

PROGRAM OVERVIEW

Sunday, July 10th

13:30 – 15:00	Editorial Board North Star Room – 7th Fl.
15:00 – 17:00	Executive Committee North Star Room – 7th Fl.
17:30 – 18.30	Reception Newbury Room – 10H

Monday, July, 11th

8:30 – 9:00	Robert Sternberg: Welcome to IACEP St. George C – 3rd Fl. (125)		
9:00 – 10:00	Keynote Maryanne Wolf St. George C – 3rd Fl. (125)		
10:00 – 10:30	Coffee/Tea		
10:30 – 11:30	Keynote Kathleen McCartney St. George C – 3rd Fl. (125)		
11:30 – 17:00	Posters (stay up in this room until 17:00) St. George A&B (70)		Posters
12:00 – 13:30	Lunch Huntington Room		Posters
13:30 – 15:00	Symposium 1 St. George C – 3rd Fl. (125)	Papers 1 St. George D – 3 rd Fl. (35)	Posters
15:00 – 15:30	Coffee/Tea		
15:30 – 17:00/17:30	Symposium 2 St. George C – 3rd Fl. (125)	Papers 2 St. George D – 3 rd Fl. (35)	Posters
18:00	TROLLEY TOUR		

Tuesday, July 12th

9:00 – 10:30	Symposium 3 St. George A&B (70)		
10:30 – 11:30	Coffee/tea		
11:00 – 12:00	Keynote Julian Elliott St. George A&B (70)		
12:00 – 13:30	Lunch Huntington Room		
13:30 – 15:00	Symposium 4 St. George A&B (70)	Papers 3 St. George C – 3 rd Fl. (35)	Papers 4 St. George D – 3 rd Fl. (35)
15:00 – 15:30	Coffee/tea		
15:30 – 17:00	Symposium 5 St. George A&B (70)	Papers 5 St. George C – 3 rd Fl. (35)	Papers 6 St. George D – 3 rd Fl. (35)

Wednesday, July 13th

9:00 – 10:30	Symposium 6 St. George A&B (70)	Papers 7 St. George C – 3 rd Fl. (35)	
10:30 – 11:30	Coffee/tea		
11:00 – 12:00	Keynote Carl Haywood St. George A&B (70)		
12:00 – 13:30	Lunch Gloucester/Newbury		
13:30 – 15:00	Symposium 7 St. George A&B (70)	Papers 8 St. George C – 3 rd Fl. (35)	Papers 9 St. George D – 3 rd Fl. (35)
15:00 – 15:30	Coffee/tea		
15:30 – 17:00	Symposium 8 St. George A&B (70)	Papers 10 St. George C – 3 rd Fl. (35)	Papers 11 St. George D – 3 rd Fl. (35)
19:00 – 22:00	Conference Dinner Gloucester/Newbury		

Thursday, July 14th

9:00 – 10:30	Papers 12 Essex North – 3 rd Fl.
10:30 – 11:30	Coffee/tea
11:00 – 12:00	Keynote John Gabrieli Essex North – 3 rd Fl.
12:00	Goodbye

Presidential address

July 13th, 21:00, Gloucester/Newbury

Robert J. Sternberg

Cognitive Education: The Great, the Good, the Bad, the Ugly, and the Downright Despicable

Keynotes

July 11th, 9:00 – 10:00, St. George C – 3rd Fl.

Maryanne Wolf

The Evolving Reading Brain in a Digital Age: Implications for Cognitive Education and Development

July 11th, 10:30 – 11:30, St. George C – 3rd Fl.

Kathleen McCartney

Child Care, Child Development, Cognitive Outcomes

July 12th, 11:00 – 12:00, St. George A&B – 3rd Fl.

Julian Elliott

Lessons From Abroad: Understandings and Misunderstandings About Effective Educational Practices

July 13th, 11:00 – 12:00, St. George A&B – 3rd Fl.

Carl Haywood

History of dynamic assessment

July 14th, 11:00 – 12:00, St. George C – 3rd Fl.

John Gabrieli

Neural correlates of education

Symposiums

Symposium 1: Monday, July 11th, 13:30 – 15:00, St. George C – 3rd Fl.

Cognitive flexibility: neural and educational aspects

Esther Adi-Japha & David Tzuriel

Symposium 2: Monday, July 11th, 13:30 – 15:00, St. George C – 3rd Fl.

Is the medium still the message? The effects of new media on learning and thinking

David Passig

Symposium 3: Tuesday, July 12th, 9:00 – 10:30, St. George A&B – 3rd Fl.

Analogical reasoning: Psycho-neurological, cognitive, and intervention aspects

David Tzuriel & Hefzibah Lifshitz

Symposium 4: Tuesday, July 12th, 13:30 – 15:00, St. George A&B – 3rd Fl.

Clinical and research applications of dynamic assessment

Karl H. Wiedl & Wilma C.M. Resing

Symposium 5: Tuesday, July 12th, 15:30 – 17:00, St. George A&B – 3rd Fl.

Cognitive and Metacognitive Computer-based Learning Environments for advancing students at risk

Adina Shamir & Shlomo Kaniel

Symposium 6: Wednesday, July 13th, 9:00 – 10:30, St. George A&B – 3rd Fl.

Construct validity in dynamic assessment

Marco G.P. Hessels & Wilma C.M. Resing

Symposium 7: Wednesday, July 13th, 13:30 – 15:00, St. George A&B – 3rd Fl.

Mediated Learning Experience (MLE) Strategies: Intervention and change

David Tzuriel

Symposium 8: Wednesday, July 13th, 15:30 – 17:00, St. George A&B – 3rd Fl.

Dynamic assessment and educational practice

Marco G.P. Hessels & Wilma C.M. Resing

Paper sessions

Paper session 1: Monday, July 11th, 13:30 – 15:00, St. George D – 3rd Fl.

Chair: Marco Hessels

Dynamic assessment of students' mathematical abilities in lower secondary education

Michael Kleine

Promoting structure-based problem recognition in statistics novices

Faria Sana & Joseph A. Kim

Applying cognition in mathematical problem solving

Kwee Gek Chua

Using model approach to solve word problems: What cognitive processes do students use?

Yeo Kai Kow Joseph

Paper session 2: Monday, July 11th, 13:30 – 15:00, St. George D – 3rd Fl.

Chair: Karl Wiedl

Successful intelligence of pupils with dyslexia and non dyslexic peers in Greece

K. Antonopoulou, D. Zbainos, & E. Zenakou

Literacy for specialists and advanced students: Filling in the gaps electronically in a classical text analysis – promoting reasonable judgment and a trans-historical language possessing cultural depth

Hillel Weiss

Seeing, connecting, writing: A collaboration between the Yale Center for British Art and the Yale Child Study Center

Mei Tan, Baptiste Barbot, Judy Randi, Cyra Levenson, Linda Friedlaender & Elena Grigorenko

Current challenges on closing the gap between Reading and Comprehension: A plea for literacy

J.P. Das

Paper session 3: Tuesday, July 12th, 13:30 – 15:00, St. George C – 3rd Fl.

Chair: Carol Robinson

Preliminary Results from a Qualitative Study of Teachers: Using an Education, Mind, and Brain Framework for Enhancing Instruction in K-12 Classrooms

Donna Wilson

The Cognitive Enrichment Advantage (CEA) Higher Education Student Retention Project

Katherine Greenberg, Jonathan Taylor & Mijoo Lee

The thinking academy: a proposal for school reform

David S. Martin

A way to implement the neo-vygotskian theoretical learning approach in american schools

Yuriy V. Karpov

Paper session 4: Tuesday, July 12th, 13:30 – 15:00, St. George D – 3rd Fl.

Chair: Adina Shamir

Mining the Creative Processes of an Educated Mind: Verifying cycles of feedback in the solving of novel problems

Carol Aldous

When transfer met creativity: Increasing transfer and creativity by controlling the styles of processing

Shlomo Kaniel

Indications of aurora in relation to other measures

Mei Tan, Sergey Kornilov, Julian Elliott & Elena Grigorenko

Optimising cognitive capacity through mediation to educate the mind of Grade R-learners: new roles for Grade R teachers

Stef Esterhuizen

Paper session 5: Tuesday, July 12th, 15:30 – 17:00, St. George C – 3rd Fl.

Chair: Alice Seng

The power of cognitive ability, prior learning and career interest in the prediction of academic achievement of first-year students

Ute Hendrich

Wellness and academic achievement: Implications for minding the education by educating the mind of university students

Ludolph Botha, Charl Cilliers & Alten du Plessis

Strategies to improve cognitive skills in undergraduate students: results of a mediated intervention

Natalia Salas Guzmán, Alejandra Morales Aldunate, Rita Arévalo Berríos & Cecilia Assael Budnik

Epistemic beliefs and academic performance: Are better students always more mature?

Mohamed Taha Mohamed & Magda El-Habbal

Paper session 6: Tuesday, July 12th, 15:30 – 17:00, St. George D – 3rd Fl.

Chair: David Preiss

Promoting learning in a special education class: the effect of a metacognitive intervention applied by the learning support assistant

Christine Hessels-Schlatter, Mélanie Bosson, & Sophie Brandon

Thinking about theory in practice: The development of the Learning Theories Profile as a tool for metacognitive reflection

Mandia Mentis

The extent to which teachers create classroom climates that nurture the development of critical thinking skills

Viné Petzer

Shining lights on Learning Difficulties: Theory motivated remedial programmes

J.P. Das

Paper session 7: Wednesday, July 13th, 9:00 – 10:30, St. George C – 3rd Fl.

Chair: Carol Robinson

Relations between parenting quality and cognitive performance of children experiencing varying amounts of childcare

Esther Adi-Japha & Pnina S. Klein

Social development and play behavior of children with special needs, inclusion in regular kindergarten

Varda Sobelman-Rosenthal & Pnina S. Klein

Learning potential and cognitive modifiability

Alex Kozulin & Lea Yosef

Paper session 8: Wednesday, July 13th, 13:30 – 15:00, St. George C – 3rd Fl.

Chair: Wilma Resing

Dynamic assessment and informed intervention for children with language impairments

Natalie Hasson, Nicola Botting, & Barbara Dodd

Using the Children's Inferential Thinking Modifiability Test (CITM) for the identification of minority gifted and talented learners

Linda Rittner

Computerized dynamic assessment of foreign language learning

Matthew Poehner

Detecting zones of proximal development in old adults

Kolbein Lyng

Paper session 9: Wednesday, July 13th, 13:30 – 15:00, St. George D – 3rd Fl.

Chair: Christine Hessels-Schlatter

The impact of cooperative context on preschoolers' flexibility

Annesha Shonata, Li Qu, Lin Shuhui Audrey, Low Pei Jun & Ng Hui Qun

Thinking in, on and across practice - A metacognitive design for interprofessional learning

Mandia Mentis

The critical thinking abilities of prospective teachers: is there a bright side?

Mary Grosser

Pre-service teachers' conceptions of effective teaching and learning

Maria Oreshkina & Scott Reilly

Paper session 10: Wednesday, July 13th, 15:30 – 17:00, St. George C – 3rd Fl.

Chair: David Tzuriel

Diagnosis study of the level of teaching thinking skills

Magdi Abdel Kareem Habib

Critical thinking and argumentative writing: a pilot study

David Preiss

A curriculum based assessment of successful intelligence in Greece

Dimtrios Zbainos

Gauging the impact of mediation and diagnostics in developmental assessment

S. Alagumalai, Joseph Yeo, S. Sivakumar & S.H Seng

Paper session 11: Wednesday, July 13th, 15:30 – 17:00, St. George D – 3rd Fl.

Chair: Natalia Salas

Culture and cognition. Research on planning in the population of Roma children.

Iveta Kovalcikova, Ivan Ropovik & Marta Filickova

Efficacy of phonological awareness intervention among multi-linguistic children

Priya Kayastha Anand, Uma Hirisave, & N. Shivashankar

Deep Intuition: The Integrative Biology of Intuition in Education

Neil Greenberg

A training of learning skills for adolescents with ADHD (LeJA) – Empirically based conceptualization and first findings of efficacy

Friedrich Linderkamp

Paper session 12: Thursday, July 14th, 9:00 – 11:00, St. George C – 3rd Fl.

Chair: Adina Shamir

Distributed questioning improves performance in a college psychology lecture course

Arnold Glass

Does multitasking impair studying? Depends on timing

Renita Y. Ip, Harold Pashler, & Sean H.K. Kang

Learning disabilities: Deficits in implicit and explicit learning in a serial reaction time task?

Michael Grosche & Jürgen Wilbert

The unconscious processes of memory: learning

Seffetullah Kuldaş & Zainuddin Abu Bakar

Posters

Monday, July 11th, 11:30 – 17:00, St. George A&B – 3rd Fl.

Training the helpers: understanding the inferiority of children with underachievement
Wiranpat Kittitharaphan & Pakinai Soontornvipart

Riding on the fourth wave of test interpretation and assessment: augmentation of psychoeducational assessment
Pearly Teo & Bonnie Miller

Mind the education in the out-of-class context: Integrated learning communities to educate the minds of university students
Charl Cilliers, Ludolph Botha & Pieter Kloppers

Mitigating learning resistance via the Cognitive Enrichment Advantage (CEA)
Jonathan Taylor & Katherine Greenberg

Verbs Are Remembered Better Than Nouns When Inferentially Learned
Jason Ludington

Cognitive approach towards the development of child's language ability
Ludmila Liptakova & Martin Klimovic

Learning 'line of sight': Redesigning curricula and instructions
S. Alagumalai, & S. Sivakumar

Instructional patterns and mathematical problems in middle-school level in Chile
Llery Ponce

Reading Disability and Creativity in College Students
Catalina Mourgues

Spanish adaptation and validation of the Adult Reading History Questionnaire Revised (ARHQR)
Catalina Mourgues

Abstracts

Presidential address by Robert J. Sternberg

July 13th, 21:00, Gloucester/Newbury

Cognitive Education: The Great, the Good, the Bad, the Ugly, and the Downright Despicable

Why has dynamic assessment (DA) still not “caught on,” despite the promising data in support of it? In this talk, I will discuss some of the obstacles to the wide-scale adoption of cognitive assessment. They include:

1. Complication of conceptualization. Many people do not understand or are unaware of the psychological theories underlying DA.
2. Difficulty of implementation. It is viewed as relatively difficult to implement.
3. Complexity of scoring. DA is more complex to score.
4. Lack of quantitative indices. Some DA does not yield quantitative indices.
5. Obscurity of data. Many test-users do not read the journals in which most DA material is published.
6. Assumption of fixed abilities. Many users assume abilities are fixed and have a stake in this belief.
7. Narrowness of belief structures. Many people believe that there are few abilities worth measuring beyond general intelligence.
8. Hesitancy to change. It is very hard to change any entrenched system.
9. Need for quick assessment. Oftentimes assessors need quick fixes and DA is relatively slower than static testing.
10. Follow the leader. People do what they see others doing—static assessment.

I will discuss what can be done to move things forward!

Keynotes

July 11th, 9:00 – 10:00, St. George C – 3rd Fl.

Maryanne Wolf

The Evolving Reading Brain in a Digital Age: Implications for Cognitive Education and Development

Human beings were never born to read; they learned to do so thanks to unique aspects of the brain design. This presentation will describe a brief history of how the brain learned to read the first writing systems; how the young child's brain learns to read afresh across development; and why some children face reading challenges due to differences in the brain's organization. The implications of this evolving view for instruction and for intervention are emphasized, as well as the inevitable changes required of the reading brain in the present digital epoch.

July 11th, 10:30 – 11:30, St. George C – 3rd Fl.

Kathleen McCartney

Child Care, Child Development, Cognitive Outcomes

I will summarize the effects of early child care on children's functioning from 4½ years through the end of 6th grade using data from the National Institute of Child Health and Development Study of Early Child Care and Youth Development ($n = 1,364$). The main results are: parenting was a stronger and more consistent predictor of children's development than early child-care experience; higher quality care predicted higher vocabulary scores through the 5th grade; more exposure to center care predicted more teacher-reported externalizing problems; and higher quality early child care has larger effects in achievement for children from families with fewer economic resources. These findings have important implications for policy and practice.

July 12th, 11:00 – 12:00, St. George A&B – 3rd Fl.

Julian Elliott

Lessons From Abroad: Understandings and Misunderstandings About Effective Educational Practices

As we gain increasing access to differing cultures around the world it is hardly surprising that we will seek to learn from one another. This is particularly likely to be the case in those domains where other societies appear to be more successful than our own. My presentation will open by discussing the eagerness of policymakers in the U.K. (and U.S.) to cherry-pick educational practices of high performing countries, typically those in Asia and Eastern Europe. Here, their focus has largely been upon pedagogy although structural features are also sometimes highlighted. The presentation will then draw upon developments in Russia over the past two decades to illustrate that more meaningful reasons for educational success concern attitudes, values and behaviour, not only those of students and teachers, but also those prevalent in the wider society. In the light of the more recent Russian experience, I will highlight a number of risks to education systems in non-Western societies that are posed by rapid social change underpinned by globalising influences. I will also draw upon the reasons why the introduction of Western pedagogies to other cultures has often only shown marginal, short-term benefits. The presentation will conclude by discussing some of the problems that globalizing influences are presenting to students, parents, teachers and policymakers in most societies.

July 13th, 11:00 – 12:00, St. George A&B – 3rd Fl.

Carl Haywood

History of dynamic assessment

The practice of dynamic assessment rest on the development of a small number of ideas and theoretical constructs. Taking a zeitgeist approach rather than a person approach, the presenter outlines the history of those basic ideas and constructs. The concepts that underlie dynamic assessment and that have led necessarily to its development include the notions of educability, learning potential, cognitive modifiability, zone of proximal development, and mediated intervention. There are other concepts that have contributed to the techniques and practice of dynamic assessment, but these five are sine qua non. Each of them is defined and discussed against the backdrop of contrary movements in psychometrics and intellectual development.

July 14th, 11:00 – 12:00, St. George C – 3rd Fl.

John Gabrieli

Neural correlates of education

A synergy between cognitive psychology and cognitive neuroscience ought to serve the understanding and enhancement of policies and practices in education. Until recently, there was little scientific knowledge about the relation between the growth of brain functions in children, measured by neuroimaging, and the maturation of long-term memory abilities that underlie learning. I will review findings about the functional growth of learning systems from middle childhood through young adulthood. These studies reveal that different brain regions known to be important for learning in adults appear to mature on different maturational trajectories. For both initial learning (successful encoding) and subsequent remembering (successful retrieval), medial temporal lobe regions appear to mature earlier than prefrontal and parietal neocortical regions. Further, neuroimaging can provide novel insights into predicting which children who struggle to read will make greater or lesser progress in reading skills over the coming years.

Symposiums

Symposium 1: Monday, July 11th, 13:30 – 15:00, St. George C – 3rd Fl.

Cognitive flexibility: neural and educational aspects

Esther Adi-Japha & David Tzuriel

Bar-Ilan University, Israel

As children develop, they learn to adjust to changing demands and priorities, to consider something from a fresh or different perspective, to switch between perspectives, and to 'think outside the box'. These behaviors are referred to as 'cognitive flexibility' and build upon inhibitory control mechanisms and working memory, which are together regarded as core executive skills. Cognitive skills develop thorough the lifespan, and cognitive flexibility has been associated with academic skills as with psychological resilience i.e., the individual's capacity to adapt under adverse and stressful environmental conditions, and self-regulation. There is a growing body of evidence suggesting that with training these behaviors can be enhanced. Furthermore, recent studies using advanced brain imaging technologies reported changes in brain activation as a result of a simple training: re-exposure to the same linguistic stimuli. By using fMRI we will report a neural correlate of flexibility, neural suppression and enhancement, as participants were re-exposed to conventional and novel semantic expressions, respectively. In the current symposia we will discuss four examples of flexible behaviors, as they appear in: (a) Four- and 5-year old bilingual children's drawings; (b) Adults with intellectual disabilities; (c) Brain changes following exposure to new metaphoric language , and (d) Intervention for enhancement of planning and self-regulation in math problems among third grade students with ADHD.

Keywords

Cognitive flexibility, Academic achievements, Imaging

Cognitive flexibility in drawings of bilingual children

Esther Adi-Japha, Jennie Berberich-Artzi, & Afaf Libnawi

Bar-Ilan University, Israel

Karmiloff-Smith's task of drawing a nonexistent object is considered to be a measure of cognitive flexibility (Karmiloff-Smith, 1990). The notion of earlier emergence of cognitive flexibility in bilingual children motivated us to request 4- and 5-year-old English-Hebrew and Arabic-Hebrew bilingual children and their monolingual peers to draw a flower and a house that do not exist (N=80). Bilinguals exhibited a significantly higher rate of inter-representational flexibility in their drawings (e.g., 'a giraffe flower', 'a chair-house', found in 28/54 drawings), while the level of complex intra-representational change was similar across groups. Inter-representational drawings were previously reported only for children older than 7 years. The specific mechanisms by which bilinguals' language experience may lead to inter-representational flexibility are discussed.

The relation of cognitive and emotional-motivational factors to cognitive modifiability among students with low school achievements

Gabriela Kashy¹ & David Tzurie²

¹Ashkelon Academic College; ²Bar-Ilan University, Israel

The main objective of this study was to investigate the effects of emotional-motivational factors on cognitive modifiability among low-achieving students. Emotional-motivational factors (e.g., self-efficacy, academic emotions, psychological availability) have a critical influence on learning process, learning motivation, and cognitive functioning. Effective mediation during dynamic assessment (DA) creates emotional change that contributes to cognitive modifiability. A sample of 151 students in grades 4-6 with a history of low achievements were administered DA measures of analogies and numerical progression and emotional-motivational measures. Regression analyses and structural equation analyses showed that cognitive measures (e.g., self-ability beliefs, emotional regulation) influence emotions involved in the learning process. These emotions influence psychological availability and learning motivation which in turn influence cognitive modifiability. Mediation within DA was effective in creating positive emotional change which contributed to cognitive modifiability. It may be concluded that students demonstrating emotional modifiability could also be cognitively modifiable.

Keywords

Dynamic assessment, cognitive-emotional-motivational factors, cognitive modifiability, emotional modifiability, low-achievements

An investigation of the neural correlates of forming novel semantic relations

Nira Masha, & Karuna Subramaniam

Bar-Ilan University, Israel & University of California, United States

The neural mechanisms underlying the processes of understanding novel and conventional metaphoric expressions remain unclear largely because the brain regions that support the formation of novel semantic relations are still unknown. In the present study, we aim to show that understanding novel and conventional metaphoric expressions relies on dissociable distinct brain mechanisms. In an fMRI study, 11 subjects read novel and conventional metaphoric expressions and decided whether the expression is meaningful or meaningless. Prior to the study, participants were presented with half of the conventional metaphors and half of the novel metaphors. The main finding emerged from the current study is that repeated exposure to novel metaphoric expressions resulted in enhanced brain activation (i.e., repetition enhancement) in bilateral inferior parietal lobe. This finding suggests that parietal areas are involved in the formation novel semantic relations. This study is important to develop theoretical accounts of the formation of novel conceptual knowledge.

Intervention for enhancement of planning and self-regulation in math problems among third grade students with ADHD.

Gilat Trabelsi & David Tzuriel

Hakibbutzim College, Tel-Aviv, Israel & Bar-Ilan University, Israel

The aim of this study was to examine the effects of the Seria-Think Program (STP) on planning, self-regulation, and math achievements among grade 3 children with ADHD. The STP is based on Feuerstein's theory of structural cognitive modifiability (SCM) and mediated learning experience (MLE). Forty eight grade 3 students with ADHD were randomly assigned into experimental (n=26) and control (n=22) groups. Students in the experimental group received three lessons, 45 minutes each of the STP, whereas the control group practiced math for three lessons. All children were administered tests of planning, self-regulation, and math before the intervention. The same tests were administered using a dynamic assessment (DA) approach after the intervention. The DA results indicate significant improvements in planning, self-regulation, and math achievements in the experimental group as compared with the control group children who showed no improvement.

Symposium 2: Monday, July 11th, 13:30 – 15:00, St. George C – 3rd Fl.

Is the medium still the message? The effects of new media on learning and thinking

David Passig, Bar-Ilan University, Israel

The effects of new media on learning and thinking

David Passig

Bar-Ilan University, Israel

The effects of different media on learning and thinking skills has been debated for several decades now. For instance, reverting to Marshall McLuhan's position suggesting that "the medium is the message" is an important issue that has been and continues to be debated whether it is applicable to teaching and thinking. The landmark meta-analyses conducted by Kulik, Kulik, and Bangert-Downs on instructional modalities are most important in attempting to support McLuhan's premise. However, Richard Clarke refuted this approach and posited that in instruction, the content and a myriad number of other instructional factors were just as influential in learning effectiveness as the delivery mechanisms. In the 1990s, Kosma continued this debate and supported the medium is the message approach espoused by Kulik et al. It is possible that newer technologies could shed new light on this old debate. This symposium aims to revisit the role of new media in thinking and learning.

Keywords

Thinking, learning, technology, Virtual Reality

The effect of practicing with VR technology on the ability to solve conceptual and perceptual analogies among kindergarten children

Timor Miler & David Passig

Bar-Ilan University, Israel

The CCPAM test is a measure of cognitive skills. Studies indicate that children exhibit analogical reasoning abilities already at a young age. This is contingent upon the manner by which the problem is presented and the degree to which they are familiar with the analogy. This study was conducted among 56 children, aged 4-7. We compared between two methods of mediation pertaining to analogical reasoning. The first method consisted of using pictures while the other employed virtual reality (VR). The main hypothesis was that participants who attempt to solve analogies using VR would more improve their achievements, both in the domain of conceptual analogies and perceptual ones, than participants who do so using pictures. Another hypothesis concerned the ability to retain the strategy of solution. The study's results demonstrated that participants who solved analogies using VR improved their achievements significantly in comparison to participants who used pictures.

Keywords

Conceptual and Perceptual Analogies, Cognitive Modifiability, Virtual Reality

Dynamic assessment in computerized 3D virtual reality environment: effects on cognitive modifiability

Ganit Eshel-Kedmi, David Tzuriel and David Passig

Bar-Ilan University, Israel

The objectives of this study were to examine: (a) the effect of dynamic assessment (DA) in a 3D immersive virtual reality (VR) environment as compared with computerized 2D and non-computerized (NC) situations on cognitive modifiability, and (b) the transfer effects of these conditions on more difficult problems administered two weeks later. A sample of 94 children aged 6:6-8:6 years were randomly assigned into three experimental groups of DA conditions: 3D, 2D, and NC, and one control group (C). All groups received the pre- and post-teaching Analogies subtest of the Cognitive Modifiability Battery (CMB). The experimental groups received a teaching phase in conditions similar to the pre and post-teaching phases. The findings showed that pre- and post-teaching analogical performance improved similarly in all experimental groups as compared with no improvement in the control group. However, the 3D group showed significantly higher performance on transfer problems than the 2D and NC groups.

Keywords

Dynamic Assessment, Cognitive Modifiability, Virtual Reality

Metacognitive discourse and cognitive load as indicated with two types of prompts in mathematical multimedia environment

Sheli Friedman & Bracha Kramarski

Bar-Ilan University, Israel

This study examined how the learner's control over choosing metacognitive prompts in a mathematical multimedia environment affected their learning outcomes. We compared the effects of solicited vs. unsolicited metacognitive prompts (based on the IMPROVE-method self-questioning) in a multimedia environment on learners' mathematical problem solving, discourse, use of computer help resources and cognitive load. The participants in the study consisted of 60 eighth-grade students who were divided into three groups: Group A received unsolicited metacognitive prompts and explanations. Group B received solicited metacognitive prompts and explanations and Group C - received no metacognitive prompts. The unsolicited-prompts group had the highest scores in the word problems and transfer tasks of the three groups. They also maintained metacognitive on a higher level than the other two groups. Additionally, in the complex topics, which demand high levels of abstract thought, the solicited-prompts group felt they were under heavier cognitive load than the other two groups.

Keywords

Metacognition, Mathematical Problem Solving, Multimedia, cognitive load

Symposium 3: Tuesday, July 12th, 9:00 – 10:30, St. George A&B – 3rd Fl.

Analogical reasoning: Psycho-neurological, cognitive, and intervention aspects

David Tzuriel & Hefzibah Lifshitz

Bar-Ilan University, Israel

Analogical reasoning (AR) is conceived as a major cognitive operation, which affect a wide range of cognitive processes and as a principal operation for problem solving activities, learning outcomes, and academic achievements. Recent studies showed that young children can perform abstract analogical problems, provided they receive requisite knowledge or adequate mediation and training. The objectives of this symposium is to present some psycho-neurological correlates of AR using eye tracking technology, demonstrate the effects of intervention strategies on enhancement AR and transfer effects to academic achievements, suggest a new model of assessment of AR based on Sternberg's theory of analogy components, and demonstrate how AR contribute to prediction of metaphoric thinking, especially postteaching AR scores. In all studies a major DA instrument was used the Conceptual and Perceptual Analogical Modifiability (CCPAM) test. The test is composed of two types of analogies perceptual and conceptual, each is administered by closed and construction analogies.

Keywords:

Analogical Reasoning, Dynamic Assessment, Cognitive Education

New model of mapping difficulties in solving analogical problems among adolescents and adults with intellectual disability

Lifshitz, H., Weiss, I., Tzuriel, D., & Tzemach, M.

Bar-Ilan University, Israel

The study's goal was to map the difficulties and cognitive processes among adolescents (aged 13-21, n = 30) and adults (aged 25-66, n = 30) with mild/moderate intellectual disability (ID) when solving analogical problems. Participants were administered the Conceptual and Perceptual Analogical Modifiability test. A three-fold tailored dynamic assessment (DA) model for mapping difficulties was constructed based on analogical components model (encoding, inference, mapping, application): (a) mapping pre-teaching difficulties; (b) assessing the level of mediation; and (c) analyzing post-teaching responses. Repeated measures MANOVA of Time x Age x ID Level indicated significant pre to post-teaching improvement across all age groups and ID levels. Adults gained more from mediation than adolescents. Participants receiving “tailored” mediation gained more from mediation than participants receiving a standard DA procedure. The difficulties lie in inference and mapping of perceptual analogies. Stepwise regression analysis indicated that inference, ID level, and age predicted modifiability in the application stage.

Keywords

Analogical reasoning, dynamic assessment, adolescents, intellectual disability

Analogies solving by individuals with and without intellectual disability: Different cognitive patterns as indicated by eye movements

Vakil, E., Lifshitz, H., Tzuriel, D., Weiss, I., & Arzuonan, Y.

Bar-Ilan University, Israel

Eighteen adults with intellectual disability (ID) and 20 children with typical development (TD) matched for cognitive level, participated in this study. Participants solved perceptual and conceptual analogies (from the Conceptual and Perceptual Analogical Modifiability Test—CPAM) while having their eye movements monitored. As predicted, the overall percent of correct answers was significantly higher for the TD group compared to that of the ID group. Comparison of the eye movement pattern of each group while solving the analogies revealed that in addition to the quantitative difference between the groups, there is a qualitative difference in the process of solving the analogies. The difference in the scanning pattern between the TD and the ID groups is interpreted as a reflection of two different types of strategies, Constructive matching and Response elimination, respectively.

Keywords

Analogies, intellectual disability, eye movements

The influence of intervention for analogical reasoning on metaphoric thinking of kindergarten children

Yosef, L. & Tzuriel, D.

Bar-Ilan University, Israel

Analogical and metaphoric thinking are two interrelated cognitive processes necessary for hypothesis testing and problem solving. The main goal of this research was to examine whether intervention in analogies based on mediated learning experience (MLE) improves metaphorical thinking. A sample of 120 kindergarten children were randomly assigned to experimental ($n = 60$) and control ($n = 60$) groups. The experimental groups received intervention within a dynamic assessment (DA) procedure in two measures: Children's Conceptual and Perceptual Analogical Modifiability (CCPAM), Children's Analogical Thinking Modifiability (CATM). A third measure the Children's Metaphorical Thinking Modifiability (CMTM) Test was administered in a graduated prompt procedure after the first two DA measures. The control group was exposed to analogies of the CCPAM without mediation. Both groups were administered in addition a verbal ability test tapping different aspects of spoken language. The findings showed that (a) the experimental group significantly improved their analogical and metaphorical thinking skills whereas the control group showed no improvement, (b) metaphorical thinking was significantly predicted by verbal ability analogical thinking, (c) metaphorical thinking was predicted higher by post-teaching than by pre-teaching analogy performance, (d) metaphorical thinking improved gradually from first to last problem of the CMTM test, (e) metaphors based on motion components were more difficult than metaphors based of functional or shape components. The findings are discussed in relation to previous research and theory of metaphorical thinking.

Keywords

Analogical reasoning, metaphoric thinking, verbal ability, dynamic assessment, kindergarten children

Improvement of analogical reasoning and academic achievements by the Analogical Reasoning Program (ARP)

Tzuriel, D. & George, T.

Bar-Ilan University, Israel

The ARP is based on the Analogies subscale of the Cognitive Modifiability Battery (CMB): Assessment and Intervention. A sample of 53 children in Grade 2 were randomly assigned to an experimental ($N = 27$) and control ($N = 26$) groups. The experimental group received the Analogical Reasoning Program (ARP) whereas the control group received a substitute program. Both groups received dynamic assessment and achievement tests representing near-, medium- and far-transfer measures. All participants were administered the Children's Analogical Cognitive Modifiability (CATM) and achievement tests in math and reading comprehension before and after the intervention and the Children's Conceptual and Perceptual Analogical Modifiability (CCPAM) test at the end of the intervention. The findings showed that the experimental group achieved significantly higher scores on the CATM, CCPAM and math tests at the end of the program and higher pre- to post-intervention improvement on the CATM than the control group.

Keywords

Analogical reasoning, cognitive intervention program, academic achievements

Symposium 4: Tuesday, July 12th, 13:30 – 15:00, St. George A&B – 3rd Fl.

Clinical and research applications of dynamic assessment

Karl H. Wiedl & Wilma C.M. Resing

University of Osnabrück, Germany & Leiden University, The Netherlands

In this symposium we present clinical and research applications of dynamic testing procedures in various clinical groups: 7- to 10-year-old school children with learning disabilities, psychiatric patients with schizophrenia and adolescents with mild intellectual disabilities. The results show that dynamic testing may make significant contributions to both clinical work and fundamental scientific research.

Dynamic testing in children with developmental disabilities: Use of the AnimaLogic

Wilma C.M. Resing, Claire E. Stevenson, & Martine Jonkman

Leiden University, The Netherlands

The study investigated dynamic testing in 7-10 year-old children with developmental disabilities (N=30). Aim was to evaluate dynamic testing based on graduated-prompts-training in a clinical setting. Questions (1)whether it would be possible to administer a 4-session dynamic test to children with complex problems; (2)whether children would show different change patterns when presented with figural analogies within a DT-context compared to children without dynamic training, and (3)to identify groups of children differing in number and type of instructions needed during training. We also explored the relation between static IQ-measures and DT-outcomes. Initial results of this study will be presented at the conference.

Keywords

Dynamic testing; developmental disabilities; instruction

Dynamic Testing in schizophrenia: distinctive error patterns of learners and non learners in the Wisconsin Card Sorting Test (WCST)

Manuel Waldorf, Karl H. Wiedl & Henning Schöttke

University of Osnabrück, Germany

The validity of a learner typology, differentiating “learners”, “non learners”, and “high scorers”, was demonstrated in previous studies using the dynamic version of the WCST to assess executive functioning in schizophrenia. The presents study aims at characterizing learners and non learners according to their error profiles. Cluster analyses from two independent samples of patients with diagnoses of schizophrenia (n=313 and 121) revealed four groups: subjects with perseverative errors, with non perseverative errors, with failure to maintain set, and with low error rates throughout. Cross classification with learner types yielded very high associations. Accordingly, learners present initial impairments in certain aspects of problem solving (non perseverative errors) which are easily remediable; non learners show deficits in executive control (perseverative errors) which probably need intensive intervention for remediation.

Keywords:

Dynamic testing, schizophrenia, error patterns

Matching on IQ or on learning capacity in intellectual disability research leads to different conclusions: An example in the domain of working memory

Marco Hessels

University of Geneva, Switzerland

Research into intellectual and developmental disabilities is generally based on the methodology of comparing the performances of matched groups of participants: the performances on specific cognitive tasks of a group of individuals with intellectual disabilities (ID) are compared to those of children with the same mental age (MA). An equivalent mental age, as determined with an intelligence test, implies that the participants in both groups show the same level of cognitive functioning. When performance differences in specific cognitive functions are found between the two groups, it is concluded that these must be caused by specific deficits in persons with ID. However, research has shown that intelligence tests do not provide reliable and valid measures of the level of cognitive functioning of persons with ID. Therefore, we propose to estimate the level of cognitive functioning in terms of “the capacity to learn”, using a learning (potential) test instead of a traditional intelligence test. Our hypothesis that research, that uses one or the other type of test for matching, would lead to different conclusions was confirmed in a group of adolescents with mild intellectual disabilities in which various measures of working memory were administered. The implication is that the validity of research outcomes based on mental age matching with IQ tests is seriously questioned.

Keywords

Intellectual disability, mental age, matching, learning test, working memory

Symposium 5: Tuesday, July 12th, 15:30 – 17:00, St. George A&B – 3rd Fl.

Cognitive and Metacognitive Computer-based Learning Environments for advancing students at risk

Adina Shamir & Shlomo Kaniel

Bar-Ilan University, Israel

Heterogeneous classes including students with diverse academic needs are increasingly fixtures of the twenty-first century school. This reality has motivated the search for new tools to help students at risk overcome difficulties with learning and the challenges of a knowledge-based society. Computer-based learning environments can provide meaningful learning experiences for all children, including those at risk of educational failure (Wallis, 2004). The dramatic changes in computer availability have further intensified efforts to devise new approaches to computer-based learning geared toward shifting pedagogy based on drill and games towards higher-order learning processes resting on Computer-based Learning Environments (Edyburn, 2003). Ongoing research is needed to support this search. In this spirit, the proposed symposium will focus on Cognitive and Metacognitive Computer-based Learning Environments (CBLEs) for advancing students at risk. The symposium will present four studies. The first study (Tova Michalsky) focuses on the effect of peer-assisted learning via face-to-face or a-synchronic learning networks (with or without metacognitive guidance) on low-achieving students. The second study (Bracha Kramarski, Sylvie Weisbart) investigates the benefits of stimulating self-regulated learning (SRL) in a hypermedia

environment to improving low achievers' mathematical literacy and SRL. The third study (Gabrielle Schlichtmann) explores the influence of achievement goals and motivation on diverse students' use of support rich, universally designed digital learning environments. The final presentation (Adina Shamir & Irit Lifshitz) focuses on the effect of activity with an e-book incorporating metacognitive guidance on emergent literacy among children at risk for LD. The papers will be discussed by Shlomo Kaniel.

Investigating the benefits of stimulating SRL with hypermedia for low achievers in mathematics

Bracha Kramarski & Sylvie Weisbart

Bar-Ilan University, Israel

The present study investigated the benefits of stimulating self-regulated learning (SRL) in hypermedia environment for fostering low achievers' mathematical literacy and SRL. The study compares 64 seventh-grade students who were exposed to a self-directed hypermedia either supported by SRL with IMPROVE questions (the H_SRL group) or receiving no direct SRL support (the H_NS group). We investigated mathematical literacy with: (a) authentic problem solving performance on basic, routine and complex tasks (PISA, 2003); and (b) online discussion for SRL processes (cognitive, metacognitive, motivation and social feedback). Findings indicated that the H_SRL intervention led to more significant gains than the H_NS group in mathematical literacy for students of varying ability levels (low and high-achieving students), In addition, the benefits of H_SRL persisted in online discussion feedback. These effects were particularly beneficial for the low-achieving students.

The potential contributions to theoretical research and educational implications for enhancing mathematical literacy and SRL for varying ability levels (low and high-achieving students) will be discussed in the symposium.

Peer assisted learning via face-to-face or a-synchronic learning network embedded with or without metacognitive guidance: the effects on low achieving students

Tova Michalsky & Zemira. R Mevarech

Bar-Ilan University, Israel

This paper is part of a larger study examining the conditions under which peer-assisted learning implemented in A-synchronic Learning Network (ALN) or face-to-face (F2F) supports learning. The present study focuses on the differential effects of these environments on scientific inquiry skills of low achieving students and traditional achieving students. Participants were 407 tenth grade Israeli students who studied biology in 16 classrooms. Within each of the five participating schools, intact classrooms were randomly assigned into one of four conditions: ALN with metacognitive guidance (ALN+META), ALN with no meta-cognitive guidance (ALN), F2F with metacognitive guidance (F2F+META) and F2F with no metacognitive guidance (F2F). The findings indicate that although under all conditions students improved their achievement on both the domain specific examination and on the test of general scientific thinking, significant differences between conditions were observed only for low achieving, but not for traditional achievers. Low achieving students in the ALN+META condition scored significantly higher than their counterparts in the ALN or F2F+META conditions, who in turn scored significantly higher than the F2F students. Implications of the findings will be discussed.

The influence of achievement goals and motivation on diverse students' use of support rich, universally designed digital learning environments

*Gabrielle Rappolt-Schlichtmann, Seoin Lim, Samantha Daley & Kristin Robinson
CAST & Harvard Graduate School of Education, United States*

Students' perceptions of the causes of academic outcomes – including beliefs about the nature of learning, desire for challenge, and self-efficacy – have important relations to learning behaviors in academic contexts. This relationship is especially salient in science education because content becomes progressively more difficult. Universal Design for Learning (UDL) as instantiated through new digital technologies offers multiple means to meet this challenge, but little is known about how perceptions about learning affect use of digital learning environments. The purpose of this study was to explore the relationship between student beliefs about the causes of academic outcomes and inquiry related learning behaviors when using a UDL digital science notebook. The sample consisted of 411 fourth graders and 11 teachers. Multilevel modeling was performed. Students were nested within teachers. Students who held a mastery orientation to learning with high desire for challenge created more content ($\beta = 3.12, p < .05$), and were more likely to use supports ($\beta = 2.61, p < .05$). Students who had high self-efficacy were more likely to exhibit recursion ($\beta = .08, p < .05$). Findings were consistent for high achieving and struggling students, as well as those with learning disabilities (LD, comprising 10% of the sample), though students with LD were more likely to hold unproductive and deactivating perceptions of the causes of academic outcomes. These results suggest that supporting students in their perceptions of the causes of academic outcomes may render digital learning environments more successful. Implications for at-risk students will be discussed.

Effect of an activity with an electronic book that combines metacognitive guidance on emergent literacy among children at risk for learning disability

*Adina Shamir & Irit Lifshitz
Bar-Ilan University, Israel*

The study investigated the effect of an activity with an educational electronic book (e-book) (with and without metacognitive guidance) on the vocabulary and rhyming ability of kindergartners at risk for learning disability. Seventy seven kindergartners aged 4.5-7.0 years ($M=5.88, SD=.67$) participated in the study. The subjects were randomly divided into three groups: the first experienced 5 intervention sessions with an educational e-book with metacognitive guidance ($n=26$), the second experienced 5 sessions with the e-book without metacognitive guidance ($n=25$), and the third group (control) participated in the regular kindergarten program ($n=26$). The children's cognitive level (verbal and nonverbal), rhyming level and vocabulary were examined pre-intervention. The children's vocabulary and rhyming level were again evaluated post-intervention. The research findings indicate a significant improvement in vocabulary and rhyming among the two groups of children who worked with the e-book compared to the control group. The greatest improvement in rhyming was found in the group that received metacognitive guidance. The findings will be discussed during the symposium.

Keywords

Metacognition, Computer-based Learning Environments, Students at risk

Symposium 6: Wednesday, July 13th, 9:00 – 10:30, St. George A&B – 3rd Fl.

Construct validity in dynamic assessment

Marco G.P. Hessels & Wilma C.M. Resing

University of Geneva, Switzerland & Leiden University, The Netherlands

According to Beckman (2006), dynamic tests are procedures focused on psychometric attempts to obtain diagnostic information about a person's learning ability. Reliability and validity are important aspects of this approach. In the current symposium, several aspects of the construct validity of dynamic testing are addressed, such as content validity, scale construction and measurement models and identification of underlying cognitive processes.

Dynamic testing: solving series completion tasks with electronic tangible puzzles

Wilma C. M. Resing

University of Leiden, The Netherlands

Various dynamic testing procedures have been developed from the perspective that cognitive/educational testing should not be exclusively focused on previous learning, but mostly on learning as it occurs. Our study, in which we dynamically measured children's series completion skills requiring inductive reasoning, represented one of the first evaluations of the use of an electronic tangible DT-procedure. Children were tested four times a month; one group was dynamically tested, the other statically. Comparisons will be made between findings for these groups of children. Special attention will be paid at changes in individual solving- and learning processes, including variability within/between children.

Keywords

Electronic tangibles, learning processes, dynamic measures

Adapting the Application of Cognitive Functions Scale for use in German speaking countries

Karl Wiedl, Vanessa Kampling, Ingrid König, Eva-M. Schevels, Manuel Waldorf & Jerry Carlson

University of Osnabrück, Germany

The Application of Cognitive Functions Scale (ACFS, Lidz & Jepsen, 2000) is a dynamic test for preschool children with the as core tests (subscales) "classification", "auditory" and "visual short term memory" and "pattern completion". Studying the German versions of these subscales, we found specific psychometric problems, especially for "visual short term memory", and lack of differentiation in some of the ACFS-behaviour rating scales. Further results demonstrated clear effects of mediation on performance, moderate pretest-posttest correlations and high correlations between behavioral ratings and posttest performance. Also, migration status influenced the level of pre- and posttest performance of the children, but not performance change. These results underline the utility of the German version of the ACFS for the dynamic assessment of preschool children.

Keywords

Preschool assessment, dynamic testing

Dynamic testing with AnimaLogica: Applications of IRT

*Claire E. Stevenson, Marian Hickendorff, Willem J. Heiser & Wilma C. M. Resing
Leiden University, The Netherlands*

Dynamic testing is used to measure developing abilities; however quantifying learning is a complex endeavor. AnimaLogica is a dynamic test which aims to measure children's learning of figural analogies. In this study we investigate possible applications of item response theory (IRT) to model children's performance on AnimaLogica. The advantages and disadvantages of models such as the partial credit model (GCM) and Embretson's Multidimensional Rasch model for Learning and Change (MRMLC) are addressed. We also investigate the possibilities of the explanatory IRT approach (de Boeck & Wilson, 2004) for dynamic testing research.

Keywords

AnimaLogica, item response theory, dynamic testing

The construct validity of a test of learning potential: Evidence from an eye movement study

*Marco Hessels
University of Geneva, Switzerland*

In this study we used a computerized version of the Hessels Analogical Reasoning Test to evaluate the changes in problem solving behavior of children with and without learning difficulties as a result of training. Such training proves to be necessary as many children do not understand what is expected from them in such tasks and, as a consequence, do not use analogical reasoning to solve them. This affects the construct validity of the measure. In learning tests, it is generally assumed that children learn to engage in the processes needed for analogical problem solving during the training, and that the intra-individual variability in effective use of these processes at posttest is indicative of children's learning capacity. Eye movement data show that the training indeed provokes children to engage in the appropriate problem solving processes. The children show more structured inspection patterns, more "intelligent" comparisons and spend more time on encoding the information in the matrix, which confirms the test's construct validity after training.

Keywords

Analogical reasoning, learning potential, eye movement, construct validity

Symposium 7: Wednesday, July 13th, 13:30 – 15:00, St. George A&B – 3rd Fl.

Mediated Learning Experience (MLE) Strategies: Intervention and change

David Tzuriel,

Bar-Ilan University, Israel

Mediated learning experience (MLE) strategies were found to be central mechanisms for children's and adults' cognitive modifiability. MLE interactions are defined as a process in which parents or substitute adults interpose themselves between a set of stimuli and the human organism and modify the stimuli for the developing child. MLE strategies are applied within the family setting as well as in formal educational and rehabilitation settings. The MLE processes are gradually internalized by the child and become an integrated mechanism of change in the future. As the child (or adult) develops internalized self-mediation strategies, the mediator gradually withdraws from the situation and allows the child more autonomy in implementing the acquired mediated strategies. Adequate MLE interactions facilitate the development of various cognitive functions, learning sets, mental operations, strategies, reflective thinking, and need systems. Accumulating research evidence demonstrates its effectiveness in enhancing cognitive, emotional, personality, and behavioral domains of human functioning. The objectives of the this symposium are to investigate: (a) novel techniques of enhancing MLE processes and consequently their effects on cognitive modifiability, learning motivation, and emergent literacy, especially with special needs populations (b) the differences in MLE strategies between mothers and kindergarten teachers, their differential effects in enhancing children's cognitive modifiability, and the relation between MLE strategies and mediator-child discourse, (c) the application of the MISC (More Intelligent and Sensitive Child) - a program based on MLE processes originally designed for young children – on intellectually disabled adults, and (d) the effects of dialogical versus monological teaching on classroom discourse, academic achievement, and motivation.

Keywords

Mediated Learning Experience (MLE), Cognitive Modifiability, Literacy, Dynamic Assessment

The effects of intervention using puppets with kindergarten learning disabled children on teachers mediated learning strategies and children's motivation and emergent literacy.

Ronit Remer & David Tzuriel

Bar-Ilan University, Israel

The main objectives of this study were to investigate the effects of mediation with puppet on teachers' mediated learning strategies and children's motivation and emergent literacy. The sample was composed of kindergarten children (n = 140), half were learning disabled (LD) and half were typically developing (TD). Half of each group was assigned to an experimental group (mediated with a puppet) and half to a control group. All children received a literacy program composed of four 15-minute sessions. The program was administered by 18 graduate students, each taught one experimental and one control small groups (3-5 children). Teaching lessons were videotaped and analyzed by the Observation of Mediation Interaction. Children in the experimental group showed higher levels of mediation strategies, literacy achievements, and intrinsic motivation than control children. LD children improved their vocabulary than TD children and demonstrated higher intrinsic motivation when mediated with a puppet than without it.

Keywords

Learning disability, MLE Strategies, cognitive modifiability, emergent literacy, kindergarten children

Effects of Mediational Intervention for Sensitizing Caregivers (MISC) on cognition, autonomy, and behavioral functioning of adult consumers with severe intellectual disability

Hefzibah Lifshitz & Pnina Klein

Bar-Ilan University, Israel

This study examined the effects of a yearlong Mediational Intervention for Sensitizing Caregivers (MISC) program on: (a) the quality of interactions between rehabilitation day center paraprofessional staff (n = 10) and their adult consumers with severe intellectual disability (ID) and (b) the consumers' cognition, autonomy, and behavioral functioning. The MISC was applied with an experimental (n = 19) ID consumers' who were compared with a control group (n = 13). The findings revealed that the experimental group demonstrated more mediation for meaning (choice making), expansion, and competence with explanation and less mediation for physical assistance than the control group following the intervention. Consumers in the experimental group improved their arithmetic skills, temporal concepts, and sequential memory of two digits, increased positive behaviors, autonomy, and duration of work and decreased verbal and maladaptive behaviors more than consumers in the control group. HEFZI-You need a closing sentence of 11 words or less to summarize

Keywords

Mediated learning experience, MISC program, adults, intellectual disability, staff-consumer interaction

The effects of a learning community environment on classroom discourse, academic achievement and motivation

Miriam Alfassi & Ronit Broder
Bar-Ilan University, Israel

The goal of this study was to examine the effects of a learning community environment on classroom discourse, academic achievement and motivation when compared to direct teaching within a traditional learning environment. 141 students exposed to a learning community environment (LCE, experimental group) were compared to 122 students who were exposed to a traditional direct teaching environment (DTE, control group). Classroom discourse of both groups was videotaped, transcribed and analyzed, based on categories by Mercer (2009), and Nystrand and Gamoran (1991). Results indicate that only the experimental group manifested significant growth on their achievement scores. Primary results show that classroom discourse in LCE is characterized as more dialogic, includes higher-order thinking questions, and contains more episodes of cumulative and exploratory talk when compared with traditional DTE. Further examination of the results will determine the contribution and relationship of classroom discourse to the growth in academic achievement and motivation.

Keywords

Community of learners, direct teaching, classroom discourse, motivation, academic achievement

Symposium 8: Wednesday, July 13th, 15:30 – 17:00, St. George A&B – 3rd Fl.

Dynamic assessment and educational practice
Marco G.P. Hessels & Wilma C.M. Resing

Introduction

When a child has difficulties with learning, an adaptive intervention is required. In order to construct an adaptive intervention, the strengths, weaknesses and potential of the child should be revealed. However, the gap between diagnosis and intervention is often neglected. Dynamic assessment aims to bridge this gap by measuring the child's potential to adequately respond to instruction by providing feedback during testing. The response to instruction provides qualitative information that can be useful for future interventions. The purpose of this symposium is to look at this promising aspect of dynamic assessment. In a first presentation the outcomes of a recent literature review which critically investigates the consequential validity of dynamic assessment will be presented (Tiekstra). One of the outcomes was the need for more explicit qualitative information based on the learning phases of dynamic tests. Hence, two presentations in this symposium will highlight the interactions during dynamic assessment from the perspective of dynamic systems theory (Ensing, followed by Van Loo). Finally, the potential for psycho-educational practice of a dynamic test (Stevenson) will be presented by looking at its relation to scholastic achievement and psychologists' evaluations of diagnostic reports based on the dynamic test. A discussion about dynamic assessment and educational practice, based on these presentations, will conclude the symposium.

Keywords

Dynamic assessment, educational practice, diagnostic interaction

Consequential validity of dynamic assessment

Marlous Tiekstra & Alexander Minnaert

University of Groningen, The Netherlands

Dynamic assessment seems a promising tool to bridge the gap between diagnosis and intervention. Due to a learning phase included during the testing procedure, qualitative information can be revealed. However, the question arises what the consequential validity, i.e. the extent to which assessment influences instructional and learning processes, of dynamic assessment procedures really is. A literature review resulted in 23 articles that met the inclusion criteria. It appeared that consequential validity of dynamic assessment procedures consisted of raw or standardized scores, whether or not extended with some guidelines for practice (as consequences of qualitative observations). Furthermore, it appeared that motivational aspects never played an explicit role during learning phases. It is suggested that in order to construct student-tailored interventions following dynamic assessment, there is a need for more explicitness of learning phases and types of feedback in the development of these instruments.

The dynamics of instruction: a dynamic systems approach

Annemieke Ensing¹, Geerdina van der Aalsvoort² & Paul van Geert¹

¹University of Groningen, The Netherlands, ²Utrecht University of Applied Sciences, The Netherlands

Learning potential is often described as the way a child is able to profit from instruction (Resing, 1990). In this study, learning potential is not seen as a stable individual characteristic, but as a context bound, dynamic concept that develops during interaction with a teacher, whereby child and teacher influence each other constantly. Therefore, in order to draw conclusions about a child's learning potential, the interaction between child and teacher has to be accurately investigated to see which behaviors are most meaningful in the development of learning potential according to our transactional definition. Our data consists of video tapes of five year old children, filmed every two weeks for four months, while working on an arithmetic related task with their teacher. Verbal, non-verbal and gazing behavior of the child and teacher were categorized to allow a microgenetic analysis of the interactions using a dynamic systems approach.

Meaningful interaction patterns during the training phase of a learning potential test

Floor van Loo & Geerdina van der Aalsvoort

Utrecht University of Applied Sciences, The Netherlands

The central theme of this study is the search for interaction patterns between diagnostician and child during the Classification test, a subtest of the Application of Cognitive Functions Scales (Lidz & Jepsen, 2000). The sample included eight kindergarten children and a diagnostician. The data consisted of videotapes of their interaction scored by means of Mediacoder and analyzed using the dynamic systems framework. We expected four patterns: Calling attention leads to task-orientation; asking questions leads to an (in)correct answer; providing feedback leads to receiving feedback, and teaching strategies leads to implementing strategies. We assumed that these patterns occur more often during a 'diagnostician-child with learning gains interaction' than during a 'diagnostician-child without learning gains interaction'. Some of these patterns emerged during analyses. Furthermore, differences between the two groups were found. We will discuss the findings in the context of their value to dynamic assessment.

Dynamic testing with Animalogy: Potential for psycho-educational practice?

Claire E. Stevenson & Wilma C.M. Resing

Leiden University, The Netherlands

Animalogy is a dynamic test which aims to measure children's learning of figural analogies. In this study we investigate the relevance of the dynamic measures obtained with Animalogy for school psychologists by addressing both the predictive and prescriptive diagnostic value. Dynamic and static test results were collected for 258 children. We found that the dynamic measures were better predictors of scholastic achievement than static results or Raven performance. Furthermore, prescriptive value was investigated by asking 33 school psychologists to rate diagnostic reports of cognitive functioning based on dynamic versus static testing measures. Results showed that the diagnostic information provided by the dynamic tests were rated more valuable than that of static tests and the dynamic diagnostic reports were considered more helpful in ascertaining learning ability and helping teachers individualize instruction. We conclude that dynamic testing with Animalogy has potential value for psycho-educational practice.

Paper sessions

Paper session 1: Monday, July 11th, 13:30 – 15:00, St. George D – 3rd Fl.

Chair: Marco Hessels

Dynamic assessment of students' mathematical abilities in lower secondary education

Michael Kleine

University of Education Weingarten, Germany

It is aim of dynamic assessment to quantify students' abilities. Up to now, there is a lack of domain specific instruments. The purpose of this paper is to present the theoretical framework of a hierarchical test instrument to assess the abilities of students (grade 5/6) in the field of proportions and fractions as a simple model for many situations in daily life. The abilities will be measured by the dichotomous Rasch model with the aim to get an indicator (a) for competences based on the solved items and (b) for abilities depends on the used interventions.

Keywords

Dynamic assessment, mathematics education, test development

Promoting structure-based problem recognition in statistics novices

Faria Sana & Joseph A. Kim

McMaster University, Canada

Research in problem solving suggests that experts focus on the structure of a problem, whereas novices rely on its surface features. However, novices can learn to foster expert-like strategies by exposure to variable examples and directed attention to the structural (rather than surface) features of a problem. This guided process may be augmented by constructs that promote active learning such as self-explanation and feedback. The purpose of this study was to examine the effects of short-term guided training on structure-based learning of three statistical concepts, each illustrated with three example word problems. The mixed-factorial design consisted of a 4 (process of learning: control, self-explanation, self-explanation with immediate feedback, feedback only) x 2 (content of exemplars: similar content, dissimilar content) x 2 (testing delay: immediate, delayed). Results will be discussed in the context of the effective use of examples, content, metacognition, and feedback for problem-recognition of statistical tests.

Keywords

Structure-based learning; teaching for transfer; analogical learning

Applying cognition in mathematical problem solving

Kwee Gek Chua

Nanyang Technological University, Singapore

The 'abstractness' of Mathematics is often a challenge to Mathematics teachers in ensuring that their students learn Mathematics with conceptual and relational understandings. Two of the important components; processes and meta-cognition in the Singapore Mathematics curriculum framework attempt to support the teachers in this vital role.

Pre-service teachers' cognitive schemata are generally less accessible, elaborate and interconnected than trained practitioners. This paper is a preliminary study to find out the pre-service teachers entry level of their pedagogical communicating, reasoning and meta-cognitive skills. The non-routine items on proportional reasoning in the test focussed on mathematics proficiency and good written pedagogical presentations. The findings show that they have not attained a satisfactory mastery level. Development of reasoning, meta-cognitive and effective mathematics communication skills were then incorporated into their pedagogy module to better equip them with the necessary repertoire of Mathematics pedagogical content knowledge and skills for more effective mathematics teaching and learning.

Keywords

Proportional reasoning, meta-cognitive, communication

Using model approach to solve word problems: What cognitive processes do students use?

Yeo Kai Kow Joseph

Nanyang Technological University, Singapore

In the Singapore elementary mathematics curriculum, the model is a structure that encapsulates all existing procedural relationships present in a given problem. The model is a structure comprise rectangles and numerical values that represent all the information and relationships presented in a given word problem. The rectangles replace the unknown represented by letters in equations. The purpose is to provide opportunities for younger students to engage in algebraic thinking without the use of abstract symbols. This allows students to solve difficult word problems prior to formal algebra. There are two stages to learning how to construct a model for a word problem. At the first stage of learning, the part-whole concept is developed and this is taught at the lower grades. In the second stage that begins around grade three, models based on the concept of proportional reasoning are constructed. In this paper, the sharing will comprise the following: demonstration of the model approach, experience in using the model approach, demonstration on how the model approach is used to solve a range of arithmetic problems and discussion on how the model approach help students develop thinking.

Keywords

Word problems, thinking, model approach

Paper session 2: Monday, July 11th, 13:30 – 15:00, St. George D – 3rd Fl.

Chair: Karl Wiedl

Successful intelligence of pupils with dyslexia and non dyslexic peers in Greece

K. Antonopoulou, D. Zbainos, & E. Zenakou

Harokopio University, Athens, Greece

The present study examines the performance of pupils with dyslexia and non-dyslexic peers on a curriculum based test that evaluates successful intelligence (Sternberg, 2005). 391 pupils, 35 dyslexics and 356 controls (mean age=13.39 years) from 20 public schools in Greece completed a specially designed test which assessed analytical reasoning, practical ability and creativity. Phonological or spelling mistakes were not included in the assessment of pupils' responses. The results showed no significant differences in the performance of dyslexic and non dyslexic pupils. More specifically, pupils with dyslexia scored as well as their non dyslexic counterparts on all dimensions of successful intelligence. The results of this study agree with current research supporting the view that although dyslexia is often associated with poor performance on particular scholastic domains, learning environments need to encourage pupils' successful intelligence and promote assessment techniques based on nontraditional academic criteria.

Keywords

Dyslexia, successful intelligence, creativity

Literacy for specialists and advanced students: Filling in the gaps electronically in a classical text analysis – promoting reasonable judgment and a trans-historical language possessing cultural depth

Hillel Weiss

Bar-Ilan University, Israel

The problem of filling in the gaps in reading comprehension is not any easier than overcoming organic learning disabilities even in people of very high intelligence. This is true as one advances in the level of the research and the teaching of classical texts, particularly literary masterpieces. Therefore, through deconstructing multi-layered classical texts, which contain references to a great many connotations and include many difficult words which are unfamiliar to contemporary culture, we have developed a technique for learning, researching, and teaching 'difficult texts' so that the knowledge contained in them and its exposure force the reader, each according to his ability, to invest in learning the text insofar as he is able in order to adapt himself to the information found in the text and to organize this information. We have put together an on-line master course for teaching Agnon's works which represents a research method for deconstructing a text according to models, where the cross-references that are developed in the process of this dismantling help anchor and establish the meaning and judgment in the area that is being evaluated.

Keywords

Literacy, classical text

Seeing, connecting, writing: A collaboration between the Yale Center for British Art and the Yale Child Study Center

Mei Tan¹, Baptiste Barbot¹, Judy Randi², Cyra Levenson¹, Linda Friedlaender¹ & Elena Grigorenko¹

¹Yale University, United States & University of New Haven, United States²

The Yale Center for British Art and the Yale Child Study Center are collaborating to develop an intervention incorporating visual literacy into 1st and 2nd grade curricula to improve writing skills and creativity. The intervention is based on a theoretical model of change in which viewing and discussing a painting affords opportunities to develop vocabulary and generate ideas; and drawing is used as a pre-writing activity. Pilot data include a longitudinal sampling of children's narrative writing (n= 121) collected at three points during the intervention period, as well as interviews with selected children conducted after three drawing/story-writing exercises. Preliminary analyses suggest that engaging in these visual literacy activities may promote creativity, develop children's expressive language, and contribute to their development as writers. We will discuss how children can be guided to develop narratives from visual stimuli, illustrating the process with children's drawings and stories, and interview data.

Keywords

Museum education, writing, creativity

Current challenges on closing the gap between Reading and Comprehension: A plea for literacy

J.P. Das

University of Alberta, Canada

All over the developed and developing world, the fastest growing professions are those with greater than average demands for reading and writing skills. And yet vast number of school children in developing countries show a gap between reading and understanding written material. Research tells us ,promoting literacy ,specifically aimed at improving comprehension is a major factor for in facilitating the transfer of knowledge. Specially important for not only developing societies, but also in developed societies. These are discussed, and followed by two exemplary studies that focus on the gap between adequate reading ability, but poor comprehension.

Beyond promoting literacy, are there cognitive barriers to develop specific difficulties in written comprehension? Yes, these involve difficulties in simultaneous processing and working memory, as shown in the two studies: One on school children in India, and the other on university students in Canada.

Paper session 3: Tuesday, July 12th, 13:30 – 15:00, St. George C – 3rd Fl.

Chair: Carol Robinson

Preliminary Results from a Qualitative Study of Teachers: Using an Education, Mind, and Brain Framework for Enhancing Instruction in K-12 Classrooms

Donna Wilson

BrainSMART, United States

In this session we will present a paper on the preliminary results of a study of a teacher education program based on the use of current education and mind research and theory and emerging implications from brain science. The study we report utilizes a case study approach informed by qualitative sampling and Lightfoot's work on portraiture methodology. The presentation will share results of interviews with seven current teachers using a structured interview protocol. The teachers interviewed are a diverse mix in terms of years at their current school, school setting, subject taught, age of students taught, and years since earning their degrees. Preliminary results indicate that the program positively impacts student learning gains; that the teachers interviewed better realize the potential for all students to learn; and that the interviewees explicitly teach cognitive and metacognitive strategies to their students to increase academic achievement.

The Cognitive Enrichment Advantage (CEA) Higher Education Student Retention Project

Katherine Greenberg¹, Jonathan Taylor² & Mijoo Lee¹

¹University of Tennessee, United States & ²Troy University, United States

This presentation shares research efforts to date and theoretical foundations of a long-term project to improve retention of university students. Our work is based on the Cognitive Enrichment Advantage Model (CEA), founded by Greenberg and used in more than six countries. CEA focuses on helping students (a) to understand their personal strengths and weaknesses regarding research based cognitive processes and affective/motivational factors and (b) to develop skill in constructing personal strategies to address these often hidden needs of learning. The project includes three goals: 1. *CEA Learning Strategies Inventory*—scale construction of an online inventory that will provide feedback to students and university staff/instructors providing retention services. 2. *CEA Learning Strategies Development Program*—an online tool to assist students in adapting learning strategies to meet specific, personally relevant needs. 3. *CEA Student Retention Professional Development Activities*—workshops and development of course components to further student success.

Keywords

Student retention, scale construction, professional development

The thinking academy: a proposal for school reform

David S. Martin,

Gallaudet University Washington, DC, United States

Much conversation today hovers around the general title, School Reform; yet, little discussion is devoted to the potential for reforming an entire school around cognitive education as the fundamental underpinning for the curriculum as a whole. This paper will describe in detail a proposal for a Thinking Academy in which, first, all teaching staff, paraprofessionals, and administrators are trained in depth in the methodology of Feuerstein's Instrumental Enrichment. Second, they implement a curriculum in which Mediated Learning Experiences (MLE) are the basis for instruction in all subject matter at all age levels. Third, student assessment is built upon both subject matter mastery and students' implementation of appropriate cognitive strategies. Last, evaluation of teaching is partially built on teachers' observed employment of Mediated Learning strategies. Within the context of American school trends in 2010-11, the Academy takes the embedded and implicit cognitive strategies found in the national Core Curriculum Standards (now adopted by 36 states) and makes them both explicit and systematic school-wide. Time for questions and discussions will be included in the session.

Keywords

School Reform, Thinking, Mediation

A way to implement the neo-vygotskian theoretical learning approach in american schools

Yuriy V. Karpov

Touro College, New York, United States

In contrast with Davydov's version of *the theoretical learning approach*, Galperin & Talyzina's version of this approach involves changes in how students are taught within the traditional curriculum rather than fundamental changes of the curriculum itself. The steps in teaching students under this approach are as follows: a) promoting students' learning motivation in relation to the given topic; b) providing students with the subject-domain concepts; c) developing the procedure for scientific analysis in the given subject domain; d) providing students with problems that they solve using this procedure. My pilot study has demonstrated that Galperin & Talyzina's approach can be readily implemented in American traditional school curricula, leading to significant improvement of both the course and the outcomes of students' learning.

Keywords

Theoretical Learning Approach

Paper session 4: Tuesday, July 12th, 13:30 – 15:00, St. George D – 3rd Fl.

Chair: Adina Shamir

Mining the Creative Processes of an Educated Mind: Verifying cycles of feedback in the solving of novel problems

Carol Aldous

Flinders University, Australia

Belief in human kind's ability to educate the mind rests on a number of assumptions. Not the least of these concerns the capacity of researchers to identify and describe the set of processes both cognitive and non-cognitive which the mind employs in the solving of novel problems. Before the human mind can be educated, the learning processes that benefit the mind need to be examined. Teaching about the cognitive and non-cognitive processes surrounding creativity and the solving of novel problems is an important case. A series of five feedback loops (Viz: Areti loop, Vinacke loop, Lalas loop, Communication loop, Rossman loop) operating between each phase of the classic model of creative problem solving have been identified. However large scale data validating their operation have been scarce. This paper presents evidence from a large scale data set (n=405) that relates to the solving of two mathematical problems for verifying the operation of these processes. The paper also discusses the need for ongoing validation using techniques only recently developed in the field of structural equation modelling with the M-Plus computer program.

Keywords

Cognitive, non-cognitive processes

When transfer met creativity: Increasing transfer and creativity by controlling the styles of processing

Shlomo Kaniel

Bar-Ilan University, Israel

The primary purpose of this article is to combine both transfer of learning (hereinafter transfer) and creativity into similar processes that can increase the products of transfer and creativity. Both transfer and creativity operate within reciprocal relationships between memory storage and working memory. Moreover, they are also based on moving from System 1 processing (rapid, associative, automatic) to System 2 processing (slow and controlled) by several sequential series of circular stages: a) acquisition and storage of the learning to be transferred and created; b) identifying a problem/goal after a time interval; c) active and controlled search in the memory storage for a solution, weighing alternative solutions, deciding what is the correct, most efficient solution and executing that chosen alternative; d) evaluating the process while deriving feedback and drawing conclusions for the next round of the above stages. Although the chance and control perspectives are starkly contrasted, they can be rendered compatible through the application of several principles. Further ideas for research and interventions are suggested.

Keywords

Transfer of learning, creativity, acquisition, retrieval, self regulation

Indications of aurora in relation to other measures

Mei Tan¹, Sergey Kornilov¹, Julian Elliott² & Elena Grigorenko¹

¹Yale University, United States & ²Durham University

The Aurora Battery is a set of assessments based on Robert Sternberg's theory of successful intelligence, which defines intelligence as the selection and balance of creative and practical abilities along with analytical abilities. Aurora includes a paper and pencil group assessment (Aurora-a), teacher rating scale (Aurora-r), parent interview (Aurora-i), observation schedule (Aurora-o) and student self-evaluation scale (Aurora-s). At this time, data has been collected from 4,000 students in grades 3-6 from both American and British schools, along with some comparative achievement and cognitive ability test data. Small overlapping samples of Aurora-r and Aurora-s have also been collected. In this presentation, the various relationships between these tests, including how Aurora may augment information provided by other assessments, will be discussed.

Keywords

Successful intelligence, assessment

Optimising cognitive capacity through mediation to educate the mind of Grade R-learners: new roles for Grade R teachers

Stef Esterhuizen

North-West University, South Africa

In the context of this presentation the merits of a curriculum-based intervention programme based on the principles of mediated learning which I designed and implemented for a period of 12 weeks with two groups of 10 purposefully and conveniently selected Grade R learners on a rotational basis from a primary school in the Free State Province, South Africa, are reported. Quasi experimental research which involved dynamic assessment of the cognitive capacity of the learners with the Children's Inferential Thinking Modifiability Test in a pre- and post test design, as well as observations was conducted. Positive results were obtained following the Grade R learners' participation in the intervention programme. Participants showed improvement regarding cognitive functioning, such as classification, categorisation, comparison, analysing, focusing, storing of information, inferential thinking, problem solving, systematic gathering of information, reflection, transfer of strategies and rules and elimination and negation. This paper provides a critical account of the theoretical and empirical findings related to the study, and argues that Grade R-teachers should take on the role as mediator of learning during teaching in order to achieve the ideals of the National Curriculum Statement (CAPS as from 2012) for enhancing the cognitive capacity of Grade R learners.

Keywords

Cognitive development, mediated learning, dynamic assessment, cognitive functions

Paper session 5: Tuesday, July 12th, 15:30 – 17:00, St. George C – 3rd Fl.

Chair: Alice Seng

The power of cognitive ability, prior learning and career interest in the prediction of academic achievement of first-year students

Ute Hendrich

Vaal University of Technology, South Africa

The objective of this quantitative study was to determine the relationships between academic achievement, prior learning, cognitive ability and career interest. The data collection for this study was undertaken in January 2009 at the Vaal University of Technology. Two of the four faculties of VUT were involved in the project, namely the Faculty of Engineering and the Faculty of Human Sciences. In total the data of 370 first-year students was used. The two tests used in this study were the Differential Aptitude Test (DAT-K) and the Self - Directed Search Questionnaire (SDS). The Matriculation mark was derived from the Grade-12 results as obtained on the new National Senior Certificate, which matriculants wrote for the first time at the end of 2008. Academic achievement, as measured at the end of the first semester, served as criterion. In conclusion, the results of the regression analyses and their implications will be discussed.

Keywords

Cognitive ability, prior learning, career interest

Wellness and academic achievement: Implications for minding the education by educating the mind of university students

Ludolph Botha, Charl Cilliers & Alten du Plessis

Stellenbosch University, South Africa

In this follow-up study the positive relationship between wellness and the academic achievements of five cohorts of first-year university students is reaffirmed. An alarming finding in this study is the decrease in wellness scores from the beginning to the end of the academic year – a trend more pronounced among the weaker students. The central question to be addressed in this presentation is: How do we educate the mind in this context? In other words, what would be a responsible approach to effectively address this issue, which clearly has a significant effect on the academic success of university students? An intervention with the focus on mediating the significant effect of wellness on academic achievement, as well as ways to improve overall wellness, will be described. This intervention also utilizes automated feedback to students on a web-based wellness questionnaire, as well as making use of peers to conduct the mediation.

Keywords

Wellness, first-year students' academic achievement, student success

Strategies to improve cognitive skills in undergraduate students: results of a mediated intervention

*Natalia Salas Guzmán, Alejandra Morales Aldunate, Rita Arévalo Berríos & Cecilia Assael Budnik
Universidad Diego Portales, Santiago de Chile*

Teaching to learn seems to be a current challenge in universities, especially relevant for faculties of initial formation in education. The present study shows the results of a research that aimed at proving the impact of a cognitive intervention in future teachers (N=53 undergraduate students) of a private university from the Metropolitan Region of Chile. To do so, this study proposes a pre-experimental design with repeated measures, and the application of tests focusing on cognitive skills that favor the acquisition of autonomy and cognitive self-regulation (Feuerstein's LPAD instrumental). Results show significant statistical differences between the first and second evaluation. The relevance of the acquisition of these cognitive skills in former education is analyzed, and the importance that universities promote spaces for the construction and transformation of knowledge is discussed.

Keywords

Undergraduate education, self-regulation, cognitive learning potencial

Epistemic beliefs and academic performance: Are better students always more mature?

*Mohamed Taha Mohamed & Magda El-Habbal
Emirates College for advanced Education, Arab Emirates*

This research investigates basic aspects of epistemic beliefs and their relationship with academic performance among high school students in United Arab Emirates (UAE). There is a fairly established literature that indicates that better students have more mature epistemic beliefs than less able students. An Arabic version of the Epistemic belief inventory (EBI), prepared by Schraw et al. (2002), was administered to a group of 165 students in public high schools in UAE. EBI gives five indications of quick learning (QL), certainty of knowledge (CK), omniscient authority (OA), innate ability (IA), and simple knowledge (SK). Data indicated that academically better students scored significantly higher than less able students on QL, OA, and SK (higher scores mean simpler and more naïve beliefs). Better students showed more mature beliefs only in regard to IA. Results were discussed in light of curricula and cultural context in Emirati schools.

Keywords

Epistemic beliefs, performance, culture

Paper session 6: Tuesday, July 12th, 15:30 – 17:00, St. George D – 3rd Fl.

Chair: David Preiss

Promoting learning in a special education class: the effect of a metacognitive intervention applied by the learning support assistant

Christine Hessels-Schlatter, Mélanie Bosson, & Sophie Brandon

University of Geneva, Switzerland

This paper reports the results of a metacognitive intervention provided by a learning support assistant in the context of a special education class, by means of multiple case studies. Three students (9-11 years) with learning difficulties participated in this study. The metacognitive intervention consisted of 20 sessions of 50 minutes and included tasks from two cognitive education programs (DELF; Büchel & Büchel, 1997; Instrumental Enrichment; Feuerstein et al., 1980), as well as mathematic problems and text comprehension tasks. Curriculum unrelated and related tasks were alternated in order to promote strategy transfer. Moreover, the strategies were regularly promoted by means of a poster that was put on the wall in the regular classroom. The intervention effects were measured on a performance level on two tasks, DELF and mathematic problem solving, for which parallel versions were administered at pre- and posttest. The effects on the metacognitive and strategic level were assessed through metacognitive interviews, an observational checklist, as well as a metacognitive questionnaire.

Keywords

Metacognition, intervention, learning difficulties

Thinking about theory in practice: The development of the Learning Theories Profile as a tool for metacognitive reflection

Mandia Mentis

Massey University, New Zealand

This paper reports on the development and evaluation of a meta-cognitive tool for practitioners in education to reflect on the extent to which a discrepancy exists between their espoused theories and theories in use (Argyris & Schon, 1974). The *Learning Theories Profile* (LTP) was developed to support practitioners in education to identify and reflect on the theoretical perspectives that underpin their professional decision-making. In order to assess the usefulness of the LTP for reflection on professional development and practice, special educators who were enrolled in a postgraduate university course took part in a trial of the tool. Data from pre-activity and post-activity surveys suggested that the LTP helped students to critically consider contemporary and traditional theories of learning, raised awareness of the application of learning theories in education practice and supported users to reflect on their own professional practice and interactions.

Keywords

Reflective practice, meta-cognition, professional development, learning theory

The extent to which teachers create classroom climates that nurture the development of critical thinking skills

Viné Petzer

North-West University, South Africa

In this presentation the findings obtained from a quantitative, non-experimental, descriptive survey research study with a heterogeneous group of 241 teachers and 403 learners from township and ex-model C schools in South Africa, are reported. The research set out to determine to what extent teachers create classroom climates that nurture critical thinking skills among learners. In essence, the data revealed that teachers are, to some extent, creating classroom climates that nurture critical thinking through their choice of teaching methods and strategies, questioning techniques and the learning activities that they choose. However, the responses did not convincingly indicate that the nurturing of critical thinking skills takes place on a regular and frequent basis. According to the learner responses, it appeared that teaching and learning methods and strategies that promote interactive learning, are underutilized by the teachers. The presentation is concluded with recommendations regarding how teachers can create classroom climates that promote the development of critical thinking skills.

Keywords

Cognition, critical thinking, classroom climate, learning environments, cognitive development, climate for critical thinking, teaching and learning activities, teaching methods and strategies and questioning

Shining lights on Learning Difficulties: Theory motivated remedial programmes

J.P. Das

University of Alberta, Canada

Is it possible to enhance those cognitive processing skills that are the foundations for school learning? Is there a remedy for learning disabilities? The answer to both is Yes! I discuss some selected studies that provide evidence for supporting the efficacy of two cognitive enhancement programmes, PREP, and COGENT . Following a brief presentation of the programmes, I report studies on a variety of children at risk in North America, Cyprus, and Spain. The programmes are based on the classic work of Vygotsky, Luria, and pioneering research on cognitive education such as those of Brown and Campione. The Canadian studies focused on the First Nations children who are usually poor in reading. Their cognitive profiles invariably showed a relative deficiency in Successive processing. The Greek and Spanish studies showed a similar weakness. However there were significant improvements in reading following cognitive training that used PREP and COGENT. The COGENT programme was specially effective in improvement of the cognitive processes of kindergarten children in a Spanish study.

Paper session 7: Wednesday, July 13th, 9:00 – 10:30, St. George C – 3rd Fl.

Chair: Carol Robinson

Relations between parenting quality and cognitive performance of children experiencing varying amounts of childcare

Esther Adi-Japha & Pnina S. Klein

Bar-Ilan University, Israel

Associations between parenting quality and 3-year-olds' school readiness, receptive, and expressive language were examined in relation to the amount of time they spent in childcare, based on data from the NICHD Study of Early Child Care and Youth Development (N = 1,364). Associations for school readiness and receptive language were stronger among children who experienced medium amounts of childcare than among children who experienced high amounts of childcare, and they were not weaker than among children who experienced primarily maternal care. Contrary to expectations, the association between parenting quality and school readiness among children who experienced medium amounts of childcare was significantly stronger than among children who experienced predominantly maternal care.

Keywords

Childcare, cognitive development, parenting

Social development and play behavior of children with special needs, inclusion in regular kindergarten

Varda Sobelman-Rosenthal & Pnina S. Klein

Bar-Ilan University, Israel

The objectives of this study were to characterize social development and play behavior of 4 to 6 year old children with special needs who were included in regular kindergartens and to assess the relationship between the quality of the educational environment, social development and play behavior of the children. Significant interactions were found between teachers' perception of the integrated children, their interactions with the integrated and the typically developing children, organization of the educational environment and children's social development and play behavior. The "mental diet" children received and the organization of their educational environment, significantly contributed to the efficacy and quality of the inclusion process. Quality mediation enabled children with special needs to be involved in meaningful positive social relations and to participate as partners in play interactions. Consequently, these children showed higher abilities and more advanced social skills and play development.

Keywords

Socialization, play, inclusion

Learning potential and cognitive modifiability

Alex Kozulin & Lea Yosef

Feuerstein Institute, Jerusalem, Israel

The argument is made for the need to differentiate between the notions of learning potential (LP) and cognitive modifiability that are often used interchangeably in dynamic assessment literature. It appears more appropriate to reserve the notion of LP for situations when learning from cues and worked-out examples improves subjects' performance with tasks similar to the model ones. The notion of cognitive modifiability will then be applied to a generalized qualitative change in problem solving. Subjects with high LP may have a relatively low propensity toward cognitive modifiability and vice versa. The dynamic Variations of Matrices test was used as a test of LP, while the difference between static Raven's Colored Matrices pre-and post- test was used as a measure of subjects' cognitive modifiability. A study of 88 primary school students demonstrated that about 27% of the participants combined high LP with low cognitive modifiability or vice versa. Educational implications as well as possible implications for the design of dynamic assessment tasks and procedures are discussed.

Keywords

Dynamic assessment, learning potential, Raven Matrices

Paper session 8: Wednesday, July 13th, 13:30 – 15:00, St. George C – 3rd Fl.

Chair: Wilma Resing

Dynamic assessment and informed intervention for children with language impairments

Natalie Hasson, Nicola Botting, & Barbara Dodd

City University, London, Great-Britain

The current project investigated the use of Dynamic Assessment with a population of children with previously identified Language Impairments. Both manifest skills of language, and underlying processes used in manipulating and constructing language as a tool, were elucidated. This paper describes the development of a Dynamic assessment task requiring implicit knowledge of syntactic structure. The measure was employed on 24 children aged 8-10, with an identified language impairment. Inter-rater reliability of the test measure was 90%, and the sensitivity of the test to change over time was demonstrated. Information about participants' ability to transfer learning between items, their ability to use less directive prompts, their strategy use, and their metalinguistic and metacognitive awareness was extracted, and used to inform language intervention programmes. The outcomes of that therapy were compared to the outcomes of the regular intervention of the participants. Differences between groups were nonsignificant although the gains achieved by subgroups of children were predicted and the information was rated as useful by participating SLTs.

Keywords

Dynamic assessment, language impairment, syntactic structure

Using the Children's Inferential Thinking Modifiability Test (CITM) for the identification of minority gifted and talented learners

Linda Rittner

University of Central Oklahoma, United States

The Children's Inferential Thinking Modifiability Test (CITM), a well established assessment for learning ability, was adapted for group administration. The purpose was to use nonverbal, psychometrically sound methods to identify second grade minority (Hispanic) students for gifted and talented services using a quasi-experimental design. The Figural Intersections Test (FIT), two speed of processing tasks, and a teacher checklist for gifted identification were also used. The CITM fit a Rasch model well, reducing subjective assessment. In a sample of 266 students (more than 50% first or second generation Hispanic) teachers identified 35 gifted students; only three were minority. Using CITM gain scores and 90% or better on the FIT and speed tasks as criteria for identification of high ability, ten of the teacher-identified students did not meet criteria as potentially gifted. The CITM identified 29 additional students not previously identified by classroom teachers. Hispanic learners accounted for 15 of the 29 students not identified by teachers.

Keywords

Gifted, Hispanic, CITM

Computerized dynamic assessment of foreign language learning

Matthew Poehner

The Pennsylvania State University, United States

This paper reports on a project funded through a Title VI International Research Studies Grant to develop a new generation of reading and listening comprehension tests for learners of Chinese, French and Russian as foreign languages. The tests depart from previous comprehension measures by integrating principles of Dynamic Assessment. Specifically, test items were designed around five language domains: grammar, vocabulary, discourse, phonology, and culture. The tests were piloted with individual learners through a dialogic, clinical DA format. Analysis of these sessions led to the generation of standardized sets of mediating prompts to accompany each test item. The resulting computerized dynamic tests automatically produce a weighted score (reflecting the number of mediating prompts required for each item) as well as a profile of performance across the five language domains. This approach yields an in-depth diagnosis of individual and whole class language abilities and offers insights to teachers for designing appropriate instruction.

Keywords

Dynamic assessment, computerized testing, foreign languages

Detecting zones of proximal development in old adults

Kolbein Lyng

Molde University College, Norway

This paper discusses how dynamic testing can be used to assess cognitive function in old age and its potential for detecting dementia. Data from two studies are reported. In the first study 79 healthy old adults participated. In the second study 10 persons with Alzheimer's disease, 21 healthy old adults and 17 young adults participated. Items from Ravens Progressive Matrices comprised the test materials. In the dynamic test condition participants received verbal hints if an item was not solved. A control group received standard instruction. Two posttests assessed transfer. The dynamic test condition increased the performance among healthy old and young adults, but dropped when hints are removed. Individuals with Alzheimer's disease showed marginal gain despite receiving nearly all hints available. In the dynamic testing condition no score overlap between healthy old adults and individuals with Alzheimer's disease was observed compared to a considerable overlap observed under standard testing conditions.

Keywords

Dynamic assessment, aging, dementia

Paper session 9: Wednesday, July 13th, 13:30 – 15:00, St. George D – 3rd Fl.

Chair: Christine Hessels-Schlatter

The impact of cooperative context on preschoolers' flexibility

Annesha Shonata, Li Qu, Lin Shuhui Audrey, Low Pei Jun & Ng Hui Qun

Nanyang Technological University, Singapore

The current study investigates how cooperative social context without exchanging ideas between players may influence preschoolers' flexibility. In Study 1, Singaporean 5-year-olds (N = 34) were randomly assigned to two conditions of a modified block sorting task: individual and cooperation. Study 2, Indonesia 5-year-olds (N = 39) were randomly assigned to three conditions of the block sorting task: individual, parallel play, and cooperation. In both studies, to control for individual differences, before the block sorting task children were given cognitive tasks testing vocabulary, short-term memory, and executive function, as well as affective scales on mood and motivation. Separate one-way Analysis of Variance showed that although they performed the same on other measures, children in the cooperation condition sorted blocks along significantly more dimensions compared to children in the individual condition and the parallel play condition. These results suggest that cooperative social context can increase flexibility in preschoolers.

Keywords

Cognitive flexibility, social context, cooperation

Thinking in, on and across practice - A metacognitive design for interprofessional learning

Mandia Mentis

Massey University, New Zealand

This presentation describes an innovative metacognitive design for professional learning developed collaboratively by two universities in New Zealand for practitioners in Inclusive and Special Education. The programme integrates 4 key learning design elements: blended learning; inquiry learning; interprofessional learning and learning within a community of practice (known as bCIIP). This design involves thinking beyond traditional professional learning for practitioners in the specialist areas of Vision, Deaf, Early Intervention, Behaviour, Autism and Gifted education. Practitioners across the country interact in face-to-face and online blended learning environments. Ethical issues from real and e-case scenarios are explored through inquiry learning. Practitioners learn with, from and about each other's specialist areas thus strengthening professional identities within an interprofessional community of practice. This metacognitive design for professional learning will be outlined illustrating how practitioners can reflect in, on and across practice.

Keywords

Interprofessional learning, reflective practice, metacognitive learning design

The critical thinking abilities of prospective teachers: is there a bright side?

Mary Grosser

North-West University, South Africa

Strong critical thinking skills are required at Higher Education Level for academic success and to work through tremendous amounts of information. Located within a positivistic framework, this research which was descriptive and quantitative and qualitative in nature set out to determine by means of testing with the Watson Glaser Critical Thinking Appraisal, the status quo regarding the critical thinking skills of a conveniently and purposively selected group of 123 first year students studying towards a BEd-degree during 2010 at a South African university. Furthermore, this research compared the 2010 test results to the results of two exploratory pilot studies conducted with the Watson Glaser Critical Thinking Appraisal during 2006 and 2008 with first year BEd-students at the same university, in order to determine to what extent these students were exposed to and stimulated to think new and critically at school level. The results of our present study confirm our concern that emanated from the two previous pilot studies that pointed to deficiencies with regard to the development of critical thinking among pre-service teachers. The presentation is concluded with some preliminary observations for the improvement of the critical thinking abilities of the students with the Feuerstein Instrumental Enrichment Programme.

The presentation focuses on a critical account of the theoretical and quantitative and qualitative empirical findings of the research and highlights the merits of the Feuerstein Instrumental Enrichment programme for turning the tide and providing opportunities to pre-service teachers for enhancing their critical thinking skills.

Keywords

Critical thinking, academic success, Feuerstein Instrumental Enrichment

Pre-service teachers' conceptions of effective teaching and learning

Maria Oreshkina & Scott Reilly

University of Scranton, United States

This presentation will explore pre-service teachers' conceptions of effective teaching and learning and how these conceptions changed throughout their first field observation. Thirteen students (eight undergraduate and five graduate students) working towards their initial teacher certification participated in this qualitative study. In the beginning of the field course students wrote an essay, "Personal Theory of Learning," where they expressed their conceptions regarding effective teaching and learning. Upon completion of their first 10 hours of field observation, students wrote a reflection on their initial theory of learning. Upon completion of their final 10 hours, they wrote a second reflection. From our inductive analysis of the participants' "Personal Theory of Learning" essays, we produced three themes: (1) role of a learning environment; (2) students learn in many ways; and (3) teachers' roles and characteristics. The presentation will focus on the sources of pre-service teachers' initial conceptions and how these conceptual changes evolved.

Paper session 10: Wednesday, July 13th, 15:30 – 17:00, St. George C – 3rd Fl.

Chair: David Tzurriel

Diagnosis study of the level of teaching thinking skills

Magdi Abdel Kareem Habib

Tanta University, Egypt

Higher education in Arab world needs a deep inspection and reform to cope with the international variables; which requires education and cognitive psychology experts to find new methods for teaching thinking specially that it has become a science that has its own rules. Teaching thinking helps raising the learners' thinking efficiency as well as their ability to analyze, explain, criticize, and evaluate the surrounding events and variables. It also engraves emotional skills and self-confidence. Such fields require new roles for: university curriculum, teaching staff, evaluation, and university administration.

The current study literature review covers:

- Teaching thinking approaches.
- Mental and cognitive methods and processes of teaching thinking.
- Factors of teaching thinking success.
- Advanced thinking improving strategies.

Beyer checklist for thinking skills was applied to (108) of teaching assistants staff of Tanta university; it dealt with the role of: university curriculum, teaching staff, evaluation, and university administration, in accomplishing thinking skills. The results show that university curriculum, teaching staff, and evaluation contributes in accomplishing higher thinking skills as follows (30%, 50%, 33%), where university administration shows no effect.

Critical thinking and argumentative writing: a pilot study

David Preiss

Pontificia Universidad Católica, Chile

The present paper will present the results of an ongoing project assessing the relationship between critical thinking and argumentative writing. This initiative addresses two challenges. First, we want to create a critical thinking measure independent of writing competency. Many measures of Critical Thinking, such as the Ennis Weir Test, measure critical thinking by means of an Essay. We believe that by collapsing the measurement of critical thinking and argumentative writing these measures do not properly estimate these two relevant skills. On the other hand, the field requires Critical Thinking measures in languages other than English, since many English language measures of Critical Thinking, once translated and used in other contexts, do not achieve the same level of reliability reported by their original authors or face validity problems. We will present a study piloting a Spanish language Critical Thinking measure on a sample of 784 university level students. The measure has three Subscales: Inferences, Arguments and Syllogisms. The Syllogisms scale achieved a reliability level of .61. For Inferences and Arguments we assessed four forms. Their reliability estimates ranged from .57 to .64 for inferences and from .53 to .77 for Arguments. Pearson correlation estimates between the three Subscales ranged from .15 to .31. Then, we assessed in a sub-sample of 576 first year university students the relation between performance in the critical thinking measure and performance in a test of argumentative writing. We only found a minor significant correlation between performance in the argumentative writing task and the Syllogisms subscale. In concluding, we discuss the strengths and limitations of the measures used as well as interpret the lack of observed relations between writing and critical thinking as measured in this pilot study.

Keywords

Critical thinking, argumentative writing

A curriculum based assessment of successful intelligence in Greece

Dimtrios Zbainos

Harokopio University, Athens, Greece

Educational reform is being seen by many as the long-term solution to Greece's economical and social crisis. There is an urgent need to transform traditional schooling into an educational system that produces individuals who can adapt to a changing society, and, at the same time, change society for the betterment of all. The present study aimed at designing and implementing educational programs for the development of Successful Intelligence (Sternberg, 1999) in Greek education. We devised a curriculum-based test that assesses the analytical reasoning, and the creativity and practical thinking of Greek secondary school students. The test was taken by 2663 Greek "Gymnasium" students (14 year olds). Confirmatory factor analysis supported the existence of the dimensions of successful intelligence among Greek students. Thus, it was concluded that this theory may be used as the framework for the comprehensive development of students' abilities within a new curriculum in Greece.

Keywords

Successful Intelligence, creativity, curriculum assessment

Gauging the impact of mediation and diagnostics in developmental assessment

S. Alagumalai¹, Joseph Yeo², S. Sivakumar¹ & S.H Seng²

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Assessment and associated data highlights the pertinent nexus between the planned/intended curriculum, achieved curriculum, instructional design, delivery of instructions, learning and assessment, as evidenced through performance/achievement standards. Assessment provides access to learning capacity (what and how much), learning rates (how fast), understanding (misunderstanding/misconceptions) and the various levels of cognitive functioning as evidenced through Anderson & Krathwohl's (2001) Taxonomy for Teaching, Learning and Assessment, and Biggs & Collis' (1982) SOLO taxonomy. Traditional conception of assessment viewed assessment and instruction through a dichotomous relationship. The emergence of Dynamic Assessment, described as a subset of interactive assessment that includes deliberate and planned mediational teaching and the assessment of the effects of that instruction on subsequent performance, provides a positive shift from traditional static assessment forms. This paper examines the processes of mediation and diagnostics, and their impacts on the modification of cognition (awareness, knowing and understanding). Diagnostics provide information about the difficulties a student may have, and provide breakdowns in learning. Generic breakdowns, where common errors faced by a number of students are identified, allow for group instructions and remediation. Exemplars from a pilot study involving students (Years 9-11) are provided. The paper advances a model for the nexus between learning and assessment through the time, scope (bandwidth), depth (fidelity), space (location), method and purpose of assessment for optimal learning lens.

Paper session 11: Wednesday, July 13th, 15:30 – 17:00, St. George D – 3rd Fl.

Chair: Natalia Salas

Culture and cognition. Research on planning in the population of Roma children.

Iveta Kovalcikova, Ivan Ropovik & Marta Filickova

University of Presov, Slovakia

Currently there is 1,5 – 6 millions of Roma living in Europe (a more exact approximation is made difficult by the fact that in census, Roma usually refer themselves to different nationalities). They are the descendants of travelers which have inhabited Europe in several migration waves since the 12th century. In Slovakia, Roma minority is the biggest one. Despite the implementation of various integrative strategies, Slovak Roma people have not achieved sufficient level of integration so far. The following research design, which is based on the information processing theory, intends to answer these questions: 1. To what extent does the anthropological and cultural specifics of former travelers (e.g. permanent makeshift, day-to-day living, reduced need for planning, to name a few) manifest in the cognitive functioning of a Roma child? 2. Are there some “cognitive universals” reflected in systematic cognitive deficits which could possibly contribute to low scholastic achievement of Roma pupil’s? 3. What are the particularities in planning as one of the substantial cognitive functional units participating on mental activity in the population of Roma children? The article presents the preliminary findings of a pilot study on planning which is the first stage of a more complex research. The ambition of the research team is to analyze the implications for intervention in order to design a remedial training – program of compensatory education for Roma children.

Keywords

Roma child, planning, remedial training

Efficacy of phonological awareness intervention among multi-linguistic children

Priya Kayastha Anand, Uma Hirisave, & N. Shivashankar

National Institute of Mental Health & Neuro Sciences (NIMHANS), Bangalore, India

Background: In India, learning disability research is still in its nascent stage. The education system follows three language formulas, with multi-lingual children having limited proficiency in English, the medium of instruction. Primary prevention of reading difficulties in early years of schooling ensures literacy achievement.

Objective: To examine the efficacy of integrated phonological awareness intervention among first graders with reading difficulties.

Method: Thirty children received 20 sessions of individual intervention and were compared with two control groups (one with reading difficulties and one without reading difficulties) on measures of phonological and reading skills at post assessment and six months follow-up.

Results & Discussion: Intervention group showed significant gains in phonological and reading skills than the reading difficulty control group, however did not reach the levels of no reading difficulty group. We suggest the intervention helped multilingual children in improving reading skills.

Implications of phonological intervention in education will be highlighted in the presentation.

Keywords

Phonological awareness, intervention, multilingualism

Deep Intuition: The Integrative Biology of Intuition in Education

Neil Greenberg

The University of Tennessee, United States

I wish to explore the intuitive expression of beliefs derived from nonconscious cognition in cognitive education. Explicit access to the means by which we obtain confidence in such beliefs, requires cognitive efforts that are evoked mainly when levels of subclinical stress are evoked by needs to make implicit understanding explicit. These needs occur most typically when the justifications for beliefs must be validated for public acceptance and/or private understanding. The means by which one copes with these needs changes during development, is deeply affected by context, involves genetic and cultural dispositions and biases, and is ultimately manifest by physiological mechanisms that are highly sensitive to their real or perceived urgency. I will comment on procedures for encouraging the development connections within and between disciplines that enhances confidence in intuition as well as new developments in neuroscience and epigenetics that support this approach.

Keywords: cognition, intuition, creating connections

A training of learning skills for adolescents with ADHD (LeJA) – Empirically based conceptualization and first findings of efficacy

Friedrich Linderkamp

University of Oldenburg, Germany

Adolescents with ADHD do not only suffer from the main symptoms of ADHD which are attentional problems, impulsivity and restlessness/hyperactivity. They also have to cope with biological and most of all normative developmental tasks in the context of autonomy development. There is a lack of empirically validated specific programs to treat the adolescent ADHD-Subgroup. To close this gap, “LeJA” (Lerntraining für Jugendliche mit ADHS) – a learning skills training for adolescents with ADHD – has been developed on the basis of empirical evaluation studies. Goals of the training are an increase of effective learning behavior and supporting the adolescents in coping with normative developmental tasks. An empirical evaluation of “LeJA” in a large scale study in pre-post-follow-up multi-trait-multi-method-design is currently underway. The trainings conceptualization and first evaluation results will be presented.

Keywords

ADHD; adolescents; training

Paper session 12: Thursday, July 14th, 9:00 – 11:00, St. George C – 3rd Fl.

Chair: Adina Shamir

Distributed questioning improves performance in a college psychology lecture course

Arnold Glass

Rutgers, The State University of New Jersey, United States

Over the past six years, the effect of distributed questioning on learning and retention has been investigated by embedding a fully counter-balanced within-subject, within-item experimental design in a multi-section college lecture course. The principal finding is a large improvement in performance on the block exams and final when distributed questioning is employed throughout the semester. Another interesting finding is that students do no better on the same question when provided with the answer in a textbook passage than when answering from memory.

Keywords

Distributed questioning, reading comprehension, instruction

Does multitasking impair studying? Depends on timing

Renita Y. Ip, Harold Pashler, & Sean H.K. Kang

University of California, San Diego

It has become quite common for students to study while “multitasking”. However, this rather diffuse term encompasses situations that vary as to the whether the learner controls the pace at which educational materials are provided; we hypothesize that this may be a critical determinant of interference. Three studies required students to read or listen to several short historical narratives, and also to respond by text to 5-8 unrelated questions (somewhat akin to an instant messaging dialogue). In Experiment 1, subjects read the narratives; here, multitasking marginally increased total time spent reading the narratives, especially when it occurred at random times; however, final memory for the texts was not significantly affected. Similar results were obtained when the narratives were presented in audio format and the learner could pause them while conversing (Experiment 2). However, when audio narratives did not pause, interruptions reduced comprehension performance by about 17% (Experiment 3).

Keywords

Multitasking, memory, learning

Learning disabilities: Deficits in implicit and explicit learning in a serial reaction time task?

Michael Grosche & Jürgen Wilbert

University of Cologne, Germany

Implicit and explicit learning have been proposed as two core processes of cognitive information processing. While the latter received much attention in research of learning disabilities, the former received surprisingly less attention. Implicit learning seems to be an evolutionary early form of learning that is robust to disruptions and therefore should not influence learning disabilities. However, research connecting implicit learning and learning disabilities revealed ambiguous results. The present study aims to dissociate implicit and explicit learning in a group of 45 slow learners from a special school and compares their performance to age matched non-impaired students. Both groups accomplished a serial reaction time task. In an implicit learning condition students were asked to respond as quickly and precisely as possible to the computer generated stimuli while in an explicit learning condition students were informed about an underlying regularity in the occurrence of stimuli. Results and implications are discussed.

Keywords

Implicit learning; learning disabilities; serial reaction time task SRT

The unconscious processes of memory: learning

Seffetullah Kuldaş & Zainuddin Abu Bakar

University Technology, Malaysia

This paper calls attention to reviewed studies on the unconscious processes of human memory in learning to enhance the understanding of how learning occurs. A way of how learning occurs is not necessarily resulting in the best learning. An optimal learning requires instructors to take into consideration the processes of memory in their teaching activities. Human memory consists of conscious and unconscious processes. Although the bulk of memory processes is unconscious, instructors consider only conscious processes of memory in teaching activities. The unconscious processes have often been neglected. This negligence leads to unsatisfactory results in learning. This paper shows that the effect of unconscious processes of memory needs reconsideration in teaching activities to have much more satisfactory results in learning.

Keywords

Unconscious processes, information processing, learning

Posters

Monday, July 11th, 11:30 – 17:00, St. George A&B – 3rd Fl.

Training the helpers: understanding the inferiority of children with underachievement

Wiranpat Kittitharaphan¹ & Pakinai Soontornvipart²

¹Child and adolescence Hospital, Samutprakarn & ²Streemutprakan School, Thailand

The significant problem of the helper, who take care of children with learning disabilities, is the lack of empathy. This project was designed to ascertain “Learning by heart”, to establish the understanding the feelings of children as inferiority. We used one day camping to set activities, consisted of walk rally, games to motivate teachers and parents to understand how the children with disabilities feel. They were assigned to finish the unsolvable tasks so that they could gain empathy. Parents and teachers could understand the feelings of children who have limitations of ability to learn. They also established a self-help group for sharing good practices and exchange their experience through their “Success Stories”. This project could serve as a strategy for motivating and establishing good attitude for the helpers before providing them knowledge and methods to help.

Riding on the fourth wave of test interpretation and assessment: augmentation of psychoeducational assessment

Pearly Teo & Bonnie Miller

Monash University, Australia

This study was designed to examine ways of enhancing traditional static cognitive assessment by augmentation with dynamic assessment strategies, offering an integrated model that builds on the developments in the assessment of abilities. The main objective was to construct and validate an assessment method of investigating the underlying problem-solving and learning processes when assessing cognitive performance quantitatively and qualitatively. We move beyond the assumption that intelligence is solely "g" by advancing the practice on the basis of the most recent contemporary psychometric theories, more specifically, the Cattell-Horn-Carroll model of intelligence. CHC theory offers improved delineated specific abilities to explain learning difficulties. This research considers the integration of CHC theory and an information-processing model to assess children with learning difficulties. It utilises a mediated verbalization methodology based on information-processing and dynamic testing fields to augment static ability testing. The examiner actively attempts to facilitate respondent's cognitive competence using a test-teach-retest assessment paradigm, which seeks to optimize rather than sample typical functioning. Preliminary findings highlight that children who have been involved in process questioning and mediation revealed diverse self-regulated learning and problem-solving patterns. Significant associations were found between children's affective factors, executive function (self-regulation) and cognitive abilities. Findings were useful for understanding children with various learning abilities and from culturally diverse backgrounds in Australia. These findings on the implications for psychological practice and research will be discussed.

Keywords

Dynamic testing, psychoeducational assessment, self-regulated learning

Mind the education in the out-of-class context: Integrated learning communities to educate the minds of university students

Charl Cilliers, Ludolph Botha & Pieter Kloppers

Stellenbosch University, South Africa

This poster illustrates the evolvement of a systemic and holistic approach to optimize student success by means of the out-of-class experience. Based on current research, the approach provides opportunities to non-residence students to be integrated into learning communities with residence students to enhance social-constructivist learning. The approach entails structural and social re-organization in order to form diverse groups, and to provide time and space for the creation of learning communities. Two to three residences and two to three private wards are grouped together to form a cluster, and every cluster contains a hub (a venue for day-students). Students in a cluster have access to the hub and the residences – including residence dining halls. Activities in clusters include: welcoming first-year students, mentoring, residential education and social interaction. This is an effective approach to create learning communities where students can thrive academically, as well as in all the other dimensions of wellness.

Keywords

Out-of-class experience, learning communities, residential education

Mitigating learning resistance via the Cognitive Enrichment Advantage (CEA)

Jonathan Taylor & Katherine Greenberg

Troy University, USA & University of Tennessee, USA

This presentation will provide information on the effective use of the Cognitive Enrichment Advantage (CEA) teaching method to mitigate learning resistance. It will include the introduction of a theoretical framework for understanding learning resistance, an overview of the Cognitive Enrichment Advantage (CEA) teaching approach, and an analysis of the specific ways in which CEA can be used to address student resistance in learning contexts. Presenters will introduce a typology of learning resistance based on extensive reviews of literature in the fields of psychology, education, cultural anthropology, sociology, and communication. Specifically, three potential causes of learning resistance, low self-efficacy, cultural marginalization, and lack of interest, will be discussed in relation to how they are uniquely addressed through CEA approaches.

Keywords

Learning resistance, cognitive enrichment advantage, social cognitive theory

Verbs Are Remembered Better Than Nouns When Inferentially Learned

Jason Ludington

University of California, United States

Early work by Greenfield and Alvarez (1980) found verb learning was hampered unless noun labels were known, we believe due to verb referent ambiguity. We hypothesized that verb learning relies on knowledge of nouns, yet nouns, as “given by the world” (Gentner, 1982) should not depend as critically on linguistic knowledge. To test these assertions, a word-to-image learning paradigm was used to compare noun and verb learning under ostensive (one word names the image) and inferential (two words describe the image, one known, one novel) learning conditions. Participants heard two-word phrases and saw images. One word of each pair was ostensibly learned just prior so that the other could be inferred. Our finding supported predictions: better inferential learning of verbs than nouns (Bonferroni-corrected $p=.038$). Vocabulary enrichment programs should begin with ostensive noun learning; then inferential verb learning can be used effectively, fostering inferential learning skills critical to second language acquisition.

Cognitive approach towards the development of child’s language ability

Ludmila Liptakova & Martin Klimovic

University of Presov, Slovakia

This article presents a conceptual model of Slovak language education in primary school, whether as a native language or a second language, that is based on the relationship of academic and cognitive curriculum. Our assumptions rest on the theory of mediated constructivism which emphasizes the importance of systematically stimulating child’s cognitive functions in order to develop metacognitive strategies and raise the effectiveness of learning processes. Regarding the domain of language education, we take into account the ontogenetic principles of the interrelationship between language and cognition, as seen from the holistic viewpoint which puts stress on the connection of universal cognitive principles and a system of language skills. In the framework of qualitative empirical research, we focused on the relationship of relevant cognitive functions to curricular content domains of Slovak language education. Moreover, the link between academic and cognitive curriculum in partial linguistic competencies is examined. Particular attention is paid to a curriculum-based stimulation program aimed at the development of cognitive functions and language skills of a child stemming from socially disadvantaging environment. Regarding the language and learning needs of a socially handicapped child, we focus on the stimulation of cognitive functions which are dominant in the process of early literacy acquisition.

Keywords

Language skills, stimulation of cognitive functions, primary education

Learning 'line of sight': Redesigning curricula and instructions

S. Alagumalai, & S. Sivakumar

University of Adelaide, Australia

An important outcome of motivation, both intrinsic and extrinsic, is gratification through reward and success. This is very important in education, with the learner having insights to the why, what, and how of learning an intended curriculum objective and an understanding of when and how well the performance standard has been achieved. This implies a 'line of sight' from where the learner is to progressing successfully to the planned outcomes and providing in return to the teacher a developmental progress map of the enacted curriculum. Dynamic assessment (DA) holds the promise for ensuring an optimal path to enhanced learning, and also in mediating learning gaps and challenges. This paper examines a number of theories/models associated with learning, namely Skill Theory (Fischer, 1980), Dynamic Structuralism (Fischer & Bidell, 2006), Saltus Model (Wilson, 1989), Model of Hierarchical Complexity (Commons et al., 1998, Commons, 2008), Hierarchical Discontinuities (Alagumalai, 2011), Intellectual Growth Spurt (Andrich & Styles, 1994) and the SOLO Taxonomy (Biggs & Collis, 1982), to provide a scaffold for the principles of DA. The relationship between Optimal and Functional levels and the progression from Single Abstractions through Abstract Mappings and Abstract Systems to Principles in light of DA's mediating processes are examined. Findings of a pilot study undertaken with Years 9-11 studying science (physics and chemistry) and mathematics on their learning lines of sights, and student's propensity to undertake backward transition to build and rebuild new knowledge/skills are presented. The paper advances recommendations for consideration in the designs of curricula (science and mathematics) and delivery of instructions (instructional design). Proposal for an international comparative study is highlighted.

Instructional patterns and mathematical problems in middle-school level in Chile

Llery Ponce

Pontificia Universidad Católica, Chile

The current study aimed to describe the types of problems that developed in the mathematics classroom of middle-school level in Chile. We randomly selected 60 videos of teachers that were filmed for a national evaluation of 2005, which were coded according to the following variables: length of the work segments, number of problems, mathematical procedural, dependence results, background information, the presentation of information, discussion of results and resources used in class. The work dynamics found in the mathematical problems is consistent with previous research in instructional patterns in Chile, suggesting the existence of an identifiable pattern of teaching in the mathematical work.

Keywords

Mathematical problem, Teaching, Video-survey

Reading Disability and Creativity in College Students

Catalina Mourgues

Pontificia Universidad Católica, Chile

Commonly, dyslexia is associated with reading disabilities (RD) and poor verbal performance rather than to the presence of specific skills. Objective: To explore the links between dyslexia and creativity in relation to the verbal competence.

Method: 167 Chilean undergraduate students solved three creativity-related tests: Matchstick test, Insight test, and Remote Association Words (RAW). They also responded the Learning History Questionnaire for Adult Reading for screening RD and dyslexia. Results: As a group, students with RD indicators had a lower performance than students without them in all creativity tests (MA= $F=11,452$; $In=18.402$; RAW= 25.613 ; $p < 0.05$), especially in the RAW. Nevertheless, students who reported both RD and dyslexia indicators had a better performance on Insight tests than students without them.

Conclusions: RD are associated with a reduced performance in creativity tests, however, when both RD and DI are present, there is an enhanced performance in nonverbal creativity measures.

Keywords

Reading Disabilities, Creativity, Adults

Spanish adaptation and validation of the Adult Reading History Questionnaire Revised (ARHQR)

Catalina Mourgues

Pontificia Universidad Católica, Chile

The Adult Reading History Questionnaire Revised (ARHQR) is a valuable group applicable test for detecting reading disabilities among college-level students. At the present time there are not instruments with these characteristics in Spanish.

The objective of the following study was to make a validated Spanish adaptation this test. Method: 191 Chilean undergraduate students answered the ARHQR and solved phonologic and orthographic competence tests. Reliability and discriminant analyses were made for the ARHQR. Correlations were looked among the tests.

Results: The ARHQR showed a high level of internal consistency (Cronbachs alpha = 0.92) and significant correlations with the phonologic and orthographic competence tests. The discriminant analysis showed a sensitivity of 69.6% and specificity of 77.2%.

Discussion: The results suggest that the Spanish adaptation of the ARHQR is adequate for making a first screening for reading disabilities among groups of people. It should not be used to replace an individual clinical evaluation.

Keywords

Reading disabilities, adults, questionnaire