacher candidates' levels of geometric thinking and opinions towards proof: Reflection in teacher education

In the literature, there are many studies that characterize geometric thinking processes of students based on van Hiele theory.

The primary objective of advanced mathematics courses is for students to develop the ability to prove. When mathematics is considered as a structure consisting of axioms, definitions, assumptions, theorems and proofs, proof during mathematics lessons becomes very important. Nevertheless, pre-service teachers doing high mathematics at university have difficulty in proving. In order to determine the reasons behind the difficulties encountered by the students, studies on student teacher candidates' opinions about the proof, their level of perception of the proofs and the very process of proving need to be explored. The skills that shape the perception of proof and the perception of the axiomatic systems that develop into the levels of geometric thinking 3 and 4 are also important.

The aim of this paper is to present the skills and opinions towards proof, which are one of the learning outcomes of the mathematics undergraduate university programmes. The current study applied a “mixed approach” integrating both qualitative and quantitative methods to determine teacher candidates' geometric thinking levels referring to Van Hiele geometric thinking levels. In the light of the findings obtained, opinions towards proof and levels of geometric thinking are examined. The findings will be given in the full text.

Mustafa **ÖZKAN**, Asuman **YÜKSEL** & Filiz **GÜLTEKİN**
Bursa Uludağ University, Turkey

The impact of personality traits of teacher candidates on calling in pre-service teacher education

From a social point of view, the teaching profession is considered to be sacred. One of the things that make it sacred is that the teacher has to make a huge effort and dedicate himself/herself to the profession while doing his/her job. This study is important in order to determine the level of calling of future aspirants to the profession and the extent personality traits affect their calling. In almost all of the help professions, people help others in an altruistic manner. This is thought of in terms of calling. We define calling as a state of human being, openness, alteration, and self-changing attitude, devotion, serving devotedly (Wrzesniewski, 2012). Calling is understood as related to personality traits, which in turn affect how they do their job. According to Burger (2006), many of the five important personality characteristics are extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience.

This study was carried out to understand the effect of personality traits on pre-service teachers' calling. The source of the calling toward teaching may be internal or external (Duffy & Dik, 2013) i.e. coming from outside of the individual or being integrated with the personality of the individual and the feeling of being affected by the personality traits.

The hypothesis of the study is shared in Figure-1.

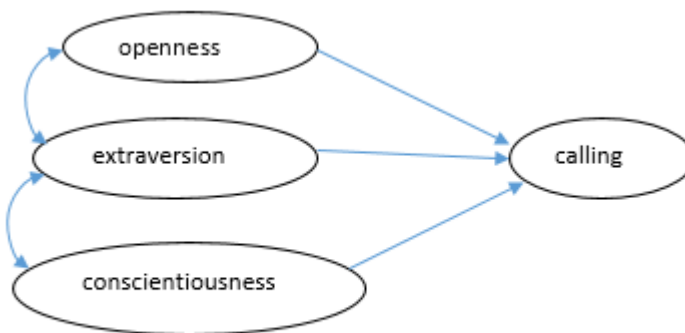


Figure-1

The study was designed according to the relational screening model with pre-service teachers as participants. The data was collected with Career Calling Scale for Emerging Adults (Praskova, Creed, and Hood (2015) and the scale of five personality traits (McCrea & Costa, 1987) adapted to Turkish culture by Somer, Korkmaz, and Tatar (2001). There were also some survey questions created by the researchers. School counsellors were selected as participants in the study for easy sampling. The data was analysed by means of SPSS 23 and AMOS 10 programs to create a model of personality traits and calling variable with a structural equation model (SEM).

Anastasia **PAPAPOSTOLOU**¹, Polyxeni **MANOLI**¹ & Anna **MOUTI**²

¹ Hellenic Open University, Greece

² University of Thessaly, Greece

Teachers' challenges and needs in the context of formal language education to refugee children and adolescents in Greece

The influx of refugees and migrants in Greece in the past few years has undoubtedly brought to the spotlight the need for the provision of language education. In view of the new educational needs emerging from turning classrooms and the even more demanding work of teachers, Greece was obliged to adopt impromptu measures to address the needs of these vulnerable groups. In this context, the aim of this study was to explore the challenges and needs of teachers' who offer language education to refugee children and adolescents in formal educational settings in Greece. In a field where research is rather limited (e.g., Aydin & Kaya, 2017; Kantzou, Manoli, Mouti, Papadopoulou, 2017; Krumm, 2017; Papapostolou, 2018), especially after the refugee crisis in 2015, a qualitative study was conducted in a secondary public school, where reception classes function for refugee students in the region of Central Greece. In particular, teacher interviews and classroom observations were carried out in a formal educational environment with five educators participating in semi-structured interviews, while observations took place in two of their classrooms. The findings of the study demonstrated that in the context of refugee education in Greece, teachers faced various challenges and difficulties related to practical, sociocultural, religious, ethical and emotional issues. More specifically, it was revealed that deficiencies in proper teaching material, curriculum, official guidelines and classroom amenities were some of the greatest challenges educators experienced. In addition, it was shown that educators lacked the intercultural competence and knowledge of applying the proper teaching methods and class management practices to deal with highly diverse classrooms considering student various linguistic and sociocultural background as well as their volatile psychological state. All in all, it is evident that these findings pave the way for larger-scale studies that will explore the above-mentioned issue in depth and verify the research findings. Simultaneously, the findings of the study highlight the need for teacher education to help them cope with diversity issues in their classrooms.

Suzanne **PISCOPO**
University of Malta, Malta

Futures thinking and learning for the future: Implications for home economics teacher training

In recent years, various reports by the OECD, UNESCO and other leading educational institutions have highlighted the importance of education and learning with the future in mind. The discussion has focused on futures thinking, literacy for future design and future application, and innovations in pedagogy in line with future needs. The idea is that schoolchildren have to be prepared with dispositions and skills to learn, unlearn and relearn throughout their life. They need to be able to utilise critical thinking skills, review their perspectives based on new credible information, and solve unpredictable problems or pre-empt other problems using available information, evidence and technology. They also need to be creative and innovative, and plan and develop future ways of life and the means to implement them for the benefit of all humankind. Such a vision and approach lays a solid foundation for achievement of the UN Sustainable Development Goals (SDGs) by 2030 and for nurturing a human population where sustainable lifestyles are valued, practiced and are the norm. Such a vision and approach is also very much in tune with the primary goal of Home Economics (HE) education which is to promote wellbeing of individuals and families in changing contexts through responsible and efficient management and use of resources. This future orientation of education has several implications for the training of Home Economics teachers, both with respect to their substantive knowledge, as well as to their various competences as educators. They will need to be able to educate about choices related to products and services keeping in mind current societal needs, yet also considering changing societies, changing environments and potential futures. In other words, they will require training on content and pedagogies for instilling HE literacy among learners to become smart, informed, creative citizens, consumers, household managers and family members. The multiple literacies integral to HE literacy - health literacy, food literacy, consumer literacy, environmental literacy, financial literacy, technological literacy, and social literacy -- will be presented as strands within a proposed exploratory HE teacher training model which looks at probable, possible and desired futures. Using literature from futures thinking and innovative pedagogies, suggestions for such an approach will be discussed and examples will be given as to how the model could be applied in HE teacher training targeting different age groups. The value of shaping HE teachers who acknowledge their role in providing an HE education which facilitates a milieu for reflection, collaboration, innovation and transformation among learners will be underlined.

Doreen **SAID PACE**
Ministry for Education and Employment, Malta

Using Collaborative Action Research (CAR) to investigate the beliefs-to-practice relationship about a pedagogy

Assessment is not only an integral part in the evaluation of educational activities but it is also central in learning programmes. In education, assessment is a very much debated subject as its outcomes are of interest to different stakeholders, namely, students, teachers, school leaders, parents, policymakers and the business community (Taras, 2005). Despite the interest that it arouses, the implementation of an effective system is fraught with difficulties (Laveault, 2016). Mainly, these stem from the misalignment between researches, policy and practice (Spencer & Hayward, 2016). This paper points to the need for more ground research, where teachers are the main leading protagonists. Teacher-centred research was carried out to study their beliefs-to-practice relationship about AfL in a culture of testing context. Teachers were not being studied on their position about AfL instead they were valid partners in understanding the implementation of such pedagogy. (Laveault, 2016). The adopted process consisted of a nine-month collaborative action research (CAR) with three primary state school teachers from different year groups in one college. Various methods of data collection were used including group discussions, individual meetings, a record-keeping booklet, a semi-structured interview with the teachers, a group interview with the students and three self-written accounts. The findings revealed that in spite of the positive change in the teachers' level of understanding, thoughts and practice about AfL, they still had the wobbly belief about its effectiveness on ALL the students. Teachers associated the impact of AfL on the student's learning disposition mainly their motivation towards learning. If AfL's success depends on one's motivation towards learning, does this mean that the success of AfL falls on the student only, the teacher only or both? In conclusion, although the CAR approach has had a positive effect, it has highlighted the pressing need for more opportunities of teacher reflection and discussion. Furthermore, the question that is being raised and debated is whether AfL is perceived as the pedagogy for the privileged students.

Brigitte Johana **SANCHEZ ROBAYO**
Virginia Tech, USA

Constraints and supportive factors for instructional change in mathematics

In the path of understanding the phenomena of instructional change in mathematics, I have set a list of constraints and supportive factors that math instructors face when they introduce a significant change in their classrooms. The compilation is a result of a systematic literature review focused on Action Research (AR) in secondary mathematics classrooms, and a qualitative study about undergraduate mathematics education. For the literature review, I analysed 16 articles from journals for mathematics teachers, mathematics teachers' educators, and researchers. The qualitative study consisted of the analysis of 13 interviews from Abstract Algebra instructors. I categorized the constraints and support elements following two criteria: the location of the factor, and a categorization inspired by Hampton & Cruz (2017). If the factor is within the control of the instructor, than it is internal, otherwise it is external. The factors were also categorized as change management, institutional support, community's experience, and motivation. External supportive factors are factors related to change management and are beneficial due to the introduced change as is the nature of AR as a cyclic, scaffolding, and facilitating model. Some factors related to community are collegueship, reports of studies done by other teachers, agents like teacher educators or connections with some of them or with researchers. Some factors related to institutional support are funding and the presence of spaces for collaboration. The factors related to motivation are recognition and rewards. Internal supportive factors are those most related to change management and motivation. In the case of change management, learning from other experiences encourage the teacher to try new changes in their practices, reflexivity, flexibility and persistence. Responsibility and accountability of the teacher are other factors that facilitate instructional change. The most substantial factors related to motivation are the teacher's feelings regarding their class or students' learning. Years of teaching experience in addition to knowledge about the curriculum are factors that increase a teacher's self-concept and their perception of success for the change. External constraints include the factor of change management and the rise of unexpected situations when the change is introduced and factors related to community are students' and colleagues' resistance in the case of undergraduate mathematics education. Factors related to institutional support mentioned in the literature include lack of funding, movements of students' and teachers' locations, and lack of acknowledgment or rewards. The factors related to change management found in the literature review corresponds to hindrances in a research process. These include choosing intentions, stating short-term goals about desirable long-term changes, and focusing on desirable actions rather than reality. Factors related to motivation are negative teachers' feelings about time and opportunities to implement changes teachers' isolation in the case of AR. Funding, collegueship, caring, recognition, rewards, and the perception of success are determinant factors that influence the extent to which teachers encourage instructional changes.

Enrique Martin **SANTOLAYA**, Agueda **GRAS-VELAZQUEZ**, Evita **TASIOPOULOU**, Jelena **MILENKOVIC** & Mattia **GENTILE**
European Schoolnet, Brussels

Online tools and inquiry based learning for teacher training institutions

The Next-Lab project is implemented in the context of the European Union's Horizon 2020 programme. It started on the 1st of January 2017 and will last for three years. The philosophy and technology of Next-Lab is based on its previous project Go-Lab and it continues its mission of promoting innovative and interactive methods of teaching science in primary and secondary schools across Europe. The Go-Lab Ecosystem (sharing and authoring platforms) facilitates the use of online laboratories and inquiry learning applications for science education in schools. The Go-Lab Sharing Platform [1] provides a large collection of quality-proven remote and virtual laboratories ("Labs"), shared by renowned research institutions and technology providers from all over the world. These online labs allow students conducting scientific experiments in a virtual environment. Furthermore, multiple web-applications ("Apps") are offered, supporting students in their inquiry learning activities and teachers in the preparation, implementation, and monitoring of these activities. Finally, teachers have a possibility to share Inquiry Learning Spaces ("Spaces") they create for their students with other teachers, so they can benefit from ready-to-use scenarios available for different subject domains and in different languages. The Go-Lab Authoring Platform [2] enables teachers to easily create Inquiry Learning Spaces, which are virtual spaces, structured according to the phases of the inquiry learning process and containing online labs, inquiry learning apps, and any other multimedia learning materials selected by the teacher. These spaces can be shared by the teacher with her students, so they can study individually or in groups, going through all steps of a research process and conducting online experiments. Moreover, using the learning analytics applications, the teacher can monitor the progress of the students and provide support, if needed. The project has expanded its target group by also addressing younger students in primary education and by involving not only in-service but also pre-service teachers, making an effort to align the project with the teacher training needs in different countries. In the scope of Next-Lab, European Schoolnet is responsible for the development of the Teacher Training Institutes (TTIs) framework, aiming for the outreach and adoption of Inquiry Based Learning in digital environments (such as Go-Lab) and in general, fostering innovative approaches to initial teacher training. In this context, we believe, as it has been identified many times before [3] that open educational resource initiatives are an example of way forward. In this paper, we present the different opportunities the programme offers both to teacher trainings institutes and pre-service teachers, while measuring the impact these strategies might have on our final target, primary and secondary school students.

Burcu **SEZGİNSOY ŞEKER** & Tuğba **DEMİR**
Balıkesir University, Turkey

The effect of digital stories on the attitude and success of students: Teacher educational experiences and practices

The purpose of this study is to investigate the effect of the use of digital stories in the teaching of a social studies course on students' success and attitude. The sample of the study is composed of 72 students who are in fifth grade classes of Middle School in Izmir. The experimental design is used in this study. Pre-test-post-test control group design is adopted and permanency test is added to the study. There are two groups in the study which are selected randomly and assigned as control and experimental groups. In the experimental group; the unit "Fulfilled Dreams" of fifth grade social science class is taught with the use of digital stories along with a curriculum that is designed based on 5e learning model. However, the regular curriculum advised by Social Studies Education Program planning 5e learning model is taught in the control group. Based on the analyses of the data collected during the study, it was determined that the results of the "Fulfilled Dreams Post Achievement Test" and permanency test were statistically more significant on the experimental group. In addition, the result of post-test and permanency test of Social Studies Attitude Scale was found statistically significant in favour of the experimental group. Since significant increase is observed in the Social Studies Attitude Scale experimental group, it was concluded that the study is more favourable to the experimental group. Based on the results of interviews conducted with the students, it is concluded that Social Studies class becomes more visual, more appealing and more enjoyable for the students with the use of digital stories and it increases the student' success and attention towards the class. It also makes learning more permanent.

Burcu **SEZGİNSOY ŞEKER**, Mesut **SAÇKES**, Sonnur **İŞİTAN** & Sinem **GÜÇHAN ÖZGÜL**
Balıkesir University, Turkey

*The review on determining criteria for the evaluation of scientific literacy in basic
education: Reflection in teacher education*

Since Paul deHart Hurd used the term scientific literacy in 1958, many definitions have been introduced in relevant fields such as science and education (AAAS, 1989; Laugksch, 2000; NSES, 1996). Scientific literacy refers to individuals' knowledge and understanding of scientific concepts and processes necessary for decision making, participation in urban and cultural affairs, and economic productivity (NRC, 1996). Scientific literacy is also based on the understanding that the individual can comprehend, explain and predict the popular media, read science, discuss the information with scientific content, and establish a link between daily experiences and scientific knowledge (NRC, 1996, p.2). Scientific literacy self-efficacy is defined as "perceptions of the individual about the necessary skills, attitudes, values, understanding, and knowledge about science and technology" (Caymaz, 2008). National and international literature reveal that many tools have been developed which aim to measure teachers' perceptions of self-efficacy in teaching and learning. However, none of these instruments aim to measure the self-efficacy of preschool and primary school teachers in assessing students' scientific literacy levels. In this context, there is a deficiency both in our country and in international literature. This study aims to reveal the criteria that will enable the development of scales that can be used to evaluate the scientific literacy levels of the primary students and primary school teachers. This presentation will make a review of the studies on scientific literacy from the emergence of the concept and its relation to the educational environment at the primary level. The studies discussed will be examined in depth by considering the theoretical bases and research findings.

Marthese **SPITERI**
University of Malta, Malta

Exploring Maltese teachers' dispositions to practise digital equity in the classroom

In the present multicultural Maltese classrooms, digital technologies can be the means through which mutual understanding and learning can be achieved (OECD, 2015; Redecker, 2017; Spiteri & Chang Rundgren, 2018b; UNESCO, 2011) since they are ubiquitous, across all income levels and racial backgrounds (Lawless, 2016). However current social debate regarding the use of digital technology showed that although households with dependent children, across Europe, were more likely to have access to a computer and the Internet at home (EC, 2017), students with migrant background performed significantly worse than their peers in compulsory education (Borgna & Contini, 2014). Nine out of ten 'digitally native' students used the Internet on a daily basis (EC, 2017), yet they were not digitally competent and 25% demonstrated low levels of computer and information literacy (EC, 2014). Furthermore, results from international organisations clearly indicate that there is little evidence of better educational attainment when using technology at school (EU, 2014; OECD 2015). This could imply that although digital resources are available, the low academic achievement could indicate that there is a divide in how technology is used; the new digital divide, which is persistent in low socio-economic backgrounds (Jara et al., 2015; Lawless, 2016). In such disadvantaged socio-economic areas, teachers practised only basic digital skills with their students, such as repetitive tasks (Jara et al., 2015; Lawless, 2016). Lawless (2016) stated that 'access' to information and knowledge, could be achieved when the students are provided with different avenues for learning with technology which could result in digital equity among all students. Also, practising digital equity among students with diverse cultural backgrounds could diminish both the cultural and digital divide and enhance opportunities for intercultural connections (Resta & Laferrière, 2015). The purpose of this research is to explore Maltese teachers' dispositions to connect with and integrate students coming from diverse cultural backgrounds through the use of digital technology. This is especially significant in Malta where the number of students coming from different cultures is expected to increase in the coming years (Chircop, 2018; NSO, 2016). Maltese teachers recognise their responsibility to encourage cultural diversity however they lack the time and understanding on how to implement it (Sammut, 2018; Scicluna, 2013; Chircop 2018). Further, although technologically skilled (Duca, 2012; Pullicino, 2012) they are hesitant to adopt innovative digital pedagogies, a situation that demands further professional development for teachers (Borg, 2015; Spiteri & Chang Rundgren, 2017). In-depth interviews, together with analysis of curricular content and observed pedagogical strategies will provide insight on teachers' dispositions, experiences and conceptualizations about using digital technology in multicultural classrooms; students' problems and needs, and the role of digital technology in addressing these needs. The results from this research will shed light on how teaching can be developed towards digital equity and what intercultural education means in these settings and the obstacles to practice it. Subsequently professional development needs will be identified.

Sandro **SPITERI**, James **CALLEJA** & Michelle **ATTARD TONNA**
University of Malta, Malta

Reconceptualising school improvement that is grounded in teacher agency: The SALIENT experience

Schools in Malta have undergone a practically unending sequence of national educational reforms. The 1995 consultation document 'Tomorrow's Schools' for the first time placed the onus of educational improvement not on central policy and direction, but on the action of teachers operating within a professional community. However successive waves of reform in 2000, 2005, 2012 and 2016 compromised significantly with this vision, and retained a strong element of state control through processes akin to what Ball called: "a move towards the polycentric state – a shift that is from government to governance" (2008, p. 64), of decentralisation without real devolution. Hopkins decried the "top-down and instrumentalist approach so dominant in most school reform efforts" (Hopkins, p.314, 2013) internationally, and Malta has not escaped this paradigm. Although some important structural reforms have been undertaken, the impact on school culture and the quality of teaching and learning that were the intended primary targets of these reforms has been tenuous. Some were disappointed at this missed opportunity (Cutajar, Bezzina and James, 2013), and some school heads resented the lack of promised autonomy (Spiteri, 2016; Cutajar, 2017). Teachers reported widespread reform fatigue and frustration that the reforms were not impacting teaching and learning (Borg and Giordmaina, 2012). Fullan (2011) identified over-reliance on structural reforms at the expense of capacity building, group work, instruction, and systemic solutions as a key driver for educational system reform failure. This paper posits an alternative school-centric reform agenda. The SALIENT (Schools for Access to Learning, Inclusion and Equity Networking Together) project was born of a desire to re-centre school improvement on teacher agency, founded on the discourse of equity and educational entitlement through differentiation as its moral compass. SALIENT took the national implementation of the Learning Outcomes (LO) Framework (2014) as its point of entry. Discussions to set up SALIENT started in November 2017, and five pilot primary schools from the State, Church and Independent sectors have joined. Scholastic year 2018-19 saw intensive discussions and some preparatory training aimed at launching provision in September 2019. SALIENT aims to create a network of school communities that upskills and supports teacher to co-construct, deliver and review LO-based programmes in a differentiated learning context. The SALIENT methodology is not to approach schools and teachers with pre-packaged solutions, but to co-construct the awareness of the need for improvement, as well as the intervention strategies. This paper presents research from the preparatory year of SALIENT. It is based the authors' own chronicled reflections of the challenges and opportunities they faced to turn the SALIENT proposal into a viable programme, and on 12 semi-structured interviews with senior policy makers and the SALIENT heads of school and middle leaders on their perceptions of teacher agency in school improvement. SALIENT is compared to the four dimensions presented by the OECD (2017) which support effective school reform: smart policy design, inclusive stakeholder engagement, a learning conducive context and a coherent implementation strategy.

Elena **TANTI BURLO'**, Colin **CALLEJA**, Maria **BEZZINA** & Orian **CUTAJAR**
University of Malta, Malta

Universal Design for Learning: A framework for teaching all students through an inclusive education system

The authors believe that teachers' repetitive cry of "How can we teach children with different abilities in the same class?" may be answered through the implementation of Universal Design for Learning (UDL). Through this paper, the authors will briefly present the definition of Universal Design for Learning and its implementation. The implementation of UDL is seen as an essential ingredient for Inclusive education. Both foreign and local educational documents point to the importance of implementing UDL to create an equitable educational system. Local research conducted on secondary school teachers will be presented and includes: what teachers think of inclusive education and the teaching strategies they use; what Maltese Mathematics secondary school teachers think about the UDL guidelines (CAST) and to what extent their practice reflects their beliefs and, finally, the effects of in-service training on UDL on the practice of educators. These will form the basis of the authors' conclusions and recommendations on the implementation of UDL in Maltese state secondary schools.

Oswald **TANTI RIGOS**
University of Malta, Malta

Dnegel in l-aqwa żmien: Schooling and the need of an absurdity test

One of the latest news items that went viral was the naming of a child as Dnegel. The reason for its popularity stemmed from the comicalness people found in what was considered a pretentious and fatuous effort to name a child 'legend' read in reverse. What struck me as interesting was how this piece of news was turned into numerous memes by the Gen Z cohort, highlighting not the inappropriateness of the name by the social and environmental roots defining present times but by being objectively moronic. It is intriguing how the self-proclaimed 'woke' youth, attracted as they are to that which is 'ahead of times' and to music such as that produced by Billie Eilish, Lil Nas X and other artists that have espoused the fluidity characteristic of present times and have completely defied the now passé music genre, can so easily switch to linear ways of thinking and acting which they vehemently transgress in their popular culture and other leisure related activities. I am of the opinion that this dichotomy is the product of a tension between the aims of a schooling education that still harbours a romantic attitude towards the modern project and the post WW2 context that has generated an attitude of mistrust in the same. We live in a historical period that has witnessed the collapse of political ideology and that has generated a general sense of mistrust in the grand narratives of hope. Still, the (secular) church of reason is still very much alive through the efforts of a presbyterate of policy makers and teaching practitioners in converting students to 'the tyranny of the straight line.'¹ Hence, while the 'woke' ones live in a world which keeps revealing itself as absurd, schooling keeps generating a purposeful optimism in a world of making sense. The problem I see with this is that, while schooling education might be presenting a defence mechanism from the anguish of absurdity, it is allowing for cleverly constructed 'truths' to gain a deceitful seal of objectivity that legitimises the mechanisms of control inherent in its canon by virtue of this self-assigned authority.

I argue that schooling should start acknowledging truth as a pragmatic construct rather than as an accurate representation of the world. This would entail a dethronement of the domestication of thought in schools and the safeguarding of its reproduction at universities through teacher education; the former should aim to instil a playful engagement with existing language, while the latter would seek to produce social gadflies without the presumptuous aims that set Socrates apart from the Sophists which led humankind through the mistaken path of confusing dominant language games with truth - a position which was ironically legitimated none other by a narrative of some world outside of this 'cave.' In so doing we will help produce thinkers who will still come to the conclusion that Dnegel is unfit as a name, but who also come to judge populist statements such as 'L-Aqwa Żmien' as an instance of condescending non-rational optimism. Instead of propagating phantom truths dressed as *a priori* to serve as tools - an effort that renders the use of their own reason and judgement redundant - we would be presenting the existing body of knowledge as linguistic rhetoric and fostering rational and communicative skills to reshape it. This education as creative thinking should only be confined by the parameters of what I shall be contending to be the sole non-rational and non-necessary, yet universally pragmatically beneficial quality that is solidarity and which thus deserves to be celebrated in the curriculum in the way many 'truths,' undeservedly so, currently are.

¹ Hundertwasser, as cited in Kvale 1995, p.23

Rosette **THOMAS**
University of Malta, Malta

Narrative education in the teaching of Ethics

This paper addresses the need for teachers to educate themselves and others through narrative inquiry in the teaching of ethics. It stems from a plea for teachers to create their own pedagogies and other educational material from more pluralistic venues, and beyond the more Eurocentric and androcentric ones that are currently found in Maltese schools. It suggests that teacher education in the teaching of ethics can draw on feminist ethical, politically motivated methodology aimed to generate knowledge that diversifies thinking. Narrative inquiry is one such approach where people from communities themselves can speak and voice their experiences within the ethics class. The political and ethical aim of teaching ethics, therefore, goes beyond transmitting Eurocentric ways of thinking encouraged in schools. Such educational narratives should also find their way in teacher education with the aim of improving social relations within and outside teacher communities. In my presentation, I shall draw on my study about the use of home-grown stories of three Maltese women who converted to Islam and today wear the hijab publicly, out of their own decision. It revolves around the narrative power of the women and that this 'piece of cloth' holds, in triggering political controversy, in the teaching and learning of Ethics at the secondary level in Malta. These narratives in the ethics class provide face to face encounter with what Levinas' calls "a radical alterity", to understand how and why othering processes happen and explore how it is possible for their use to make education more hospitable. Recordings of the real women's voices describing how they navigate with it in family relations and personal lifestyles, together with the ways they have re-created their identities can provide educational ventures for teachers in teaching Ethics. Drawing on Sharon Todd (2006, 2010, 2013) and Claudia Ruitenberg (2006) of doing education with headscarves, narratives in teacher education are presented as feminist politically-motivated methods aimed to transgress boundaries in the teaching and learning of Ethics.

Alena **TOMENGOVA**, Ivan **PAVLOV** & Petra **FRIDRICHOVA**
Matej Bel University, Slovakia

Advisory support for teacher's professional development

The paper presents a research project that aims to offer a new approach to the professional development of teachers in Slovakia. It does this by changing the professional development paradigm from centralized and formal to autonomous and informal professional learning. This effort is based on a thorough analysis of forms, ways and results of further and continuous education of teachers in the Slovak Republic after the year of 1989. Based on the analysis of national and international research reports (TALIS, PISA, ITEL/OECD), the characteristics of teacher trainings, their positives, negatives and outcomes have been identified. Based on the findings, a professional career advisory system for teachers' professional development was designed. Advising is provided directly in school for individual teacher or group of teachers, or school by trained certified advisor. A training programme for advisors is designed as a project outcome and its content and criterion validity, will be experimentally verified within the project. Advisory system will be gradually implemented in schools, fully in line with the Act on Teachers and Educational Staff (Act No. 317/2009 Coll.). Based on the analysis of available literature in the field of professionalism of teachers' profession, it can be stated that the professional learning of teachers and their development is a process of conscious and unconscious acquisition of professional competence through a wide range of specific learning activities leading to the improvement of quality of education. In the broadest sense, it is professional socialization, professional docility (personal learning potential), and professional ethics. In the Slovak Republic, where implementation of changes in education and professional development of teachers has been centralized in the past 30 years, non-formal education and self-development have lagged significantly. In the context of Kennedy's (2005) PD models, there was also a lack of interest in participation in continual education, a lack of variety of educational activities in terms of both forms and content, and not always the expected quality. We consider the lack of collaborative and team activities to be a great drawback, which is also absent in the work of teachers with pupils. The new system of advising is a personal solution for the professional development of a particular teacher or group (school), which is lacking in the current models, and is handled by head of school, who does not always have sufficient time and expertise in this area. An expert advisor's individual activity would thus complement the traditional forms of professional development and at the same time reflect the needs of the school as a learning community. Proposed training programme for the professional development advisors in schools enables to acquire diagnostic, communication, advising, and co-operative competence as well as knowledge of the professional context. The program is currently experimentally verified and its content and criterion validity will be implemented. Subsequently, it will be offered to schools as a training option for school advisors. A professional development advisor as a specialized school position will be able to identify developmental and learning needs at the individual, group and school level. It is envisaged to streamline the professional development of teachers by offering tailor-made education, based on the identified learning needs of individuals and schools, increasing partnership cooperation, networking and team activities.

Lara **TONNA**¹, Lorraine **CALE**² & Jo **HARRIS**²

¹ University of Malta, Malta

² University of Loughborough, UK

PE-for-Health PD: Innovative and needs-based professional development for physical educators

Physical Education (PE) is commonly reported to be a subject that can promote health yet ‘a credible role for PE in public health’ still needs to be identified through the development of effective PE-for-health pedagogies (Armour & Harris, 2013, p.17). Within the Maltese National Curriculum Framework (NCF) (DQSE, 2012), PE is included in the area of Health Education (HE) and one of the learning outcomes published in 2015 centred on students becoming health literate. These outcomes were however, amended in 2017 and the health expectations were made less explicit. Despite this, health within PE is still an expectation and is also highlighted in existing policies such as ‘The Whole School Approach to Healthy Lifestyle: Healthy Eating and Physical Activity Policy (2015)’. This policy aims to: prioritise healthy eating and physical activity through a holistic education; empower children early in their development to achieve the physical and health literacy required to adopt a healthy lifestyle and to make informed choices about their lifestyles. Unquestionably, these expectations call for a need to develop more effective PE-for-Health pedagogies and for teachers to be supported in order to effectively implement any changes within their practice. This paper presents a selection of data from an ongoing doctoral study which is investigating the expression of health within PE in Maltese school contexts. The research reflects a constructivist approach and the main theories underpinning the study are drawn from the Change Theory (Fullan, 2006) as well as the Experiential Learning Model (Kolb, 1984). Phase 1 of this study focused on the expectations of PE with regards to health, explored from the perspective of different stakeholders. Data were collected via semi-structured interviews with 32 participants from three stakeholder groups: policy makers and writers; PE officials and teacher trainers; and PE teachers from state, independent and church schools. Data analysis was carried out using a constructivist grounded theory approach (Charmaz, 2014). The Phase 1 findings revealed a disparity between health policy and practice. Whilst there was consensus that health in PE was important, there was a lack of clarity amongst all stakeholders concerning the specific aims of the subject. The findings also highlighted that physical educators need to be supported in order to meet PE-for-health expectations. By drawing on the findings of Phase 1 as well as relevant literature pertaining to PD models and PD for PE teachers, Phase 2 of this study involved designing and delivering a PD programme that was innovative and needs-based and which aimed to support PE teachers in developing and delivering effective PE-for-health pedagogies. The concepts of community of learning and reflective practice were also incorporated within the PD. Six teachers were involved in the PD process which was implemented over a period of four months. Data Collection for the final phase of the study (Phase 3) includes a focus group and single face-to-face interviews with all 6 of the teachers where their experiences of and responses to the PD will be investigated.

Joseph **VANCELL**
University of Malta, Malta

Helping teachers develop effective digital learning solutions intended at reducing the immigrant-native educational achievement gap

Migration is increasingly becoming considered a problem that is threatening the European nations' economic sustainability, cultures and identities, and way of life. New forms of racism and xenophobia are posing tensions on European democracies, and the concomitant ascendancy of the far-right ideology, and hate towards 'the other'. Teachers, school leaders, and their trainers, as well as their employers in Malta, must now identify and respond to a diversity of students' needs: in the classroom, in the school and also in their host community. It is their responsibility to ensure a successful educational experience – that goes beyond the mere acquisition of knowledge – to migrants. The UN Convention on the Rights of the Child recognizes education as a right for all children, regardless of their migration status. The Action Plan of the European Commission on the Integration of Third Country Nationals encourages and supports national governments in developing and strengthening further their policies for integration. It considers education to be an important process for integration since it provides migrants and refugees with the knowledge, values and skills necessary for their employability and active participation in democratic dialogue, and, hence, for their empowerment in the new country of residence. Yet, various reports, including PISA, indicate that refugees, asylum seekers, and undocumented children, compared to 'natives', are underachieving in education. Various challenges have been identified including teacher shortages, lack of training on multi-cultural competences, psychological and social support to deal with students having experienced trauma, second language teaching skills, workload and insufficient resources to use differentiated educational approaches that cater to the individual needs of all students. The literature, however, does come with the proverbial 'silver lining'. This is digital technology as used in the classroom, and web-based courses. These, as case studies beyond the Maltese shores indicate, help in reducing the immigrant-native educational achievement gap, and, thereby, increasing inclusion. There is proof that the immigrants' achievement can be improved by a more intense use of digital technologies, including open educational sources, at home for schoolwork, informal learning purposes and as a means of support, particularly in the promotion of the social and emotional needs for non-native students. This paper, through a systematic review of the available literature, will identify and analyse strategies, as well as good practices of digital education for students from migrant backgrounds. Drawing from the review, it will argue for apposite approaches in the training of teachers, and their leaders, that will increase and make more effective the utilisation of digital learning opportunities, particularly open educational resources and networked technology-enhanced learning. Finally, the paper provides recommendations about how the Faculty of Education, NGOs and other training providers should invest in this field, develop synergies between key stakeholders and in the design of effective digital learning initiatives in both 'blended' and 'facilitated' forms, through which all students can be provided with high quality and equal opportunities, irrespective of their backgrounds.

Paul Michael **WATTS**
University of Birmingham, UK

The promotion of practical wisdom in teaching through critical reflection

Drawing on insights provided through research into Character and the Professional Development of Pre- and In-Service Teachers, this paper argues that teacher education should seek to consciously address the moral and ethical responsibilities of teachers within initial teacher education (ITE). More specifically, it argues that teacher education bears a responsibility to promote the development of “practical wisdom” and that this could be facilitated through critical reflection on moral and ethical aspects of practice. Education is not only concerned with the inculcation of knowledge, but with the personal, social and emotional development of young people. In being entrusted this responsibility, fundamental demands are placed on the character of the teacher who is required to navigate moral and ethical dilemmas in their daily practice and is in a constant process of judgement and arbitration. By their nature, the moral and ethical dilemmas teachers face, are not clear-cut. Furthermore, there is no clear guidance on what constitutes “right” action for teachers due to the often conflicting demands of personal values, the perceived best interests of students, school codes of conduct and the standards that teachers must adhere to. It is widely believed that how teachers arrive at reasoned ethical decisions and interact with others in morally responsible ways relies on a form of “practical wisdom” which relates to Aristotle’s concept of phronesis. Practical wisdom in this sense embodies the ability to not only perceive what is ethically salient in a situation, but to be able to weigh competing demands, to deliberate and to integrate these into an acceptable course of action (Darnell et al., 2019). While practical wisdom is thought to be gained mostly through experience, it is possible to train others in how to think about dilemmas (Kristjánsson, 2015). In this regard, ITE has the potential to influence pre-service teachers’ practice through exploring how to think about dilemmas they are likely to face. Within the teacher education literature, it has been suggested that a focus on practical wisdom in ITE, facilitated through critical reflection, would help to better prepare pre-service teachers to fulfil their wider role as educators. Critical reflection can guide teachers to explore how different responses affect the moral and ethical outcomes of any given situation, thereby helping them to consider the ethical implications of their work. However, it is argued that the instrumental approach of many ITE providers focuses predominantly on competencies and embodies a narrow interpretation of critical reflection which is generally reduced to evaluating pedagogical techniques and outcomes. This paper suggests that a critical question facing ITE providers is whether to prioritise instrumental aspects, or whether to also engage in approaches which attend seriously to moral and ethical dimensions of teaching. It makes practical recommendations for how critical reflection in its full sense can be integrated within ITE programmes and concludes by discussing the need for research in teacher education to evaluate the effectiveness of different approaches.

Ecmel YAŞAR & Ali ERSOY
Anadolu University, Turkey

Refugee students' primary school experiences in Turkey through the pre-service teachers' lens

Turkey is one of the countries that are experiencing the global phenomenon of the increasing movement of refugees. It was particularly affected by the Syrian civil war during which millions of people have had to leave their country. Turkey is the leading country that these people take refuge to and apply for transit pass. Between 2011-2019 approximately 500.000 Syrian children were born in Turkey. Besides these, mass migrations occur from other countries such as Iraq, Iran, and Afghanistan to Turkey. Various state and non-governmental organizations render various services to millions of refugees so as to live in humane conditions. One of these services is education, needed by an everincreasing number of refugee students. Primary schools in Turkey, receive refugee students on the basis of age, not taking into account their linguistic and social competence. They enter during their transition period when they still do not know how to communicate with their teachers and peers effectively leading to unsatisfactory academic performance. It is thought that pre-service teacher education programmes need to be redesigned in line with refugee students' education. Our study was structured on the experience of pre-service teachers who carried out teaching practice in the classrooms of a primary school in Eskisehir province in which approximately, one of every two students is a refugee. The study focused on the following questions:

1. What are pre-service teachers' observations on the educational life of refugee students?
2. How do pre-service teachers describe their first experiences of teaching practice in a classroom involving the refugee students?
3. How do the pre-service teachers interpret the teaching practices in the classrooms involving the refugee students with regard to their professional development?
4. What kind of suggestions do the pre-service teachers make concerning teacher education programs within the scope of refugee students' education?

The research was designed as a case study and eight pre-service teachers were selected as the participants. Typical case sampling was preferred in the selection process of the participants. The data of the research was obtained through the pre-service teachers' observation notes and the semi-structured interviews with them. The data was analysed via qualitative content analysis technique. According to observation notes, while refugee students have sufficient speaking skills, they experience certain problems on writing and reading. The refugee students are sometimes ignored and isolated by their teachers. The study shows that pre-service teachers have experienced awareness on the students who are not native Turkish speakers, and acquired positive professional experiences by carrying out individual studying with these students however practices are not designed for the educational attainment of refugee students to attain to the classes. Pre-service teachers interpret the fact that experiencing their first teaching practice with the refugee students in a school is a unique case and opportunity in terms of professionalism.

Ecmel **YAŞAR** & Mehmet **GÜLTEKİN**
Anadolu University, Turkey

The designing and implementation of the individualized portfolio based on the development of handwriting skills: Designing a teacher training seminar

Primary reading and writing education is structured on early literacy skills on the basis of listening and speaking dimensions of language, and serves to the students reach to functional reading and writing skills. In Turkey, during primary reading and writing processes handwriting is as important as reading. Students learn 29 uppercase letter form and 29 lowercase letter form in handwriting and these forms have got several codes of writing and typing direction. The writing action of handwriting is affected by the codes such as the size of letter forms, aligned writing, sloped writing, writing based on right spelling, enough spacing between words. In brief, the teaching and learning process of handwriting is affected by several variables. The individual differences and requirements of first-grade students is the most important showing that it is required to be individualised.

The individualised instruction is a student-centred approach which relies on determining which knowledge and skills the student requires and on the preparation of teaching plans pertaining to the requirements. The other student-centred approach is the portfolio based learning. The portfolio based learning includes learning materials selected by the student and within this scope, reflects the displayed efforts, progress and success. The Individualized Portfolio Implementation is a student-centred implementation model which is designed with complementary synergy of the student-centred nature of individualized instruction and the portfolio gives opportunity to the student to monitor self-performance and keep progress records. Pre-service and in-service teachers' professional development, would strengthen teachers' and researchers' hands in both elementary reading/writing and the other areas. The general aim of this study is to present a design of teacher training seminar explaining how the Individualized Portfolio Implementation is used for the purpose of developing primary first-grade students' handwriting skills. The study included the following questions:

1. How are the individualized portfolios based on the development of handwriting skills designed?
2. How are the individualized portfolios based on the development of handwriting skills implemented?
3. What are the dimensions of the teacher training seminar based on the designing and the implementation of individualized portfolio?

The design and implementation stages of the master's dissertation on the effectiveness of the Individualized Portfolio Implementation on cursive handwriting skills are revealed. The presentation explains how the individualized portfolios are designed, implemented and how these processes are presented in teacher training. It includes examples, declaring the stages of a) determining terminal aims, b) pre-assessment, c) diagnosis-students' profile documents, d) deciding lesson plan, e) providing assistance and f) assessment.

Aysun **YAVUZ**

Çanakkale Onsekiz Mart University, Turkey

Problems and issues in foreign language teacher education in Turkey

Problems in language teacher education and teacher training are multi-layered in Turkey. Lack of sustainable language teacher education policies, paradigms and approaches towards language teaching; programme and curriculum problems involving the management, evaluation and quality assurance standards are among the biggest problematic areas within teacher education in Turkey. The most influential Language Reforms in late 1990s involved an eight-year compulsory education and restructuring of Education Faculties. Another important reform in 2006 brought big changes both in the schooling curriculum and language teacher education curriculum. The introduction of new courses, alternative assessment methodologies, change in the classroom hours or the credits of some courses has received many criticisms from the end users (Coşgun & Daloğlu, 2010, Kırkgöz, 2012, Yavuz & Topkaya, 2013). The 2012 Education Reform has had big impacts on language teaching policies namely, the use of communicative approach through skill teaching, early start of foreign language teaching (TEPAV and British Cultural Institute, 2015). The 2018 Language Teacher Education Curriculum, on the other hand, introduced new teacher competencies and new courses with new codes such as, professional knowledge and general culture apart from the subject specific ones and the new teaching practicum instructions and regulations (Bayyurt, 2013, Kırkgöz, 2007). In the presentation, problems and issues associated with these big four reforms namely, top-down and centralised Programmes and Curriculum, unaddressed teacher education model/s, needs analysis schemas, lack of cooperation with the stake holders and piloted work will be discussed within a brief historical perspective (Seferoğlu, 2006, Coşkun & Daloğlu, 2010, Hismanoğlu, 2012, YÖK, 1998, 2007). Potential solutions will also be suggested such as, a structured cooperation between Higher Education Council and Ministry of Education (education faculties and schools), activating quality assurance mechanisms, determining mentor selection and training criteria, questioning traditional teacher and learner competencies. Problems and suggested solutions will be examined and supported with current data, sample examples and implications.

Dilek **TANISLI**¹, Nilufer **KOSE**¹, Melih **TURGUT**² & Gözde **AYBER**¹

¹ Anadolu University, Turkey

² Eskişehir Osmangazi University, Turkey

Is it possible to support math teachers' online professional development through hypothetical learning trajectories? Evidence from Turkey

Because internet and digital technologies are part of our daily-lives, teachers' professional development could be enabled through web-based educational portals (Chien, Kao, Yeh, & Lin, 2012). Creation of such specific digital environments also enables teachers to access educational materials and the reflections of stakeholders anytime and anywhere. Such web-based educational portals could have many functions for improving teachers' professional development; uploading course materials, receiving reflections of peers, open discussions on pedagogical content knowledge, student learning and/or teaching strategies, and arranging online meetings. Considering such functions and referring to a theoretical construct of Hypothetical Learning Trajectories (HLT) (Simon, 2014), we aim to design a web-based teaching-learning portal for in-service mathematics teachers' professional development for teaching and learning algebra in middle school context. Accordingly, our aim is to provide teachers an environment where they can learn the notion of HLT and construct HLTs for their own didactic interventions in classroom settings. The portal is a part of 24-month large scale project, where we also investigate how teachers will refer to use it, how they will design their own HLTs through peers' and stakeholders' reflections and the effects of implementation of HLTs on students' mathematical competence of algebra. Therefore, we take a stance of mixed-method research following qualitative and quantitative paradigms, where we also plan to follow three stages. The first phase of the project included the preparation of the context and data collection tools of the web-based educational portal, i.e., working on the design of the portal and transferring the contents into such environment. The second phase included a pilot study where we focus on twelve teachers with respect to functionality of the portal in their design and application HLTs. According to the results of the pilot study and teachers' opinion, we have made necessary refinements to the portal. The third phase included main research with 30 teachers on the effectiveness of the portal, in which we hope to see teachers' professional development in teaching and learning algebra, through designing, applying and evaluating a lesson plan based on HLTs. The findings of the study suggested that the participant teachers managed to define more coherent learning goals, classroom activities and hypotheses for students learning regarding (lower) secondary school algebra. Most progress was observed both in the teachers' interplay between the mathematical concepts, and different mathematical problem-solving techniques.