

Conference Program

Important Notes:

The full schedule of presentations for keynotes, workshops, symposia, oral presentations, and posters is now available on the conference website. If you are presenting, please refer to this schedule as a confirmation of the date and time of your presentation and download the attached pdf file. Thank you for your patience. **Click [HERE](#) to get the conference programme.**

The conference has six Rooms/lecture halls (**A; B; C; D; E; F**) that will accommodate all presentations. If the code of your presentation is (A.1), this presentation will take place in Room/lecture hall (A).

Please refer to the printed conference programme that will be distributed onsite, for the exact location and time of your session.

The first presenter in each session will be assigned a **moderator** to assist with speaker transitions and to move the session along.

Abstracts: Abstracts will not be printed; however the full abstracts and technical session schedule will be available on the conference website. Abstracts will be listed by track, by primary author's first name.

Registration: All presenters need to register and pay to attend the conference.

Day One (May 18, 2016):

- 07:00 – 09:00 Registration
 - 09:00 – 10:00 Posters
 - 10:00 – 11:00 *Opening Ceremony*
 - 11:00 – 11:15 Coffee Break
 - 11:15 – 12:15 **Keynote Speaker 1: Joseph S. Renzulli** Chair: Sandra Krpan
 - 12:15 – 13:15 **Keynote Speaker 2: Pero Lučin** Chair: Snježana Prijić-Samaržija
 - 13:15 – 14:30 *Lunch*
 - 14:30 – 15:30 **Keynote Speaker 3: Todd Lubart** Chair: Phill Baker
 - 15:30 – 16:30 **Keynote Speaker 4: Ken McCluskey** Chair: Sandra K. Linke
 - 16:30 – 17:30 **Keynote Speaker 5: Sally M. Reis** Chair: Meredith McLaughlin
 - 17:30 – 17:45 *Coffee Break*
 - 17:45 – 19:00 **The Nobel Laureate: Roald Hoffmann** Chair: Joseph Goulet
 - 20:00 – 21:00 Welcome Reception (City Hall)
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Day Two (May 19, 2016):

- 08:00 – 10:00 **Workshops:**

Room A	Room B	Room C	Room D	Room E	Room F
W ₁	W ₇	W ₃	W ₄	W ₅	W ₆

- 10:00 – 10:15 *Coffee Break*

- 10:15 – 11:15 **Keynote Speaker 7: Roland S. Persson**

Chair: Ewa Piotrowska

- 11:15 – 12:15 **Keynote Speaker 8: Jacques Grégoire**

Chair: Petra Karanikić

- 12:15 – 13:15 **Parallel Sessions:**

Room A	Room B	Room C	Room D	Room E	Room F
Creativity (A.1) (A.2) (A.3)	Excellence (B.1) (B.2) (B.3)	Gifted Edu. (C.1) (C.2) (C.3)	Gifted Edu. (D.1) (D.2) (D.3)	Excellence (E.1) (E.2) (E.3)	Creativity (F.1) (F.2) (F.3)

- 13:15 – 14:15 *Lunch*

- 14:15 – 15:15 **Keynote Speaker 9: Uğur Sak**

Chair: Maruška Željeznov Seničar

- 15:15 – 16:15 **Keynote Speaker 10: Boris Jokić**

Chair: Snježana Prijić-Samaržija

- 16:15 – 16:30 *Coffee Break*

- 16:30 – 18:00 **Symposia:**

Room A	Room B	Room C	Room D	Room E	Room F
Symposium 1	Symposium 2	Symposium 3	Symposium 4	Symposium 5	Symposium 6

- 18:00 – 19:00 **Parallel Sessions:**

Room A	Room B	Room C	Room D	Room E	Room F
Creativity (A.4) (A.5) (A.6)	Excellence (B.4) (B.5) (B.6)	Gifted Edu. (C.4) (C.5) (C.6)	IT & Technology (D.4) (D.5) (D.6)	Contemporary Issues (E.4) (E.5) (E.6)	Creativity (F.4) (F.5) (F.6)

Day Three (May 20, 2016):

- 08:00 – 10:00 **Workshops:**

Room A	Room B	Room C	Room D	Room E	Room F
W ₂	W ₈	W ₉	W ₁₀	W ₁₁	W ₁₂

- 10:00 – 10:15 *Coffee Break*

- 10:15 – 11:15 **Keynote Speaker 11: Svjetlana Kolić-Vehovec**

Chair: Kornelija Mrnjauš

- 11:15 – 12:15 **Keynote Speaker 12: Alan C. Wiebe**

Chair: Christiane Kirsch

- 12:15 – 13:15 **Parallel Sessions:**

Room A	Room B	Room C	Room D	Room E	Room F
Creativity (A.7) (A.8) (A.9)	Excellence (B.7) (B.8) (B.9)	Gifted Edu. (C.7) (C.8) (C.9)	IT & Technology (D.7) (D.8) (D.9)	Contemporary Issues (E.7) (E.8) (E.9)	Science Edu. (F.7) (F.8) (F.9)

- 13:15 – 14:15 *Lunch*

- 14:15 – 15:15 **Keynote Speaker 13: Heinz Neber** Chair: Iva Rinčić
- 15:15 – 16:15 **Keynote Speaker 14: Jasminka Ledić** Chair: Željko Rački
- 16:15 – 16:30 *Coffee Break*
- 16:30 – 18:00 **Symposia:**

Room A	Room B	Room C	Room D	Room E	Room F
Symposium 7	Symposium 8	Symposium 9	Symposium 10	Symposium 11	Symposium 12

- 18:00 – 19:00 **Parallel Sessions:**

Room A	Room B	Room C	Room D	Room E	Room F
Creativity (A.10) (A.11) (A.12)	Excellence (B.10) (B.11) (B.12)	Gifted Edu. (C.10) (C.11) (C.12)	IT & Technology (D.10) (D.11) (D.12)	Contemporary Issues (E.10) (E.11) (E.12)	Science Edu. (F.10) (F.11) (F.12)

Day Four (May 21, 2016):

- 08:00 – 10:00 **Workshops:**

Room A	Room B	Room C	Room D	Room E	Room F
W ₁₃	W ₁₄	W ₁₅	W ₁₆	W ₁₇	W ₁₈

- 10:00 – 10:15 *Coffee Break*
- 10:15 – 11:15 **Keynote Speaker 15: Mojca Jurišević** Chair: Jasna Arrigoni
- 11:15 – 12:15 **Keynote Speaker 16: Kristof Kovacs** Chair: Jasna Cvetković-Lay
- 12:15 – 13:15 **Keynote Speaker 17: Anies Al-Hroub** Chair: Hussam Diab
- 13:15 – 14:15 *Lunch*

- 14:15 – 15:45 **Parallel Sessions:**

Room A	Room B	Room C	Room D	Room E	Room F
Creativity (A.13) (A.14) (A.15) (A.16) (A.17)	Excellence (B.13) (B.14) (B.15) (B.16) (B.17)	Gifted Edu. (C.13) (C.14) (C.15) (C.16) (C.17)	IT & Technology (D.13) (D.14) (D.15) (D.16) (D.17)	Contemporary Issues (E.13) (E.14) (E.15) (E.16) (E.17)	Science/ Excellence (F.13) (F.14) (F.15) (F.16) (F.17)

- 15:45 – 16:45 **Youth Summit Symposium**
- 16:45 – 17:30 **Closing Ceremony**

Workshops Programme

Day Two (May 19, 2016):

No.	Title	Conductor
W ₁	Talented Females: Obstacles, Challenges, & Choices.	Sally M. Reis
W ₃	Learning in the Digital Age: The Use of Film in Education.	Maher Bahloul
W ₄	Creating Creative, Cooperative Environments Creatively and Cooperatively.	Ken W. McCluskey
W ₅	The Use of the Creative Reversal Act (CREACT) to Develop Creative Potential in the Classroom.	Uğur Sak
W ₆	Evaluation of Potential Creativity (EPoC).	Todd Lubart
W ₇	Identifying and Developing Creative and Productive Giftedness: Major Challenges for the 21st Century Learners.	Joseph S. Renzulli

Day Three (May 20, 2016):

No.	Title	Conductor
W ₂	Problem-Based Learning (PBL).	Heinz Neber
W ₈	Lost Prizes: Recognizing and Nurturing the Talent of At-Risk Students.	Ken W. McCluskey
W ₉	The Use of the Creative Reversal Act (CREACT) to Develop Creative Potential in the Classroom.	Uğur Sak
W ₁₀	Scientific Evidence of Neuronal Phenomena.	Dubravko Kičić
W ₁₁	Active Learning in Science: The Case of Colours.	Mojca Čepič
W ₁₂	Evaluation of Potential Creativity (EPoC).	Taisir Subhi Yamin

Day Four (May 21, 2016):

No.	Title	Conductor
W ₁₃	Problem-Based Learning (PBL).	Heinz Neber
W ₁₄	Gifted First Graders in Digital Age –Individual Projects in ICT and Robotics.	Ana Sović-Križić Jasna Cvetković-Lay Tomislav Jagušt
W ₁₅	The Use of the Creative Reversal Act (CREACT) to Develop Creative Potential in the Classroom.	Uğur Sak
W ₁₆	Learning in the Digital Age: The Use of Film in Education.	Maher Bahloul
W ₁₇	Lost Prizes: Recognizing and Nurturing the Talent of At-Risk Students.	Ken W. McCluskey
W ₁₈	Active Learning in Science: The Case of Colours.	Mojca Čepič

Sessions Distribution According to the Topic

(1) Creativity

- A.1 Kyunghwa Lee. *Development of K-DHA Model and Program for Developing Human Creativity based on TRIZ and Design Thinking.*
- A.2 Orest Cap; Karen E. Smith. *A Closer Look at Canada's Federal Vocational Education Acts: Is Innovation Being Fostered for the Future?*
- A.3 Jacques GREGOIRE; Todd LUBART. *A New Test for Assessing Mathematical Creativity.*
- A.4 Bilge Bal-Sezerel; Nazmiye Nazli Ozdemir. *A Review on the Assessment of Mathematical Creativity.*
- A.5 Bilge Bal-Sezerel; Nazmiye Nazli Ozdemir. *Key Themes within the Studies of Mathematical Creativity.*
- A.6 Çiğdem Nilufer UMAR. *The Effects of Differentiated Curriculum with Blended Learning Method on Gifted Students' Critical Thinking Abilities and Creativity.*
- A.7 Dengchuan Cai; Jhongpei Wu; Tingkai Chang; Wanyu Cheng; Sheng-chun Huang; Jia-wei Jhang. *Creativity Investigation of Graduate Students in Taiwan.*
- A.8 Ivan Alagić. *Content Analyses of School Books: The Relationship between Convergent and Divergent Thinking.*
- A.9 Josipa Mamužić. *Games that Foster Creativity.*
- A.10 Gabriela Konkol; Anna Kalarus. *Creativity in Zofia Burowska's Concept and its Implementation into School Practice in Poland.*
- A.11 Gayle B. Roege. *Answering the Demand for Art & Design Thinking, Innovation, and Creativity: Developing the Talent of Artistically Gifted Adolescents.*
- A.12 Giovanni Corazza; Christiane Kirsch; Sergio Agnoli. *The Creative Potential Questionnaire: An Innovative Measurement Tool.*
- A.13 Marie Thillot; Maud Besançon; Todd Lubart. *Evaluation of Potential Creativity (EPoC): A new Social Creativity Domain.*
- A.14 Fakolade, Olufemi Aremu. *Socio-Cultural Barriers and Blocks: Its Implication on Creativity and Innovations Among Africans.*
- A.15 Fariha Asif. *Creativity, Commitment and Thinking through English in EFL Classroom.*
- A.16 Laura Herceg; Nina Licul. *Systematic Development of Artistic Creativity and Innovation of Elementary School Students.*
- A.17 Monika Chylińska. *Pretend Play and its Possible Connections with Creativity and Imagination.*
- F.1 Petra Karanikic. *The Role of Creativity, Innovation and Education in Science Development.*
- F.2 Piotr Gindrich. *The Effect of Middle School Teachers' Creative Potential on their Self-Assessments of Professional Skills.*
- F.3 Tina Madunic. *Children's Photographs- A Creative Way to Explore Children's Understanding of Aesthetics.*
- F.4 Maruška Željznov Seničar. *Creative Problem Solving.*

(2) Excellence

- B.1 Andreja Kozmus. *Saturday Schools for Gifted Pupils – A Way of Developing Human Excellence.*
- B.2 Baha Zoubi. *Thinking Styles of Gifted, Excellent, Regular and Special Needs Students in Junior and High Schools in the Arab Society in Israel.*
- B.3 Beryl Cox Pittman. *“Think and Do:” Developing the Entrepreneurial Engineer at North Carolina State University.*
- B.4 Bruno Fiala; Josipa Mamuzic. *“I’ve Got an idea!” – A Presentation of an Afterschool Programme.*
- B.5 Christian Herbig. *Creating Personalized Learning Settings: (Intermediate) Results of a Delphi Study on Dealing with Students’ Diversity in Secondary Education.*
- B.6 Csilla Fuszek. *Hungarian Talent Support Network Model: Operational Experience (2006-2016).*
- B.7 Damir Marinic; Ida Marinic. *Educational Challenges in Global Society: Integration-Processing Approach.*
- B.8 Eva Vondrakova. *Gifted Children Education as a Result of Attitude to Excellence.*
- B.9 Gordana Friščić; Gala Gudec. *Opening the Centre of Excellence in the Primary School Izidor Krsnjavi.*
- B.10 Hatice Kübra SÖZEL. *A Comparative Study on the Teachers’ Self-Efficacy.*
- B.11 Kialala Kiala John. *The Learning Activity: An Object of Research and Innovation?*
- B.12 Maher Bahloul. *Pushing Forward the Creative Mind: Learning Through Filmmaking.*
- B.13 Marko Turk; Bojana Vignjević. *Research Papers are what Counts: Excellence in Teaching is Neither Supported nor Properly Evaluated.*
- B.14 Meredith McLaughlin. *Integrated Project-Based Learning to Fuel Civic Engagement: the Ultimate in Student Challenge.*
- B.15 Nataša Mesaroš Grgurić. *Contemporary School Aims to be Modern, Humanistic, Open and Creative.*
- B.16 Sanja Skočić Mihić, Renata Čepić. *Teaching Gifted Students: Teacher’s Perceived Acquired Competency in Different Forms of Professional Development.*
- B.17 Rabia Aslam. *Studying Abroad Need or a Choice.*
- E.1 Philip Baker. *“Winnipeg Realizing Project”.*
- E.2 Sanja Skočić Mihić; Kathleen Beaudoin; Anna Giugno Modrušan. *Gifted Students and Students with Disabilities: Teachers’ Competence for Differential Teaching.*
- E.3 Sharon Lierse. *Characteristics University Outstanding Lecturers have in Common.*
- F.15 Şule Güçyeter. *Revising Problem Solving Subtests of Similarity and Relation Based Test of Thinking in Math.*
- F.16 Tončica Šiško; Ivona Pierobon; Dubravka Veršić. *How to Enrich Learning with Creative Art Therapies and NLP.*
- F.17 Wil Meeus. *Excellent Academic Teacher Education Programmes.*

(3) Contemporary Topics

- E.4 Veronika Wolf Cohen. *Musical Mirrors and Mirror Neurons.*
- E.5 Barbara Friehs. *Religious Traditions and Cultural Clashes the Influence of Islam on Public Education in German Speaking Countries.*
- E.6 Danijel Vasilj. *School Sport as an Innovative Approach for Social Inclusion of Students with fewer Opportunities.*

- E.7 Jo suyeon. *The Research about the Difference in the Perceptions on Counselor between Middle School Students and their Parents.*
- E.8 Kornelija Mrnjaus; Bojana Vignjevic. *Discourse on Elements and Benefits of Positive Teacher – Student Relationship in the Academic Context – Students’ Perspective.*
- E.9 Maaouia Haj Mabrouk. *Learning Through the Art (LTTA).*
- E.10 Nada Kegalj; Maja Bačić Ostović. *Debate as a Strategy for Teaching and Personal Development.*
- E.11 & E.12 Nina Meyerhof. *Peace Education.*
- E.13 Pijus Barua. *Conflict Resolution in South Thailand: Roles of Religious Leaders.*
- E.14 Tiloka Nanda Sraman. *A Comparative Study between General Educational and Buddhist Educational and Professional Training.*
- E.15 Christos Dimitriadis. *Provision for the Highly Able Student of Mathematics in Primary Classrooms: A Pilot Study in England.*
- E.16 Anne Justus. *Highs and Lows of Experiential Teaching Group Psychotherapy with Graduate Students in Egypt.*
- E.17 Naif Kara. *The Role of Communication in the Development Process and the Emotional Quotient.*

(4)

Gifted Education

- C.1 Smiljana Valcl. *Gifted Students in a Volunteer Project.*
- C.2 Ahmet Keskin; Cem Oktay Güzeller; Eda Gürten; Nilgün Baysal Metin. *Who Am I? Gifted Students’ Opinions on their Needs and Interests.*
- C.3 Esranur DULGER; Omer Faruk TAMUL; Hatice Kübra SOZEL. *Peer Relationships of the Gifted Students.*
- C.4 Ömer Faruk TAMUL. *A Literature Review: The Identification of the Gifted Students with Learning Difficulties.*
- C.5 Ömer Faruk TAMUL; Hatice Kübra SÖZEL; Esranur DÜLGER. *Teachers’ Belief in Giftedness.*
- C.6 Zeynep ŞEN; Tülin ACAR; Eda GÜRLEN; Nuray SENEMOĞLU. *Investigation of Postgraduate Theses about Gifted/Talented Education in Turkey.*
- C.7 Ercan Opengin; Fatih Tokmak. *Relationship of Academic Self Concept and Life Satisfaction among Gifted Children.*
- C.8 Ercan Opengin; İbrahim Tasdemir. *Teachers’ Views with regard to Gifted Students Education and Resource Room Program.*
- C.9 Hatice Kubra SOZEL; Esranur DULGER; Omer Faruk TAMUL. *A Literature Review on the Effectiveness of Mentorship Programs for Gifted and Talented Students.*
- C.10 Joseph Toh Kim Leng; Yeo Soo Ling. *Talent Development in a Singapore School for High-Ability Learners.*
- C.11 Sonja Artac. *Gifted Students in the Shadow of Science Misconception.*
- C.12 Şule Güçyeter. *Opinions of Pre-service Teachers of Guidance and Psychological Counseling about Giftedness, Gifted Education and the Needs of Gifted Students.*

- C.13 Kellie Clarke. *A is for Acceleration.*
C.14 Ksenija Ranogajec Benakovic. *“Sparks” Programme for Gifted Children.*
C.15 Maja Gerden. *Enthusiastic Mentors and Talented Students’ Achievement.*
C.16 Nazmiye Nazli Ozdemir. *A Review on Teachers’ Perceptions and Attitudes towards Giftedness across Cultures.*
C.17 Ozlenen OZDIYAR; Abdul Samet DEMIRKAYA; Eda GURLEN; Sevgi TURAN. *An Analyses of the Gifted Students’ Occupation of their Dreams.*
D.1 Suzana Vajngerl. *Research Skills of Gifted Students.*
D.2 Tarika Sandhu; Shweta Prashar. *Dynamics of Flow in the Creatively Gifted.*
D.3 Željko Rački. *Insights on Gifted Education in Croatian Elementary Schools.*

(5) IT & ICT

- D.4 Rafael Saracchini. *Latest Developments in Informatics: Virtual & Reality Augmented.*
D.5 Susanne Steigler Peters. *Cloud Enabled Mobile Learning Experiences.*
D.6 Jose Rodrigo Zubiri; Sofia Carmen Tomacruz. *Digital Demands: Addressing The Digital Divide in Basic Education and Its Relation to Academic Performance and Aspirations.*
D.7 Alena Dika; Ivan Dražić. *e-Classroom - Extra Curricular.*
D.8 Anna Maria. *Integrating Technology into the Curriculum.*
D.9 Christopher Arrighi; Nicole Arrighi. *What Good Mobile Instruction Looks Like.*
D.10 Jean SIMON; Veronique SEBASTIEN. *The Use of a CSCW Platform: Professional Training Program Vs. General Education Training Program.*
D.11 Jessica Potts. *New Form of Education: Virtual Schools.*
D.12 Michael Canuel; Mary Stewart. *How to Make Sound Decisions About Educational Delivery Modes in an Age of Increasing Technology.*
D.13 Mojca Jurišević; Alenka Baggia; Tomaž Bartol; Danica Dolničar; Saša Aleksej Glažar; Mirjana Kljajić Borštnar; Andreja Pucihar; Blaž Rodič; Irena Sajovic; Andrej Šorgo; Bojana Boh Podgornik. *Motivational Aspects of Information Literacy in Higher Education.*
D.14 Pedro Sanchez Escobedo; William Reyes Cabrera. *ICT in Mexico.*
D.15 Silviu Daniel Brebulet. *Online Career Counseling.*

(6) Science Education

- F.7 Anisija Žižić; Andrina Granić. *Supporting Creativity in Computer Science Education.*
F.8 Anita Hodak; Zeljka Modric Surina. *Natural Sciences and the Gifted Children in Rijeka-Croatia.*
F.9 Bahadır Ayas. *Threshold Theory in the Area of Science: Creative Potential of School Children.*
F.10 Hussam Diab. *Scientific and Technological Leadership Reserve.*
F.11 Martin Konecny. *Experience of Teaching Physics at a Lower Level Gymnasium for Gifted Children.*

- F.12 Sanja Martinko; Sanja Tatalović Vorkapić. *Could Students' Attitudes Towards Learning Physics Significantly Predict their Learning Outcomes: Implications for Innovative Methods in Teaching Physics.*
- F.13 Vesna Ivasović; Almom Rovis Brandić. *Meeting the Needs of Twice Exceptional Students.*
- F.14 Zdzislaw Kazanowski. *Self-Assessed Professional Competence of Teachers and Strategies for Finding the Solutions to the Problems of Children with Special Educational Needs.*

(7)
Posters

- P.1 Aleksandra Gajda; Maciej Karwowski. *Creative Learning in Polish Schools.*
- P.2 Carole-Lynne Le Navenec. *Characteristics of Outstanding Teachers for those Beginning School: A Case Study of the Lived Experience of a Retired Professor.*
- P.3 Darko Lončarić; Anela Nikčević Milković. *Learning to Self-Regulate Creative Writing in Schools: Effects of Goals and Motivation on Writing Self-Regulation and Performance.*
- P.4 Dorota M. Jankowska; Maciej Karwowski. *Types of Imaging Abilities.*
- P.5 Ercan Opengin; Fatih Tokmak. *The Comparison of the World's Top 100 University Rectors with Turkey's Top 100 University Rectors In Terms Of Several Variables.*
- P.6 Jasna Arrigoni; Danijela Blanuša Trošelj; Jasna Borbelj Čeko; Ljiljana Brašnić. *Center for Gifted Children - Non-Profit Organization as a Part of a Social Care for the Gifted.*
- P.7 Jenny Horsley; Carolyn Tait. *Self-Efficacy and High-Academic Achievement in Minority Students.*
- P.8 Katarina Ačimer; Mojca Jurišević. *Problems of the Definition and the Identification of Twice-Exceptional Students by Slovenian Primary School Educators.*
- P.9 Kristina Riman; Petra Rimanić. *Opportunities for Puppetry Use in Creative Activities and Creative Play Production.*
- P.10 Ksenija Ondrašek; Vlatka Kovač; Višnja Cuculić. *Model of the Educational Support Development for Potentially Gifted Students in the Primary School Grigor Vitez.*
- P.11 Nilgun Kirisci; N. Nazli Ozdemir. *Gifted Students: Out of the Educational Context.*
- P.12 Sungmoon Lim; Seokyong Cho; Jijun Lim. *The Relationship between Parental Psychological Control and Relational Aggression: An Exploration of Intervening Variables.*
- P.13 Tanja Černe. *Comparative Case Study of Competence Learning for both Students with Learning Difficulties and Normal.*
- P.14 Vesna Ivasović; Mihaela Alfirev. *Synesthesia and Creativity – Close Friends?*

Sessions Distribution According to the First Name of the First Author

- Ahmet Keskin; Cem Oktay Güzeller; Eda Gürten; Nilgün Baysal Metin. *Who Am I? Gifted Students' Opinions on their Needs and Interests.* (C.2)
- Aleksandra Gajda; Maciej Karwowski. *Creative Learning in Polish Schools.* (P.1)
- Alena Dika; Ivan Dražić. *e-Classroom - Extra Curricular.* (D.7)
- Andreja Kozmus. *Saturday Schools for Gifted Pupils – A Way of Developing Human Excellence.* (B.1)
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- Bruno Fiala; Josipa Mamuzic. (B.4) *"I've Got an idea!" – A Presentation of an Afterschool Programme.* (B.4)
- Carole-Lynne Le Navenec. *Characteristics of Outstanding Teachers for those Beginning School: A Case Study of the Lived Experience of a Retired Professor.* (P.2)
- Christian Herbig. *Creating Personalized Learning Settings: (Intermediate) Results of a Delphi Study on Dealing with Students' Diversity in Secondary Education.* (B.5)
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- Christos Dimitriadis. *Provision for the Highly Able Student of Mathematics in Primary Classrooms: A Pilot Study in England.* (E.15)
- Çiğdem Nilufer UMAR. *The Effects of Differentiated Curriculum with Blended Learning Method on Gifted Students' Critical Thinking Abilities and Creativity.* (A.6).
- Csilla Fuszek. *Hungarian Talent Support Network Model: Operational Experience (2006-2016).* (B.6)
- Damir Marinic; Ida Marinic. *Educational Challenges in Global Society: Integration-Processing Approach.* (B.7)
- Danijel Vasilj. *School Sport as an Innovative Approach for Social Inclusion of Students with fewer Opportunities.* (E.6)
- Darko Lončarić; Anela Nikčević Milković. *Learning to Self-Regulate Creative Writing in Schools: Effects of Goals and Motivation on Writing Self-Regulation and Performance.* (P.3)

- Dengchuan Cai; Jhongpei Wu; Tingkai Chang; Wanyu Cheng; Sheng-chun Huang; Jia-wei Jhang. *Creativity Investigation of Graduate Students in Taiwan.* (A.7)
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- Esratur DULGER; Omer Faruk TAMUL; Hatice Kübra SOZEL. *Peer Relationships of the Gifted Students.* (C.3)
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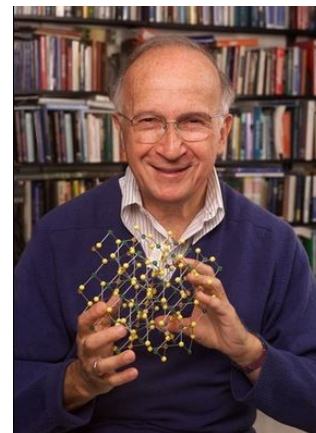
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Keynote Speakers

The Nobel Laureate Roald Hoffmann:
My Life Journey, Creativity, Innovation, and Excellence in Science & Education:
Cornell University, Ithaca - USA

The International Centre for Innovation in Education (ICIE) is very pleased, proud, and honored to announce that the Nobel Laureate Prof. Dr. Roald Hoffmann is the first keynote speaker at the 13th International Conference on Excellence & Innovation in Basic-Higher Education & Psychology Rijeka-Croatia, May 18-21, 2016). This keynote covers a large number of issues relating to his life journey, creativity, innovation, and excellence in science, education, and technology. In addition, Professor Hoffmann will highlight the importance of: Mentorship programmes, talent development, education in general and gifted education in particular, and the required competences for teachers. The General Director of the ICIE has interviewed Professor Hoffmann at Cornell University in Ithaca-USA. This interview will be published in the International Journal for Talent Development and Creativity (IJTDC).



Roald Hoffmann was born in 1937 in Zloczow, Poland. Having survived the war, he came to the U. S. in 1949, and studied chemistry at Columbia and Harvard Universities (Ph.D. 1962). Since 1965 he is at Cornell University, now as the Frank H. T. Rhodes Professor of Humane Letters Emeritus. He has received many of the honors of his profession, including the 1981 Nobel Prize in Chemistry (shared with Kenichi Fukui).

"Applied theoretical chemistry" is the way Roald Hoffmann likes to characterize the particular blend of computations stimulated by experiment and the construction of generalized models, of frameworks for understanding, that is his contribution to chemistry. The pedagogical perspective is very strong in his work.

Notable at the same time is his reaching out to the general public; he participated, for example, in the production of a television course in introductory chemistry titled "The World of Chemistry," shown widely since 1990. And, as a writer, Hoffmann has carved out a land between science, poetry, and philosophy, through many essays and three books, "Chemistry Imagined" with artist Vivian Torrence, "The Same and Not the Same and Old Wine" (translated into six languages), "New Flasks: Reflections on Science and Jewish Tradition," with Shira Leibowitz Schmidt.

Hoffmann is also an accomplished poet and playwright. He began writing poetry in the mid-1970s, eventually publishing the first of a number of collections, "The Metamict State," in 1987, followed three years later by "Gaps and Verges," then "Memory Effects" (1999), "Soliton" (2002). A bilingual selection of his poems has appeared in Spanish. He has also co-written a play with fellow chemist Carl Djerassi, entitled "Oxygen," which has been performed worldwide, translated into ten languages. A second play by Roald Hoffmann, "Should've," has had several workshop productions since 2006; a new play, "We Have Something That Belongs to You," had its first workshop production in 2009.

Unadvertised, a monthly cabaret Roald runs at the Cornelia Street Café in Greenwich Village, "Entertaining Science," has become the hot cheap ticket in NYC.

The Underachievement Dilemma & Gifted Girls & Women

Sally M. Reis

*Vice Provost of Academic Affairs and a Board of Trustees Distinguished Professor
The University of Connecticut, USA*

The underachievement of gifted students is one of the most frustrating issues that teachers and researchers encounter in our field. What causes underachievement? How can parents and teachers help to develop talents in students who underachieve in school but pursue creative outlets outside of school? The underachievement of gifted and talented students and the interventions that work for different types of underachievement will be discussed in this keynote, as will the underachievement of gifted girls and women. Suggestions for reversing underachievement will also be discussed.

Sally M. Reis is Vice Provost of Academic Affairs and a Board of Trustees Distinguished Professor at The University of Connecticut. She is past Department Head of Educational Psychology Department, where she also serves as a Principal Investigator for the National Research Center on the Gifted and Talented. She was a teacher for 15 years, 11 of which were spent working with gifted students on the elementary, junior high, and high school levels. She has authored or co-authored over 250 articles, books, book chapters, monographs and technical reports. Her most recent work is a computer-based assessment of student strengths integrated with an Internet based search engine that matches enrichment activities and resources with individual student profiles. **Dr. Reis** is the Co-Director of [Confratute](#), the longest running summer institute in the development of gifts and talents. She is co-author of The Schoolwide Enrichment Model, The Secondary Triad Model, and Dilemmas in Talent Development in the Middle Years. Dr. Reis serves on several editorial boards, including the Gifted Child Quarterly, and is a past President of the National Association for Gifted Children. She recently was honored with the highest award in her field as the Distinguished Scholar of the National Association for Gifted Children and named a fellow of the American Psychological Association.

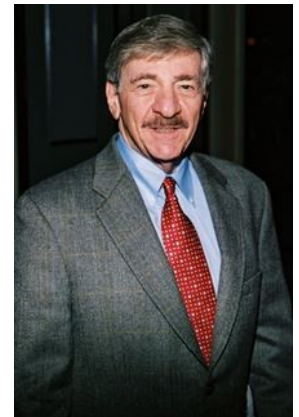


Schools for Talent Development: A Comprehensive Plan for Program Planning and Implementation

Joseph S. Renzulli

Director, The Neag Center for Creativity, Gifted Education, and Talent Development, USA

The economic, cultural, and social development of nations depends on the creativity and productivity of its most gifted citizens. Developing the gifts and talents of young people is the best way to invest in expanding the reservoir of future scientists, authors, inventors, entrepreneurs, and persons who will contribute to the cultural heritage of a country. This presentation will provide an overview of a talent development model that is based on over thirty years of research and development and that is being used in countless schools in the U. S. and a number of other nations around the world. Topics include comprehensive strength assessment, modifying the curriculum for high achieving students, using technology to provide enrichment opportunities for all students, and guidelines for providing advanced level creative and investigative activities and projects. Emphasis will be on practical applications of the theories and research underlying this approach to talent development.



Joseph S. Renzulli is Director of UConn's National Research Center on the Gifted and Talented and Board of Trustees Distinguished Professor of Educational Psychology at the Neag School of Education. A leader and pioneer in Gifted Education, Dr. Joseph S. Renzulli was named among the 25 most influential psychologists in the world by the American Psychological Association. He received the Harold W. McGraw, Jr. Award for Innovation in Education, and was a consultant to the White House Task Force on Education of the Gifted and Talented. His work on the Enrichment Triad Model and curriculum compacting and differentiation were pioneering efforts in the 1970s, and he has contributed hundreds of books, book chapters, articles, and monographs to the professional literature. **Dr. Renzulli** established UConn's annual Confratute Program with fellow Educational Psychology Professor Sally Reis; the summer institute on enrichment-based differentiated teaching has served more than 25,000 teachers from around the world since 1978. He also Renzulli established UConn Mentor Connection, a summer program that enables high-potential high school students to work side by side with leading scientists, historians, and artists, and is the founder of the Joseph S. Renzulli Gifted and Talented Academy in Hartford, which has become a model for local and national urban school reform.

Shaping our Future in Developing Creativity in Scientific Research

Jacques Grégoire

School of Psychology and Educational Sciences, Catholic University of Louvain, Belgium

Worldwide, the money spent on research and the number of scientific publications have never been more important. However, the amount of money and the number of scientific papers are not necessarily good indicators of scientific creativity. In this presentation, we show that scientific education, research funding, and criteria for scientific publication and scientific recognition (i.e. impact factor) does not support creativity. Instead, they favor caution and conformity. To stimulate scientific creativity, it is essential to rethink science education from primary school to university. It is also necessary to change the criteria for funding and recognition of researchers. Scientific creativity must be a political priority for the next future. Several concrete proposals that could be easily implemented are discussed.



Jacques Grégoire, Ph.D., is Full Professor at the School of Psychology and Educational Sciences of the Catholic University of Louvain, Belgium. His research interests include intelligence, mathematical learning, assessment of gifted children, methods for psychological diagnostic, and relationship between learning and emotions. He developed or adapted in French several tests for the assessment of intelligence and mathematical learning. He was scientific adviser for the US development of the WISC-IV and the WISC-V. His academic publications include over 100 journal articles, book chapters, and books/monographs. He is author of two French books on intelligence assessment: “*Clinical assessment of child intelligence*” and “*Clinical assessment of adult intelligence*” and a reference book on the methodology of test development, written with Dany Laveault: “*Introduction to test theories in Psychology and Education*”. He is Consulting editor of several scientific Journals. He has served as secretary of the International Test Commission (1995-2004) and President of the same organization (2006-2008). With the collaboration of Ron Hambleton, he organized the 5th ITC

international conference in Brussels (July, 2006) on “*Psychological and Educational Test Adaptation Across Languages and Cultures*”.

Creative Intelligence in the 21st Century: Grappling with Enormous Problems and Huge Opportunities

Don Ambrose

Rider University, Lawrenceville, New Jersey, USA.

This keynote describes the results of a large-scale, collaborative project involving leading scholars of creativity and giftedness in discussions of the ideal nature of education in the globalized 21st-century. In collaboration with leading psychologist Robert Sternberg I initiated this project to establish a broader vision of 21st-century education based on insights from multiple academic disciplines. The prominent thinkers involved in the project reacted to a conceptual model that synthesized research and theory from multiple disciplines to portray the threat of enormous macroproblems and the potential benefits of unprecedented macro-opportunities that arise from socioeconomic, cultural, political-ideological, and scientific developments in the 21st century. The macroproblems threaten to crush individuals and societies that find themselves mired in a miserable trap underneath the wave of globalization. Fortunately, the macro-opportunities promise to lift individuals and societies toward unprecedented success, if the education system can enable today's young people to overcome a “creative intelligence gap” and leap to the crest of the globalization wave. After the analysis of 21st-century demands, suggestions are made about the blend of knowledge, skills, and dispositions required for dealing with the macroproblems and capitalizing on the macro-opportunities.



Don Ambrose is professor of graduate education at Rider University in Lawrenceville, New Jersey, editor of the *Roepers Review*, and past chair of the Conceptual Foundations Division of the National Association for Gifted Children. He serves on the editorial boards of most of the major journals in the field of gifted education and for several book series. Don has initiated and led numerous interdisciplinary scholarly projects involving eminent researchers and theorists from gifted education, general education, creative studies, cognitive science, ethical philosophy, psychology, political science, economics, law, history, sociology, and critical thinking. Most of his scholarship entails theoretical syntheses and philosophical analyses based on a wide-ranging, interdisciplinary search for theories, philosophical perspectives, and research findings that challenge, refine, and expand thinking about the development of creative intelligence. Some of his published and in press books include *How Dogmatic Beliefs Harm Creativity and Higher-Level Thinking* (Routledge, with Robert J. Sternberg); *Confronting Dogmatism in Gifted Education* (Routledge, with Robert J. Sternberg and Bharath Sriraman); *Creative Intelligence in the 21st Century: Grappling with Enormous Problems and Huge Opportunities* (with Robert J. Sternberg); *Expanding Visions of Creative Intelligence: An Interdisciplinary Exploration* (Hampton Press); *Morality, Ethics, and Gifted Minds* (Springer Science, with Tracy L. Cross); *Creative Intelligence: Toward Theoretic Integration* (Hampton Press; with LeoNora M. Cohen and Abraham J. Tannenbaum); *Imagitronics* (Zephyr Press); *A Critique of Creativity and Complexity: Deconstructing Clichés* (Sense, with Bharath Sriraman and Kathleen Pierce), *The Roeper School: A Model for Holistic Development of High Ability* (Sense, with Bharath Sriraman & Tracy L. Cross); and *The Paradox of Constraints on Creativity: An Interdisciplinary Exploration* (Sense, with Catrinel Haught). Honors include selection to the 2014 Routledge/Taylor & Francis Educational Expert Panel; the Creativity Award from the International Center for

Innovation in Education; the outstanding book chapter award from the American Creativity Association; the Research Briefs article of the year award from the Research and Evaluation Division of the NAGC; the Iorio Research Prize for outstanding scholarship; and the Frank N. Elliott Award for outstanding university service.

Heroes to the Rescue?

The Social-Evolutionary Boundaries for Benign Gifted Intervention in the Envisioned Future of Societal Prosperity

Roland S. Persson

Jönköping University, School of Education & Communication, Jönköping, Sweden

The gifted and talented population of the world is increasingly heralded as tomorrow's problem solvers and as ultimate human capital in the emerging global knowledge economy. While such hope is justified in one sense it is also misplaced in another. While we plan ahead, educate and support tomorrow's envisioned work force, we tend simultaneously to ignore the evolutionary legacy Homo Sapiens imposing above all social boundaries on what is possible or not to do. This presentation endeavours to explain these boundaries, their significance to future plans on national and global levels and to propose the limitations and possibilities of benign gifted and talented population intervention within the frames of a probabilistic social problem space.



Roland S. Persson is professor of educational psychology at Jönköping University, School of Education & Communication in Jönköping, Sweden; former editor-in-chief of High Ability Studies. He serves on the editorial boards of several scholarly journals focusing on giftedness, talent and creativity. He has advised the Hungarian and Swedish governments on the nature and necessity of some form of gifted education being part of national school systems, and is currently key-figure in implementing gifted education at all levels in the Swedish school system. Research has always been eclectic in an effort to bring together the knowledge and wisdom of all academic disciplines with an interest in individuals of high ability and their function, given or taken, in society. At first interest was on musical talent and musicianship, followed by the nature of gender identity and social cognition, cross-cultural dynamics, to currently land in high-functioning intelligence in the light of evolutionary function as well as its issues related to Human Resources. In short, through a multitude of perspectives the individual gifted and his or her world has always fascinated. Roland S. Persson is affiliated to the American Psychological Association, and the British Psychological Society; he is member of the Behavior and Evolution Society, the World Council for Gifted and Talented Children; honorary member of the European Council for High Ability, fellow of the British College of Teachers, and serves on the Advisory board for the International Centre for Innovation in Education (ICIE).

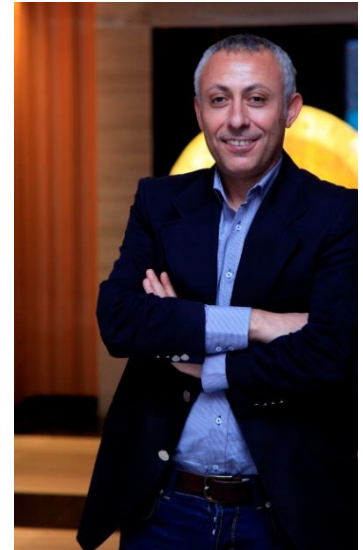
Unpredictable Development of Giftedness through Multipliers

Ugur Sak

Director, Center for Practice and Research on Gifted Education, Anadolu University, Turkey

This talk will include a discussion of the influence of multipliers on the transformation of early childhood proclivities into adult competencies. The interaction between innate skills and competence and person and environment usually is initiated by early developed skills and produces a type of multiplier over time on the development of intellectual abilities (Dickens & Flynn, 2001). Each

increase in innate skill causes a slight increase in competence and the increase in competence initiates better designs in environment. In turn, the better environment further increases competence. This reciprocal causation between skills and environment produces faster rates of subsequent development. The effect of multipliers was investigated in children's reading skills. Children who were better in reading in their early years compared to those children who were poor readers got much better readers later in their life. It is hypothesized that early advantages can bring about reciprocal causation between the development of reading skills and reading itself. Such effects also were partly proven by the author's research in mathematics besides reading. Gifted students who had better skills in reading and mathematics at first grade did indeed better in later grades. This presentation also will include a critics of well-known effect models such as Matthew effect, social multipliers and dynamical systems and their influences on talent development and on the development of society as a whole.



Ugur Sak is Professor and the founding director of the Center for Practice and Research on Gifted Education and of the master's and doctoral programs on gifted education at Anadolu University in Turkey. He also is the founding editor of the Turkish Journal of Giftedness and Education. His research has focused on the identification and education of gifted students and creativity education. He has published many articles both in English and Turkish in major journals of creativity and giftedness. He is the founder of Selective Problem Solving and Creative Reversal Act models and the author of three books on giftedness and creativity written in Turkish.

Motivational Portraits of the Gifted: Psychology, Development and Teaching

Mojca Juriševič

Faculty of Education, University of Ljubljana, Slovenia

The unique challenge of the psychological implications deduced from contemporary motivation research concerns how to motivate students and optimise learning in order to maximise the potential for excellence in education for all students. This issue is even more pronounced with gifted students. On the one hand, we can expect them to achieve the highest levels of performance, while, on the other hand, we are confronted with the fact that these students may progress through schooling without ever facing academic challenges that match their abilities, resulting in their ending up as underachievers. This keynote will discuss several constructs that have been a focus of motivation research in the sociocultural context of gifted education, arguing that teachers should possess adequate knowledge related to understanding the many motivational portraits of their students in order to support their learning in the zone of proximal motivational development.



Mojca Juriševič is Associate Professor of Educational Psychology at the Faculty of Education of the University of Ljubljana. She is the Head of the faculty's Centre for Research and Promotion of Giftedness and the Chair of the inter-departmental strategic group for the preparation of the National Strategy in Gifted

Education at the Ministry of Education, Science and Sports of the Republic of Slovenia. From 2009 to 2013, she was a member of the National Group of Experts in Gifted Education at the National Education Institute. Mojca Jurišević is the author of the chapter on gifted education in the White Paper on Education in the Republic of Slovenia, published in 2011. She is a member of ECHA and a WCGTC national delegate, as well as being an affiliated member of the American Psychological Association. She serves as the Chair of the “Psychologists in Education” division of the Slovenian Psychologists’ Association.

ADHD: Disorder or Gift?

Ken McCluskey

Faculty of Education, University of Winnipeg, Canada

As the term itself indicates, ADHD is typically viewed as a "disorder." And certainly, hyperactive and inattentive children present some interesting challenges at home, at school, and in the community. This session highlights many of the problems, and acknowledges that the prognosis for ADHD is sometimes "far from benign." However, an attempt is also made to put a more positive spin on things by recasting reality and pointing to the creative strengths that frequently go hand in hand with the condition. To illustrate, with proper support, might not stubborn behaviour in childhood grow into determination in adulthood? Might not inattentive daydreaming turn into creative invention, overactivity into productive energy, and off-the-wall behaviour into outside-the-box thinking? The overall intent here is to offer a humane, flexible approach to help parents and educators turn negatives into positives and identify and nurture the talents of an oft-misunderstood population.



Dr. Ken McCluskey, Dean and Professor of Education at the University of Winnipeg, is known internationally for his work in several areas, including mentoring, ADHD, gifted education, and at-risk children and youth (where his *Lost Prizes* and related projects serve as models worldwide for those interested in identifying and developing the talents of marginalized young people). Before becoming a Professor (in 1998), Associate Dean (in 2003), and Dean of Education (in 2005) at U of W, Ken had 25 years experience as a psychologist, special educator, and administrator in the public school system. He has received major program development, creativity, distinguished service, and publication awards from the Canadian Council for Exceptional Children, the International Centre for Innovation in Education (ICIE), the World Council for Gifted and Talented Children, and Reclaiming Youth International (along with his institution's teaching, research, governance, and community service awards). A popular keynote and invited speaker, Ken has written well over 100 professional articles and chapters, and is the author, co-author, or editor of 20 books, including *Mentoring for Talent Development*, *Understanding ADHD: Our Personal Journey*, and *Lost Prizes: Talent Development and Problem Solving with At-Risk Populations*.

A Process Overlap Theory of the Positive Manifold in Intelligence

Kristof Kovacs

Eszterhazy Karoly College, Hungary

One of the most replicated results in psychology is that people who perform better on one kind of mental ability test tend to perform better on other kinds of tests as well. This result is called the positive manifold, and is usually described with a general factor, 'g'. g, in turn, is usually identified with a domain-general, within-individual cognitive mechanism, general intelligence. This interpretation, however, does not sit well with a number of phenomena in cognitive psychology and

neuroscience: double dissociations, localization data, and patterns of sex differences all contradict the existence of a general cognitive ability. An alternative explanation, the process overlap theory, is proposed, which is similar to sampling, but is based on a cognitive theory of overlapping item response processes. The theory assumes that any item or task requires a number of domain-specific as well as domain-general cognitive processes and their corresponding neural mechanisms. Domain-general processes involved in executive attention, and mainly tapping the dorsolateral prefrontal cortex, are activated by a large number of test items, alongside with domain-specific processes tapped by specific types of tests only. Such an overlap of executive processes explains the positive manifold as well as the hierarchical structure of cognitive abilities. The theory also accounts for a number of other, previously unexplained phenomena in differential psychology, such as the central role of fluid inductive reasoning in cognitive abilities or the higher across-domain variance in low ability groups (differentiation).



Kristof Kovacs obtained an MA in Psychology from the University of Szeged and an MPhil as well as a Ph.D. in Psychology from the University of Cambridge, having gained a Benefactors' Scholarship from St. John's College, Cambridge. Subsequently, he was a Zoltan Magyary Postdoctoral Fellow at the Budapest University of Technology and Economics, and a Marie Curie Fellow at the University of Amsterdam. Currently, he is senior research fellow at Eszterhazy Karoly College, Hungary. His main interest is individual differences in cognitive abilities; his research bridges experimental cognitive psychology, psychometrics, and statistical modeling. He is the International Supervisory Psychologist of Mensa, and the National Supervisory Psychologist of Mensa HungarIQa.

How Schools Learn - Inside the Secrets of Success?

Uwe Hameyer

Kiel University, Germany

The metaphor of organizational learning is frequently used as a smart label of quality - schools are expected to improve by reflecting their work organizationally. But what does it mean? How do reflective patterns of work look like inside a school? This keynote refers to organizational learning patterns such as learning by systemic choices, contrasting feedback, peer reviews, reflective team work, sustained ways of using knowledge and sharing good practices as well as by a clearly shaped cross-level communication. For this purpose, the keynote draws upon knowledge about how schools learn. The keynote uses major insights from this domain to develop an index for organizational learning which will be illustrated by examples from various countries such as Sweden, Switzerland, and Germany. Major outcomes are channeled for transfer into practice. Thus, the keynote is building a condensed baseline for schools which sustain patterns of creative work as learning communities. This aim is primarily bound to categories such as reflective systems, transforming schools, and transforming schools by using validated knowledge and experiences in a sustained, creative way. It

will conclude with ideas and proposals for a creative process of school development and lasting transformation.

Uwe Hameyer is professor of education at Kiel University (since Oct. 2014 emeritus) and founder of *hameyer | systemberatung* [www.hameyer-systemberatung.de] with emphasis on coaching, learning consultancy, educational planning, school evaluation, further education for teachers, school heads, and other experts from non-schooling areas.

His major domains of research and innovation studies are curriculum design and theory, innovation research, change management, organizational learning, school leadership development, research on school transformation, and school development. He started and shared in four major curriculum development projects, partly emerging from IPN [1986], partly in cooperation with the Club of Rome and Greenpeace (the newest curriculum - on globalization in view of DESERTEC - was issued a few weeks ago together with prof. dr. h. c. *Helmut Schreiber, Eiken Prinz* and others, 2015).

Uwe Hameyer is a research consultant at the OECD (Paris, 1977). 1984 until 1990 academic director at the Institute for Science Education, Kiel University. Eight research visits and, predominantly, guest professorships in Sweden, the Netherlands, and Austria. Main editor of two handbooks on curriculum research (1975, three volumes; 1983, one volume; co-editor of the international handbook on school improvement, OECD, international books and articles).

Uwe Hameyer initiated school networks in Germany, co-founded two schools, analyzed and compared school development in European countries, contributed to science studies on the primary level; out of more than 25 books he published, he co-authored e.g. *IMPACT - Implementing Activity-Based Learning in Elementary Science Teaching in Four Countries*, published in 1995: »Portraits of Productive Schools«, SUNY press, New York, together with *prof. dr. Jan van den Akker* (the Netherlands), *prof. dr. Mats Ekholm* [Sweden] and *prof. dr. Ron Anderson* [United States of America].

Since more than 30 years he is continuously investigating school development, consulting educational organizations and exploring long-term change management.

Co-founder of a new lower and upper secondary reform school in Langenfeld (since 2014) and Wolfsburg (VW, since 2008) (www.neue-schule-wolfsburg.de).

Co-Editor of several journals such as *Journal für Schulentwicklung; Grundschule; Weltwissen Sachunterricht* (co-founder); *Studies in Educational Evaluation* (until 1990); *Pädagogische Führung*.

Concerning private art activities, he did several exhibitions on photography (www.foto-art-online.de) and shares in jazz music playing the baritone sax as a member of a bigband called *jazzline* (Kiel).



Psychometric Versus Dynamic Assessment for the Identification of Twice Exceptional Learners

Anies Al-Hroub

Department of Education, American University of Beirut (AUB), Beirut, Lebanon

Traditionally, psychometric tests have been found to underestimate the intellectual potential of exceptional learners (e.g., gifted and talented children, students with specific learning difficulties [LDs]). Consequently, dynamic measures have been extensively used to identify the untapped learning potential of students with LDs, and yet only recently entered the identification procedures in gifted education. The purpose of this talk is to investigate the efficacy of psychometric and dynamic

assessment (DA) in identifying a group of dual exceptional students who exhibited mathematical giftedness and specific learning difficulties. This research takes mathematics as a model for investigating the definitions, identification, classification and characteristics of a group of gifted student related to the notion of 'dual-exceptionality'. An extensive process using qualitative and quantitative methods was conducted by a multidisciplinary team to develop and implement a multidimensional approach to dual-exceptionalities of 'mathematical giftedness' and 'learning difficulties' (MG/LD) in upper elementary students in public schools in Jordan. A multidimensional evaluation involving eight criteria (e.g. teacher nomination, parent and teacher interviews, documentary evidence and direct observation) and a combination of psychometric (i.e. WISC-III-Jordan, Perceptual Skills Tests, and a diagnostic Arabic Literacy Language Skills Test) and dynamic mathematics assessment was used.



Anies Al-Hroub is the Chairperson of the Department of Education at the American University of Beirut. He is an Associate Professor of Education Psychology and Special Education and the coordinator of the special education program. Al-Hroub completed his Ph.D. and MPhil in Special Education (Giftedness and Learning Disabilities) from the University of Cambridge and his MA (Special Education) and BA (Psychology) from the University of Jordan. He also obtained a Higher Diploma in "Learning Disabilities" from Balka Applied University. He was selected as the British Academy Visiting Scholar to the Faculty of Education at the University of Cambridge in 2010. His publications appeared in leading international gifted and special education journals in addition to a book published titled 'Theories and programs of education for the gifted and talented'. Al-Hroub research interests focus on gifted and talented education, learning disabilities, dyslexia, dual-exceptionality, early childhood education, educational assessment, psychometric and dynamic assessment, guidance and counseling, metacognition and school dropout. He led a number of educational projects sponsored by UNICEF, UNRWA, the British Academy, USAID, Issam Fares Institute for Public Policy and International Affairs (IFI), and Welfare Association and served as consultant for UNESCO and the Center for Civic Engagement and Community Service (CCECS) at AUB.

What are the Key Elements Inherent in a Successful Mentorship Program?

Alan C. Wiebe

Mentorship and Outreach, University of Winnipeg, Canada

Done right, mentoring can be a powerful tool for connecting with at-risk youth. Underlying models and strategies that have guided successful mentoring efforts, past and present, are examined. Elements such as definition, tone, flexibility, selection/matching/preparation of mentors and mentees, relationship technology, talent spotting, and program evaluation will also be included in this presentation.



Alan Wiebe is currently the Community Outreach Mentorship Coordinator at

the University of Winnipeg. He has worked in many capacities helping to develop programming for “at-risk” youth in Manitoba, Canada, and served in the public school system as a regular classroom teacher, alternative program director, and counselor. Alan, who teaches courses such as Education Today, Issues with At-Risk Children and Youth, and Mentoring At-Risk Youth, has done many presentations on the international stage (including major sessions in Jerusalem, Nairobi, and Ulm, Germany). He has written and co-edited articles, chapters, and books emphasizing the power of reaching out to vulnerable populations through mentorship, and is lead author of a recent publication entitled *Connecting with At-Risk Children and Youth through Mentoring: Ten Elements to Consider*. He will also be lead author of the forthcoming text, *Mentoring for Talent Development in the North American Context*.

Discovery Learning – A Framework to Transform Students into Knowledge Generators

Heinz Neber

ICIE, Ulm - Germany

What is knowledge? How to acquire it? And how to design instruction for transforming students into intentional, deeply thinking, and productively collaborating communities of learners? This lecture will provide clear answers to these questions in terms of objectives, principles, instructional components, and concrete methods for progressively developing new learning environments that correspond to the new international standards of education for all kinds of learners, subjects, and levels of instruction. Discovery learning represents a unifying framework for these aspects that are underlying all kinds of inquiry oriented instruction including guided discovery, teaching by examples, problem-based learning, case-methods, laboratory work, learning by conflict induction, or project-oriented instruction. Some components and concrete approaches will be demonstrated that may be used in own efforts to make learning and instruction more meaningful and useful.



Heinz Neber has received degrees in education, and psychology. Currently, he teaches classes in Educational Psychology at the University of Duisburg-Essen, and at the University of Munich. **Publications** (selection): author of more than 50 publications (books, chapters, and peer-reviewed articles in journals). E. g. as author and editor: Learning by Discovery (1982, 3rd ed.); Self-directed Learning (1979); and Applied Problem-Solving Psychology (1987). Articles – e.g.: Usable knowledge by conditionalized and functionalized technical explanations (2000); Self-regulated science learning with highly gifted students: the role of cognitive, motivational, epistemological, and environmental variables (co-author M. Schommer-Aikins, 2002); Evaluation of a summer school program for highly gifted secondary-school students (co-author K. A. Heller, 2002); Epistemic questions: Fostering knowledge-generation by the students (Korea Journal of Thinking & Problem Solving, 2009); Chinese high school students in physics classrooms as active, self-regulated learners (International Journal of Science and Mathematics Education, 2008). **Research:** A major research area is learning and

instruction with special consideration on active knowledge acquisition. In collaboration with the Department of Chemistry at the University of Munich, a project is focusing on the improvement of inquiry learning in Chemistry, and another on developing Problem Based Learning in Biology.

Robust Measures of Creative Potential in Children, Adolescents and Adults

Todd Lubart

Director of LATI, Université Paris Descartes, France

An overview of historical efforts to measure creativity is provided. Then current work on children and adolescents, using the EPoC battery (Evaluation of Creative Potential) is presented. These measures cover major domains of creative thinking, and offer a comprehensive approach to creative ability. For adults, the Creativity Profiler tool is described; it is based on a multivariate conception of creative ability as a product of both cognitive and conative factors, adapted to each job context. Examples using these tools are described. Implications for practical use of creativity measures are discussed.



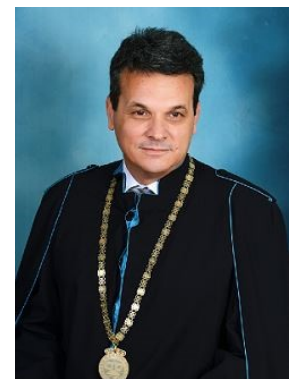
Todd Lubart is Professor of Psychology at the Université Paris Descartes, and Member of the Institut Universitaire de France. He received his Ph.D. from Yale University and was an invited professor at the Paris School of Management (ESCP). His research focuses on creativity, its identification and development in children and adults, the role of emotions, the creative process and intercultural issues. Todd Lubart is author or co-author of numerous books, research papers, and scientific reports on creativity, including the books *Defying the crowd: Cultivating creativity in a culture of conformity* (NY: Free Press, 1995), *Psychologie de la créativité* (The psychology of creativity, Paris: Colin, 2003), and *Enfants Exceptionnel* (Exceptional Children, Bréal, 2006). He is the co-founder of the International Centre for Innovation in Education (ICIE), and the associate editor of *The International Journal for Talent Development and Creativity* (IJTDC).

A New World of Learning

Pero Lučin

The Rector, University of Rijeka

Exponential development of information and communication technologies is changing the world of learning. As a consequence of exponential exposure to media and information flows, our brains are adapting and new skills are arising. This especially occurs with the new generation of people who encounter media and information tools at the earliest stages of life. Although many of us are aware of such changes, there is very little research-based information to explain them. In recent years, evidence was presented demonstrating neuroplastic basis of human brain adaptation, although neuroplastic mechanisms are still poorly understood. Today's schools and universities are still analogue, whereas the students can be said to be digital. The educational system does not properly recognize the skills of the new generations and does not respond to their needs. New aspects of social evolution suggest that we should also think not only of adapting our learning skills, but also our social skills. These skills should



be integrated into all learning processes, from preschool education to lifelong learning. The aim of this editorial is to facilitate discussion within the medical profession about the arising new world of learning.

Professor Pero Lučin is the Rector of the University of Rijeka and in the past he served in the position of the President of the Board of the National Foundation for Science, Higher Education and Technological Development of the Republic of Croatia (2003-2010). He was also a Member of the Steering Committee for Higher Education and Research (CD-ESR) of the Council of Europe (2002-2004) and a BFUG member (2002-2004).

Does the Academia Instigate Excellence?

Jasminka Ledić

Department of Education; Faculty of Humanities and Social Sciences; University of Rijeka

Although university missions, strategies and procedures claim to foster excellence as one of the main principles in higher education, this presentation will introduce research results which indicate that the professional development of junior researches is not dominantly driven by the principle of excellence. The research results on professional socialization of junior researches in Croatia refer to situations of instigating intellectual egalitarianism and stifling excellence during academic career.



Jasminka Ledić, Ph.D. has been a full professor with tenure employed at the Department of Education at the Faculty of Humanities and Social Sciences in Rijeka University since 1982.

She has published twelve scientific monographs and a number of research and professional papers in the area of education, individually or as a co-author. Her research interests are related to higher education, the European dimension in education, history of education and civil society.

She has led and participated in several research projects on the international and national level. She is currently head of the Croatian Science Foundation project: *“Academic Profession Competencies Framework: Between New Requirements and Possibilities” (APROFRAME)* as well as the project supported by the University of Rijeka: *“The European Dimension in Education: Approaches and Challenges”*. She was a Fulbright grant recipient and she won the Annual State Award “Ivan Filipović” for contribution to the development of higher education. She also received the Annual Award of the City of Rijeka for her contribution to the popularization of science as a member of the steering board of the association “Zlatni rez”.

Combination for Success: Metacognition and Motivation

Svjetlana Kolić-Vehovec

University of Rijeka

Metacognition involves two essential components: the knowledge of cognition (one’s own cognitive processes, task demands, and the procedures necessary to perform a task) and the regulation of cognition and action (the planning of learning, monitoring learning activities, and evaluating those activities and learning outcomes). Metacognition is proposed to be an important determinant of effective problem solving, and high level of



metacognition was related to high ability or giftedness. Furthermore, metacognitive knowledge and control always intervene in creative problem solving. It was found that extended metacognitive instruction had positive impact on students' creative thinking abilities. However, the motivation determines whether the high cognitive capacity and creative potentials will develop in expertise and result in success. The sources of motivation are different, from valuing the task and flow experience, to personal goals, self-efficacy and grit or perseverance of effort. The dynamic interplay of student metacognition and motivation will be discussed, as well as the teacher's role in encouraging metacognitive development and enhancing motivation in their students.

Svjetlana Kolić-Vehovec is Professor of Educational Psychology at the University of Rijeka. She is engaged in programs for professional development of teachers at different educational levels, including university teachers, and promoting innovations in basic and higher education toward active knowledge acquisition. Her research focuses on cognitive and metacognitive processes in reading and learning, as well as in motivation for self-regulation of learning. Svjetlana Kolić-Vehovec is author or co-author of many research papers and book chapters on those topics. She is now engaged in several research projects on using ICT in education with the aim of promoting active learning. She is a member of European Association of Research in Learning and Instruction, and a member of editorial board of European Journal of Psychology of Education.

Educational Change in Croatia: Mantra, Illusion or Reality

Boris Jokić

Centre for Educational Research and Development; Institute for Social Research; Zagreb-Croatia.

This keynote concentrates on challenges facing educational change and implementation of new national curriculum reform in Croatia.

Boris Jokić, *Ph.D.*, Graduated in Psychology at the Faculty of Philosophy, University of Zagreb. He holds a Ph.D. from Faculty of Education, University of Cambridge. Scientific Associate in Centre for Educational Research and Development at Institute for Social Research in Zagreb, currently working on a project of Evaluation of syllabi and development of curriculum model for compulsory education.

His fields of interest are research methodology, psychology of education, religious and science education.



Symposia

Symposium (1): Networking in Gifted Education.

Symposium (2): The Use of ICT in Learning and Teaching: Contemporary Experiences in Croatia.

Symposium (3): RRI Tools - How to Align Scientific Research with the Needs of Society?

Symposium (4), Schwäbisch Gmünd Symposium: Supporting Mathematically Talented Children in the Classroom - A Chance to Develop All Children's Interest in Mathematics.

Symposium (5): Increasing Creativity Capacity in the Entrepreneurial Classroom.

Symposium (6): How to Overcome Common Obstacles in Creativity?

Symposium (7): Innovative Approaches Working with Children and Youth with Special Needs.

Symposium (8): Winnipeg Symposium: Publications – International Journals – Achievements & Challenges – Future Trends.

Symposium (9): Best Practices in Talent Search.

Symposium (10): Entrepreneurial Learning in Higher Education: A Case Study of the Business School PAR.

Symposium (11), The Wyoming USA Symposium: Building 21st Century Learning Skills through Music, Civic Engagement, and Service.

Symposium (12): Youth Summit 2016.

Symposium One: **Networking in Gifted Education**

Organiser:

Centre for Research and Promotion of Giftedness at Faculty of Education, University of Ljubljana, Slovenia

Presenters:

Csilla Fuszek

ETSN, European Talent Centre Budapest, Hungary

Silvia Péter Szarka

University of Debrecen; European Talent Centre – Budapest, Hungary

Mojca Juriševič

Centre for Research and Promotion of Giftedness at Faculty of Education, University of Ljubljana, Slovenia

Jasna Cvetković Lay

Centar za poticanje darovitosti djeteta Bistrić, Croatia

Discussant:

Janez Krek

Janez Vogrinc

Centre for Research and Promotion of Giftedness at Faculty of Education, University of Ljubljana, Slovenia

Abstract:

The popularity of networking in different fields of our lives is growing over the past few years, and it plays an important role also in the educational context. However, a special aspect of networking will be presented in the symposium that relates to gifted education at national and international level. Precisely, the focus of the symposium is going to be threefold: (1) to present different approaches to networking in gifted education; (2) to promote European Talent Support Network; and (3) to stress the benefits as well as the shortcomings of networking in gifted education. Characteristics of the network development will be discussed by socio-cultural contexts, triggers as starting points, strengths and experiences of difficulties, solutions and implications, as well as challenges and opportunities – the “why” and the “how” for the future.

Symposium Two:

The Use of ICT in Learning and Teaching: Contemporary Experiences in Croatia

Objective:

The aim of this symposium is to present and discuss today's experience of introducing information and communication technologies into the learning and teaching process in Croatian educational system.

In the first part, specialists from the Croatian Academic and Research Network – CARNet will present the project “e-Schools: Establishment of the system for the development of digitally mature schools (pilot project)”.

After that, scientists from the Center for Applied Psychology will show the study results of the determinants of students' and teachers' attitudes toward ICT in learning and teaching and their perceived digital competencies.

In the third part, teachers from the Primary school Vežica, Croatian pioneer in introducing the tablets in education, will show how the use of iPads makes both the learner and the teacher change.

Chairpersons:

Zoran Sušanj and Svjetlana Kolić-Vehovec

Center for Applied Psychology

Department of Psychology

Faculty of Humanities and Social Sciences

University of Rijeka

Presenters:

- Specialists involved in “e-Schools” project from CARNet, Zagreb
- Members of the Center for Applied Psychology, Rijeka
- Teachers from the Primary school Vežica, Rijeka

Duration: 90 minutes

Pilot project “e-Schools” – pilot project implementation

Andrijana Prskalo Maček and Zvonimir Stanić

CARNet, Zagreb

Croatian Academic and Research Network – CARNet has initiated the project “e-Schools: Establishment of the system for the development of digitally mature schools (pilot project)”. This structural project is about developing digitally mature schools and it will include 150 primary and secondary schools in the pilot phase 2015 – 2018, while the next phase 2019 – 2022, should include 60 % of all schools in Croatia. Through the project schools will not only be provided with modern equipment, infrastructure and digital content, but will be encouraged to implement new methods in teaching and learning and also new and more transparent administrative procedures. This includes better Internet access and network infrastructure; computers, tablets and presentation equipment for easier use of digital contents produced during the project; new e-services and training for school staff. Most of these activities have already started in the year 2015 in the first 20 schools.

The main objective of this project is not purchasing equipment for schools but developing digitally mature schools, schools in which students will become digitally competent, directed towards learning and research and prepared for further studying and for the labour market in the 21st century.

Students' Attitudes Towards ICT in Learning and their Perceived Digital Competence

Tamara Mohorić, Svjetlana Kolić-Vehovec, Barbara Rončević Zubković, Barbara Kalebić Maglica and Vladimir Takšić

Center for Applied Psychology, Faculty of Humanities and Social Sciences, University of Rijeka

Information and communication technology (ICT) can lead to improved student learning and better teaching methods. During recent years, digital competence has become a key concept in the discussion of what kind of skills and understanding students should have in the knowledge society. The purpose of this study was to investigate determinants of students' attitudes toward ICT in learning, as well as their perceived digital competences. A sample of 1256 elementary school and 1494 high school students from 20 schools (13 elementary schools and 7 high schools) completed several online questionnaires. The data were collected in spring and autumn 2015, as a part of a larger baseline study conducted within the first phase of the "e-Schools" pilot project (CARNet). Results of hierarchical regression analysis showed that significant predictors for perception of benefits of ICT use in learning were perception of benefits and risks of ICT use in general, perception of school value and self-efficacy and intrinsic interests for ICT use. The most important predictor of risks perception of ICT use in learning was risk perception of ICT use in general which is expected since they are very similar constructs. Single best predictor of students' perceived digital competence is perceived self-efficacy, followed by perception of advantages in using ICT activities. Those students who see more advantages in using ICT activities (as opposed to those students who perceive more risks in using ICT activities) and who perceive themselves as more self-efficient also have better self-assessed digital competence.

Perceived Digital Competence and Teachers' Attitudes and Usage of ICT in Teaching

Rosanda Pahljina Reinić, Sanja Smojver-Ažić, Tamara Martinac Dorčić, Zoran Sušanj and Irena Miletić
Center for Applied Psychology, Faculty of Humanities and Social Sciences, University of Rijeka

This study is focused on the identification and analysis of important determinants of teachers' successful implementation of ICT in classrooms. Specifically, the study aimed to investigate which factors contribute the most to explaining teachers' attitudes towards ICT in education, their self-reported digital competence and their use of ICT based activities for students. The data were collected in spring and autumn 2015 as a part of a larger baseline study conducted within the first phase of the "e-Schools" pilot project (CARNet). An online survey methodology was employed involving a sample of nearly all the teachers in 13 middle (N=307) and 7 high schools (N=306). The results indicated that student-centered teaching, teachers' positive attitudes to ICT in general and especially their strong sense of self-efficacy in using ICT were the most relevant predictors for teachers' perception of possible benefits of ICT in education. Similarly, teachers' favorable perceptions of the potentials of using ICT in education as well as their perceived self-efficacy in ICT use were best predictors of their self-reports on actual use of ICT based activities for students. Teachers holding more positive attitudes towards ICT in education reported higher levels of digital competence. However, the most relevant predictors of teachers' perceived digital competence were fewer years of teaching service and higher mastery goal orientation. These results suggest that for teachers, fostering student-centered and mastery oriented teaching along with training in how to use the potentials of ICT in teaching and direct experience of how to handle ICT in classrooms is needed.

Presentation of the Implementation of iPads in the Teaching and Learning Process in Primary School "Vežica" – Rijeka

Klara Starkl Crnković and Davor Kolarić

Primary School Vežica, Rijeka

The use of iPads brings changes to the way teaching takes place, but it also makes the learner and the teacher change. This is what our four years' experience in the implementation of iPads in all school subjects with different age groups has shown. The more dynamic teaching process demands a bigger involvement of the learner as well as of the teacher. Teachers are mentors and assistants to learners who become researchers, inventors and creators. Problem solving activities, which allow students to find solutions and come to conclusions by themselves, arise learners' interest and motivation. The use of iPads offers a new range of possibilities of individualization of the teaching and learning process as well as various opportunities of

developing students' teamwork and social abilities. Students become more autonomous and more responsible. The teaching and learning environment also changes. The classrooms' appearance changes according to the new approach. iPads allow teachers and students to leave the classroom virtually, but also to experience different field trips of a different kind.

Symposium Three: **Responsible Science in Science Education (RRI Tools)**

Moderators:

Đurda Timotijević

Psychologist; RRI Trainer; Center for the Promotion of Science, Department of International Cooperation

Katarina Anđelković

Sociologist; RRI Trainer; Center for the Promotion of Science, Department of International Cooperation

Science can and should contribute to solving many global challenges our society faces, such as climate change, health, pollution, and resource depletion. With that aim in mind, the European Commission recently pushed forward the concept of **Responsible Research and Innovation (RRI)** to foster and facilitate research and innovation in an inclusive, societally oriented way.

The goal of **RRI Tools project**, funded by EC, is to emphasize the importance of societal issues in science and innovation and to empower collaboration between different groups of stakeholders in research and innovation process (e.g. scientists, science educators and policy makers).

The aim of this symposium, as a mixture of training and discussion with the audience, is to highlight the **importance of science communication** within science & education communities, to **initiate a self-reflection** regarding responsibility in our practice but also to create ideas and offer some **practical tools and guidelines** on how to implement concepts of RRI in science education in schools, with reference to the RRI Toolkit.

Responsible Science in Education – RRI Tools symposium is organized by **University of Rijeka Foundation** in partnership with **Center for the Promotion of Science**.

University of Rijeka Foundation is an independent organisation but fully incorporated in the University's goals with the focus on the development of the scientific and research infrastructure, activities, education and human resources. At the same time, the mission of the

Foundation is realized by encouraging and rewarding significant achievements in the field of science and art, promotion of the idea of knowledge society and active and inclusive citizenship. Modalities of action include yearly grants for the co-financing of the participation at scientific conferences, organisation of scientific meetings, publishing activities, and for the co-financing of student activities. Also, one of most prominent project is the grant for the Award of the Foundation, carried out continuously since 2004. The University of Rijeka cooperates with the academic community, public institutions, government and NGOs on local, national and international level.

Apart from being one of the partners at the RRI Tools project, the **Center for the Promotion of Science** also acts as the SEE (Southeast) Hub Coordinator in Serbia, Croatia, Albania, Montenegro and Bosnia & Herzegovina. The Center for the Promotion of Science in Serbia is a public institution established by the Law on Scientific Research with the task to promote science and technology. The Center cooperates with research and educational institutions (universities, research centers and schools) in Serbia and worldwide, works closely with the government ministries as well as the media and the private sector.

Symposium (4): Schwäbisch Gmünd Symposium:

Supporting Mathematically Talented Children in the Classroom - A Chance to Develop All Children's Interest in Mathematics

Klaus-Peter Eichler; Hans Peter Nutzinger

PH Schwäbisch Gmünd – Germany.

We know that the support of mathematically gifted children is important and meaningful for our society. To do so there are many effective and well established activities, such as math circles, Mathematical Olympiads etc. We also know, that it's necessary to support not only mathematically gifted children. We have not only to enable all children to successfully cope with mathematical performance requirements. We must find ways to develop creative behavior for wide range of children. The everyday teaching has to face this. We believe, that the support of mathematically gifted children in daily teaching in mathematics classes not only raises the level of teaching results in general. This also has positive impacts onto children's creative behavior and their motivation. However, this requires carefully chosen tasks and a suitable working with these tasks. Characteristics of such kind of tasks and working with tasks appear in our presentation using examples from grade 4 up to 7. For us grade 4 up to grade 7 are very important, because this is the transition period from primary to secondary education. Nevertheless, we find a lot of materials for grade 1 up to grade 4 and also for grade 8 up to grade 12, but there are only few materials for this important period. We will not only present a lot of tasks with bright ideas, moreover we will show possibilities for and characteristics of a successful work with these tasks.

Symposium Five:

Increasing Creativity Capacity in the Entrepreneurial Classroom

Presenting/Corresponding Author

Tina Lee Odinsky Zec

Director, Innovation and Entrepreneurship Center at Zagreb School of Economics and Management

Presenters:

Victor Ricardo Altimira Vega (Spain); **Helena Habdija** (Croatia/UK), **Erik Lindberg** (Sweden); and Corresponding Author, **Tina Lee Odinsky-Zec** (USA/Croatia)

Abstract:

Our panel will illustrate how we initiate, design, implement and document creativity as it unfolds in and around the classroom through teacher, student and community collaboration. The panel is diverse in offering a wide variety of perspectives and will showcase both original pedagogical designs as well as twists on popular strategies such as design thinking to bring about entrepreneurial mindsets. Our session intends to engage, inspire and inform how the entrepreneurial classroom is taking shape in and across countries and contexts.

About the Presenters:

Victor Ricardo Altimira, Phd. is Multicultural Professor and Consultant. He has lived in 5 different countries for more than one year and has extensive experience in managing teams both in large corporations and start-ups. He is committed to innovation in health and sports as well as design thinking and cross-cultural skills. He has been an associate professor at IE Business School since 2001 and a visiting professor at a range of institutions including Cotrugli (Croatia), Fundacao Getulio Vargas (Brazil), Bocconi (Italy) and USI (CH). Contact: raltimira@gmail.com

Helena Habdija, MA is a trained artist with an entrepreneur's drive. She has extensive experience working with diverse groups, including those as young and creative as first graders to those more systems oriented like IT founders. While she has been mentoring startups since 2012, she is also an active team member of several

startups herself. In 2015, she joined DotForge Impact accelerator as a Community Manager. Originally from Bjelovar, Croatia, she holds an undergraduate and master's degree in Education and... is a fraternal twin. Contact: helena@dotforgeaccelerator.com

Erik Lindberg, Phd. is a Senior Lecturer USBE at Umeå University. Lecturer within nearly all sub-disciplines of business administration, but the last decade with focus to entrepreneurship at both undergraduate and master's level and been supervisor for over 30 theses. He is fascinated by the interplay of stress and performance and has researched and written on the topics extensively as it relates to teaching, leadership, and entrepreneurial mindsets. Contact: erik.lindberg@umu.se

Corresponding Author: Tina Lee Odinsky-Zec, Msc. is the Director of the Innovation and Entrepreneurship Center at ZSEM, Zagreb School of Economics and Management where she leads courses in Entrepreneurship, Creativity & Innovation and CRM for undergraduates and professional development. She has taught over 3000 students since 1997 and believes that along with traditional roles of lecturer, teacher, facilitator and coach that professors also must be curators and will showcase a retrospective of student outputs. She is completing her phd work in Visualizing Social Entrepreneurship in Croatia using Macro-Meso-Micro Level Analysis. Contact: tina.zec@zsem.hr

Symposium (7):

Innovative Approaches Working with Children and Youth with Special Needs: Youth Activism, Acting and Community Programming

Nana Gulić; Nataša Tepša; Iva Tomljenović

Iva Marčelja, Youth Centre Programme Coordinator, Dom mladih Dom mladih is a city institution that gives a special mark to the City of Rijeka and whose main activity is the organization of free time of children and youth. In this symposium we will talk about how we animate children with the qualitative and diversified programs, and then, with the help of expert advisors and modern equipment, introduce them into the world of technical culture, fine arts and music. We will discuss how we help elementary and secondary school children, through various activities, develop their potentials, explore their interests, develop creativity and creative intelligence, as well as learn in an interesting way. Nataša Tepša, Happy Things Academy During the symposium I will talk about my experience working as a drama teacher, clowndoctor and as drama teacher with children with special needs. Also, I will „drive you through“ scene work that contains some acting practice such as breathing, movement, group games and improvisation. It will be a short insight how can you use theatre work in everyday life. Nana Gulić, Child and Youth Worker, Elementary School Kastav Children and youth are not only our future, they are a very important part of our present. When given a chance, little bit of guidance, trust and encouragement children and youth make miracles. During my presentation I will talk about methods and impact of high level youth engagement (especially 'at risk' youth) in community projects and social justice work.

Symposium Eight, Winnipeg Symposium:

Publications – International Journals – Achievements & Challenges – Future Trends

Ken McCluskey; Taisir S. Yamin; Todd Lubart; Roland S. Persson; Ugur Sak

Coordinator:

Joseph Goulet

Symposium Nine:

Best Practices in Talent Search

Organiser:

European Talent Centre, Budapest, Hungary

Participants:

Csilla Fuszek

European Talent Centre, Budapest

Balázs Klein

University of Debrecen

Kristóf Kovács, Ph.D.

Eszterházy Károly College

Mensa International

Szilvia Péter-Szarka, Ph.D.

University of Debrecen

Discussant:

Mojca Juriševič, Ph.D.

Centre for Research and Promotion of Giftedness at Faculty of Education, University of Ljubljana, Slovenia.

The Hungarian Templeton Program, lasting until 28 February 2017, is a pilot program that aims to identify, nurture and support exceptional Hungarian cognitive talents aged between 10 and 29. The program identified 315 exceptional Hungarian cognitive talents between the age of 10 and 29 (Hungarian Junior Templeton Fellows), out of nearly 20,000 applicants whose test results were evaluated in two age groups (10-19 and 20-29). Participants of the workshop will be provided with an overview of the program in general and the identification phase in particular. This is followed by an introduction to the first round of the identification process for the age group of 10-19 (the “Big Ability Test” of the Hungarian Templeton Program), which consisted of four online tests of cognitive ability: an adaptive test of fluid intelligence, an adaptive vocabulary test, a test of working memory (the N-back test), and a problem-solving test requiring divergent thinking. Participants will also gain an understanding of the basic principles of computerized adaptive testing and the advantages of adaptivity in large-scale identification processes.

Symposium Ten: Entrepreneurial Learning in Higher Education: A Case Study of the Business School PAR

Chairpersons:

Gordana Nikolic

Dean, Business School PAR, Trg Rijecke rezolucije 4, Rijeka, Croatia.

Presenters:

Gordana Nikolic, Ph.D.,

Dean of the Business School PAR.

Ms. Zeljka Mrksa,

Entrepreneurial Learning Expert, South East European Centre for Entrepreneurial Learning.

Vidoje Vujic, Ph.D., President of Croatian Chamber of Economy - County Chamber Rijeka.

Denis Khermayer, the Headmaster of the High School “Andrije Ljudevita Adamica”

Laura Grubisic, the Headmaster of the High School for Economy

Duration:90 minutes

Abstract:

The idea of integrating entrepreneurship and education has been a part of the EU’s endeavors since the introduction of the Lisbon Strategy in 2000. Since then, it has found its way into the curricula in all levels of education, as a valuable approach in raising students’ awareness on the importance of critical thinking, proactivity, creativity, and innovation (Expert Group on Indicators on Entrepreneurial Learning and Competence: Final Report, DG Education and Culture Framework Contract, 2014). Moreover, it has been a part of the Croatian National Curriculum Framework as a basic competence. (Strategy for the construction and development of the national curriculum for preschool education, general compulsory and secondary school education, 2007). This lecture will provide an insight into some examples of entrepreneurial education in higher education in Europe, and focus on the example of the Business School PAR. The Business School PAR is the first and only private higher education institution in Rijeka and the surrounding region. It offers a BA study in Business Management with a special emphasis on encouraging entrepreneurship learning through the Student business incubator, and forming partnerships with SMEs and entrepreneurial institutions from the region.

Symposium Eleven:

The Wyoming USA Symposium:

Building 21st Century Learning Skills through Music, Civic Engagement, and Service

Service-Learning: Challenging Students Beyond the Classroom

Trista Ostrom

Executive Director of the Wyoming Congressional Award for Youth; Albany County School District Students

We hope to establish community within our classrooms by creating a connection between the environment of the classroom and the outside community in which students live. We have expectations of our students as they enter the world in terms of service; however, we are not preparing students in the classroom to be contributing members of society. Through service-learning, students have the unique opportunity to build critical thinking skills and the value of teamwork. Students who participate in service learning demonstrate increased social and civic responsibility in addition to academic achievement. Thus, this professional development opportunity elaborates on the incorporation of service learning in the classroom to prepare students to contribute to the world in which they live. Furthermore, educators learn how to utilize community connections to complete successful service learning projects.

Integrated Project-Based Learning to Fuel Civic Engagement: the Ultimate in Student Challenge

Meredith McLaughlin

Lead Teacher at the University of Wyoming Lab School; Albany County School District Students

Laboratory schools in America were initially conceptualized by John Dewey in the late 1800s as places for children to explore how “life itself . . . should furnish the ground experience for the education of children” and how the freedom of a child to express action contributes to “satisfaction and emotional stability” (Mayhew and Edwards, 1936). The University of Wyoming Lab School maintains this initial vision over 100 years later and serves as a founding member of the National League of Democratic Schools, whose express purpose is to use a variety of approaches to engage and prepare students for participation in civic society (Goodlad, 2004). As a Lab School, mentor teachers, pre-service teachers and students learn together how to use school as a platform for building a better world. Students and educators alike will present exemplary projects in civic engagement and how those projects have catapulted them to higher levels of performance in math, reading, writing, social studies, and a full range of the P21’s Framework for 21st Century Learning Skills. Specific materials shared will include: templates for unit and lesson design that are aligned to national standards and involve learners of all ability levels in project-based civic engagement, strategies for managing effective collaborative work, and assessment techniques used to further student learning.

Developing Everyday Musicians: How Music education in the United States fits 21st Century Learning Needs

Chris Olson

Music Educator in Albany County School District #1; Albany County School District Students

This workshop will examine the unique approach to music education in the United States: Marching Bands, Concert Bands, Jazz Bands, Choirs, and Orchestras. Students will demonstrate how critical, scientific, reflective, metacognitive, and creative thinking are combined to create the unique human product of a performing ensemble. We will discuss the neurobiology of the brain and how it is affected by

playing a musical instrument. We will also explore character education and leadership development as it occurs within this structure.

Workshops

Workshop (W₁):

Talented Females: Obstacles, Challenges, & Choices

Sally M. Reis

Vice Provost for Academic Affairs; University of Connecticut; USA

As a follow-up to Dr. Reis' keynote, this workshop will focus on talented girls and women including the types of decisions that talented females make, and the personal and environmental obstacles that they encounter. At which stages during one's lifetime are these decisions made? How can parents and teachers help develop gifts and eliminate obstacles in young girls? These and other questions, as well as possible solutions, will be explored in this workshop.

Workshop (W₂):

Problem-Based Learning (PBL)

Heinz Neber

ICIE, Ulm - Germany

“PBL should be considered as a general approach for designing learning environments on all levels, and for all kinds of learners. As a consequence, all components of instruction are concerned, like types of learning tasks and learning materials presented to the students, ways to organize student’s learning activities including their collaboration, how to provide help and support by the teacher, and even how to assess and evaluate the results of learning. All these instructional conditions should stimulate and support the learning processes of the students. These processes are best described as inquiry cycles, beginning with understanding the problem given to the students and formulating questions for needed but missing information. The main function of all PBL processes is to generate knowledge in terms of usable, non-inert knowledge.

The workshop will focus on how to design some of the most important components of PBL. In particular on how to formulate adequate problems as learning tasks, on processes enabled by such tasks, on ways to organize students into groups, and how to distribute work by specifying adequate roles in such groups. These components will be experienced by several short exercises in the workshop.”

Workshop (W₃):

Learning in the Digital Age: The Use of Film in Education

Maher Bahloul

Education Through Arts Institute - Maher Language Institute (MLI), Paris, France

The presentation is about an innovative pedagogy whereby performing and audio-visual media play a key role in teaching and learning. On the basis of my latest book ‘*Lights! Camera! Action and the brain: The Use of Film in Education*’, the presentation combines theory and practice; as such, it lays solid neurological foundations for media literacy and provides several practical applications from worldwide scholars. The book contains thirteen chapters three of them address a number of theoretical issues related to the camera and the brain while the remaining ten are practical illustrations of the extent to which film and video are used as pedagogical tools. In the book preface, Nikos Theodosakis, author of ‘The Director in the Classroom’, writes that the book contributors ‘have built a wonderful bridge for us to travel over’. In fact, the book chapters transcend age restrictions to include diverse age groups, children and young adults. The topics range from learning language and philosophy to

learning about one's self, one's environment, and one's cultural identity. Much more importantly, the book addresses regular and special learners' needs. Arts in general, and films in particular, are shown to display salient and dynamic roles in appealing to a wide variety of regular and special needs learners. In short, the presentation unveils a recent learning methodology by showcasing the works of a number of authoritative figures in the field of edutainment.

Workshop (W₄):

Creating Creative, Cooperative Environments Creatively and Cooperatively

Ken W. McCluskey

Dean, Faculty of Education, The University of Winnipeg, Canada

Researchers often consider how to develop creative environments through “person” (the characteristics and problem-solving styles of the people involved), “process” (the operations they perform), and “product” (the resultant outcomes). However, in education, in business, and indeed in all areas of human endeavour, the problem-solving environment is equally important. And there are tangible things than can be done to help establish an energizing, stimulating climate. The focus of this session is on nurturing creativity in schools, post-secondary institutions, and the workplace by setting a positive tone which builds trust and openness, challenge and motivation, autonomy, dynamism, playfulness and humour, and idea support. Certainly, educators (at any level) and parents would be the main target groups, but researchers and business people would also be interested in many of the topics that will be addressed in this workshop.

Workshop (W₅):

The Use of the Creative Reversal Act (CREACT) to Develop Creative Potential in the Classroom

Uğur Sak

Center for Research and Practice on Gifted Education, Anadolu University, Eskisehir, Turkey

The last decades have witnessed a number of new theories and models about the development of creativity. Some of these models were translated into practice. We have come to believe that creative ability is not a fixed capacity; rather, it can be improved through interventions. Indeed, research shows that educational and training programs make a considerable improvement in creative capacity. This talk will include the discussion of creativity studies first, and then a review of the CREAT (Creative Reversal Act), its theoretical background, and research carried out on its effectiveness on students' creativity. The CREAT is a creative teaching technique (Sak, 2009) developed based on the theory of the janusian process that was originally proposed by Rothenberg (1971). The janusian process plays a role in many creative accomplishments, such as the theory of natural selection and the general theory of relativity. Creative ideas holding oppositions, paradoxes, and paradoxical metaphors can be produced through the use of the CREAT. It is composed of five steps: construction, segregation, opposition, combination and elaboration processes. A series of research was carried out on the effectiveness of the CREAT. One of the studies showed that the use of the CREAT improved students' creative performance significantly on the poem and story tasks. Second study involved students' performance on concept learning and construction of paradoxes. In this study, experimental groups showed higher performance than did the control groups on the both tasks. In another study, the social validity (social acceptance) of the CREAT was investigated. Students' satisfaction with use of

the CREAT was found very high. Research findings imply that the CREAT can be used effectively in a variety of settings, including classrooms and workplaces.

Workshop (W₆):

Evaluation of Potential Creativity (EPoC)

Todd Lubart

University Paris Descartes, France

This instrument, the Evaluation of Potential Creativity (EPoC 2009), is a new instrument that allows creative giftedness to be measured. It includes verbal and graphic sub-tests that measure the two key modes of creative cognition—divergent-exploratory thinking and convergent-integrative thinking—in elementary and middle-school students. Psychometric results concerning the instrument were developed, as well as an original, internet-based scoring system that enhances inter-rater reliability is under construction. The instrument, developed initially with a sample of French school children, can be used as an efficient diagnostic tool to identify creative potential and to monitor progress, using pre-tests and post-tests, in educational programs designed to enhance creativity. This instrument is available in six languages, including: French; English; Arabic; Turkish; German; and Portuguese. In the second phase of this project, the instrument will be available in other languages. This workshop enables you to learn more about the theoretical background, current practices and new theories relating to this field of knowledge.

Workshop (W₇):

Identifying and Developing Creative and Productive Giftedness: Major Challenges for the 21st Century Learners

Joseph S. Renzulli;

Director, Neag Center for Creativity, Gifted Education and Talent Development, The University of Connecticut, USA

The economic, cultural, and social development of a nation is dependent on the creative productivity of its most gifted and talented individuals. In this presentation we will first explore the characteristics of young people that are capable of contributing to high levels of creative productivity and procedures used for identifying these students for special services. The second part of the presentation will deal with: **(1)** how to make curricular modifications that allow time for personalizing learning; **(2)** how to infuse 21st Century skills into the curriculum; and **(3)** how we can provide the opportunities, resources, and encouragement for young people to apply their talents to challenging types of learning experiences. Three interrelated types of enrichment will be described and practical examples of how teachers can organize enrichment clusters and learning experiences that focus on creative and productive giftedness will be presented.

Workshop (W₈):

Lost Prizes: Recognizing and Nurturing the Talent of At-Risk Students

Ken W. McCluskey

Dean, Faculty of Education, The University of Winnipeg, Canada

If we expect students to communicate and behave in positive ways in our schools and elsewhere, there must obviously be rules, order, and organization. And clearly, educational environments should be consistent and stable for all children and youth. However, when overly rigid, punitive regulations are put in place, many kids – especially those who do not respond positively to inflexible reactions and approaches – may be harmed instead of helped. Indeed, under certain conditions, teachers may inadvertently say and do things that essentially drive nonconforming, relationship-resistant young people from our system. Even with the best will in the world, educators can sometimes make unfortunate choices, draw lines in the sand, and push marginalized students over and out. This session will identify some pitfalls to avoid and review *Lost Prizes* projects that have used Creative Problem Solving and Mentoring to identify and develop the talents of troubled youth at risk for alienation, academic failure, and gang involvement.

Workshop (W₉):

The Use of the Creative Reversal Act (CREACT) to Develop Creative Potential in the Classroom **Uğur Sak**

Center for Research and Practice on Gifted Education, Anadolu University, Eskisehir, Turkey

The last decades have witnessed a number of new theories and models about the development of creativity. Some of these models were translated into practice. We have come to believe that creative ability is not a fixed capacity; rather, it can be improved through interventions. Indeed, research shows that educational and training programs make a considerable improvement in creative capacity. This talk will include the discussion of creativity studies first, and then a review of the CREAT (Creative Reversal Act), its theoretical background, and research carried out on its effectiveness on students' creativity. The CREAT is a creative teaching technique (Sak, 2009) developed based on the theory of the janusian process that was originally proposed by Rothenberg (1971). The janusian process plays a role in many creative accomplishments, such as the theory of natural selection and the general theory of relativity. Creative ideas holding oppositions, paradoxes, and paradoxical metaphors can be produced through the use of the CREAT. It is composed of five steps: construction, segregation, opposition, combination and elaboration processes. A series of research was carried out on the effectiveness of the CREAT. One of the studies showed that the use of the CREAT improved students' creative performance significantly on the poem and story tasks. Second study involved students' performance on concept learning and construction of paradoxes. In this study, experimental groups showed higher performance than did the control groups on the both tasks. In another study, the social validity (social acceptance) of the CREAT was investigated. Students' satisfaction with use of the CREAT was found very high. Research findings imply that the CREAT can be used effectively in a variety of settings, including classrooms and workplaces.

Workshop (W₁₀):

Scientific Evidence of Neuronal Phenomena

Dubravko Kičić

CEO & President of the Board of Bicro BIOCentre Ltd., Zagreb, Croatia

This workshop will focus on neuronal basis of everyday human behavior relevant for educators at all levels of education. In an interactive setting, a basic brain anatomy will be introduced along with the most common noninvasive brain imaging techniques that enable us to “see into the brain”. We will

play with 3-D brain anatomy, choose different brain areas to display, zoom, explore and discuss their functions. If we are good, we will have a pleasure of meeting a “little man” in our brain (his name is Homunculus!). A realistic movie resulting from a mathematical model will show us the complexity of neuronal signaling between different brain areas. That signaling is initiated from environment that is full of auditory, visual, tactile and cognitive stimuli that are literally causing our brains to grow. Moving further, we will present results from several sets of neuroimaging data acquired on several types of brain scanners and link them to some of the observed behaviors. We will learn why “monkey does what monkey see” and why humans are not very far from monkeys? Actually, we will even jump around the classroom! – but this will teach us that our neuronal motor control carefully differentiates between bilateral vs. unilateral movements. Doing things together, we’ll demonstrate which part of our brains is “social” and why we sometimes think differently.

Workshop (W₁₁):

Active Learning in Science: The Case of Colours

Mojca Čepič

Faculty of Education University of Ljubljana, Slovenia

Although every learning is an active process, the term active learning in science education is used for the approach, in which students discover relations among relevant variables in a mode of scientific method through performing experiments as an inquiry. Scientific method is usually considered as collecting data from observations and measurements to become familiar with the problem, an organization of data for recognition of possible patterns, a formation of hypothesis trying to explain data patterns (hypothesis), designs of new experiments for verification or for ruling out hypotheses. The main purpose of learning the scientific method is that students acquire the attitude to drawing conclusions based exclusively on evidences and not on hearsays or opinions, even in everyday life.

More approaches stimulate learning of scientific method, for example: POE - Predict, Observe, Explain (White, Gunstone, 1992), IBL - Inquiry Based Learning (McDermott, 2014), ISLE Investigating Science Learning Environment (Etkina et al, 2013), all of them stemming from experimenting with the purpose to verify predictions (hypotheses). In this contribution, we shall briefly discuss these approaches, their advantages and disadvantages. Next, the participants will apply these approaches to investigate the colours with the purpose to discover the rules for their creation on the computer screen and by the colour printer. The activity will additionally consider the guidance for less able students and the creation of open-end problems relevant for students with higher abilities.

Workshop (W₁₂):

Evaluation of Potential Creativity (EPoC)

Taisir Subhi Yamin

University Paris Descartes, France

This instrument, the Evaluation of Potential Creativity (EPoC 2009), is a new instrument that allows creative giftedness to be measured. It includes verbal and graphic sub-tests that measure the two key modes of creative cognition—divergent-exploratory thinking and convergent-integrative thinking—in elementary and middle-school students. Psychometric results concerning the instrument were developed, as well as an original, internet-based scoring system that enhances inter-rater reliability is

under construction. The instrument, developed initially with a sample of French school children, can be used as an efficient diagnostic tool to identify creative potential and to monitor progress, using pre-tests and post-tests, in educational programs designed to enhance creativity. This instrument is available in six languages, including: French; English; Arabic; Turkish; German; and Portuguese. In the second phase of this project, the instrument will be available in other languages. This workshop enables you to learn more about the theoretical background, current practices and new theories relating to this field of knowledge.

Workshop (W₁₃):
Problem-Based Learning (PBL)

Heinz Neber

ICIE, Ulm - Germany

“PBL should be considered as a general approach for designing learning environments on all levels, and for all kinds of learners. As a consequence, all components of instruction are concerned, like types of learning tasks and learning materials presented to the students, ways to organize student’s learning activities including their collaboration, how to provide help and support by the teacher, and even how to assess and evaluate the results of learning. All these instructional conditions should stimulate and support the learning processes of the students. These processes are best described as inquiry cycles, beginning with understanding the problem given to the students and formulating questions for needed but missing information. The main function of all PBL processes is to generate knowledge in terms of usable, non-inert knowledge.

The workshop will focus on how to design some of the most important components of PBL. In particular on how to formulate adequate problems as learning tasks, on processes enabled by such tasks, on ways to organize students into groups, and how to distribute work by specifying adequate roles in such groups. These components will be experienced by several short exercises in the workshop.”

Workshop (W₁₄):
Gifted First Graders in Digital Age –Individual Projects in ICT and Robotics

Ana Sović-Križić; Jasna Cvetković-Lay; Tomislav Jagušć

*Center for Gifted Child Development „Bistrić“ (www.nadarenost.net), Zagreb, Croatia
University of Zagreb, Faculty of electrical engineering and computing, ana.sovic@fer.hr*

In the first part of this workshop some important advantages of the interaction between a gifted child and a computer will be provided from the psychological point of view together with an overview of workshop activities with young gifted students in ICT and robotics in our extracurricular enriched program. Mentors particularly encourage the creativity and higher level of abstract thinking through individual programming projects. Gifted children acquire complex concepts and create program at a considerably higher level than the expected one. The easiest way to introduce some advanced concepts to gifted children is through games that they are familiar with. If we give them an opportunity to build a robot that can move and talk, they will accept the challenge. Children use LEGO educational sets, especially Mindstorms EV3, to make the program for the robot in intuitive drag-and-drop software and download the program to the “Intelligent Brick”. Our main goal is to explain and teach the basic concepts of programming, like variables, loops, conditional statements, but also some advanced

concepts like events or operating principles of a full-adder. To guide the gifted children's' focus, they fill worksheets with the assignment. In this demonstration, we present handbook with lessons and worksheets for LEGO Mindstorms EV3 workshops and we demonstrate simplicity of the programming in the drag-and-drop software for LEGO robots, and complexity of more demanding worksheets for programming with ARDUINO plates.

Although those subjects can be quite abstract even to grown-ups, gifted children adopted the high level of mental concepts very easily and quickly through games and well prepared practical examples.

Workshop (W₁₅):

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Workshop (W₁₆):

Learning in the Digital Age: The Use of Film in Education

Maher Bahloul

Education Through Arts Institute - Maher Language Institute (MLI), Paris, France

The presentation is about an innovative pedagogy whereby performing and audio-visual media play a key role in teaching and learning. On the basis of my latest book '*Lights! Camera! Action and the brain: The Use of Film in Education*', the presentation combines theory and practice; as such, it lays solid neurological foundations for media literacy and provides several practical applications from worldwide scholars. The book contains thirteen chapters three of them address a number of theoretical issues related to the camera and the brain while the remaining ten are practical illustrations of the extent to which film and video are used as pedagogical tools. In the book preface, Nikos Theodosakis,

author of ‘The Director in the Classroom’, writes that the book contributors ‘have built a wonderful bridge for us to travel over’. In fact, the book chapters transcend age restrictions to include diverse age groups, children and young adults. The topics range from learning language and philosophy to learning about one’s self, one’s environment, and one’s cultural identity. Much more importantly, the book addresses regular and special learners’ needs. Arts in general, and films in particular, are shown to display salient and dynamic roles in appealing to a wide variety of regular and special needs learners. In short, the presentation unveils a recent learning methodology by showcasing the works of a number of authoritative figures in the field of edutainment.

Workshop (W₁₇):

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the computer screen and by the colour printer. The activity will additionally consider the guidance for less able students and the creation of open-end problems relevant for students with higher abilities.

Presentations

Creativity

A.1 Kyunghwa Lee. *Development of K-DHA Model and Program for Developing Human Creativity based on TRIZ and Design Thinking.* (A.1)

As emphasize the importance of creativity in education and corporate field around the world, therefore it needed to develop the well-designed systematic model and program for promoting creativity based on the previous researches and useful creative thinking techniques along with the developmental stages. Therefore, we developed a K-DHA model and program based on quick TRIZ and designing thinking process that can enhance the creativity from elementary through adults in this study. The concept of creativity has defined by various scholars. Lee (2002) suggested that creativity is a factor comprised of personal creative thinking ability and creative personality. And Lee (2015) developed ‘SMASCH 6-6-6 Model’ for developing K-DHA creativity program. This model is consisted of three domains of subject matters, creativity and core competency. And each domain involves 6 different variables. K-DHA program for enhancement of creativity is based on the ‘SMASCH 6-6-6 Model’ is consisted of 4 steps (elementary low, high grades, secondary, and adult) and 3 levels (low, intermediate, advanced). And the focus of each step program was different, the elementary step focused on pleasant creativity, secondary was collaborative creativity and adult was practical creativity. Therefore, these programs were developed based on TRIZ principle and design thinking process in order to practice the systematic thinking and collaborative activity to promote the creative thinking and attitude. DHA program was applied to elementary and secondary schools and proven the effectiveness, so I hope this program can be widely used for cultivating creativity of all the people.

A.2 Orest Cap; Karen E. Smith. *A Closer Look at Canada's Federal Vocational Education Acts: Is Innovation Being Fostered for the Future?* (A.2)

Economies thrive when vocational education supports innovative practices. In the 21st century when industry is changing through ever-shifting industry processes and global market strategies; it is highly important for government policies to foster innovation. Issues about how these policies were written to address the shape of future innovations are brought to light. In this session Canada's federal vocational policies for vocational education are re-examined through the lens of innovation. The examination of vocational education Acts follows: (1) a full-blow historical analysis from the time Canada was formed until now, (2) how policies and Acts were created, and (3) focuses specifically on positive/negative outcomes of the effects on innovation for the future. Laying the Acts out to examine whether innovation for the future is being fostered or whether the Acts are mostly reactive not proactive is featured.

A.3 Jacques GREGOIRE; Todd LUBART. *A New Test for Assessing Mathematical Creativity.* (A.3)

This new test was developed within the general framework of the test EPoC (Evaluation of Potential Creativity) (Lubart et al., 2011). As numerous recent studies indicated that creativity is mainly domain specific, EPoC assesses creativity in each domain of activity, measuring divergent exploratory thinking and convergent integrative thinking, both being widely viewed as the basis of the creative process. For the mathematical domain, creative tasks were developed for numbers and geometry, which are the most important subdomains of

mathematics in elementary school. As the tasks were designed for children between 6 and 12, they had to be rather simple, using basic mathematical concepts. At the same time, they had to stimulate creativity and originality. They had also to be appropriate for an on-screen format. A computerized testing format was preferred because the tasks are easy to complete and to score. Moreover, computerized testing improves score reliability, because the whole process is standardized and the impact of subjectivity on scoring is limited. To guarantee the validity of the measures, examples and training were provided at the beginning of each task. The original version of the test was developed in French and adapted in several other languages. Data collected with the different versions of the test will be presented.

A.4 Bilge Bal-Sezerel; Nazmiye Nazli Ozdemir. *A Review on the Assessment of Mathematical Creativity.* (A.4) The purpose of this study is to review the instruments that assessment mathematical creativity in the literature. In the literature a great deal number of instruments have been developed to measure mathematical creativity to understand the nature or nurture of it. The needs of the instruments arise from the issues as educational goals, early identification, connection of creativity or its elements, and improvement of existing creativity measures. From this point on one can assumed that the instruments of mathematical creativity needs to be analyzed in accordance with administration methods and content of them. Administration method of the instruments can be categorized as traditional and alternative. However it is not possible to distinguish precisely from one to another. Because traditional and alternative methods may overlap or be used together in the assessment process. In the light of the instruments content of mathematical creativity two approaches are remarkable. The first one is based on creativity elements (fluency, flexibility, originality and elaboration) defined as divergent production/thinking. Most researchers in this domain use this approach as theoretical framework and construct items such as tasks, activities, open-ended/ill-structured, problem solving and problem posing. The latter one is convergent-divergent approach which researchers develop both convergent and divergent items. All in all mathematical creativity is fruitful in the context of instruments because the instruments that have been developed until today have been administered to almost all age range in the school period.

A.5 Bilge Bal-Sezerel; Nazmiye Nazli Ozdemir. *Key Themes within the Studies of Mathematical Creativity.* (A.5) From 20th century to now, researchers have been studying the ontology of mathematical creativity, the elements and the assessment of it, and the evolution of the field. Because in this century educational psychologists have considered creativity more. Also mathematical creativity has been attracted attention by educational psychologist. Therefore these themes became benchmarks of the filed because these themes are related to educational area. One of themes is the definition and elements of mathematical creativity and the other was the assessment of mathematical creativity. These two themes were studied and argued with many mathematicians and researchers. What's more the themes related to connections of mathematical creativity elements and educational issues within mathematical creativity could be evaluated. The mathematical creativity and the related structures (general creativity, IQ, etc) and the effects of individual characteristics on mathematical creativity should be categorized as personality traits investigations and cognitive context investigations. On the other hand researchers generally focused on fostering mathematical creativity as in the context of

educational issues. Taking everything into account it is obvious that creative thinking should be prerequisite of civilization's improvement in the globalized world. Thereby many disciplines' mission and visions involved creativity in the last century. Mathematics also has been influenced by this creativity flow. Therefore effective associations as NCTM and TIMSS pointed out that students' creative and flexible thinking. As a result it is not surprising that the literature on mathematical creativity research have been shifted to educational issues.

A.6 Çiğdem Nilufer UMAR. *The Effects of Differentiated Curriculum with Blended Learning Method on Gifted Students' Critical Thinking Abilities and Creativity.* (A.6) The present study aims to evaluate the effects of differentiated curriculum with blended learning method on gifted students' critical thinking abilities and creative. For this aim, a unit plan that takes into account the special academic needs of the gifted learners was constructed which relies on the blended learning and the unit was chosen from 10th grade Chemistry lesson. In this study, pretest and posttest experimental model was used. The study was conducted with a total number of 34 gifted students, 17 of them in experimental group and 17 in wait list control group, who were students from 10th grades of A Foundation High School in Istanbul. While the differentiated curriculum with blended learning in chemistry was being administered to the experimental group, the regular curriculum without any differentiation was being administered to the control group. Torrance Creative Thinking Figural Test A and B Forms and Cornell Critical Thinking Test X are used in order to derive the needed data. These tests were administered as pretest and posttest to all students in the experimental and control groups. The data obtained was analyzed by using Mann-Whitney U Test and t-Test taking place in the statistical program. According to the findings of the study, it has been observed that differentiated curriculum with blended learning method on gifted students', increases the elaboration dimension of the creative thinking test and critical thinking abilities of the students.

A.7 Dengchuan Cai; Jhongpei Wu; Tingkai Chang; Wanyu Cheng; Sheng-chun Huang; Jia-wei Jhang. *Creativity Investigation of Graduate Students in Taiwan.* (A.7) In Taiwan, the manufacture style of industries transferred from OEM to ODM gradually in recent years. Meanwhile, the creative designers are the most required in various industries. The design students will be the designers of industries in the near future. Therefore, the creativity is very important for design students. In order to get understanding the creativity of students in Taiwan, this study surveyed the creativity of 52 graduate students of two classes in a design school. One class was industrial design and the other one was integrated design. A questionnaire with 99 questions was used to test their creativity. The results indicated: 1) the mean score of creativity of the two classes was 3.51. This score was above average indicating the creativity of the student was high, 2) four answers of the 99 questions were significantly different between the two classes, among them were: I usually predict the social living in the future, I usually image the car styling in the future, I do my best to finish things that I promised, and I recognized that I need to put mental and physical effort in my works, and 3) students with high academic scores they have more confidence, have more ideas, and do not like to receive instruction to do something. The results can be a reference for design education.

- A.8 Ivan Alagić. *Content Analyses of School Books: The Relationship between Convergent and Divergent Thinking.* (A.8)** Relation of convergent and divergent thinking in elementary schoolbook tasks Creativity as an ability to produce and realise new ideas involves several intellectual and non-intellectual factors. Among others, divergent thinking plays an important role in development of creativity. The aim of this study is to investigate how a selection of elementary schoolbook tasks develops convergent and divergent thinking in young learners. Previous studies show that most of the tasks and questions engage learners' convergent thinking and memory skills and that tasks regarding divergent thinking are present in small percentages. This study includes analysis of schoolbooks appropriated to grades 1 to 4 by three Croatian publishers. Results confirm previous studies conducted in different countries. The vast majority of tasks and questions enhance convergent thinking and memory skills. This ratio could influence development of creativity in young learners due to the significant impact of school education on cognitive development.
- A.9 Josipa Mamužić. *Games that Foster Creativity.* (A.9)** Creativity is one area of cognitive development that is important in teaching and working with gifted children. Through workshops with potentially gifted children we designed six games based on theory and research in field of creativity that can foster development in that area. Games are based on skills that are traditionally mentioned as part of creative process: fluency, flexibility, originality/novelty, elaboration, divergent and convergent thinking, artistry and experimenting with materials. Characterized by openness, each game is created so it can be connected with different themes across curriculum, teachers can apply game in different subjects but skills underlying the game are the same. Games are applicable across ages and across subjects, the more players know the game is richer and more complicated, the player is creator of the game. Through play even difficult tasks are seen as challenges, children are motivated and can monitor their improvement. Feedback of the games from educational experts is very good and promising, games make working with gifted children in field of creativity more professional, interesting and enjoyable.
- A.10 Gabriela Konkol; Anna Kalarus. *Creativity in Zofia Burowska's Concept and its Implementation into School Practice in Poland.* (A.10)** Among the forms of musical activity used during music lessons in general education, apart from singing, playing the instrument and movement to music, creating and listening to music is of vital importance. Perception of music familiarises children with musical literature, makes them sensitive to the features of music, allows them to define the different instrumentation, the structure of a musical piece and its musical form. However one can observe a low level of interest in listening to valuable music among pupils. To foster the interest in artistic music from an early age they should follow the ideas found in abundance in "Krakowska koncepcja wychowania muzycznego" [Cracovia concept of music education] written by a renowned Polish pedagogue – Zofia Burowska. Within the scope of listening to music she created a concept of two integrated forms of activity: listening to music and creating music. The project in question was an attempt to integrate two forms of activity: listening to music and creating music. The participants of the project were primary school in Gdansk pupils, grades I–III. The main aim of the project was to

generate a creative approach in students. The autonomous form of activity, that is the creation of music, became a tool for a better comprehension of music.

A.11 Gayle B. Roege. *Answering the Demand for Art & Design Thinking, Innovation, and Creativity: Developing the Talent of Artistically Gifted Adolescents.* (A.11) Artistic talent is critical to offering creative contributions to society's challenges and opportunities (in balance with technical, business, and other domains). Emphasis on art experiences and skills is missing in school programs, due to financial and accountability constraints, and encouraging prioritization on "core" subjects. Rural environments present particular challenges: while they are identified as fertile ground for developing a creative class, low population density makes it difficult to provide substantial support for in-depth exploratory, experiential creative endeavors. A crucial element of maintaining personal commitment to one's talent area is support. While support from the family is essential, the value a community (which includes the school) places on any talent domain largely impacts the individual developmental trajectory for that talent—especially in teenagers. Recently, a U.S. study was conducted to explore the perceptions of individual talent among artistically gifted adolescents in rural communities, and found that while the study participants—all early adolescents, 12 and 13 years of age—perceived adequate levels of support being offered by their immediate families, one critical factor associated with school and community support is missing. This poster session will offer the opportunity to open a dialogue related to research on the marginalization of visual thinkers (of which the artistically gifted are a sub-group); to apply the findings to the current climate in education; and to establish collaborative efforts to promote artistic talent development in answer to the demand for art and design thinking, innovation, and creativity on a global scale.

A.12 Giovanni Corazza; Christiane Kirsch; Sergio Agnoli. *The Creative Potential Questionnaire: An Innovative Measurement Tool.* (A.12) As introduced by Corazza (2016), creativity can be defined in a dynamic form by introducing the criteria of potential originality and potential effectiveness. Whenever this potential is realized in practice, the agent (an individual or a group) is gratified by creative achievement. However, in many instances this gratification is absent and the agent is left into a state of creative inconclusiveness. Will the agent be able to persist, and come out a winner? In other words, this dynamic definition of creativity subsumes both achievement and inconclusiveness, and opens new research avenues, in terms of predicting the potential for creativity much before any form of success is experienced. Whereas existing questionnaires focus on the self-evaluation of creative achievement—in form of everyday creativity or professional achievement—there is presently no questionnaire that focuses on the evaluation of the creative process or potential. In this contribution, we intend to discuss a new form of questionnaire, identified as the Creative Potential Questionnaire (CPoQ), especially geared towards the assessment of creative potential. The CPoQ questionnaire can take on two distinct forms, for the Individual (I-CPoQ) and for the Organizations (O-CPoQ), which considers the point of view of a manager. The CPoQ questionnaire is built around five major tendencies intervening in the creative process; (a) general drive, (b) information searching, (c) ideational movement, (d) assessment of ideas and (e) implementation. For each of these, a form of potential is measured. This questionnaire is the first attempt to assess

creativity according to its dynamic definition. The CPoQ questionnaire needs validation and specification through future research.

A.13 Marie Thillot; Maud Besançon; Todd Lubart . *Evaluation of Potential Creativity (EPoC): A new Social Creativity Domain.* (A.13) Creativity is a crucial concept in modern societies which require new ideas to solve problems. Creativity is defined as the capacity to realize a production which is new (or original) and adapted to the constraints of a situation or a domain of expression. At present, some standardized measures allow creative potential to be estimated by evaluating isolated cognitive (e.g. divergent thought) and conative aspects (e.g. creative personality) involved in the expression of this potential. The main purpose of the battery of Evaluation of the Creative Potential (EPoC) is to evaluate divergent exploratory thinking and convergent integrative thinking which are both involved in creativity, with the aim of diagnosis (e.g., high creative potential) and description of a creative profile in various domains (verbal, graphic). This profile can be used to direct the development of the creativity in an appropriate way. We will present the results of a new part of the EPoC battery, concerning the field of the social creativity. The sample consists of French elementary school children, and examines their performance in social creativity tasks. Social creativity differences comparing high potential children (HP, IQ>130) and non HP children will also be presented.

A.14 Fakolade, Olufemi Aremu. *Socio-Cultural Barriers and Blocks: Its Implication on Creativity and Innovations Among Africans.* (A.14) All of us would be more creative were it not for internal and external blocks, barriers that are socio-cultural in nature. One argument is that everyone is born creative, but in our early years, the social pressure of home, school, and Community, especially in the African settings have suppressed our lively imaginations and creativity. Socio-cultural blocks amount to social influence, expectations, and conformity pressures, all based on social or institutional norms. We all would be more creative, if it were not for socio-cultural blocks and barriers to creative thinking, which is well noticed in developing Countries in Africa. Rules and traditions, too, are essential for Society, but can inhibit imagination, innovation and creativity. Due perhaps to the socio-cultural blocks of creativity, Africans generally learn not to be “noisy”, not to ask too many questions. By stifling questioning, this will result in cutting out the very heart of creativity curiosity. Thus, many creative traits (e.g unconventionality, expressiveness, self-sufficiency, willingness to ignore traditions) are inconsistent with traditional African Culture. Studies in Africa contrasted western individualism, autonomy, self-reliance and independence with African obedience, duty conformity, low tolerance for deviating from norms. Thus, conformity to socio-cultural institutions and to the expectations of others involves a substantial limitation of one’s individuality and there is small scope for individual to be creative. Finally, the greatest socio-cultural barrier to creativity, especially in Africa can be the culture itself.

A.15 Fariha Asif. Creativity, *Commitment and Thinking through English in EFL Classroom.* (A.15) Linguists claim that language one learns has significant impact on the way he thinks. There are found profound correlations between language development and cognitive development. Owing to hectic schedule and overburdened course coverage scenario faced by the EFL teachers all around the globe, the learner’s individuality is extensively and miserably

suppressed. Learner has no choice of thinking and evaluation on his/her part. Learner is just forced to rote or adhere blindly what teacher stuffs him/her. This damages his/her creativity, commitment and thinking skill. It is the need of the hour that EFL teachers must know how these segments of learning can help learners develop positive skills among them and the teachers can become a cause of inculcating and infusing the true spirit of learning English with over all paraphernalia among learners. Learners must be aware of what they are learning; they must be given opportunity to develop their thinking skill according to the culture and environment of target language. Teachers must be committed in imparting and urging thinking skill by using creative methodology, full proficiency and commitment. It is an admitted fact that language does have influence on our thoughts. It is often suggested that the language we learn enables us to carry out abstract inferences on cognitive level, and helps us shape the external world into distinct categories as in the domain of object categories.

- A.16 Laura Herceg; Nina Licul. *Systematic Development of Artistic Creativity and Innovation of Elementary School Students.*** (A.16) LIADO is a unique Program of art and design for gifted elementary school students in Republic of Croatia, which has been applied as officially verified program since 1992. It's author is prof. Laura Herceg, it is financed by the City Administrative Department for Children's Care and School Education. LIADO's art research atelier held systematically for 24 years so far, is based on groups of artistically skilled children who are selected before entering the group. The group meets once a week for four hours during the school year. Each group is comprised of max 15 students, guided by a mentor. Mentor teaches History of Art, invites artists or experts in the classroom, or uses other methods of work. Once a year, the students are presenting their achievements during the school year. The method of work is not stereotyped but implements different research techniques and ways of visualisation through chosen themes and interaction between a student and an art teacher. Through this process, all factors of creativity are developed while the children are maturing emotionally and intellectually, contributing to the quality of their lives. The goal of the program is to encourage the students to manifest themselves in different areas and ways of expression, promoting the participants' social integration. Mentor's task is to observe and monitor the students' work as well as their individual and psychological behaviour, their interest towards art receptivity, their personal creativity, providing them the basic orientation in art and beauty.
- A.17 Monika Chylińska. *Pretend Play and its Possible Connections with Creativity and Imagination.*** (A.17) My presentation will be mainly based on a hypothesis – that is discussed vividly in the contemporary philosophy and psychology of creativity – according to which the property of humans that allows (or – at least – enhances) the creative cognition and performance is the specific children's capacity to engage in pretend plays (Carruthers, 2002, 2006; Carruthers & Piccutio, 2014; Russ, 1999, 2004). According to the main argument of the proponents of this claim, the creative cognition is mainly conditioned by some basic mental mechanisms that are also characteristic for all of children's pretense. Among these mechanisms and mental capacities the following ones are usually openly mentioned: [a] imagination (Currie, 2002; Liao & Gendler, 2011; Stokes, 2014), [b] the counterfactual reasoning (Weisberg & Gopnik, 2013), which can be also grasped in literature as the ability to think about the possible worlds (Nichols & Stich, 2002, 2003), [c] the suppositional thinking (Perner,

1991) or [e] the mechanism of so called decoupling (Leslie, 1987). Is considering a pretend play as the condition for the creativity a justified theorem? Surely, the hypothesis need to be examined systematically and deliberately in the future. Nevertheless, starting with the hypothesis about the mutual cognitive coupling of creativity, imagination and pretence not only opens an interesting background for analyzing the selected "creative" mental mechanisms, but also helps with the investigation in the nature of creativity itself. During my individual talk, I shall describe and explain the value of the research such designed.

F.1 Petra Karanikic. *The Role of Creativity, Innovation and Education in Science Development.*

(F.1) Creativity presents a basis for improvement of innovation and excellence in creation of new knowledge. Without the creation of new knowledge there is no improvement and development in science and backward. New technologies, products and services, also present the basis for encouragement of creativity and innovation at all levels of education in order to find not only the new ways of implementation, but also the further development of existing and new technologies. Science, or more specifically research and development, must be able to respond to all challenges which the development and implementation of technologies present. Education, or educational system as well as national policies play a significant role in fostering and encouraging of creativity and innovativeness in creation of new knowledge what will eventually have a positive impact on different sectors (science and education, private, public, etc.) by finding the best ways of implementation of generated knowledge. This is a closed, but constantly spinning circle which must be monitored and improved according to the changes which occurs on the local, national and international level and to the overall society needs.

F.2 Piotr Gindrich. *The Effect of Middle School Teachers' Creative Potential on their Self-Assessments of Professional Skills.*

(F.2) A primary goal of the research was to examine the impact of teachers' creative potential on their self-assessed professional skills (competencies). 60 teachers, both female and male, who were employed in Polish middle schools, participated in the study. The subjects were requested to fill out Creative Behaviour Questionnaire KANH-II by Popek and Perceived Professional Competence Questionnaire for Teachers by Byra and Kazanowski. An overview of the forward stepwise multiple regression analysis results allowed for achieving two distinct empirical goals: (1) to establish the correlations between creative potential and teachers' self-perceived professional competence level, (2) to investigate the role of their creative potential in the process of self-assessing professional competencies with respect to various instructional circumstances, curriculum requirements (teaching a student with and without special education needs). The research findings are crucial for identifying those variables that emphasize the role of teachers' creative potential in the self-perception of professional (skills) competencies. In addition, so far it has been noticed that nurturing certain aspects of teachers' creative potential (e.g. nonconformity, heuristic thinking) may be beneficial for them, especially in regard to their capacity for gaining an insight into pedagogical skills (competencies).

F.3 Tina Madunic. *Children's Photographs- A Creative Way to Explore Children's Understanding of Aesthetics.*

(F.3) The paper is based on a study - my Master thesis (International Master in Early Childhood Education and Care, Oslo, 2012.) It will present an investigation of preschool

children's ability to understand and explain aesthetic elements. Children's photographs were used, in order to give children both roles- as the authors and the viewers. Another aim was to question early education's impact on children's aesthetic views by using photography as a tool - a creative way to learn about children's creativity. Research question: "What are preschool children's concepts of aesthetic elements?" has an extension in question: "In which ways are children expressing their aesthetic understanding?" To examine these questions, children were observed while taking photographs of their environment and later, as they discussed them with their teacher, with emphasis on body gestures alongside the verbal explanations. The findings from the research provide support for the key arguments. They indicate that children possess a developed system of aesthetic categories while their explanation of those might be difficult when it comes to verbal expression but it has been shown through children's gestures. Findings indicate that children support their thinking with a variety of body expressions. This study enriches our understanding of young children's perspectives on aesthetics. It provides us with a source of creative and innovative ways of exploring this important element of education.

F.4 Maruška Željeznov Seničar. *Creative Problem Solving*. (F.4) Osborn-Parnes creative problem solving model (1998) is a complex model for problem solving. It is used in education as well as in the business world. Model defines six stages, including: Objective finding (Identify goal, wish, challenge); fact-finding (gather data); problem finding (clarify the problem); idea finding (generate ideas); solution finding (select and strengthen solutions); and acceptance finding (plan for action). All stages will practically be presented.

Excellence

B.1 Andreja Kozmus. *Saturday Schools for Gifted Pupils – A Way of Developing Human Excellence.* (B.1)

Today's school system is very production-oriented and in practice, it mostly emphasizes cognitive knowledge. Despite the legally required integral development of a child, physical, emotional, moral, spiritual and social development of an individual are mostly excluded from the school. Reasons why teachers do not apply these components of education to students are: the glorification of science in the society, subjects' syllabus, parents' fear of the possibility of indoctrination, applying teaching methods teachers themselves were exposed to, the lack of awareness of the importance of building teaching transfer, which requires a lot of teacher's personal involvement, motivation, time and extra work, and that it is difficult to evaluate the results. If teachers understand the profession as a mission, they are more motivated to do so. In the context of working with gifted students, they are included in many different activities, particularly during the preparation for competitions. Saturday schools offer the opportunity to develop also other talents and human excellence. In the article, I am going to present Saturday schools organised for students from 4th through 9th grade: Make the world a better place, using five general methods, namely silent sitting, positive thoughts, music, stories and activities to reach as many types and levels of student's personality as possible.

B.2 Baha Zoubi. *Thinking Styles of Gifted, Excellent, Regular and Special Needs Students in Junior and High Schools in the Arab Society in Israel.* (B.2)

This study investigated differences in thinking styles among gifted, excellence, regular and special needs students in junior and high schools in the Arab society in Israel. The Thinking Styles Inventory-Revised II was used to measure 13 thinking styles as defined in Sternberg's theory of mental self-government among 351 students in junior and high schools in the Arab society in Israel (54 gifted, 98 excellence, 168 regular and 31 special needs students). Results showed significant differences in thinking styles among different groups of students, when it indicated that gifted and excellence students had higher levels of type I styles and lower levels of type II and III styles. At the same time, it indicated that regular and special needs students had higher levels of type II and III styles and lower levels of type I styles. In addition, the results indicated that gifted students had higher levels of type I styles than excellence students. These results showed that kind of students played an important role in creativity-generating thinking styles (known as Type I thinking styles). The contributions, limitations, and implications of the present study are discussed.

B.3 Beryl Cox Pittman. *"Think and Do:" Developing the Entrepreneurial Engineer at North Carolina State University.* (B.3)

Since the early 90s, the Engineering Entrepreneurs Program (EEP) at North Carolina State University (NC State) has guided 244 student teams through the process of forming a start-up company and seeking funding as a working prototype and business plan are completed. This two-semester sequence is an alternative to traditional senior design. At the beginning of fall semester, small multi-disciplinary teams identify consumer or industrial pain points and determine the market for a solution. They research competition and industry trends, and ultimately design and develop a marketable solution after weeks of brainstorming and ideation. During spring semester, students, with faculty guidance, determine a reasonable minimum viable product that they then build. Concurrently, they prepare reports, make presentations, investor pitches, and write a competitive business plan. The three faculty are also multi-disciplinary, comprised of entrepreneurs, engineers, and a writing/speaking instructor. NC State provides extensive resources for EEP students (and for any student). The Garage, a facility with 3D printers, a laser table, shop tools, and meeting space, is particularly valuable. Students also have access to entrepreneurs, investors, and patent attorneys. While some student teams continue with their companies and products after graduation, all students finish the program with transferable

skills related to creative problem-solving, team-building, communication, research and development, intellectual property, and financials along with increased technical expertise in their areas of specialization. More qualitatively but equally important, they complete EEP with a strong understanding of the value of failure and of the connection between innovation and initiative.

B.4 Bruno Fiala; Josipa Mamuzic. *“I’ve Got an idea!” – A Presentation of an Afterschool Programme.*

(B.4) “I’ve got an idea!” is the first enriched afterschool program in the Croatian town of Osijek, aimed at developing children’s creativity and intellectual potential. Using didactic materials developed by the “Klikeraj” team, the program aims to provide children (5 – 10 years old) with activities which help develop divergent and convergent thought, imagination, curiosity and self-expression. Guided by an experienced psychologist, children go through 3 modules, each 3 months long and consisting of 12 one hour workshops. First module introduces children to various games and activities and teaches them how to think more creatively, while the second module uses the same games and already learned skills in more complex ways. In the third module children are expected to use the acquired knowledge from previous modules to create their own project, giving them an opportunity to practice their skills. The program is mainly focused on children showing higher intellectual potential, but can help in the development of any child’s cognitive and social skills.

B.5 Christian Herbig. *Creating Personalized Learning Settings: (Intermediate) Results of a Delphi Study on Dealing with Students’ Diversity in Secondary Education.* **(B.5)**

The need to promote excellence and achievement-orientation and simultaneously establish equality of chances and social participation represents one of the main challenges of Germany’s highly selective secondary education system. Dealing with an unprecedented students’ diversity in grammar schools requires the creation of innovative learning environments and teaching approaches that allow for a just and equal, i.e. individualized, learning process (cf. Giesinger 2008). Achievement-orientation as a genuine mission of German grammar schools and social participation through inclusion can be seen as two sides of the same coin (cf. Geissler 2011). However, further empirical evidence is needed to promote corresponding learning settings and adequate teaching staff development. A dynamic understanding of giftedness (cf. Hoyer et al. 2013), a broad and systemic perspective on inclusion (cf. Boban/Hinz 2005) and intersections between gifted education and inclusive education (cf. Herbig 2015) are key theoretical approaches used to describe personalized learning settings that address the diverse educational needs of all students in secondary education. The empirical research objective is to explore and further differentiate the theory-based model of “Personalization” as a concept of creating an innovative and holistic learning environment. Consequently, a nationwide Delphi study (cf. Häder 2014) is conducted that includes experts from two different panels, i.e. teachers from talent-oriented learning environments and teachers working in inclusive settings. Pedagogical implications and conditions are to be deduced, regarding synergetic potentials of talent-oriented and inclusive learning and respective demands for teacher training. First results basically confirm the theory-based model of “Personalization”.

B.6 Csilla Fuszek. *Hungarian Talent Support Network Model: Operational Experience (2006-2016).* **(B.6)**

This presentation maps experience accumulated since the formation of the first talent support umbrella organisation, the National Talent Council, in 2006, as reflected by eight different studies of effectiveness connected to network-relevant fields, conducted in past years. It looks for answers to questions like “Did the cc. 1500 Talent Points grow into a real network during these years and, if so, what type of network is that? What events and organisations have emerged organically, spontaneously, in the context of network-based operation and what required targeted promotion?” It presents the factors underlying the success of the most effective network hubs, and factors hindering or promoting network-based operation revealed by the talent network. It touches on educational policy changes in talent support achieved in the past years.

- B.7 Damir Marinic; Ida Marinic.** *Educational Challenges in Global Society: Integration-Processing Approach.* (B.7) People today are facing new challenges, in a fast-changing, complex society, which has truly become “global village“ in every sense of the world – societal, political and economical. In that society, “old”, pre-global world values of exclusive individualism, exclusive sense of self-entitlement, attitudes of negligence toward fellow citizens, and emphasis on individual achievement, completely lost their sense and purpose. The current social and economic reality requires adapting new values and mindsets – values that exist in every global and integral system in nature. Besides, research have shown how scientific and technological advances made tremendous changes in a way new generations of children approach, adopt and use information – more integral vs. particular, more active vs. passive, etc. That kind of behavior is supported by empirical findings in fields of interpersonal neurobiology and neuroeducation. Hence, we as educational experts are obliged to address these demands of global society and new generations, by forming a educational framework which, on one hand, prepares new generations for challenges of the global world, but does it in an appropriate way for them (in balance with their life habits and CNS characteristics). Therefore, in this paper we are presenting a new, integration-processing approach to education, based on “good practice“ of existing educational approaches, but also on the basis of recent findings from system paradigm and network science, which satisfies above stated demands of society and new generations of children. Along with theoretical considerations, we will present experience and current empirical findings from our research, as well as research of other authors supporting validity of concepts included in integration-processing approach. Finally, we will discuss about practical implications of integration-processing approach in classrooms, as well as in the school system and system of education in general.
- B.8 Eva Vondrakova.** *Gifted Children Education as a Result of Attitude to Excellence.* (B.8) Nowadays those who are really interested in GC education can quite easily find enough information on gifted children intellectual as well as emotional and social development, their special educational needs etc. The legislation related to GC education exists in many countries. The Czech Republic is one of them. Despite it there is something what prevents parents and teachers to realizing the GC education sufficiently. What is it and what can we do to change it? The aim of this paper is to present up to date state in GC education in the CR and to compare it with other countries. We would like to introduce some excellent ideas (for instance from the Forum 2000 conference Prague 2015), good practice and results of hard (often Sisyphean) work of dedicated parents and specialists. We can find similarities in attitude to excellence in some European countries. There is still fear of inequality, lack of interest in problems of the gifted, arrogant ignorance and short-sightedness of those who lead the society and decide about our future. It is necessary to name the problems, call attention to them and cooperate if we want to change it.
- B.9 Gordana Friščić; Gala Gudec.** *Opening the Centre of Excellence in the Primary School Izidor Krsnjavi.* (B.9) In the history of Primary School Izidor Krsnjavi we recorded significant results in the educational and pedagogical work with children from 1st to 8th grade. This school was established as a training facility for students from Teachers' College, Academy of Music, Philosophy, Natural Science and Mathematics and the Faculty of Kinesiology. The special tradition of this school is teaching classical languages, Latin and Greek. 1995/96 school was nominated as a school for children from France whose parents are working in Croatia as diplomats, business people or just returned from the French-speaking world. Isidor Krsnjavi is a first school in Zagreb that starts a pilot project for establishing a digitally mature school („e-school“). In 2013 school was awarded with the Medal of the City of Zagreb for the outstanding contribution in Primary Education. Isidor Krsnjavi cooperates with Children's Hospital (started 26.1.2004) giving lectures and workshops to sick children working as a hospital school. For

many years I have been successfully conducting workshops with gifted children, such as: Biology brain, the financial intelligence, Music intelligence and Emotional intelligence. For all these reasons and results our school has acquired a condition to become a Centre of Excellence (Centre for gifted and creative children).

- B.10 Hatice Kübra SÖZEL. *A Comparative Study on the Teachers' Self-Efficacy.* (B.10)** Teachers' self-efficacy is related with having positive attitude towards new situations and overcoming difficult situations. Why is it important to study teachers' self-efficacy? If teacher's self-efficacy is high, the teacher will be satisfied with his/her profession and should want to take care of his/her students (Schmitz, 2000). The purpose of this research is to compare self-efficacy of regular students' teachers with self-efficacy of gifted students' teachers. The participants of this study included 42 teachers of gifted students and 37 teachers of regular students. In order to evaluate teachers' self-efficacy, Teacher Self-Efficacy Scale which was constructed by Schmitz and Schwarzer (2000) and was adapted Turkish by Yılmaz, Köseoğlu, Gerçek and Soran (2014) was used. The data was analyzed with descriptive statistics and statistics for group comparison. The research findings will be shared in detail with the participant of conference.
- B.11 Kialala Kiala John. *The Learning Activity: An Object of Research and Innovation?* (B.11)** Technologies for learning-they are a good opportunity to articulate the specific scientific disciplines knowledge, and better yet, these disciplinary knowledge and knowledge from the experience? Maybe ... provided, however, not to overlook the complexity of the epistemological problems, psychosocial, organizational or institutional posed by these joints. They engage the mechanisms of both interdisciplinarian research and regulation of the action, or rather, research. We propose to use the term research and innovation to indicate how, in these processes, remain unstable and uncertain, the researcher himself is taken, with the practitioner in innovation mechanisms, potentially disturbing or unbalancing. One way to contribute to the establishment of research and innovation is to define "objects" common or potentially common to the different actors of an innovative project. We will focus in this contribution to a particular common object: the learning activity.
- B.12 Maher Bahloul. *Pushing Forward the Creative Mind: Learning Through Filmmaking.* (B.12)** In recent years, several educational researchers have been pushing for a shift from the traditional paradigm, where traditional degrees and traditional classrooms are found, to a new paradigm where the learning space, the learning content, and the delivery method are governed by the principles of creativity, innovation, and production (Magro, 2015; Persson, 2015; Cherkasova & Raby, 2015; Tebbs, 2015; Kroaker, 2015; Clover, 2014, Yamin & McCluskey, 2014; McCluskey, 2013; Bahloul & Graham, 2012, among several others). This presentation focuses on innovation in teaching and learning. As such, it challenges the traditional teaching/learning paradigm whereby teachers are expected to deliver and students to take note. In order to ensure effectiveness, tests are based on teachers' delivery, hence those who took better notes and reviewed them have obviously better chances of scoring higher. Thus, academic achievement within this paradigm is based on note taking skills, memorization, and accuracy. In this new paradigm, however, students create, act, and produce in order to learn content. The textbook is not bought and shipped; it is worked on and produced by both students and the teacher. At times, it is suggested by the teachers and modified by the students to suit certain contexts or situations. At other times, it is a result of brainstorming sessions held at the beginning of the session. In short, the project script, be it a play, a film, or a musical, is a result of thoughtful and meaningful negotiations between learners and teachers. Thus, while the learning objectives are the same, the means to achieving them are extremely different. This is possible with learning through filmmaking. The use of film in teaching and learning is about delivering educational content through an entertaining medium. In other words, instead of spending 27 teaching hours in class working with a textbook containing chapters of English

as a Foreign Language (EFL), students spend the same amount of time working with a script and a teacher-producer to shoot a short film in EFL. This presentation will highlight the theoretical underpinnings of this new medium, will share with you samples of such language learning sessions, and walk you through sample testimonies from learners, parents, and educational specialists.

B.13 Marko Turk; Bojana Vignjević, *Research Papers are what Counts: Excellence in Teaching is Neither Supported nor Properly Evaluated.* (B.13) The aim of this paper is to explore and analyze junior academics' attitudes towards teaching competencies. The main research question was: what significance do junior academics in Croatia attach to teaching competencies and how they acquire them? In order to answer this question we have used both quantitative and qualitative approach to research. The results of the quantitative research indicate that junior academics perceive to possess a high level of teaching competencies, however, at the same time assign statistically significantly lower importance to teaching competencies in comparison with the senior academics. The aforementioned results of the quantitative research created the need for deeper analysis of professional socialization of junior academics. The qualitative approach (phenomenology and narrative analysis) was used in order to gain insight into personal attitudes towards teaching, education for acquiring teaching competencies, personal freedom in teaching, institutional perspective on teaching, as well as the presence of support and evaluation mechanisms in the teaching process. The results suggest that there is a lack of support for the junior academics in the process of acquiring and developing teaching competencies on various levels (institutional, mentorial and collegial support). Furthermore, teaching is not properly evaluated and there is no formal education in the context of developing teaching competencies. The results raised a new question: why do the junior academics perceive to possess a high level of teaching competencies despite the fact that there is a considerable lack of education and support in acquiring and developing teaching competencies?

B.14 Meredith McLaughlin. *Integrated Project-Based Learning to Fuel Civic Engagement: the Ultimate in Student Challenge.* (B.14) Pre-Service Teacher Laboratory schools in America were initially conceptualized by John Dewey in the late 1800s as places for children to explore how “life itself . . . should furnish the ground experience for the education of children” and how the freedom of a child to express action contributes to “satisfaction and emotional stability” (Mayhew and Edwards, 1936). The University of Wyoming Lab School maintains this initial vision over 100 years later and serves as a founding member of the National League of Democratic Schools, whose express purpose is to use a variety of approaches to engage and prepare students for participation in civic society (Goodlad, 2004). As a Lab School, mentor teachers, pre-service teachers and students learn together how to use school as a platform for building a better world. Students and educators alike will present exemplary projects in civic engagement and how those projects have catapulted them to higher levels of performance in math, reading, writing, social studies, and a full range of the P21's Framework for 21st Century Learning Skills. Specific materials shared will include: templates for unit and lesson design that are aligned to national standards and involve learners of all ability levels in project-based civic engagement, strategies for managing effective collaborative work, and assessment techniques used to further student learning.

B.15 Nataša Mesaroš Grgurić. *Contemporary School Aims to be Modern, Humanistic, Open and Creative.* (B.15) Students are being encouraged in their creativity, the strict curriculum is being changed into a more flexible one, making students the centre of attention. Taking into account the idea of natural studying which implies that the student prefers learning about needs from their natural surroundings whose are real and close to them, the school project called „Kulturu upoznajemo-kulturu živimo“ (Getting to know the culture-Living the culture) has been implemented through all the subjects and classes as well as through leisure activities. The goal of this project was to develop the behaviour,

speech and writing culture, and also to bring closer the musical, performing and fine arts to students. With emphasizing the goals and clearly structuring activities, students have managed to solve all kinds of different problems, and form their judgements on higher levels. Students were encouraged in creative thinking, teachers took into account all of their unusual questions, imaginative and uncommon ideas were respected while giving great importance to the student. All that resulted in evaluation which came out of the traditional classroom boxes, in fact the evaluation took place in showroom Mali Salon, where student work was exhibited. This is how the greatest challenge of modern pedagogy, which was a safe place for creative work, has been accomplished, and how school became the place of preparation for students engaging work and actions in society.

B.16 Sanja Skočić Mihić, Renata Čepić. *Teaching Gifted Students: Teacher's Perceived Acquired Competency in Different Forms of Professional Development.* (B.16) Contemporary teachers' professional development require directing their professional skill-set towards the individual characteristics of each student with particular emphasis on the effective stimulation of creative learning and innovation. Few studies deal with the issue of educating teachers for innovative teaching strategies that are crucial in the work with gifted students. Also, there is not a single mandatory course at the higher education level that prepares teachers for teaching gifted students. The aim of this study was to examine: (1) whether teachers provide an individualized program for gifted students, (2) teacher-perceived competency for the education of gifted students in public education during in-/pre-service professional development and through self-learning, and (3) differences in the perceived competency based on professional development. Research was conducted on a national representative sample of 1,195 Croatian elementary and high school teachers. More than half of these teachers reported not to have had any teaching experience with gifted students. Statistically significant differences were determined in the self-assessment of the level of teacher competency necessary for teaching gifted students in relation to forms of professional development, whereby self-learning contributes the most to the development of their competency. Contrary, in-service professional development contributed to a lesser extent and pre-service professional development partially. An insufficient development of the teaching competency for gifted students throughout in-service professional development is pointed out. Therefore, practical implications of the findings are discussed and guidelines are provided for the improvement of the quality of university teaching and learning in the education of gifted students.

B.17 Rabia Aslam. *Studying Abroad Need or a Choice.* (B.17) Research on studying abroad explored the behavior of the respondents to go abroad. Up to my knowledge this study is yet ignored. The current study investigated that is studying abroad a need or a choice. The study also examined the opinion and the purpose of the respondents to go abroad. Data collected from a diverse sample of 130 students, from various institutions in Pakistan, provided good support for the result. The result indicated that studying abroad is not a need but it is a choice. As our global society becomes increasingly interconnected, people from one culture and race have contacts with those in other parts of the world. To be an informed citizen in this society requires an understanding of other cultures and societies. International educational exchange is one avenue that allows students from all over the world to develop an international understanding by experiencing life in a new culture or country. There are many studies and research on the topics of different factors affecting students who study abroad. The factors influencing students like culture, environment, skills, language learning, effecting global mindedness among students, impact on leadership, relationship between faculty and students and many more. Up to my knowledge no study has investigate the question whether studying abroad is a need or a choice. Despite the current distressful economic conditions in recent years, we have witnessed a record number of students completing study abroad programs. There were 262,416 and 260,327 students studying abroad for credits in 2007-2008 and 2008-2009 respectively (Institute of International Education, 2010).

Different writers and researchers discussed the topics related to impact of study abroad on leadership (Macdonald, 2009), lessons learned on the road (wei cao international journal of humanities and social sciences 2011), development of global mindedness among students (Golay, Patricia A 2006), language learning (Coleman 1996), impact on students learning (Ingraham & Peterson 2003), gauging the impact of study abroad (Hadis, 2005), diversity issues in study abroad (Louis, 2000). Students of all socio-economic classes are increasingly choosing to study abroad. The question of this study is whether studying abroad is a need or a choice? If we speculate that in this avenue of modern age if the youth want to know the culture of other countries isn't the technology enough to guide people and the people to adopt the western culture? The people who can't afford the abroad expenses are they not studying and doing jobs in their country (Pakistan) may be they are earning millions here, establishing their own businesses. Talking about the western countries they are introducing new and new ideas and implementing them on the youngsters as it is well said that if want to destroy any nation or culture target the youth of that country, youth are the pillars of the nation. This study aims to clarify the influencing factors for Asian students when making the decision to study abroad. By understanding the influencing factors, efforts could be made to help decrease the overall participation of students in study abroad. By giving them the opportunities which we are lacking here and which is attracting, persuading them to go abroad and get the nationality by wrong and illegal ways. We should increase the factor that make our country that much influencer so the western and Americans come to study here in (Pakistan).

E.1 Philip Baker. “Winnipeg Realizing Project”. (E.1) I am proud to present on our newest initiative at the University of Winnipeg. It is a new partnership with the Winnipeg School Division (Manitoba's largest school division), ourselves (the University of Winnipeg), and Indspire. Indspire is a registered indigenous-led charity that invests in the education of Aboriginal youth and teachers across Canada. It is also the largest funder of indigenous education outside of the Government of Canada. This new program is entitled the “Winnipeg Realizing Project”. It is an Integrated Service Delivery Model that requires collaborative efforts from schools, communities, and other stakeholders. The goal is to support community change and capacity building. In this particular case, to identify talented Aboriginal youth in the Winnipeg School Division and develop supportive bridging for those interested in a career in the field of education either as an Educational Assistant or, hopefully, a professional teacher. This presentation will explain how this will become a reality.

E.2 Sanja Skočić Mihić; Kathleen Beaudoin; Anna Giugno Modrušan. *Gifted Students and Students with Disabilities: Teachers' Competence for Differential Teaching*. (E.2) Inclusive educational policies require teaching that is adjusted to meet the diverse range of learners found in classrooms. Therefore, core teachers' areas of competence should include curriculum adaptation and differential teaching to address the individualized educational needs of all students. Due to an insufficient number of available courses that cover these competencies during initial teacher education, the aim of this study was to examine: (1) the teachers' perceptions of their competencies for providing differential teaching to meet the needs of students with disabilities and gifted students, (2) perceived professional workload and quality of cooperation with parent of students with disabilities and gifted students and (3) differences in perceived teachers' competences, workload and quality of cooperation according to characteristics of students. The sample included 127 teachers from three Croatian counties, who completed the Perceived Competencies for Differential Teaching Scale, Disabilities and Gifted dimensions. One factor in each dimension was obtained using factorial analyses, with good reliability. Teachers perceived themselves moderately competent in the area of differential teaching for students with disabilities and gifted students, but their professional workload was lower for teaching gifted students than for students with disabilities. Similarly, they found that cooperation with parents of gifted students was better than with

parents of students with disabilities. Required teaching skills for differential teaching are discussed in line with complexity of inclusive settings and educational needs of gifted students.

E.3 Sharon Lierse. *Characteristics University Outstanding Lecturers have in Common.* (E.3) The literature found that categories of skill, personality traits and professional engagement have been consistent throughout many similar research studies (Brookfield 1990; Finkel, 2000; Harl 2010; Metcalfe and Game 2006a/2006b; Ramsden 2003; Sherman et al. 1987; Skelton 2005; Sternberg and Horvarth 1995; Weimar 1997; Yair 2008). The methodology selected was thematic theory and following on grounded theory to establish a new theory and understanding of what and how it means to be excellent as a teacher in the tertiary sector. Academic staff and graduate students enrolled in a Graduate Certificate of Tertiary Learning and Teaching at an Australian university were invited to participate in a survey questionnaire (n=65) followed by voluntary interviews (n=14). Lecturers who had been identified at this university as outstanding were also interviewed. The five main characteristics which arose from the study were expertise, holistic approach to learning, engaging the student, open door policy and ambitious altruists. This study found that outstanding lecturers were unconventional in their work practices and valued student learning often at the sacrifice of their own career paths. These lecturers were recognised as outstanding by their students, but often were working in a system which did support their work. In a time when excellence is sought after, it is up to universities to value these mavericks of what they have to offer to the academy.

F.15 Şule Güçyeter. *Revising Problem Solving Subtests of Similarity and Relation Based Test of Thinking in Math.* (F.15) This study will present an overview of a new test of math ability; the Similarity and Relation based Test of Thinking in Math (SRTT-M) for identification of mathematically talented students. The SRTT-M measures math ability potential based on Similarity and Relation based Model of Thinking in Math (SRMT-M). SRTT-M has three main components problem solving, problem posing and problem comparing, and total six subtests called as similarity based problem solving, relation based problem solving, similarity based problem posing, relation based problem posing, finding similar problems and lastly, finding relational problems. To reinforce the construct of SRTT-M researcher revised the test items according to suggestion of previous work and will reexamine the psychometric properties of the test. Survey research will be conducted to answer the following research question: What are some psychometric properties of the problem solving part in the SRTT-M? The test will administer to the middle school students. After data analysis researcher will share the results with the congress participants.

F.16 Tončica Šiško; Ivona Pierobon; Dubravka Veršić. *How to Enrich Learning with Creative Art Therapies and NLP.* (F.16) The main idea of our work is to support and encourage children/students on more creative and deeper learning with fun and self-expression in order to encourage them to discover and develop their potentials, grow as self-confident, fulfilled and optimistic people who know how to use their own resources. This presentation speaks: how learning can be enriched with different methods of DMT (creative movement, relaxation), art therapy (Overcoming anxiety and low self-esteem through art, self-image - recognizing potential and self-realization) and NLP. As a vehicle to expression, the arts have the capacity to bring a voice to every human being, encouraging the inner world to connect to the outer world of concrete reality. Dance and movement can facilitate the creative learning process and can be recognized as an important element in the curriculum in schools. Creative movement gives children opportunities to move in new ways and helps them learn that there can be more than one solution to a question, a problem, or a task. Thinking and following yourself, meeting and communicating with other people in space can give a new dimension in learning process. Relaxation also has positive effects on ability to learn as well as recall.

F.17 Wil Meeus. *Excellent Academic Teacher Education Programmes.* (F.17) Excellent teacher education programs depend on at least two conditions, namely (1) that all program professionals primarily identify themselves as teacher educators, and (2) that the team of teacher educators has sufficient autonomy to administer its mission. This presentation focusses on teacher education programs of excellence, discussing the case of Flemish universities. To claim excellence in line with the first condition, academic teacher educators need to demonstrate three areas of expertise: expertise in domain discipline, expertise in teaching, and expertise in research. The complexity is discussed with which academic teacher educators seek balance between these three areas of expertise. The second condition, team autonomy, is dependent on and complicated by the location (locus) of the program at the university. Three loci seem apparent: (1) spread over several faculties, (2) part of educational sciences and (3) centrally organized. All loci have specific advantages and disadvantages. For the last decade teacher education programs at the Flemish universities have been drifting between these three loci, while none of these provide satisfactory results. Recently adopted reform promises to upgrade academic teacher education. The question remains whether the two conditions mentioned will be met. Discussion is on (1) how to allow and stimulate academics to be excellent teacher educators and (2) which locus provides optimal autonomy for teams of teacher educators.

Contemporary Topics

E.4 Veronika Wolf Cohen. *Musical Mirrors and Mirror Neurons.* (E.4) Creativity in music is generally associated with composing, improvising, or interpreting a piece of music in performance. Less obvious is the fact that the act of listening to music is also a creative act; from the sounds reaching his ear the mind of the listener creates musical gestures. The author through research on children's creativity has been led to see movement as the source of musical gestures and has subsequently developed a pedagogy for enhancing the listening experience through simple movements, which are seen as kinesthetic analogues of the musical gestures expressing the movement roots of musical gestures. These kinesthetic analogues have been termed "musical mirrors" as they mirror, project into space the abstract cognitive/emotional experience of the listener. As such they function as a non-verbal means to enhance and communicate about the musical listening experience. The presentation will focus on the essential features of facilitating deep, musical involvement through the use of musical mirrors as a tool in teaching, research, introspecting and communicating about the musical experience. Research on Mirror Neurons (Rizzolatti et al) provides an explanation for why kinesthetic analogues facilitate our ability for deep concentrated listening as well as affect our emotional response. Given the fact that movement and music gestures are ontologically tied together, the use of musical mirrors has been equally successful in the teaching of music of different styles and cultures.

E.5 Barbara Friehs. *Religious Traditions and Cultural Clashes the Influence of Islam on Public Education in German Speaking Countries.* (E.5) An increasing interconnectedness and interdependence of different cultures and ways of life is an undeniable sign of the era of modernity. In the recent past and present, migration movements on the European continent caused a relatively strong spread of Islam. By now, this denomination accounts for the second strongest religion in Europe. There are legal bills and a lived everyday life that show how huge of an impact Islam already has on societies of strongly secularized European countries, such as the German-speaking ones. In this present case, the question to follow up is how the education system in Germany and Austria are affected by these mentioned demographic changes. The goal to pursue is on one hand to catch a glimpse of the influence over corresponding, legal regulations through Islam and on the other hand to discuss the hence resulting consequences regarding the field of education. The problem of the hijab and burqa of Islamic women and girls is just as much part of the discussion as the religious determined non-participation of female students at diverse, school-related events or the situation and role of Islamic teachers in public schools. Further highlighted will also be regulations regarding Islamic religion class, but also the prevention of extremism in educational institutions of German-speaking countries.

E.6 Danijel Vasilj. *School Sport as an Innovative Approach for Social Inclusion of Students with fewer Opportunities.* (E.6) This program was designed to address the prevalent issues of social exclusion and the development of positive social processes in groups of young people with fewer opportunities. The idea was to introduce new sport practice under school sports club and reinforce the positive social effects of kinesiology in the development and integration of the group. The program ran for nine months during the 2014/2015 scholastic year. Participants,

who were detected from the three social groups of Roma minority students, students with lower socio-economic opportunities and students of the general population, met three times a week to participate in group building activities, training, school sport competition and other specially designed social activities. The participants walked away from the program with a sense of hope that they are able to pursue their dreams despite their difficult situations, and that they are not alone in this pursuit. Positive change in social cohesion was significant on EDAP scale, as well on sociogram that was used in the purpose of gathering the results of the program.

E.7 Jo suyeon. *The Research about the Difference in the Perceptions on Counselor between Middle School Students and their Parents.* (E.7) The purpose of this research is to distinguish the difference in perspectives on counselors between middle school students, who need counseling due to their repeated experience of serious emotional and/or social problems, and their parents. It also discusses the difference in the perceptions on counselors between two groups of people with counseling experience and without. This research tries to figure out the factors of effective counselors associated with subjects' perceptions on counselors. The ultimate goal of this research is to improve the impression of counseling service and change social attitudes towards professional counselors. Data analysis was done by the following steps. First, the subjects were given open questions and researchers classified their responses and analyzed the frequency. Subjects' perceptions on professional counselors were then classified and categorized based on their metaphorical expressions. Second, researchers analyzed the difference in the perceptions on counselors between two groups of people with and without counseling experience and distinguished the positive and negative factors of the results. Researchers also analyzed and compared the perceptions on counselors between the students group and parents group. Finally, researchers analyzed the factors associated with effective counselors based on the findings and emphasized the counselors' roles and developments.

E.8 Kornelija Mrnjaus; Bojana Vignjevic. *Discourse on Elements and Benefits of Positive Teacher – Student Relationship in the Academic Context – Students' Perspective.* (E.8) Educational environments which perpetuate a climate of support and acceptance are the ones in which both teachers and students feel safe and accepted. Creating and fostering positive relationships between teachers and students can be beneficial for both of them in terms of facilitating positive emotions, creating a sense of belonging and building mutual trust. Even though it is not entirely possible to draw conclusions with regard to the effect a positive teacher student relationship might have on successful learning at university level, it is an important factor of social integration and positive classroom climate in the academic context. The aim of this paper is to discuss the nature and characteristics of interpersonal relationships in general as well as the relevance and potential benefits of positive teacher – student relationship. Furthermore, the authors will present the results of a qualitative research showing students' perspective regarding the elements which encompass a positive teacher – student relationship in the academic context as well as teacher characteristics students (dis)appreciate or render important.

E.9 Maaouia Haj Mabrouk. *Learning Through the Art (LTTA).* (E.9) Learning Through The Art (LTTA) is a recent teaching methodology that is gaining more and more admittance everyday.

Recognition of its efficiency as a classroom practice is spreading in many parts of the world. LTTA implies using art forms such as: music, film, video, poetry, drawing....to teach core subjects. Many schools around the world have already adopted integrating arts in their core curricula and are relishing the way such a methodology moulds learners' behavior and unleashes the anxiety they usually hold toward "tough" subjects such as: Maths or foreign languages. My experience with LTTA started a year and a half ago, when I chose it as my line of research, as a Ph.D candidate. The miracle happened in the peninsula of Nabel, North East Tunisia, in a small preparatory school, in a poor rural area called Skalba. Truly, it was a miracle to see how young children, 12 and 13 year-old students, for the first time, threw away the veil of monotony, got rid of the boredom that used to tan their English classes and opened eyes and arms to videos, films, plays and other art forms! Collaborating with the English teacher in Skalba preparatory school and with professional artists in the area, I have succeeded, so far, in creating a difference in the lives of these small children. It would be my greatest pleasure to share such an enriching experience with the Conference's audience and to prove to attendees the crucial importance of integrating arts in teaching core subjects.

E.10 Nada Kegalj; Maja Bačić Ostović. *Debate as a Strategy for Teaching and Personal Development.* (E.10) For students' personal development, it's important that they don't accept information as something final but to evaluate it, check it and critically think about it. That's developed gradually by teaching debate. Debate is a strategy of teaching and an argued discussion. Goals of debate are development of critical thinking, communication and social skills, speech skills, self-esteem and democratic behavior. Debate is a sport for the mind and voice. The thesis is "Gifted children are/aren't accepted in the classroom." Which characteristics gifted children have to possess to be accepted? Do they help the others? How much do they study? Are they privileged? Listen to the debate of Primary school Milan Brozović, Kastav and from Primary school Podmurvice, Rijeka students.

E.11 & E.12 Nina Meyerhof. *Peace Education.* (E.11 & E.12) The intent of raising awareness that youth throughout this world are realizing and are being called forth to reveal that there is a global consciousness attempting to arise in the hearts and minds of humanity. This consciousness is what is being called the "spiritual revolution" or the evolution of humankind into full awareness. We are learning from science that we are interdependent and interconnected as one life. In the awareness of consciousness there is the possibility to finally learn this. We are learning to understand that peace can exist not only as a state of being but also be the manifestation as a way of creating peace in our world. It is in our unity that we will be able to accept our diversity and finally find means to live together here on Mother Earth. As SPIRITUAL PEACEMAKERS, youth from all corners of the world are recognizing and remembering that there is hope to live as a human family. Youth are tapping into their inner life and reuniting with their true spiritual nature and this reflection leads to a sincere ethical life. In this process of reaching within and experiencing one's nature beyond self-esteem and basic needs and desires, one is able to find the place within that is that of uniqueness and solid character where personal identity connects to the universals of life. These universals are recognized and then bestowed upon each other as a given right and responsibility for a life of purposeful meaning. In the universal consciousness of space within and ultimate everywhere,

there are no differences of color, race, culture or national intent. The universals are that we all want to love and be loved, to be free of need and desire, to be true and empowered, and to live a life of meaning. In externalizing this realization of inner understanding, purpose, actions and projects are developed and peace within the home, community, nation and international home is furthered. Youth are defined as the ages 15-30 by the United Nations documents. These young people have the energy and open-mindedness to carry a torch of action for a better world than we have offered them. They are willing to examine new models and take time for carrying out projects and proposals in order to impact not only their personal life but also in the lives of others. If peace is not defined as altering circumstances to meet this own needs or temporarily fixing something in society that has resulted in symptomatic ills then youth will harness their power and drive new models into form. It is natural that as adults we would look at the lack of tolerance, poor peace making results, ethnic divisions, poverty and all other inequities and wish them to be resolved by developing strategies or financing attempts to bring these in right alignment and equity with justice for the stakeholders. But this does not truly address the problems but merely chooses to make temporarily better the symptoms of an ailing global society. If we are to alter the course of history that is doomed within the next 25 years and build a New Civilization of Humankind then we must find our commonalties, unite in consciousness and then design alternatives to the structures we have thus created. This is the role of youth. They can be brazen enough to assess internally the potential answers for our survival.

E.13 Pijus Barua. *Conflict Resolution in South Thailand: Roles of Religious Leaders.* (E.13) It is the effort to understand the undividable relationship between religion and politics especially in terms of national security from Buddhist perspective. The religious misunderstandings are mentioned in order to understand one of root causes of mistrust in the communities. What are the concrete ways to use spiritual values and practices of religious especially in Buddhism to heal social suffering in Southern Thailand? The examples of “Beginning a New” to heal the previous suffering from Buddhist perspective will be introduced. Moreover, the heritages of Buddhadasa Bhikkhu, are proposed here. Furthermore, the proper attitudes based on religious belief in dealing with other traditions in a multi-ethnic and multi-religious context are clarified, including a concept of ‘deep democracy’ which is based on the spiritual development and peace education’ is clearly discussed. Finally, the dialogue methods would be appropriately suggested briefly in the training of members of religious/spiritual communities in order to engage them in listening to any social suffering and conflict in this region.

E.14 Tiloka Nanda Sraman. *A Comparative Study between General Educational and Buddhist Educational and Professional Training.* (E.14) Buddhism is one of the most prominent world religions and emphasizes on the proper education and focuses on the future leadership in professional areas. Buddhism always encourages people to follow a system, which was established by the Lord Buddha more than 2500 years ago and which is still applicable to modern world. This system and training is not contradictory to the modern world education systems but helpful to it. It helps people to grow so called spiritual and moral value, ethics, social understanding of the real nature of the world and human being. Throughout the Pali commentarial literature we can find three kinds of teachings, (system) Pariyatti Patipatti and

Pativedha. Where first one is the first learning system of Buddhism as can be found Tripitaka , and second one means to put the theory into practice and third one fruits of the above mentioned first two and it comes through the experiences. By following this system throughout the world Buddhist monks and nuns are getting education and serving the world for the good of the many by generating wisdom. Buddhism is still alive because of this educational system and professional training of monks and nuns. They keep the lamp alive from very ancient time and it became possible because of Buddha's educational and professional training. Hence, this paper will offer a Buddhist understanding of educational strategy called Pariyatti, patipatti and pativedha, information based on Buddhist Universities and their practice and general universities in Thailand. The case studies of universities will offer different academic data based information and their educational systems to go hand by hand with modern education system. In addition, their value towards spirituality will be also studied from different dimension differently. This paper also will establish a comparative studies and report for their values in the society and contribution as well.

E.15 Christos Dimitriadis. *Provision for the Highly Able Student of Mathematics in Primary Classrooms: A Pilot Study in England.* (E.15) The issue of educational provision for higher ability children is internationally recognized as an important area that schools are expected to address and improve upon. The problem is that often what happens in schools is not what is expected. International research consistently reports gaps between classroom practice and good ideas, particularly in the area of gifted education, recommending systematic and continuous research in the effects of school provision. This study addresses this issue, particularly in the area of mathematics. Five years after the abandonment of the Gifted & Talented initiative in England (UK), which left schools without a statutory policy for gifted children and without specialized support and training as part of a national or regional program, this study wanted to find out whether and how primary schools in England provide for the highly able students of mathematics, including those of twice-exceptionality and those who do not clearly display their ability. It began in June 2015 as a pilot study within four Local Authorities (LAs) in SW England, with an aim to expand widely later on. An electronic questionnaire with both closed and open questions was sent to all primary schools within the four LAs to gather insights on schools' practices and teachers' knowledge, experience, attitudes and perceived needs. The findings show a substantial need for more specialized support for schools and practitioners, and provide a good ground for further research on the issues surrounding differentiation for gifted mathematicians, twice-exceptionality, as well as on developing support programs for practicing teachers.

E.16 Anne Justus. *Highs and Lows of Experiential Teaching Group Psychotherapy with Graduate Students in Egypt.* (E.16) Using experiential teaching methods to teach a class on group psychotherapy is a gamble. It can produce extraordinary highs; or devastating lows. When it works it can be a positive life changing experience for many developing counselors. When it doesn't work it can be a pedagogical impediment. This paper examines the challenges and successes of employing this method instead of traditional lecture, or didactic formats, when teaching group psychotherapy at the graduate school level in Egypt. This paper specifically looks at the application of Irvin Yalom's Group Psychotherapy techniques. Yalom is a master group psychotherapist and wrote *The Theory and Practice of Group Psychotherapy*; this book is considered to be the "gold standard" in how to conduct and teach group

psychotherapy. The paper focuses on (1) Whether Yalom's techniques are culturally bound and their application to graduate students in Egypt, (2) the importance of pre-screening to measure graduate students' level of personal and professional insight before choosing a pedagogical approach, (3) the impact of collegial support of experiential teaching, (4) the challenges of grading and objective performance assessment in an experiential setting, and (5) the pros and cons of solo versus co-teaching group psychotherapy.

E.17 Naif Kara. *The Role of Communication in the Development Process and the Emotional Quotient.* (E.17) It has usually been studied on mind focused activities for gifted children. These types of studies are applied particularly through Gifted Centers called Bilim ve Sanat Merkezi in Turkey. However, the emotional quotient of gifted children is ignored by school, family and social sphere because their demands from these children are always higher than expected for the exams. Therefore, they may have a number of problems in the field of effective communication processes. It has been argued by many experts that intelligence quotient IQ isn't sufficient itself in special education. The success of professional field after graduation depends on emotional quotient EQ as well as intelligence quotient IQ. The social and emotional educations of gifted children in our country are inadequate in terms of becoming successful for their lifetime. In this study, in-depth interview technique of qualitative research method has been used. After determining perfectible aspects and school, family, social sphere and personal problems of gifted children in İzmit Bilim ve Sanat Merkezi, it has been planned to provide them success for interpersonal communication with regard to social and emotional courses during their emotional development, thus gaining sustainability through the right communication processes.

Gifted Education

C.1 Smiljana Valcl. *Gifted Students in a Volunteer Project.* (C.1) I am Smiljana Valcl, I hold a masters degree in special and rehabilitation pedagogy, and am a university certified professor of pedagogy and history. I have been working with children who have special needs in the elementary school of Sladki Vrh for 12 years. For the last 3 years I have been the coordinator of a Volunteer project, in which I have included gifted and talented students by means of various activities. The goal of this year's project has been directed towards the realization that our healthy brain activity is the key to being a satisfied and happy being. We have called this stimulation of brain activity a Fellowship with the older residents and we meet with them every month. During these meetings our students play various thinking games with the adults, including those that build memory, attention and concentration, as well as strengthening fine motor and reading skills. To those students who are linguistically gifted, we provide monthly conversational classes with Americans, who have been living in Slovenia. These classes are called English Club and they work within the Volunteer project. We exchange life experiences, learn about differences and similarities between countries, cultures and traditions. We were also visited by the Radio Slovenia International journalist. Back to school is a 10 minute weekly program. The listeners guess the meaning of hidden English words through the children's descriptions. This program has been created by the linguistically gifted students of Sladki Vrh Elementary School. The work with the gifted students is a big challenge for us as teachers, but we realize that facilitating a wide variety of activities is what helps a child quench their thirst for knowledge, curiosity. It motivates and satisfies them and helps develop their potential.

C.2 Ahmet Keskin; Cem Oktay Güzeller; Eda Gürten; Nilgün Baysal Metin. *Who Am I? Gifted Students' Opinions on their Needs and Interests.* (C.2) Gifted students constitute a small group among the others. Nevertheless, it is more difficult than others to meet the interests and needs. In this study, in order to provide a better educational environment and develop a more appropriate educational programs for gifted students, it was aimed to determine their needs and interests from their own perspectives. Data were collected via interviews conducted with 12 students from a public and a private school that providing training for the identified gifted students. The data was encoded by content analysis and themes were generated according to the code. Themes were "Individual Characteristics", "Learning and Education", "Evaluation of Learning Environment and Expectations". Under the theme "Individual Characteristics", sub-themes titled as 'how do I identify myself', 'my favorite things', 'things that I want to invent' were emerged. With these themes, the students identified themselves and explained their favorite situations in the school. Under the theme "Learning and Education", sub-themes titled as 'why I love my school', 'why I love my classes' and 'loved practices and clubs' were emerged. With these themes, students described practices that make themselves happy in the learning environment in school. Under the theme "Evaluation of Learning Environment and Expectations", sub-themes titled as 'the school in my dream', 'the teacher in my dream', 'uncomfortable situations' were emerged. With these themes, students gave answers to the

question ‘Ifit would be better. Ideas and suggestions, in line with the data obtained from the study, were developed to organize appropriate educational environment for gifted students.

C.3 Esranur DULGER; Omer Faruk TAMUL; Hatice Kübra SOZEL. *Peer Relationships of the Gifted Students.* (C.3) Gifted students learn faster than their peers. Education in regular classes does not meet the needs of these students. Source rooms are one of the differentiation methods used for meeting the needs of gifted students. However, while planning the source room peer relationships should be taken into consideration. This situation should not cause gifted students to be excluded. The purpose of this study is to examine whether involving to source rooms affect the gifted students in regard of social and emotional problems. In addition to the former purpose, it was examined whether gifted students’ social and emotional problems varies according to gender and grade level or not. The participants are consisted of 19 first, second, third and fourth grade students who attend the source room and 19 normal students whose classmates studying in regular classes. In this study, qualitative research methods have been used. 10 open -ended questions were asked to the participants to understand their attitudes about peer relationships of gifted students. Data on interviews were analyzed together by using descriptive statistics techniques. The results of this study will be shared in detail with the participant of conference.

C.4 Ömer Faruk TAMUL. *A Literature Review: The Identification of the Gifted Students with Learning Difficulties.* (C.4) The studies in the last 20 years showed that one child could be gifted and at the same time the child could have learning difficulties, autism spectrum disorder or attention deficit disorder. In other words there were different subgroups of twice exceptional students as gifted students with learning disabilities. In this case the identification process of the twice exceptional students became difficult. In this study the identification of gifted students with learning difficulties was reviewed. For this purpose online data bases were searched. The keywords used to locate in databases were gifted, learning disability and identification. The inclusion criterion were to be related with the identification of gifted students with learning disability. The first results of this study showed that there were different approaches for the identification of gifted students with learning difficulties. For example some researchers advocated that the gap between the subtests of IQ test could be taken into consideration to identify gifted students with learning difficulties whereas others objected this attitude and they claimed that the subtests were less reliable than the whole test.

C.5 Ömer Faruk TAMUL; Hatice Kübra SÖZEL; Esranur DÜLGER. *Teachers’ Belief in Giftedness.* (C.5) Giftedness is a term that is defined with respect to some criteria. Some researchers describe giftedness based on their experience and results of experimental studies. Generally researchers advocate that giftedness is associated with societal issues as beliefs regarding whether or not giftedness can change or develop. For example Sternberg and Zhang (1995) proposed the pentagonal implicit theory of giftedness. According to this theory an individual is judged as gifted when he or she meets the five criteria namely; the excellence criterion, the rarity criterion, the productivity criterion, the demonstrative criterion and the value criterion. In this study teachers’ beliefs on giftedness were analyzed in terms of the criterion of the theory. For this purpose, 30 teachers were asked two open ended questions

related on the characteristics and definition of giftedness. 12 of the total sample worked as classroom teachers, 15 of them were science, mathematics or social science teachers and 3 of them were preschool teachers. Their answers were examined with descriptive analysis of qualitative research designs. In this study it was found that 40% of the teachers' answers were related to the rarity criterion and 5% of the teachers' beliefs met the value criterion. What's more it could be proposed that one criterion related to negative attitudes towards giftedness could be added to the theory because there were not any appropriate criterion for those. However this study should be repeated to obtain more meaningful results on the beliefs about giftedness by interviewing the participants of the study.

C.6 Zeynep ŞEN; Tülin ACAR; Eda GÜRLEN; Nuray SENEMOĞLU. *Investigation of Postgraduate Theses about Gifted/Talented Education in Turkey.* (C.6) Gifted/Talented individuals differ from other individuals by their cognitive learnings, socio-emotional characteristics, and abilities. Therefore, also educational needs of gifted/talented individuals differ from the other individuals. The researches related to gifted education in Turkey has been increasing in recent years. These researches include the published graduate level theses. The aim of this study is to examine the master and doctoral theses in Turkey and to describe the status of work in the field of gifted/talented education. For this purpose, formal database of Turkish Higher Education Board was used to achieve the theses. Screening criteria were determined as taking place "gifted or talented" words in summary part of theses and published in "education or instruction" field. The theses were investigated according to subject areas, the methodology, findings, and offered suggestions. According to investigation results, trends were identified in the research area of gifted/talented education. Besides, the research areas - considered as incomplete- were discussed. It is considered to be important in terms of seeing the theses published in the area of giftedness as a whole and being a guide for future researches.

C.7 Ercan Opengin; Fatih Tokmak. *Relationship of Academic Self Concept and Life Satisfaction among Gifted Children.* (C.7) The purpose of this study was to explore the relationship of academic self-concept and life satisfaction among gifted students at the secondary school and moreover whether there is a differentiation based on demographical characteristics. Participants were 80 gifted students who have been participating in an after school program. This program- The Education Programs for Talented Students (UYEP)- serves as a university based, after school program at Anadolu University/Turkey. Data were collected by using "Academic Self Concept Scale" and "Multidimensional Student Life Satisfaction Scale". The data were examined utilizing the t-test, Pearson correlation, and regression analyses. Results from regression analyses indicated that, there is a relationship between life satisfaction and overall academic self-concept. Details will be shared with participants.

C.8 Ercan Opengin; İbrahim Tasdemir. *Teachers' Views with regard to Gifted Students Education and Resource Room Program.* (C.8) Individuals with special abilities have higher performance when compared to their peers, either in general or in specific areas. Students with special abilities differ from their peers in terms of their characteristics and need; they need to be supported by special educational programs that increase their potential. This study aims to evaluate educational support for students with special abilities in a primary school at

Eskisehir/Turkey. This school has started a resource room (Pull-out) program for gifted students in 2016. In this study, qualitative research design was used. The research sample is composed of 16 primary school teachers. Semi-structured interview forms prepared by the researchers were used in focus groups for data collection. Data were collected in 4 focus group with teachers between 7-11 March 2016. The collected data were analyzed and evaluated using descriptive analysis and content analysis. The research indicates that there are still deficiencies, although the educational support for students with special abilities has been initiated. This study is intended to help improve educational support for students with special abilities and the quality and design of activities in resource room programs.

C.9 Hatice Kubra SOZEL; Esranur DULGER; Omer Faruk TAMUL. *A Literature Review on the Effectiveness of Mentorship Programs for Gifted and Talented Students.* (C.9)

Mentorship has been a crucial educational strategy for gifted and talented individuals. Mentor is a wise teacher who provides intellectual, motivational and emotional counsel to less experienced or less knowledgeable individuals (Casey & Shore, 2010). The purpose of this study is to investigate the effectiveness of mentorship programs for gifted and talented individuals. For this purpose books, book chapters, dissertation, thesis and articles published between 1978 and 2016 were examined in the most comprehensive databases that include publications in gifted education. The keywords used to locate in databases were mentor, mentorship, gifted, talented. The inclusion criteria for articles was to have an abstract, extended summary with enough information or full text available. In addition to this the inclusion criteria for books, book chapters, dissertation and thesis was to be an original research on the effectiveness of mentorship programs for gifted and talented students. The first results of the study showed that mentors played role in students' academic, social, emotional and vocational development. In fact there was not a consensus on the results. Some researchers advocated that students who had mentors were more academically successful than ones who did not have mentors. Also students who had mentors have more positive attitude to school, more self-confidence and higher chance to enter university than ones who did not have mentors. On the other hand, some researchers found that gifted young people appreciate their mentors' academic guidance rather than vocational and emotional guidance. As a result generally researchers have argued that mentorships are advisable for gifted and talented students but empirical research could be remarkably strengthened to support this claim.

C.10 Joseph Toh Kim Leng; Yeo Soo Ling. *Talent Development in a Singapore School for High-Ability Learners.* (C.10)

Through its talent development programme, Raffles Girls' School (Secondary) (RGS) in Singapore strives to transform its high-ability students' gifts into talents through "systematic learning and practising" (Gagné, 2000). As talents are multifarious and RGS students are endowed with different gifts, RGS provides various platforms to support the developmental transformation of gifts into talents in its students, in cognitive and affective domains, through its curricular and co-curricular programme. This presentation will explain the talent development framework and approach adopted by RGS in catering to the cognitive academic needs of its students. It will illustrate the application of the Levels of Service (LoS) model (Treffinger et. al., 2004) in the design and implementation of appropriate and differentiated learning experiences for its students, with reference to examples of the various services offered in the academic domain. These services would include baseline and common

services for ‘all’ students, enrichment services for the clarification of interests and ability for ‘many’ students, and extension services offering challenge and stretch for ‘some’ and ‘few’ students, based on each student's identified strengths and sustained interest (Treffinger et al., 2004). RGS’ Research Studies programme will also be referred to as a case study of the application of the LoS; in this programme, students learn foundational research skills in their first year of study as a precursor to embarking on research projects that are cognitive or creative in nature, in their second to fourth year of study.

C.11 Sonja Artac. *Gifted Students in the Shadow of Science Misconception.* (C.11) Exploring the world, nature and its phenomena is an early activity of every child. First ideas are developed by experiences in the physical world, fairy tales, songs, and parents’ explanations. Being curious means having a lot of opportunities to get more and more new information. Most of it is just added and stored in a child’s memory, whereas some of it is frequently integrated in their first conceptions and explanations of the world and its phenomena (e.g., Why are some people different from the others? Is it really possible that my mother and father and even grandmother were children too? Are these simple conceptions related with giftedness?) Yes, they are. A gifted child is not only exploring the world, listening and imitating adults but they try to get their own explanations and construct their own concepts. Usually these early perceptions are naive and from the scientific point of view false. The first misconceptions are very difficult to reconstruct.

Teaching biology is provoking these naive conceptions with problem a solving approach, asking questions, which demand not only theoretical explanations but also argumentation – why do you think so - as well. The main question is how to set proper activities and experiments to reconstruct the existing misconceptions. In this presentation, I will introduce some concrete examples of frequent misconceptions and also examples of the activities which are very challenging to the students: What do we inherit from our parents? What is the value of biodiversity? Is waste always waste? Ethical issues: is anthropocentrism a possible argument?

C.12 Şule Güçyeter. *Opinions of Pre-service Teachers of Guidance and Psychological Counseling about Giftedness, Gifted Education and the Needs of Gifted Students.* (C.12) To meet the psychological needs of gifted students in general education, guidance and psychological counseling teachers have important role. Investigating preservice teachers opinions about giftedness, gifted education and the needs of gifted students may reveal what they know about gifted students. Further we can uncover their misconceptions on gifted students and gifted education and also we can determine the contents of training needs for pre-service guidance and counseling teachers. In this study, researcher examined teachers’ opinions about giftedness, gifted education and the needs of gifted students through open-ended questions. After the content analysis of the data, results will be shared to the congress participants.

C.13 Kellie Clarke. *A is for Acceleration.* (C.13) Acceleration is universally recognized as the most controversial of all the interventions available to Gifted and Talented students. Despite the overwhelming body of evidence and research that identifies acceleration as a highly successful intervention in terms of academic and social-emotional development, it remains shrouded in controversy in education and political circles alike. As a result, it continues to be a

significantly underutilized intervention in many of its 18 forms. The proposed presentation explores this hotly debated educational issue which has divided many practitioners across the primary, secondary and higher education sectors. It is especially designed for parents, teachers and educational leaders who are passionate about ensuring the very best educational, social and emotional outcome for our brightest students.

C.14 Ksenija Ranogajec Benakovic. *“Sparks” Programme for Gifted Children.* (C.14) Sparks programme for gifted children was created ten years ago. It has been approved by Ministry of Education and Education and Teacher Training Agency. Programme is carried out through workshops, organized for children from 5 to 12 years that have been estimated as potentially gifted. We use fun activities to provide gifted children with the opportunity to satisfy their needs and interests, develop their potential, gain experience in different scientific fields (with experiments in biology, chemistry, astronomy, psychology, etc.) to encourage teamwork and (self)presentation skills and develop emotional intelligence, creativity and learning skills. The presentation will give a short summary of some activities we use to support divergent and creative thinking, lateral and logical reasoning, developing tools for thinking, teamwork, emotional and social competences. We will demonstrate how we use associative cards, “creative movement” and some other techniques to support creativity. We will show a few worksheets we created to satisfy the children's needs to solve math, verbal and spatial brain teasers and riddles. It will be seen how our children work with Edward de Bono's “thinking tools” and “six thinking hats”. We will present how we are using experiments to develop scientific thinking and children projects to develop presentation skills and team work. At the end it will be shown the way we work on emotional and social skills.

C.15 Maja Gerden. *Enthusiastic Mentors and Talented Students’ Achievement.* (C.15) In this presentation, I am going to introduce the importance of good, enthusiastic mentors when working with talented students. When teachers become mentors, their role changes from only teaching into encouraging, supporting and constant challenging. The bond between mentors and talented students should base on trust, close collaboration and motivation. My main purpose is to help students develop their intellectual and practical abilities. As one of the mentors I first started, together with my colleagues, with extra-curricular activities and soon continued with cross-curricular connections. The role of students was crucial, especially the use of their pre-experience and motivation. Most of our students have some intercultural experiences (student exchanges, travelling abroad, mixed nationality families...), that is why some of the activities emphasised the knowledge of different languages (Slovene, French, English...). The other part of the activities was connected with actual global topics (global warming, green renewable energies, water as a strategic resource, migrations). Various examples of our students’ work are going to present their great national and international achievements, which were undoubtedly gained also with the help and support of good mentors, who also needed to develop their own talents in order to help their students. Not only good specific knowledge but also the knowledge of the required foreign terminology is crucial for the students to present their topic to a wider audience confidently and successfully.

C.16 Nazmiye Nazli Ozdemir. *A Review on Teachers' Perceptions and Attitudes towards Giftedness across Cultures.*(C.16) The purpose of this study was to review and analyze teachers' perception and attitudes towards giftedness across different cultures. Research articles on this topic were searched in online data bases. The keywords used to locate in databases were giftedness, teachers' perception, teachers' attitude and culture. The inclusion criteria were to be related to teachers' view and to be published in a refereed journal. Research methods and findings were analyzed in both qualitative and quantitative techniques. The first results of the analysis showed that teachers' perception and attitudes towards giftedness varied from culture to culture. For example, based on the research findings, it could be advocated that American teachers had more positive perception and attitudes towards giftedness than the others. However there were also similarities. For instance results findings revealed that teachers agreed on the need of gifted education in all most all cultures. All in all, it can be inferred that giftedness was one of the trend issues in some cultures.

C.17 Ozlenen OZDIYAR; Abdul Samet DEMIRKAYA; Eda GURLEN; Sevgi TURAN. *An Analyses of the Gifted Students' Occupation of their Dreams.* (C.17) Occupational preference is one of the most important variable affecting individuals' life. Individuals' awareness of own cognitive, affective, and psychomotor attributes while selecting the occupations will play a significant role on the satisfaction of individuals' on their occupations. Clark (2002) related giftedness with the superior development of various brain functions. Also, gifted students' developmental, psycho-social, and other needs may show differences compared to their peers. In terms of occupational preferences, Kerr and Sodano (2003) expressed that gifted students may have multiple career interests, as well. The starting point of this research is the desire to detect whether gifted students' differences affect the occupational preferences of the gifted students, and whether gifted students need a different occupational guidance than their peers, or not. The aim of this study is to reveal the occupational preferences of the gifted students of their dreams. The research will be a qualitative research, and the data will be analyzed through content analysis. The data of the research will be acquired by semi-structured interview forms from the gifted students attending Science and Art Centers. The research will be conducted in Ankara, Turkey, in April 2015-2016 academic year. The occupational preferences of gifted students, their reasons to prefer those occupations, the job environment they imagined, and the people they want to work with will be acquired within the research. As a result of the interviews, the codes will be revealed. Results and suggestions will be generated through the obtained findings.

D.1 Suzana Vajngerl. *Research Skills of Gifted Students.* (D.1) May 19 In this presentation, I would like to present and depict how I deal with the gifted and potentially gifted students many years as a teacher at lower primary level. As a coordinator at primary school Sladki Vrh-branch school Zgornja Velka, I spent one lesson every two weeks with the gifted and potentially gifted students. All the activities were realized according to the programme, which I carefully planned at the beginning of a school year and were focused on the individual fields of talent and skills of the students. The group was formed out of three students from the 4th class and two from the 5th class. During the programme I wanted to form the trust into students' abilities and strengthen their awareness that higher abilities bring the responsibility for more work. At

the classes of individual group assistance (ISP) for the gifted students I also prepared them for different competitions (i.e., math, science and Slovene language). By the same time I upgraded the work and taught the students how to make a research work (empirical as well as theoretical part) and how to write it in an appropriate way and present it to the others. The latter I would like to present to the public as an example of a good practice, how we already at lower primary level prepare 10-year-old students for a world of experimentation, research and how to discover the laws of the nature.

D.2 Tarika Sandhu; Shweta Prashar. *Dynamics of Flow in the Creatively Gifted.* (D.2) Until recently giftedness was typically viewed from increased intellectual ability scores. This traditional conceptualisation of giftedness set boundaries to include only those individuals who were better at processing information. It became apparent with time that high creatives were the actual producers of knowledge sources and they be brought out of the shadows to be included in the gifted spectrum.(Renzuilli,2005). The personal narratives of many a creative person has consistently reflected loss of identity and sense of time during the phase of creative productions .During this phase of optimal experience they felt strong alert and at the peak of their abilities(Csikszentmihalyi,1988). There is dearth of literature pertaining to the psychological investigation of Flow Experience in the creatively gifted amongst the Indians The present study aimed to reveal the nature of Flow experience as witnessed by the Indian creatively gifted and the average creative ability group. TTCT by Torrance(1990) was used to screen the creatively gifted and scores on Flow State Scale by Jackson and Marsh(1996) ,Freiburg Mindfulness Inventory by Walach et al(2001)and the Defense Response Inventory by Piechowski et al (1985) were also obtained. Results point towards significant variations in the experience of Flow amongst the two groups.

D.3 Željko Rački. *Insights on Gifted Education in Croatian Elementary Schools.* (D.3) The goal of this research was to provide insights on gifted education in a sample of Croatian elementary schools. The findings presented stem from the ongoing research project on educational approaches to gifted and gifted education, supported by the Ministry of Science, Education and Sports, the national Teacher Training Agency, the University of Osijek and the Faculty of Education in Osijek, entitled Acceleration in elementary education as empirically grounded but neglected methods of meeting the authentic educational needs of gifted children in the Republic of Croatia. This research is theoretically grounded in the existing empirical research findings on the effectiveness of acceleration and enrichment in order to match the instruction with the educational needs of the gifted. Giftedness in this research, as well as assessed prescribed educational provisions for the gifted, were defined according to the state education act and regulations. Participants were school teams for the gifted (school teachers, school psychologists, pedagogues, and/or other experts) from 159 elementary schools in Croatia. Instruments and procedure included a questionnaire on gifted policy and details on education the schools offered to the gifted students. The key results point to the present mismatch between perceived feasibility of the different educational provisions for the gifted, due to the organizational and other difficulties, and their proven effectiveness in the existing research on gifted education, as well as school based evaluated experiences. Selected insights on gifted

education with implications for current and future educational practice are presented and discussed.

IT & ICT

D.4 Rafael Saracchini. *Latest Developments in Informatics: Virtual & Reality Augmented.* (D.4) In the last years, significant advances were brought in the field of Informatics regarding sensorization and interfaces between a user and machine. These advances were brought in the form of depth cameras, body and head tracking, immersive Heads-Up Displays and projectors. Said interfaces offer interaction in two forms: Virtual (VR) and Augmented Reality (AR). Virtual Reality aims to immerse the user into a virtual world, substituting his/her surroundings by a simulation. Interaction and immersion is performed through headsets, tracking or "virtual caves" where the user does not depend on wearable devices. In the other spectrum of interaction there is Augmented Reality, which aims to "enhance" reality merging information into a real scene. Mostly such information comes in form of virtual objects integrated with its surroundings. This technology provides natural interfaces between the user and has a strong potential for educational applications. However, its effectiveness is still subject of research, intending to establish how it can suit or even change the interaction between student, the educator and their surroundings. We will present in this talk the current state of AR and VR technology, some examples of research performed in this field and applications tested within the educational context. Moreover, we will discuss the possibility of how it can impact the classroom, especially with the advent of the Internet-of-things, which allows distinct devices interact with each other, removing barriers imposed by distance between students around the world.

D.5 Susanne Steigler Peters. *Cloud Enabled Mobile Learning Experiences.* (D.5) Based on my 4th white paper 'The Role of Learning Analytics in Future Education Models' published September 2015, this presentation showcases the personalised learning ecosystem that Telstra has co-developed with Education customers. This cloud-based personalised learning ecosystem liberates learners from the four walls of the classroom, provides access to quality, affordable learning experiences to all learners including disadvantaged and remote students. In a single sign-on secure environment learners can access enterprise-grade education apps that cover the public and private domains. They can also access a range of collaboration tools, digital learning content, video streaming services and communicate using their choice of social media and networking tools. In a first of a kind, learners truly begin to take agency for their learning while still benefiting from interactions and guidance provided by quality teachers. The ecosystem can be accessed from any device, any time and also has plenty of space for the specially-selected digital content of your choice. To round out the ecosystem and bring personalised learning to life, Workspace X also offers complete integration with a learning analytics package. The package provides a dynamic 360 degree view of learning progression displayed as an easy to read dashboard. Now quality mobile educational experiences are brought to learners with the rigour of benchmarked evidence of learning progress and growth in real time.

D.6 Jose Rodrigo Zubiri; Sofia Carmen Tomacruz. *Digital Demands: Addressing The Digital Divide in Basic Education and Its Relation to Academic Performance and Aspirations.* (D.6)

Amidst an increasingly digitalized society, information and communication technologies have been seamlessly integrated into the economic, social, and political life of individuals. Information has been regarded as a primary good, essential to the wellbeing and self-respect of individuals in society. The digital engagements of an individual play a key role in a variety of life outcomes ranging from academic performance to entrepreneurial success to health service uptake. As a result of varying degrees of access to the Internet and ICTs across populations and individuals, a digital divide emerges. Education, a sector pivotal to directing individual life trajectories, has been radically transformed with regards to the learning process and access to information and thus faces the implications of the digital divide, as new waves of inequalities are introduced in the classroom. As the period of basic education is critical to transitioning into civic life or higher education, digital inequalities are capable of aggravating pre-existing social inequalities. Through survey questionnaires, conducted on 152 high school students from a Philippine public school, this study reveals the correlation of academic performance and aspirations (for their highest academic qualification) to access to digital technologies and the Internet, according to Van Dijk's four measurements of digital poverty, namely: motivational access, material access, skills access, and usage access. The findings reveal a positive correlation for academic performance whereas no correlation was found between aspirations and digital access. In the study, significant correlational differences were also found between genders, specifically, in terms of skills access and academic performance.

D.7 Alena Dika; Ivan Dražić. *e-Classroom - Extra Curricular.* (D.7) One of the more important initiatives of Osnovna Škola Gornja Vežica- Rijeka is the E classroom. It began in 1991. and has been supported by the town of Rijeka ever since. The E classroom is targeting mathematically gifted and talented students of the town of Rijeka, from age 10-15. The extra-curricular lectures, workshops and activities are facilitated by a carefully selected team of experts from various primary and secondary schools, as well as from the University of Rijeka. The information about the E classroom lectures, workshops and activities is disseminated via local newspapers, and presented at various specialist meetings at both regional and national level. E classroom mentors papers are regularly published by the mathematical magazine Bilten of E classroom. During the course of the last year we completed 600 hours of various lectures, workshops and events, one of which was held during the Rijeka week of Gifted and Talented. The E classroom team participated in the Team mathematical competition in Pula, which was part of the Festival of Mathematics in Croatia. In its beginnings, and to this day, the E classroom initiative has been, and remains, an innovative model of how to educate gifted and talented students and is recognised as such at the regional and national level.

D.8 Anna Maria. *Integrating Technology into the Curriculum.* (D.8) As teachers and schools make the transition to a digital world, they may best turn to their students, described here as the Net Generation, for help. N-Geners, raised on new technologies, are thriving on the Internet—creating Web sites, doing project research, managing personal finances, and making friends in chat rooms. As a result of these new technologies, educators will need to shift the way they think about teaching and learning: from linear to hypermedia learning; from instruction to construction and discovery; from teacher-centered to learner-centered education; from absorbing material to learning how to navigate and how to learn; from school to lifelong

learning; from one-size-fits-all to customized learning; from learning as torture to learning as fun; and from the teacher as transmitter to the teacher as facilitator. Although the teacher's role is still essential, classrooms of the Net Generation will become more student-centered, with teachers and students engaging in learning activities together.

D.9 Christopher Arrighi; Nicole Arrighi. *What Good Mobile Instruction Looks Like.* (D.9)

Training faculty to use mobile devices for instructional purposes has proven difficult. This may be due to the acquisition of new technical skills and pedagogical methods for integrating those tools into their teaching. Perhaps the question needs to change from "how can mobile learning be used to teach" to "how can mobile learning be utilized when exercising active learning strategies?" With the use of technology and highly interactive pedagogical approaches, how can you ensure time for integrative and reflective thinking? Do mobile technologies distract from teaching and learning? Do they hinder the building of community? These questions must be considered if your transitioning from a "stationary" teaching style to a mobile-friendly environment that honors the use of today's popular devices. We'll discuss what good mobile instruction looks like, show examples, share various applications for mobile devices that have proven effective, and address next steps for implementation.

D.10 Jean SIMON; Veronique SEBASTIEN. *The Use of a CSCW Platform: Professional Training Program Vs. General Education Training Program.* (D.10)

The Reunion Island University uses a set of digital tools for face training and distance learning. The "Digital Technology Observatory" of the University launched a major survey among users to find out if these tools are suitable. This survey was supplemented by an analysis of the traces left on the different tools. Here we are particularly interested in the CSCW tool. We show that, if according to the survey, the CSCW platform is suitable for all users, trace analysis shows that it is not really used for CSCW but primarily for file sharing. Moreover, according to the different training programs, the tool is used differently. Finally, CSCW appears essentially when there is ministerial guideline for doing it.

D.11 Jessica Potts. *New Form of Education: Virtual Schools.* (D.11)

Virtual schools offer the possibility for students from across the country to come together for a complete educational experience in a single location. While this relatively new form of education can be effective for students from both ends of the achievement spectrum, the potential for providing acceleration and homogeneous grouping for gifted and high-achieving students has made online learning an issue of interest in gifted education. The intent of this study is to understand profoundly gifted students' perceptions of virtual programs. This information can be used either to improve online gifted education, or create new programs, thus diversifying opportunities. The participants reported a preference for frequent interactions with classmates and the instructor, but expressed concern about the lack of social opportunities. While technical difficulties did occur, these were mostly due to operator error or disuse of available tools. Finally, in terms of curriculum and pedagogy, the participants saw little difference between brick-and-mortar and virtual classrooms, suggesting that for profoundly gifted students, the quality of the content and instruction outweighs the realities of the learning environment.

D.12 Michael Canuel; Mary Stewart. *How to Make Sound Decisions About Educational Delivery*

Modes in an Age of Increasing Technology. (D.12) The goal of this presentation is to help educational and other leaders (consumers) to make sound decisions when faced with selecting instructional delivery modes in an age of rapidly increasing technological possibilities. We will share the Delivery Mode Heuristic (DMH), a tool that, 1) identifies the wide range of delivery modes available to consumers, 2) shares key criteria to consider when making delivery mode choices and, 3) scaffolds the decision making process by walking consumers through various decision making scenarios. We will begin by establishing the need for an accessible tool geared toward an audience that may not be aware of all that is currently available to them, or how to make decisions that optimize student learning in contexts that are often less than optimal. We will do this by referring to recent literature in this area, as well as by briefly sharing relevant professional experiences that we have encountered in the last 10 years as leaders in an educational association that works to make meaningful links between pedagogy and technology on a local, national and international level. Then we will briefly describe some common choices available to consumers (face-to face instruction, asynchronous instruction, synchronous instruction, various hybrid modes) as well as how these possibilities can be organized, depending on a range of factors. Integrated in this discussion we will outline key criteria to consider when making selections about delivery modes for one's own practice, and then we will share at least one example (perhaps drawing this from the audience). We will end the presentation by touching on issues and future directions, and by welcoming questions from the audience.

D.13 Mojca Jurišević; Alenka Baggia; Tomaž Bartol; Danica Dolničar; Saša Aleksej Glažar; Mirjana Kljajić Borštnar; Andreja Pucihar; Blaž Rodič; Irena Sajovic; Andrej Šorgo; Bojana Boh Podgornik. *Motivational Aspects of Information Literacy in Higher Education.*

(D.13) Informational literacy is broadly defined as an intellectual framework for understanding, finding, evaluating, and using the information, thus comprising an important set of study skills and strategies. Nowadays these competencies form an important topic in higher education, influencing the design, content, teaching methodology, and management of academic courses. The focus of the presentation is thus focused on the level of information literacy skills of higher education students ($n = 202$) who performed an information literacy test (ILT) twice: before and after participating in an information literacy specific study module. All students also filled out the questionnaire on their motivations for studying. Namely, the main research hypothesis was concerned with the impact of motivation for the development of students' information literacy skills. The results show that students' average overall achievement on ILT was 66%, with the post-test score increased on average of 15%. Using the enter method, the linear regression analysis revealed that students' motivation explains 17% of the variance; specifically, students' academic self-concept and their academic interest were found to be significant predictors of their' overall ILT result. Additionally, from the results of a series of t-tests performed can be concluded that motivational components do not contribute statistically significantly to the increased post-test ILT result; the only exception is the number of modules comprising information literacy contents in which students are actually enrolled. In conclusion, the research findings strongly imply the key role of further students' information

literacy education, preferably within different university courses, with an emphasis on specific information literacy modules.

- D.14 Pedro Sanchez Escobedo; William Reyes Cabrera. *ICT in Mexico*. (D.14)** This is a case study with the aim to understand, in depth, the exploitation of information and communication (technology ICT) in a rural College in Mexico. This college is situated in the Mayan rural zone of the Yucatan, 160 kilometers from the Capital City of Yucatan, Merida, Mexico. Research was carried out in two stages, an initial phase that describes the conditions of these professors, their socio-demographic characteristics and their general perceptions with regard to new ICT. The second stage, explores in depth to groups of teachers and students through surveys and interviews that allow to understand perceptions of both students and teachers about the impact, use and challenges of ICT in this context. Results evidence the lack of sufficient infrastructure, scarce resources and little training to fully exploit the ICT available. Training needs and avenues for developing and exploiting ICT are identified and foreseeing.
- D.15 Silviu Daniel Brebulet. *Online Career Counseling*. (D.15)** The analysis of pupils' needs regarding career counseling programs was realized within the Erasmus + project „Information and Communication Technology for Romanian Career Counseling” (ICT4RoCc) as a preliminary activity in order to further develop career counseling activities according to pupils' needs and expectations. The research sample consisted in 2336 pupils in Romania, Cyprus and Latvia, age 12-20, both genders and residential areas, pupils in public educational institutions, from grade VII to XII. The results shows that pupils are interested in career counseling and guidance (almost half of the respondents mentioning the need for a specialist to help them with information and advice, suggestion, practical instructions), but the educational systems are not able to meet their needs (55% of the pupils in those countries have never participated to career counseling activities and almost 40% of the pupils consider that they don't have direct access to public career counseling services, irrespective of the country or residential area). Regarding the opportunity of online career counseling, more than half of the respondents (57%) would prefer to have online access to information needed in career choosing, through specialized websites and digital resources. The pupils are opened to online career counseling and guidance especially for getting information and practical suggestions, advice from verified sources. Pupil's interest to online career counseling tools and resources is big enough to justify the development of open educational resources, online platforms and e-learning solutions to improve the impact of face to face counseling and guidance.

Science Education

F.7 Anisija Žižić; Andrina Granić. *Supporting Creativity in Computer Science Education.* (F.7)

Supporting Creativity in Computer Science Education Abstract: Education systems around the world undermine the development of student's creative skills and it is in the great interest of students to change that fact as soon as possible. Positive initiative and quest for a change are evident in reports of multiple workshops and consultation meetings held worldwide, as the attempts to provide framework in educating 'digital natives' to equip them with knowledge and skills necessary for 21st century. This paper is accommodating creativity in the context of computer science education (CSE). It presents motivation for supporting creativity in CSE, framework for designing creative computer science lessons, applying creativity in CSE from different perspectives and guidelines for future research.

F.8 Anita Hodak; Zeljka Modric Surina. *Natural Sciences and the Gifted Children in Rijeka-Croatia.* (F.8)

In 2013 Natural History Museum Rijeka has started with Little School of Natural Sciences, a project for gifted children and children with special interest in the field. This is one of Museum educational projects aiming is to improve the perception of the nature and principles of nature in children, as well as to develop a sense of connection with nature in school children. Also, it aims to reduce the gap between the progress of science and learning in schools, using all Museum's exhibitions and collections, laboratory, aquarium, botanical garden, multimedia and the help of Museum's expert and scientific staff. It is important that the children involved in the project feel comfortable and welcome in the Museum and experience it as natural place to look for information, find answers or just hang out. The workshops are intended for groups of 4th grade students from different elementary schools and are limited to 15 participants due to teaching methodology and almost individual approach to children. In the series of 30 workshops that take place once a week and last for 120 minutes, children learn about the world around them, where combination of theory, practical work, observation, demonstration, discussion, experiments, project work, field work, creativity and play have proved to be great choice in working with gifted children. The Project is verified by the Ministry of Science and Education, and recommended by the Institute of Education of the Republic of Croatia.

F.9 Bahadır Ayas. *Threshold Theory in the Area of Science: Creative Potential of School Children.* (F.9)

One of the most prominent notions concerning the interplay between intelligence and creativity is the threshold hypothesis. Correlations between intelligence and creativity vary depending on what constructs are measured, how they are measured, the population in scope and in what domain creativity is manifested. The theory was supported in some studies with school children in which domain general divergent thinking tests were used as criteria for creative potential. However in recent studies creativity is seen as a domain specific potential. Thus it is necessary to investigate threshold theory in different creativity domains. With this respect the purpose of this study was to investigate the threshold theory in scientific creativity. The participants of the study were 398 5th graders and 293 6th graders. The data was collected with a domain specific creativity test (Creative Scientific Ability Test) and with a group

administrative ability test in which intelligence is assessed with a figural subtest. To investigate the threshold theory correlation coefficients were calculated. The correlation between creativity and intelligence was found to be weak for 5th graders.

F.10 Hussam Diab. *Scientific and Technological Leadership Reserve.* (F.10) The "Scientific and Technological Leadership Reserve" is a prestigious excellence program. It is a pioneering special effort to advance students' future prospects. This track exposes students to advanced issues in Science and Technology and paves their way to future leadership. It launched by the Science & Technology Administration of the Ministry of Education, starting 2010/2011 academic year. The purpose of the project is to establish an excellence track of six years, resulting in a quality Baccalaureate diploma in Science and Technology. It includes: 5units of Mathematics; 5units of Natural Sciences (Physics, Chemistry, Biology); 5units of Technology (Software Engineering; Electronic Engineering; Machines Engineering; Biotechnology or Scientific/Technological) or, 5units of an additional Natural Science discipline. The program is carried out both in junior and senior high schools. In the first case, students participating in the project receive two additional weekly teaching hours in Mathematics, Physics, Computer Science and Robotics following a special curriculum. Schools receive an additional budget to equip their laboratories for the experiments required by the program. The senior high school students receive reinforcement lessons in Mathematics and Sciences adapted to their needs. The lessons are provided in small groups and their purpose is to support students in implementing the tasks involved in the program. The first graduating group of senior high school students was examined by the matriculation exams in the academic year 2013 \ 2014, while the first graduating group of the junior high school will access the matriculation exams on summer 2016. Results released so far show an increase in the percentage of students eligible for matriculation certificates with the spirit of the program.

F.11 Martin Konecny. *Experience of Teaching Physics at a Lower Level Gymnasium for Gifted Children.* (F.11) This presentation will focus on description of the experience of teaching physics at secondary school for the gifted children. This will detail the approaches that have failed and consequently approaches and activities that have succeeded in the class. Is there relation between those activities that were proven successful? Can we use these findings furthermore? Do the practical findings reflect the theoretical knowledge of phenomenon? Partial answers to these questions will be contained in the contribution.

F.12 Sanja Martinko; Sanja Tatalović Vorkapić. (F.12) *Could Students' Attitudes Towards Learning Physics Significantly Predict their Learning Outcomes: Implications for Innovative Methods in Teaching Physics.* A modern educational process should approach to students by taking into account all their characteristics. Purely intellectual approach to teaching and learning must be replaced with a new one, which takes into account all other students' characteristics. Therefore, students' attitudes toward learning specific school subjects are very important determinants of their learning outcomes. Examining their attitudes very important implications for creating innovative teaching method could be defined. Traditional classrooms should be replaced with those with standing desks and other innovative teaching methods that enhance learning of applied physics. With the aim of postulating implications of specific

innovative methods in teaching physics, students' attitudes toward learning physics are analyzed as possible predictors of students' learning outcomes. The sample was consisted of 557 eighth grade students from eight elementary schools in Zagreb and Zagreb County. Collected data were analyzed applying descriptive, correlation and regression analysis. Overall, it has been determined that students with more positive attitudes towards physics, achieve better scores in knowledge tests. Eight specific students' attitudes toward learning physics are determined as significant predictors of their learning outcomes. Attitudes' content analysis implied that applied physics would be the most understandable to students and that innovative teaching methods would improve their attitudes and learning outcomes in physics. Also, gender differences have been determined in some students' attitudes, what should be taken into account too. Finally, some specific guidelines for implementing innovative teaching methods in physics education and future research have been postulated.

F.13 Vesna Ivasović; Almom Rovis Brandić. *Meeting the Needs of Twice Exceptional Students.*

(F.13) Einstein, Edison, Tsiolkovsky, Hawking, Disney, Christie, Cruise, Williams... the list of famous gifted and talented people who struggled with learning, emotional, behavioral, physical or sensory difficulties is quite long. We appear to have reached an understanding that high ability and disability can co-occur in the same individual but prejudice and stereotypes are still common among educational and clinical professionals. Twice-exceptional students are among the most frequently unidentified population in schools. Their educational, emotional and social needs often go undetected: giftedness may mask disabilities or disabilities may mask giftedness. Students' frustrations related to unidentified strengths or weaknesses can result in emotional and behavioral issues. Instead of helping to understand child's needs, the assessment process itself can sometimes be superficial, if it is based on limited time, resources, and other requirements needed to make the valid diagnosis. Recommendations for multidimensional assessment procedure will be presented. Examples of twice-exceptional children's WISC-IV profiles will be discussed. One of the greatest challenges in working with twice-exceptional students is helping educational staff to abandon their „black or white“ perspective, and provide a whole-person understanding. Education models for teachers are developed and will be proposed. Many twice-exceptional children have social, emotional or behavioral problems and low self-esteem. Therefore, recognizing their social and emotional needs is just as important as addressing their academic needs. Effective Croatian prevention programs for social and emotional development will be presented.

F.14 Zdzisław Kazanowski. *Self-Assessed Professional Competence of Teachers and Strategies for Finding the Solutions to the Problems of Children with Special Educational Needs.*

(F.14) A main purpose of this study was to assess the creative attitude of Polish teachers, who worked at various educational levels (preschool, basic education - grade I-III, basic and middle level education – grade IV-VI), in the context of self-assessed professional skills (competencies) in teaching children with disabilities in inclusive settings (classrooms). It was assumed that there was the relationship between teachers' creative attitude and their professional competence. Two questionnaires, namely Creative Behaviour Questionnaire KANH-II by Popek and Perceived Professional Competence Questionnaire for Teachers by Byra and Kazanowski were administered to a sample of 246 teachers who were employed in the schools located within the

urban area of Lublin. It should be noted that research studies on teacher preparation for inclusive education have been infrequently concentrated on the in-depth analysis of the professional, pedagogical skills (competencies). The empirical approaches that have been taken so far, actually include just particular kinds of competencies. Yet the research findings concerning the level of teacher preparation for inclusion make us think that it is low. It seems that this presentation of the results obtained from the complex professional competence assessment as well as demonstrating how it is linked to the creative attitude, will surely expand our current knowledge about teacher education.

Posters

- P.1 Aleksandra Gajda; Maciej Karwowski. *Creative Learning in Polish Schools.* (P.1)** This poster presents an observational study conducted within Polish classrooms which differ in terms of the link between students' creative ability and their school achievement. During intensive observations (10 classes, observations conducted 9 times per lesson) we found that in classrooms where a positive relationship of creativity and school achievement was identified, as confronted with classes with no relationship between creativity and academic achievement or a negative link between these phenomena, teachers created more positive interpersonal climate and more creative climate. We analysed teachers' and students' behaviours using multilevel models and new ideational pathways qualitative methodology (Tanggaard & Beghetto, 2015). We discuss these findings in terms of creative learning theory (Beghetto, 2016).
- P.2 Carole-Lynne Le Navenec. *Characteristics of Outstanding Teachers for those Beginning School: A Case Study of the Lived Experience of a Retired Professor.* (P.2)** Following a review of the literature regarding characteristics of outstanding teachers for those beginning school, a case study of the author's experience will be presented, based on her wonderful teacher when she was 8 years old, and how that influenced her 33 years of teaching at a University setting.
- P.3 Darko Lončarić; Anela Nikčević Milković. *Learning to Self-Regulate Creative Writing in Schools: Effects of Goals and Motivation on Writing Self-Regulation and Performance.* (P.3)** Creative writing is a very complex and cognitively demanding activity requiring the use of the cognitive writing strategies and simultaneous activation of metacognitive, motivational, affective and behavioural processes, and the control of the immediate environmental or the contextual variables. That is the reason why writing implies self-regulation of all the above-mentioned activities and surrounding by the individual who creates the text. Learning to self-regulate creative writing is an important competence that students need to acquire according to the school curriculum. Therefore, the aim of this study was to examine in the ecologically valid school task (writing an essay) the direct and indirect effects of writing goals and values on the success of the writing activity and to verify if those effects were mediated through the use of self-regulation strategies. The procedure of writing the essay exam was identical to the one used in the state final exams. High school students (N=231; 127 girls; mean age=18,35; SD=0,667) participated in this study. Using the mediation analyses, we have tested direct and indirect effects of writing goals, values and self-efficacy on writing achievement (a standardised scoring procedure performed by two independent evaluators). We have found that the learning goal orientation, the performance goal orientation and the value of writing have indirect positive effects on writing achievement through increased use of planning and self-guiding writing strategy. On the other hand self-efficacy of self-regulated writing had a direct positive effect on the writing achievement. These results indicate the importance of self-regulation processes in highly complex tasks in creative writing.

P.4 Dorota M. Jankowska; Maciej Karwowski. *Types of Imaging Abilities.* (P.4) The present study was conducted on the sample of 6142 primary school students in Poland. The imaging abilities analysis was based partly upon the conjunctural model of creative imagination (Jankowska, Karwowski, 2015). In the following model, three interrelated components constitute creative imagination: vividness – an ability to create complex and clear images, originality – an ability to produce unique images, as well as the transformative ability – an ability to modify and transform generated images. The results focus on four main types of imaging abilities: (1) creative imaging ability (high vividness of imagery, high originality and high transformative ability); (2) pro-creative imaging ability (high originality and high transformative ability); (3) passive imaging ability (high vividness of imagery and high originality); and (4) vivid imaginative abilities (high vividness and high transformative ability). The study identified significant statistical differences in intelligence and school achievements among the representatives of different imaging abilities types.

P.5 Ercan Opengin; Fatih Tokmak. *The Comparison of the World's Top 100 University Rectors with Turkey's Top 100 University Rectors In Terms Of Several Variables.* (P.5) Leadership has been regarded as one of the important characteristics of gifted individuals (Marland Report, 1972). Senior managers of universities are also seen as effective leaders of a society. However, the characteristics of these leaders have been an object of interest. The aim of this study is to compare the leaders of universities which are in top 100 World University Ranking of Times Higher Education (THE) in 2014 with the top 100 universities in Turkey which are in list of University Ranking by Academic Performance (URAP) in terms of different variables. This is a descriptive study and the data were gathered from personal and universities' official web sites. The results of the study showed that university leaders are generally men, 61 years old in average, and graduation fields are engineering, medicine, economics and administrative sciences, and arts and sciences. They had been in administrative positions at least once before they became university leaders. The proportion of female rector and their fields are about the same in the world and Turkey (Approximately 10%). This study could be replicated with different university ranking lists. Also comparison study can be conducted on different countries university leaders.

P.6 Jasna Arrigoni; Danijela Blanuša Trošelj; Jasna Borbelj Čeko; Ljiljana Brašnić. *Center for Gifted Children - Non-Profit Organization as a Part of a Social Care for the Gifted.* (P.6) The aim of the poster is to present the work of the Center for gifted children (CGC), Rijeka. The Center was founded in 1997, as a non-profit organization, and its mission is sensitization and education of the community about talented individuals or their needs through a variety of activities and types of work. The main activities of the Center are marking the Day of the Gifted, counseling for parents of gifted children and CLRC workshops for gifted children. For the past four years, Center has been celebrating, apart from the Day of the Gifted on 21 March, the Week of Giftedness during which lectures, workshops, expert meetings, discussions, and round tables intended for educational professionals, gifted children, parents, and the general public are offered. Parental counseling is available once a month. Here, experts of various profiles (pedagogists, psychologists, primary school and preschool teachers, speech therapists and social pedagogists) provide counseling, support, and training workshops to the interested

parents. During the summer holidays, members of the Center in collaboration with various external partners devise and implement CLRC (Creative - Logical - Research Club) summer workshops for gifted children of preschool and school age. Workshops are diverse and thematically linked. As of this year, the Center for gifted children is a European Talent Point and part of the European Talent Support Network. The Center plans to expand its activities to provide support for gifted children, their parents and preschool and primary school teachers.

P.7 Jenny Horsley; Carolyn Tait. *Self-Efficacy and High-Academic Achievement in Minority*

Students. (P.7) There is a developing area of research in the understanding of academic excellence for students who belong to cultural minorities and who are traditionally disadvantaged by education systems. While the factors affecting low achievement for one such cultural minority group - Pasifika students in New Zealand secondary school - have been investigated, there is little research that gives insights into students from this group who attain high academic success. This poster describes a qualitative study uses a socio cognitive framework to investigate how academically high achieving Pasifika students report the influences on their self-efficacy during their study in their final year of secondary school. Five high achieving participants were identified and recruited through an analysis of results of the New Zealand Qualifications Authority (NZQA) Scholarship examination. NZQA Scholarship is awarded to the top three percent of students in the cohort. Data were gathered from semi structured in-depth interviews and member checking was undertaken to ensure trustworthiness. Examination of the data revealed the influences of home, school and friends. Cultural aspects were integrated into the influences of home and evident in family histories and values for some, but not all of the participants. Analysis of the data suggested that these high achieving students reported both individual and collective agency through their intentionally, planning and self-reflection. This study has practical implications for schools and families as they attempt to foster academic self-efficacy and agency in minority students to enable academic excellence.

P.8 Katarina Ačimer; Mojca Jurišević. *Problems of the Definition and the Identification of Twice-Exceptional Students by Slovenian Primary School Educators.* (P.8) The poster presents the

results of the empirical research on how educators in Slovenian primary schools address twice-exceptional students and how they identify twice-exceptionality in the school settings. In the last decade Slovenian primary schools devoted much attention to gifted students, whereas twice-exceptional students remained almost unnoticed, both in theory and in practice. 20 gifted education coordinators and 18 special educational needs teachers from 21 Slovenian primary schools were interviewed for the purpose of the study. All interviews were conducted by 21 master degree students from Special and Rehabilitation Pedagogy study programme at the Faculty of Education of the University of Ljubljana, after the research had been jointly developed in the framework of the elective module Giftedness in the Educational Context. The results show that the gifted education coordinators as well as the special educational needs teachers use plenty of definitions of twice-exceptionality, which could be the main reason for the problems in the identification of this group of gifted students, in addition to the lack of educational provision for them. From the research findings it can be concluded that most of the

interviewed educators are not competent enough to identify and work with twice-exceptional students, and need further in-service professional support.

P.9 Kristina Riman; Petra Rimanić. *Opportunities for Puppetry Use in Creative Activities and Creative Play Production.* (P.9) Croatian curriculum for primary education includes activities with puppets as a teaching medium predominantly in the first two years of primary school education. In later grades, puppetry is neglected and priority is given to other activities of media culture. Research shows that puppet is a medium that can be used in different ways: as a therapeutic tool, as an educational and didactic tool and as a stimulus for creative work of pupils and teachers as well. Using puppets in teaching is desirable for several reasons. It has a positive effect on the development of pupils and can help them to resolve some issues such as fear of school or exams. Close interaction between puppet and pupil can help a teacher to overcome communication barriers. Activities with puppets in the classroom can aggregate various educational topics and activities, with special emphasis on creating puppet plays based on templates of literary works that are used in primary school teaching. This research was performed on teachers in several places in Istria and Primorje-Gorski Kotar County. The goal was to determine the self-assessment of their competence in the use of puppet media, their interest in puppet theatre and satisfaction with initial education regarding the use of puppets in the classroom. Opinions about the impact of puppetry on competence development in pupils and attitudes about the possibilities of using puppets, primarily in Croatian language and literature, but also in other classroom subjects were also investigated. Teachers also assessed complexity and frequency of use of puppets as a special medium in the classroom. It was found that teachers recognize the benefits of using puppets in the classroom, but due to lack of time and challenging preparations seldom use it in their work. According to their opinions, the use of puppetry helps with developing important competencies in pupils, especially reading and writing skills and language expression. The need to strengthen the competencies of teachers of primary education for the creative development of literary templates for performances and other uses of the puppet media in everyday teaching is also emphasised.

P.10 Ksenija Ondrašek; Vlatka Kovač; Višnja Cuculić. *Model of the Educational Support Development for Potentially Gifted Students in the Primary School Grigor Vitez.* (P.10) The school professional team has created the educational support model for potentially gifted students in the primary school Grigor Vitez, Zagreb, Croatia. In the first phase, school psychologist conducts identification of the potentially gifted students using standardized ability tests and nominations of teachers, peers and parents. Identification is conducted from the 1st to the 8th grade. After the identification, potentially gifted students are involved in an extracurricular activities and psychological workshops. Students from the 1st to the 4th grade in their extracurricular activities expend their knowledge and develop creative thinking. Students from the 5th to the 8th grade are involved in extracurricular Biology, Chemistry, Technical robotics education, Mathematics and ICT. All students are involved in Psychological workshops. These workshops are related to social and emotional development, prevention of behavioural problems, strengthening of self-confidence, communicational skills development. In the second phase, school psychologist conducts testing in 1st grade, then retesting in the 4th and the 6th grade and introduces a certain creativity test. Support for the potentially gifted

students is expanded on some extracurricular activities: Art class, film group and entrepreneurship. An inclusion of disadvantaged gifted students in the program is expected as additional result of this phase. During the both phases students are involved in different out of school activities, visiting other institutions and manifestations. We expect that proposed model will trigger systematic and continuous educational support to the potentially gifted students in our school, as well as being successful example to other schools at national level.

P.11 Nilgun Kirisci; N. Nazli Ozdemir. *Gifted Students: Out of the Educational Context.* (P.11)

Most of the research focused on the educational issues of gifted students. However they have also social lives. In this case what they do and who they are could be investigated to get deeper information about them. In this study these two issues were examined. For this purpose a scale namely Student Recognition Form was developed. The form consisted of three parts. In the first part there were demographic questions. In the second part there were nine open ended questions about the leisure time activities and the use of social media. The last part consisted of six items about students' interest areas. The participants of the study included 91 fifth, sixth, seventh and eighth grade students who attend the Education Programs for Talented Students (EPTS) which is a program that is based on university, services after school for elementary and secondary school students who are identified scientifically and mathematically talented by the identification system of the program. The data were analyzed with descriptive statistics and qualitative techniques. The results of this study will be shared in detail with the participant of conference.

P.12 Sungmoon Lim; Seokyong Cho; Jijun Lim. *The Relationship between Parental Psychological Control and Relational Aggression: An Exploration of Intervening Variables.* (P.12)

Abstract For an exploration of intervening variables in the relationship between two parental(maternal, paternal) psychological controls and relational aggression of male middle school students, this study was to test model fit of the pass model which "hostile attribution of intent" mediated in the link between parental psychological controls and relational aggression, and mediation effect of hostile attribution of intent. Furthermore, it was investigated whether "peer normative belief about aggression" had moderating effect on the pathway from hostile attribution of intent to relational aggression in the pass model. Data were collected from 323 students at five middle schools in Korea after completing questionnaires, and was analyzed using statistical methods of structural equation modeling, bootstrapping, regression analysis. The results were as follows. First, it showed that model fit indices of the pass model were good, and that hostile attribution of intent partially mediated the relationship between maternal(not paternal) psychological control and relational aggression of male middle school students. Second, it showed that peer normative belief about aggression moderated the relationship between hostile attribution of intent and relational aggression of male middle school students in the pass model. We discussed the reasons of some results which were not consistent with previous researches and the implications for further study.

P.13 Tanja Černe. *Comparative Case Study of Competence Learning for both Students with Learning Difficulties and Normal.* (P.13) By using of interviews, official documents, reports and observation we investigated cognitive learning strategies, motivation factors and self-

regulation from students, teachers and parents perspective. We were interested in current educational assistance in the context of life. Following the recommendations of the European Parliament on key competences for lifelong learning, we were interested in competence learning to learn. Adolescents with dyslexia differ from youth without them, by way of maintaining attention, perception, memory, thinking and language. They often don't have an automatic reading technique and reading comprehension, so they mix or misunderstand the data. They have trouble organizing their time, learning, material and accessories. Adolescents with AD/HD have insufficient ability to self-control, deficits in working memory, immature self-regulation of emotion, motivation and excitement, which significantly has an impact on competence learning to learn. Adolescents-slow learners have weak learning motivation, difficulty understanding or generalizing more abstract learning content, use less complex learning strategies, often won on learned habits, or they study only in passive way. The findings of the section of the current state of competence learning to learn with the three youngsters with learning difficulties and one without them through the case study, form the basis for future research and creation of innovative approaches to increase motivation, creativity and also impact personal satisfaction and well-being.

P.14 Vesna Ivasović; Mihaela Alfirev. *Synesthesia and Creativity – Close Friends?* (P.14)

Synesthesia is a neurological condition in which the presentation of a particular sensory stimulus elicits a perception in a second sensory modality without direct triggering of this second modality. There are over 60 types of synesthesia. About 2 percent of general population has some form of synesthesia. Synesthetes rarely talk about their condition, believing either that everyone else senses the world exactly as they do, or that no one else does. Researchers have noted that synesthesia is found in many famous creative individuals: Kandinsky, Hockney, Nabokov, Messian, Scriabin, Dylan. PET scans have shown that different areas of the brain are active for synesthetes experiencing a cross-modal association than for non-synesthetes engaged in the same task. This neural connectivity is a possible common denominator to synesthesia and creativity. Most studies that have found synesthetes to be more creative than others did not use objective measures to test the authenticity of synesthesia. We used synesthesia battery and interview to assess synesthesia in three females: professional sculptor, textile design student, and radiologist amateur abstract painter. They completed the synesthesia interview, and shared their career stories. Implications for assessment, creativity development, and career guidance at schools will be discussed.

Poster Specification

- Poster presentations are to be approximately 1.2 m x 1.2 m (42” x 42”) in size.
- Abstract titles, names, and affiliations should appear on the top of the poster.
- A simple sans serif-face font (e.g., Times) should be used.
- Lettering for the title should be at least one inch tall. The authors’ names and affiliations may be somewhat smaller.
- Authors are urged to include photographs to assist in author identification.

Content

- Do not prepare a poster as if it were a manuscript. Primarily, use tables and figures and limit verbiage. Details of the work can be provided in discussions with interested parties.
- Lettering for text and illustrations should range in size between 6 mm and 12 mm.

