The Odyssey to the Ithaca of Learning: Motivated Persons, Challenging Contexts
15th INTERNATIONAL CONFERENCE ON MOTIVATION 2016

The Odyssey to the Ithaca of Learning:
Motivated persons, challenging contexts

August 24-27, 2016

Aristotle University of Thessaloniki, Greece
Research Dissemination Center (KEDEA)

Organizers
Dear colleagues,

Welcome to the Aristotle University of Thessaloniki for the International Conference on Motivation 2016!

ICM2016 is jointly organized by the School of Psychology, Aristotle University of Thessaloniki, and the EARLI SIG 8: Motivation and Emotion.

Thirty years have already passed since the first WATM conference in Nijmegen, The Netherlands (1985), where a relatively small group of European researchers working on motivation inaugurated the idea of biennial scientific meetings in an attempt to promote closer collaboration, exchanging ideas, communicating different perspectives, and bridging theory, research and practice. The great success of this initiative led to the International Conferences on Motivation (started in Thessaloniki, 1998) which bring together researchers from all over the world every two years and facilitate the interaction within the international scientific community in the field of motivation, emotion and self-regulation.

“The odyssey to the Ithaca of learning: Motivated persons, challenging contexts” as the theme of the ICM 2016 points out the dynamic interaction between the person and the context in explaining the psychological processes or, in other words, ‘the journey’ towards goal attainment and learning. Independently of age, people pursue goals in all spheres of life (see ICM 2012, Frankfurt) such as education, work, social relationships, sports, personal development. The contexts within goals are pursued are challenging calling for new directions in mind (see ICM 2010, Porto), passion to learn (see ICM 2014, Helsinki), persistence to overcome difficulties and all personal qualities that are motivational in nature. At the same time, the person has to regulate her/his knowledge, skills, behaviors, self-beliefs and emotions, taking into account the contextual demands and resources. The interaction of all these factors in explaining motivation is central in ICM 2016. Odyssey captures the person’s journey to learning, while Ithaca represents the goal of the journey. The triiris in the sea of letters and the bright sun depicted in the logo of the conference hopefully reflect the dynamic interaction between motivated persons and challenging contexts towards the goal of learning.

The Organizing Committee did the best to organize a successful conference that will meet your expectations. We are proud to present an interesting and stimulating scientific programme covering current research in motivation, emotion, and self-regulation conducted in 29 countries from all over the world. With six internationally renowned keynote speakers, 190 oral presentations organized in 20 symposia (10 of which are invited) and 24 thematic paper sessions, 40 posters, an expert panel session and a pre-conference professional development workshop, ICM 2016 promises four exciting days. Special thanks are due to the International Scientific Board Members and all reviewers for their significant contribution to the high level of the conference.

The summer schools for young researchers preceding ICM have already had a successful history. The ICM 2016 Summer School will take place in Epanomi, a beautiful suburb of Thessaloniki, next to the beach from 21 to 23 of August, 2016. A group of 21 highly motivated PhD students will enjoy the mentorship of six distinguished professors in their pursuit to motivation, emotion, and self-regulation research while enjoying the sea, the sun and the Greek hospitality.
We invite all of you to join us in this wonderful journey of the ICM 2016 that started two years ago. ICM 2016 will give us ample opportunities to discuss with experts and colleagues about current issues in the field of motivation, emotion and self-regulation, to inspire and get inspired by innovative ideas in theory and research, and to provide recommendations to decision makers in order to maximize the potential influence of motivational research in educational practice, as well as in other areas of human life.

Last but not least, the Local Organizing Committee would like to thank all those who have supported the conference from the very first moment, as well as all those who have given so generously of their time in helping to make this event a reality.

Welcome to Thessaloniki and enjoy ICM 2016!

On behalf of the Local Organizing Committee
Eleftheria N. Gonida
*ICM 2016 Chair*

The SIG8 Co-ordinators
Marina S. Lemos
Hanke Korpershoek
MORE ABOUT ODYSSEY - LOGO CONCEPT

ICM 2016 Conference’s Visual Identity is inspired by Ancient Greek Literature and Homer’s epic poem, Odyssey.

The Odyssey is one of two major ancient Greek epic poems attributed to Homer. It is, in part, a sequel to the Iliad. The poem is fundamental to the modern Western canon, and is the second oldest extant work of Western literature, the Iliad being the oldest. Scholars believe it was composed near the end of the 8th century BC, somewhere in Ionia, the Greek coastal region of Anatolia.

The poem mainly centers on the Greek hero Odysseus (known as Ulysses in Roman myths), the legendary king of Ithaca, and his journey home after the fall of Troy. It takes Odysseus ten years to reach his beloved Ithaca after the ten-year Trojan War. In his absence, it is assumed he has died, and his wife Penelope and son Telemachus must deal with a group of unruly suitors, the Mnesteres or Proci, who compete for Penelope’s hand in marriage.

Homer portrayed Odysseus as a man of outstanding wisdom and shrewdness, eloquence, resourcefulness, courage, and endurance. Odysseus’s bravery and skill in fighting as well as his high-order thinking, reflective style, decision making skills, high motivation to achieve his goals, persistence, emotion regulation, leadership and determination are demonstrated repeatedly in Odyssey. On the one hand, Homer presented Odysseus’s journey as full of adventures and challenges demanding solutions, frequently innovative ones, and persistence towards goal attainment. On the other hand, the journey was presented as full of learning experiences, opportunities for self-development in terms of gaining knowledge and skills, enjoyment and self-enhancement. Odysseus appears as the man who takes into account the contextual challenges and affordances, counts on himself, but also contributes in the promotion of cooperation among Greeks, including the reconciliation between Agamemnon and Achilles (Iliad).

Odyssey as the person’s journey to learning, Ithaca as the goal of the journey, the triiris in the sea of letters and the bright sun hopefully reflect the dynamic interaction between motivated persons and challenging contexts towards the goal of learning.

The mission of the Motivation and Emotion SIG is to promote research and theory on the person and situation influences on the direction, intensity, quality and persistence of human behavior related to learning and instruction. SIG activities include support of the International Conference on Motivation (ICM) that is held in years between the EARLI Biennial Conferences. The ICM includes a pre-conference Summer School at which graduate students have the opportunity to meet and work with prominent motivation researchers. The SIG also confers Student Research Excellence Awards at each EARLI conference to graduate students whose presentations are judged especially meritorious.

http://www.earli.org/special_interest_groups/motivation

**SIG8 Co-ordinators**

Marina S. Lemos, *University of Porto, Portugal*

Hanke Korpershoek, *Rijksuniversiteit Groningen, The Netherlands*

**Assistant Co-ordinator**

Kerstin Helker, *RWTH Aachen University, Germany*

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The School of Psychology, AUTh, was founded in 1993. It is an internationally renowned school aiming to train new scientists as well as to promote and develop the science of psychology.

Approximately 200 undergraduate and 30 postgraduate students are accepted annually. The School is actively involved in European and international networks of cooperation in terms of teaching, research and community interventions.

More information at www.psy.auth.gr
COMMITTEES

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Simone Volet, Murdoch University, Australia
Marold Wosnitza, Aachen University, Germany
### List of Reviewers

*We would like to express our thanks to the following colleagues for giving their valuable time to the ICM2016 proposals!*

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The ICM 2016 summer school will bring together an international group of 21 highly motivated Ph.D students in the field of motivation, emotion, and self-regulation. A highly selective blind review process was applied for the ICM 2016 summer school. The young researchers will have the opportunity to present their research projects, get valuable feedback and enjoy high level mentoring from the ICM2016 summer school experts, while enjoying the sea, the sun and the Greek hospitality. Akti Retzika, situated at the sandy beach of Potamos in Epanomi, a suburb of Thessaloniki, will host the summer school students and all related activities (www.retzikas.gr)

ICM 2016 Summer School Professors

Thérèse Bouffard, *Université du Québec à Montréal, Canada*

Angeliki Leontari, *University of Thessaly, Greece*

Susanne Narciss, *Technische Universität Dresden, Germany*

Jari-Erik Nurmi, *University of Jyväskylä, Finland*

Francisco Peixoto, *Instituto Superior de Psicología Aplicada, Instituto Universitário, Portugal*

Marja Vauras, *University of Turku, Finland*
KEYNOTE SPEAKERS

Ruth Butler
The Hebrew University of Jerusalem, Israel

Anastasia Efklides
Aristotle University of Thessaloniki, Greece

Stuart Karabenick
University of Michigan, Ann Arbor, USA

Markku Niemivirta
University of Helsinki, Finland

Deborah Stipek
Stanford University, USA

Allan Wigfield
University of Maryland, USA
INVITED SYMPOSIA

In order of appearance in the programme

Studying Motivation in Context: Contemporary Perspectives and Interactive Work Session
Organizers: Tim Urdan, Santa Clara University, USA
Avi Kaplan, Temple University, USA

‘Motivation, Emotions and Beliefs – All Show?’ A Critical Examination of the Evidence for the Substantive Connection between Measured Motivation and other Self-constructs and Academic Performance
Organizer: Dennis M. McInerney, Hong Kong Institute of Education, Hong Kong

Spotlight on Motivational Applications: Contribution of Motivational Self-Diagnostics in Reducing the Incidence of Tertiary Education Dropout
Organizers: Marold Wosnitza, RWTH Aachen University, Germany
Fani Lauerman, University of Bonn, Germany
Stuart Karabenick, University of Michigan, USA
Katharina Zay, RWTH Aachen University, Germany

Engagement and Emotions in Collaborative Learning: How Do They Interrelate and What Are The Implications?
Organizers: Simone Volet, University of Murdoch, Australia
Marja Vauras, University of Turku, Finland

The Interplay of Students’ Socio-emotional and Motivational Factors with Learning and Adjustment in Different Academic Settings
Organizers: Eirini Dermitzaki, University of Thessaly, Greece
Diamanto Filippatou, University of Thessaly, Greece
What Does the Engagement Construct Have to Contribute to Our Understanding of the Learning Process and the Self Regulation of the Learning Process?
Organizers: Monique Boekaerts, Leiden University, The Netherlands
Marina S. Lemos, Universidade do Porto, Portugal

Moving the Achievement Goal Approach One Step Forward: Towards a Systematic Study of the Reasons Underlying and the Values Relating to Achievement Goals
Organizers: Maarten Vansteenkiste, Ghent University, Belgium
Athanasios Mouratidis, Hacettepe University, Turkey

Future Time Perspective as a Motivator in Different Life Domains
Organizer: Thea Peetsma, University of Amsterdam, The Netherlands

Promoting Student Motivation with Utility Value Interventions
Organizer: Ulrich Trautwein, University of Tübingen, Germany

Application of Motivational Theories in Educational and Sport Settings
Organizers: Haralambos Tsorbatzoudis, Aristotle University of Thessaloniki, Greece
Panayiota Metallidou, Aristotle University of Thessaloniki, Greece
WEDNESDAY, AUGUST 24th

10:00-12:00 Registration

12:00 CONFERENCE OPENING
Conference Hall II (-1)
Chairs: Eleftheria N. Gonida, Chair of the Organizing Committee
Marina S. Lemos, Chair of the International Scientific Board

12:30-13:30 KEYNOTE 1
Conference Hall II (-1)
Affect and Metacognition: Why their Interactions are Important for Self-Regulated Learning
Anastasia Efklides, Aristotle University of Thessaloniki, Greece
Chair: Panayiota Metallidou, Aristotle University of Thessaloniki, Greece

Self-regulated learning (SRL) involves motivation, affect and metacognition as three fundamental components that direct, monitor and control behavior. Although most of the research on each of these components focuses on each component’s effects independently from the effects of the others, there is a growing number of studies showing that motivation (achievement goals, expectancy X value beliefs, attributions), affect (emotions, mood, attitudes, self-concept, etc.) and metacognition may interact in an SRL context. This presentation aims at bringing to the fore evidence suggesting that there are interrelations between affect and metacognition at a macro-level (i.e., person characteristics) but mainly at a micro-level (i.e., task processing level). At the micro-level SRL is influenced by objective and subjective task demands as well as by awareness of affective and metacognitive experiences in response to task processing characteristics. For example, fluency or disfluency of cognitive processing has implications both for affect and metacognitive experiences. Control of cognitive processing may rely on metacognitive experiences or metacognitive knowledge but also on affect and, specifically, the valence of the experienced affect, be it positive or negative. On the other hand, epistemic emotions such as surprise or curiosity (in the sense of intention for exploration) are related to metacognitive experiences indicating processing fluency or disfluency. This kind of evidence has important implications for SRL theory but also for educational practice, because interventions may have far reaching effects beyond those aimed at.

13:30-14:30 Lunch

14:30-16:00 SYMPOSIA

Invited Symposium
S1. Studying Motivation in Context: Contemporary Perspectives and Interactive Work Session
Conference Hall I
Organizers: Tim Urdan, Santa Clara University, USA
Avi Kaplan, Temple University, USA
Chair: Tim Urdan, Santa Clara University, USA
Discussant: Avi Kaplan, Temple University, USA

There is growing recognition that motivational processes are influenced by the contexts within which they
occur. The theme of the ICM 2016 conference highlights the dynamic interaction between the person and the context in motivation. However, motivational theories differ with regard to the significance of context in motivation; from relatively minor cues in the environment that trigger individuals’ stable motivational dispositions, to interactions between the individual and contextual characteristics, to an all-encompassing role of cultural-contextual scripts that frame all motivational processes. The need to incorporate context into motivational theory, research, and intervention requires careful consideration of the ways by which to conceptualize and operationalize the context in motivation. This session comprises a panel of five scholars who have conducted motivational research using different conceptualizations and strategies for studying motivational processes in context. The session will begin with each scholar providing a brief (5 minutes) presentation about her or his approach to conceptualizing context and examining motivation in context. The session will continue with the presentation of a case of motivational phenomena – for example, student’s motivation in collaborative learning – to be followed an interactive discussion of various approaches to understanding and researching this case. This will be followed with a facilitated discussion among the panelists and the audience to identify challenges, opportunities, and strategies for conducting research that is aimed at better understanding the contextual factors and processes that influence motivation.

A situative approach to studying motivation and engagement across contexts
Susan Nolen, University of Washington, USA

Researchers taking a variable-centered approach to motivation look for regularities that lead to generalizations about the operation of constructs across contexts. Usually this research takes the individual as the unit of analysis or creates “average” responses across individuals to study group differences. Situative research uses ethnographic methods (along with more traditional quantitative methods) to characterize the processes of motivation and engagement as they manifest in specific contexts. Many people assume that a situative approach limits the researcher to ungeneralizable conclusions about motivation or engagement in a single context. In research over the last 15 years, my colleagues and I have looked for regularities in the processes of motivation and engagement operating across contexts and cases in an attempt to develop generalizations leading to a theory of motivation and engagement. In this presentation I will briefly describe the methodological structures of studies in which we have used this approach and how they enable us to develop and continue to elaborate a situative theory of motivation and engagement.

Using activity system analysis to represent the relation between the activity system and the person
Julie Turner, Notre Dame University, USA

This presentation will focus on the use of Activity Systems Analysis (ASA) to analyze two years of data on the development of teacher leaders in Professional Learning Communities (PLCs). ASA enables researchers to understand change within complex qualitative data sets by finding systemic relations within the activity, specifying tensions in the system and explicating outcomes. Engeström’s (1987) triangle enabled us to analyze systemic relations among 7 components in the activity system. These components include the motives of the subject (teacher leaders) in attaining their object (improved instruction to support student engagement) and how this activity was mediated by the tools the leaders used as well as by the sociohistorical components of rules, community and division of labor. Rules inform participants about acceptable interactions with the community. Community is the social group with which the subject identifies during the activity. Division of labor refers to horizontal division of tasks and vertical division of power and status. By specifying which components were contradictory, we identified tensions, or problems that the teacher leaders had to resolve if change were to occur. These “local innovations” became the mechanisms of change and led to new outcomes. The series of activity systems illuminates the transformation of a mostly private, autonomous and egalitarian culture to one of nascent collaboration, reflection and shared values as well as teacher leaders’ development of agency.
Motivation and context: An identity systems perspective
Avi Kaplan¹, Joanna Garner²
¹ Temple University, USA
² Old Dominion University, USA

We describe a conceptualization of context for motivation from a complex identity systems perspective. From this perspective, situated motivation reflects the individual’s dynamic role-identity system, which comprises continuously emerging and interdependent beliefs, goals, self-perceptions, and action possibilities pertinent to a contextualized role (e.g., student, teacher). The continuous emergence of the individual’s role-identity system takes place within higher-order dynamic systems that provide it context. For example, direct social interactions with peers constitute the context for the emergence of the participating individuals’ role-identities and motivation, simultaneously influencing and being influenced by these identities. This social interaction system can also be conceptualized to have a role-identity, that, similar to an individual’s role-identity, has a more or less harmonious or conflictual set of beliefs, goals, self-perceptions, and action possibilities. And this social interactions system is embedded in yet larger systems such as an organization, and society at large, each conceptualized to have a role-identity and to provide context for the identity systems within it. This perspective, which draws on the principles of complex dynamic systems (CDS) of self-similarity across units-of-analysis, irreducibility, dynamism, contextualism, and non-linearity, provides conceptual principles for investigating and intervening in role-identity systems and motivation of different units-of-analysis (e.g., individual, team, group, classroom) by using the systems that provide context to perturb the target identity system and promote adaptive identity exploration and motivation. We provide examples for such research that focused on students’, teachers’, and organizational identity exploration and motivation.

Considering context in the development of motivation scales
Marold Wosnitza, Katharina Zay
RWTH Aachen University, Germany

Online self-assessments are web-based and self-directed counseling tools for prospective students that consist of different cognitive and motivation scales related to the requirements and expectations set for a specific study program at a specific university. These tools aim to give prospective students the opportunity to reflect on the alignment of their personal skills and expectations, their motivation and interest with these external requirements and expectations. Universities implement self-assessments to help students identify the most suitable study program for them, but also reduce numbers in student drop out of study program or university as a whole. The feedback these online self-assessments provide to students shows high prognostic validity for later study success. Since motivation is one keystone for this success, motivation scales are regularly implemented in these self-assessments. In this presentation, we will discuss the transfer of such an online self-assessment from a German university to a university in Oman and specifically which implications the different cultural, educational and technical contexts have for the development of the measures and scales.

S2. Motivation and Affective Relationships in School among Children with Problem Behaviors
Conference Hall II (-1)

Organizers: Riitta-Leena Metsäpelto, University of Jyväskylä, Finland
Eija Pakarinen, University of Jyväskylä, Finland
Chair: Eve Kikas, Tallinn University, Estonia
Discussant: Anna-Maija Poikkeus, University of Jyväskylä, Finland

Strong evidence indicates that problem behaviors – broadly defined in terms of externalizing and internalizing problems, aggressiveness and antisocial behavior – interfere with learning and acquisition of academic skills. More research, however, is needed on the daily functioning in school among children with problem behaviors,
focusing on 1) their persistence and interest to work with school tasks and to value them, and 2) to develop and sustain affective relationships with peers and teachers. This symposium, consisting of four studies conducted in Finland, Estonia, and Greece, contribute to prior research by increasing knowledge of children with problem behaviors as they move through the school system. The first paper (Jõgi & Kikas) investigates students from Grade 3 to 6 to gain understanding on the linkages between problem behaviors and task persistence in the classroom. The second paper (Metsäpelto et al.) examines the effect of students’ externalizing problems on changes in achievement values (utility, intrinsic, and attainment value) in math across transition from primary to secondary school. The third paper (Metallidou & Baxevani) utilizes data collected from students in Grades 4 and 6 to investigate whether antisocial behavior predicts involvement in bullying behavior. The fourth paper (Pakarinen et al.) uses follow-up data from Grade 6 to 7 to examine the co-development of externalizing and internalizing problems, teacher-student relationships, and interest and self-concept in math. Together, these four papers increase understanding of the developmental paths and consequences of problem behaviors in the school context. The implications for theory and practice will be discussed.

**Task persistence, task avoidance, and aggressive behavior: Stability in time and mutual relations between Grades 3 and 6**

Anna-Liisa Jõgi, Eve Kikas
Tallinn University, Estonia

The aim of the study was to examine mutual relations between task persistence, task avoidance (student and teacher reported) and aggressive behavior (teacher reported) from Grades 3 to Grade 6 in language arts and math context. The participants were 797 students, their 51 third grade class teachers, 33 sixth grade math and 34 sixth grade language art teachers. Task persistence, task avoidance, and aggression were assessed with questionnaires. The children also completed text comprehension and math tests in both grades. While teacher-reported task-related behavior showed a single dimension (task persistence - task avoidance), two separate constructs – task persistence and task avoidance – emerged from self-reports. Cross-lagged path analysis was conducted from both language arts and math data. Mutual negative relations between teacher-rated task persistence and aggression were found for math but not for language arts or self-reported learning behavior. Relations between teacher- and child-reported task-related behavior were quite low and expected relations between task-related behavior and academic skills were more evident from teacher reports. Reasons for differences between teacher- and child-reported measures and contexts are discussed.

**Changes in achievement values from primary to lower secondary school in students with externalizing problems**

Riitta-Leena Metsäpelto1, Päivi Taskinen2, Bärbel Kracke2, Gintautas Silinskas1, Marja-Kristiina Lerkkanen1, Anna-Maija Poikkeus1, Jari-Erik Nurmi1

1 University of Jyväskylä, Finland
2 Friedrich Schiller, University of Jena, Germany

This paper examines the effect of student’s externalizing problems on changes in values students attach to math across transition from primary to lower secondary school. Data pertaining to externalizing problems and to intrinsic, utility, and attainment values in math were gathered using student’s self-ratings in Grades 6 and 7. The focus is on the students who reported persistent and severe externalizing problems (above 1 SD in externalizing problems before and after transition; n = 86; 72% boys) and those having low or non-existing externalizing problems (below 1 SD in externalizing problems before and after transition; n = 1394; 53% boys). Mixed-design ANCOVA showed that the students with high externalizing problems had lower intrinsic, utility, and attainment values in math than those with no externalizing problems. The intrinsic and utility values declined across transition in both groups. Similarly, the attainment value declined across transition but with steeper decreasing trend found for boys with high level of externalizing problems. The only group with positive gains in the perceived value of math was the girls with high level of externalizing problems. They reported an increasing trend in attainment value while the girls with no externalizing problems declined as they progressed from primary to lower secondary school. In the whole, the study indicated that the transition...
negatively affected the students’ valuing of math and left especially students with severe and persistent externalizing problems to a disadvantaged position.

Affective empathy and social competence as predictors of different roles in school bullying
Panayiota Metallidou, Magdalini Baxevani
Aristotle University of Thessaloniki, Greece

The present study aimed at exploring the contribution of two forms of prosocial (affective empathy and cooperation) and two forms of antisocial (quick temperedness and disruptiveness) self-reported behaviors to different roles in bullying in elementary school children. One hundred and seventy two Greek elementary students of both genders (n = 95 boys) from 4th (n = 89) and 6th grades from public elementary schools in the city of Thessaloniki were examined with self-report questionnaires in groups. Specifically, they were asked to report: (a) their social competence (cooperative skills, affective empathy, quick temperedness, and disruptiveness), (b) the frequency of acting as bully or of being a victim of bullying in the school context, and (c) the roles they tend to adopt in bullying situations (defenders, reinforcers, assistants, outsiders). The preliminary results have shown that the self-reported cooperative skills and the affective empathy were significant positive predictors of the defender role. The same social competence factors were found to be significant negative predictors of reinforcer/assistant role and of the outsider role. Interestingly enough, the two antisocial factors (quick temperedness and disruptiveness) were found to be significant positive predictors not only of the bullies and the reinforcers/assistants, as predicted, but of the victims as well. The educational implications of the results are discussed as well as possible interventions in the school context.

Students’ externalizing and internalizing problems, interest and self-concept of ability in math, and teacher-student relationship
Eija Pakarinen, Riitta-Leena Metsäpelto, Marja-Kristiina Lerkkanen, Anna-Maija Poikkeus, Jari-Erik Nurmi
University of Jyväskylä, Finland

This study investigated the cross-lagged associations between students’ externalizing and internalizing problems, interest and self-concept of ability in math, and teacher-student relationship during the transition to lower secondary school. The participants were 285 Finnish students (44% girls, 56% boys). Data pertaining to students’ externalizing and internalizing problems (teacher and self-ratings) and interest and self-concept of ability in math (self-ratings) were gathered at the end of grades 6 and 7. Teachers also rated twice quality of teacher-student relationship (i.e., closeness and conflict) with a particular student. Students’ gender was tested as a possible moderator. The results showed that boys’ teacher-rated and girls’ self-rated externalizing problems predicted subsequent teacher-perceived conflict. In girls, both self- and teacher-rated internalizing problems were linked to subsequent close relationship with teacher. Girls’ self-rated internalizing problems negatively predicted their interest in math. For both genders, high self-concept of ability in math was related to low extent of teacher-rated internalizing problems and for girls, also to low extent of self-rated externalizing problems. Girls’ high self-concept of ability in math was also linked to close subsequent relationship with teacher whereas boys’ higher interest in math was related to closer and less conflictual relationship with teacher. The findings suggested that problem behaviors predict the quality of teacher-student relationship and these associations are different for boys and girls. Problem behaviors were also associated with students’ self-concept of ability. In girls, the associations were reciprocal as externalizing problems both predicted and were predicted by self-concept of ability in math.

S3. Understanding Situational Interest

Organizer & Chair: K. Ann Renninger, Swarthmore College, USA
Discussant: Maximilian Knogler, TUM School of Education, Germany

In order to take stock of our current understanding of situational interest and, importantly, to consider what is yet to be understood, the proposed symposium brings together researchers from varying perspectives and training who work with differing types of data and levels of analysis. It will be a facilitated discussion that draws on empirical findings. Situational interest is defined as an earlier phase in the development of interest
for persons who have little prior interest in a given content (e.g., mathematics, music) and it also can be a trigger for the continued development of interest for persons who already have a more developed, or individual, interest. In both instances, interest that is triggered as a situational interest and may or may not be maintained; if situational interest is maintained, it contributes to the process of interest development. Clarifying the nature of situational interest in earlier and later phases of interest development has implications for both theory and practice. Broad categories of factors have been identified and shown to sustain situational interest once it has been triggered (e.g., autonomous learning environments, novelty, variety, personal relevance, efficacy), however, it is less clear when, how, and for whom these factors help create and/or maintain interest, or their role in interest development. The symposium presenters and those in attendance will discuss these issues.

Implicit theories of interest: Finding your passion or developing it?
Paul A. O’Keefe¹, Carol S. Dweck², Gregory M. Walton²
¹Yale-NUS College, National University of Singapore Business School, Singapore
²Stanford University, USA

People are often told to find their passion as though passions and interests are pre-formed and must simply be discovered. This idea, however, has hidden motivational implications. Four studies examined people’s implicit theories of interest—the idea that personal interests are pre-formed and relatively fixed (fixed theory) or developed (growth theory). Whether assessed or experimentally induced, a fixed theory dampened interest in areas outside people’s existing interests (Studies 1 and 2). Furthermore, fixed theorists anticipated boundless motivation when passions were found, not anticipating possible difficulty (Study 3). Indeed, when engaging in an interest became difficult, interest flagged significantly more for those induced to hold a fixed vs. growth theory (Study 4). Thus, supporting a growth theory might aid in the development and maintenance of interest.

Students’ situational interest in a citizen science program: The value component
Niels Bonderup Dohn
Aarhus University, Denmark

In the study to be presented, we investigated how a science program on monitoring endangered freshwater biodiversity using environmental DNA stimulates students’ interest. Students detect faunas of amphibians and fish by high-throughput sequencing of DNA extracted from their local pond water. The findings are filled in the national fauna database. We were interested in how students rated their level of interest, with a special focus on the significance of students’ own contribution to the national fauna database. Situational interest is known to be sustained through value beliefs, e.g. by experiencing meaningfulness. However, the preliminary analyses indicate high feeling-related valences in performing the DNA inquiry (e.g., having fun with the lab equipment) whereas value-related valences of interest were rated lower (e.g., significance of contribution to research). This calls for a discussion of when and under what conditions value beliefs develop.

Situational interests: A (humble) proposal forward
Flávio S. Azevedo
The University of Texas at Austin, USA

I advance a (humble) proposal for a new focus for research on situational interests. I begin by noting that current conceptions of situational interest fundamentally assume the phenomenon refers to a discontinuity in a person’s experiences—i.e., “to create or to identify a new interest where there was none.” While there is merit to this perspective, I argue that it misses the larger continuities within which the whole of one’s experience takes on meaning, and which are crucial to understanding how new experiences—e.g., emergent, situational interests—are appropriated into one’s repertoire of activities and practices. To argue this point, I look at various videotaped episodes in which students in an after-school program seemed highly engaged in emergent interests. When analyzing these episodes, I show that both continuities and discontinuities must be accounted for in order to build a more holistic and realistic account of situational (short-term) interests.
Life science students learning physics with life science examples: A context for thinking about situational interest
K. Ann Renninger, Ming Cai, Panchompoo Wisittanawat, Catherine H. Crouch
Swarthmore College, USA

In this exploratory study, we compared the impact of an introductory physics for the life sciences (IPLS) course on student attitudes to interest in physics to the impact of the standard first semester of introductory physics that precedes it. Our findings suggest that students’ level of interest in the life science examples is a better predictor of composite exam score in the course than students’ pre-course interest in physics. We also find that students’ attitudes to and beliefs about physics hold steady or are improved by the second semester course, while the same students’ attitudes decline during the standard first semester course. Students with the lowest initial interest in physics display the greatest increase in interest and the greatest improvement in attitudes over the second semester, while their interest and attitudes declined during the first semester. Many students with low initial interest are female; on average, female students in the study improve in interest and overall attitudes during the IPLS semester, but decline on both measures during the standard semester. These findings suggest that especially for students who enter the course with less developed interest in physics, the use of life science examples supports student learning. Ratings of the life science examples also appear to suggest, however, that whether something is (or is likely to be) a situational interest for a person is influenced by the phase of that person’s existing interest and holds implications for thinking about situational interest.

S4. Student Engagement in Challenging Contexts: The Role of Emotional and Motivational Processes

Organizer & Chair: Dave Putwain, Edge Hill University, UK
Discussant: Johnmarshall Reeve, Korea University, Korea

Student engagement has been described as ‘the holy grail of learning’. The various cognitive, behavioural, and emotional elements that constitute student engagement represent effective learning, the key to progression and achievement. Accordingly, educational researchers and practitioners are keen to unpick the elements of effective engagement in order to understand and facilitate student learning. This symposium aims to contribute to this aim by focusing on the emotional and motivational processes in student engagement. The four studies that constitute this symposium examine student engagement in different types of challenging contexts. Two studies use self-determination theory to examine attempts to re-engage students that have become disconnected from routine secondary education, often described as the ‘hard to reach and hard to teach’; one study in an ‘alternative provision’ upper secondary school and one study in a ‘temporary stay’ lower secondary school. The principal challenge here for students is, with the support of their teachers and other educational professionals, to re-connect with their education. The remaining two studies examine student engagement in a mainstream population prior to a high-stakes examination; one study examining engagement and achievement goals in primary school students prior to taking their first ever ‘major’ test and one study drawing on appraisal theories to understand how threat-based messages relate to engagement in secondary school students preparing for their school leaving examination in mathematics. The challenge here is for students to perform. The results of high-stakes tests and examinations for students determine one’s subsequent school and life trajectory.

Student perceptions of teaching practices that can facilitate educational re-engagement
Laura Nicholson, Dave Putwain
Edge Hill University, UK

Past research into student engagement has focused on behavioural engagement in students attending mainstream school. The present study investigated the school-related factors that facilitate re-engagement in learning from the perspective of disengaged students. Specifically, teacher (or other school staff) behaviours that supported the psychological needs for autonomy, relatedness and competence were
identified using the framework of self-determination theory (SDT; Deci et al., 1991). The aim was to extend the literature on how to re-integrate disengaged students into education. Participants were secondary school students who had stopped attending mainstream school. They attended an alternative provision (AP) school in England, in which they were taught a reduced academic curriculum in small classes with a focus on student-staff relationships. Semi-structured interviews were conducted with students to elicit information about their psychological needs, engagement and academic progress. Interpretative phenomenological analysis was used to identify, describe and interpret the themes within the data. Students believed that they were engaged in their learning at the AP school, and the student-staff relationship was found to be crucial to this re-engagement. Students reported many different avenues through which staff supported their needs for autonomy, relatedness and competence. These specific teacher behaviours may reflect a process of re-engagement into education not currently represented in existing models of engagement and may be used to form the basis of a model of re-engagement into education. Moreover, the current findings need to be disseminated to mainstream schools to enable them to incorporate elements into their teaching practices to prevent disengagement/encourage re-engagement.

Student perspectives on their educational environments: A Self-Determination theory approach to the intrapersonal dynamics underlying engagement in learning
Claire Kinsella¹, Dave Putwain², Linda Kaye²
¹Liverpool Hope University, UK
²Edge Hill University, UK

While much attention has been given to the interaction between students’ psychological needs, engagement levels and academic outcomes, less attention has been paid to students’ perceptions of their educational environments. This presentation addresses the latter aim in order to develop a more comprehensive understanding of the dynamics underlying engagement in learning. It draws upon questionnaire and interview data obtained during a seven-month-long initiative at a temporary-stay lower secondary school in England where an arts-based project was implemented with view to enhancing the educational engagement of a group of students (aged 12-13) who had been excluded from mainstream school. Self-Determination theory was employed to investigate the extent to which their educational contexts were perceived as supporting their basic psychological needs. Questionnaire responses revealed differences between students regarding their perceived levels of competence and relatedness, while autonomy scores were more closely clustered together and were generally the lowest scoring of all needs. Interviewee responses revealed a range of different perceptions – some positive, others largely negative, especially with respect to relations with school peers and evaluations of skill levels in art. However, regarding opportunities to develop a sense of autonomy, participants demonstrated a simultaneous awareness of the necessity of classroom cooperation to gain skills for future life as well as the constraints this sometimes placed upon their more immediate desires to disregard the classroom rules in favour of more leisurely pursuits. The implications of these differing perspectives and ambivalent views will be considered in light of attempting to effectively evaluate educational initiatives.

The predictive role of achievement goals on behavioural and affective engagement in maths lessons
Wendy Symes¹, Dave Putwain², Sandra Becker¹, Reinhard Pekrun¹
¹University of Munich, Germany
²Edge Hill University, UK

Pupil engagement prior to important exams is essential if pupils are to perform at their best. This study examined how achievement goals predict behavioural and affective engagement in primary school pupils preparing to take their first ‘high-stakes’ exam in mathematics. Data were collected at three time points throughout one academic year from 1156 students in 29 schools. Behavioural and affective (enjoyment and boredom) engagement data were collected at T₁ and T₃, whilst achievement goal data (based on the 3x2 model) was collected at T₂. Data were analysed in a series of structural equation models that controlled for student age and gender and accounted for the clustering of pupil data within schools. Self, task and other approach goals all predicted future behavioural and affective engagement (excluding boredom for another-
Do fear appeals prior to a high-stakes test improve student engagement?
Dave Putwain, Laura Nicholson, Ghada Nahkla, Ben Porter

Edge Hill University, UK

Previous studies have shown that teachers use messages that focus on the importance of avoiding failure (fear appeals) prior to high-stakes examinations as a motivational tactic. The impact of fear appeals on educational outcomes is determined by how these messages are interpreted, or appraised, by students. When appraised as a challenge, fear appeals can result in positive outcomes, such as increased academic self-efficacy and value. When appraised as a threat, fear appeals can result in negative outcomes, increased test anxiety and lower test scores. The aim of this study was to examine whether fear appeals, and their appraisal as challenging or threatening, impacted on students’ emotional and behavioural engagement. Data were collected from 1373 students, clustered in 46 classes, and 81 teachers responsible for instruction in those classes, prior to a high-stakes mathematics secondary school exit examination. Data were analysed in a multilevel structural equation model that included age, gender and year group as covariates. At the student level, the appraisal of fear appeals as challenging led to greater emotional and behavioural engagement whereas the appraisal of fear appeals as threatening led to lower emotional and behavioural engagement. At the class level, the impact of fear appeals on class-average behavioural engagement was mediated by their appraisal. Fear appeals resulted in higher behavioural engagement when appraised as a challenge and lower behavioural engagement when appraised as a threat. The effectiveness of fear appeals as a motivational strategy depends on how they are understood and interpreted by students.

16:00-16:30 Coffee break

16:30-17:30 KEYNOTE 2  Conference Hall II (-1)

Contexts, Cognitions, and the Development of Achievement Motivation: Lessons from Young Children
Ruth Butler, The Hebrew University of Jerusalem, Israel

Chair: Irini Dermitzaki, University of Thessaly, Greece

Approaches to the development of achievement motivation, self-appraisals, and self-regulation have traditionally emphasized the underlying role of cognitive development. One implication is that “ignorance is bliss”; young children cannot be motivated by potentially maladaptive ego-involved concerns about their capacity, even in contexts that emphasize the importance of demonstrating ability, because relevant concepts cannot develop before middle-to-late childhood. After briefly illustrating how this approach guided my earlier work on the development of social comparison, I shall present several studies from an ongoing research program that indicate instead that young children are very adept at identifying the goals or purposes of activity in familiar situations and tend to regulate their behavior and judgments accordingly. Results for expectancies, task choice, performance, self-appraisal, and recall after failure converged in confirming that children at ages 3-6 distinguished between contexts in which the goal was to acquire versus to demonstrate competence and regulated their judgments and behaviors accordingly. Specifically, they showed several of the hallmarks of task versus ego-involved responses to setbacks identified in older children and adults. Contextual influences were not modified by age or conceptual understandings. I shall discuss implications for conceptualizing and studying the development of motivation, self-regulation, and competence in context, in both achievement and social-moral domains.
The crucial role of motivation for students at risk to drop out of school
Barbara Otto\textsuperscript{1}, Nguyen Giang-Nguyen\textsuperscript{2}, Havard Byron\textsuperscript{2}
\textsuperscript{1}University of Frankfurt, Germany
\textsuperscript{2}University of West Florida, USA

This paper provides the results of a longitudinal research on two potential key factors which are expected to contribute to whether or not low-achieving students graduate from high school: their time spent on homework and their motivation. The classic model of Carroll (1963) postulates that learning time is the main determinant of students' achievement. However, the empirical findings are controversial (Flunger et al., 2015; Trautwein, 2007). In contrast, many results based on Self-Determination Theory have revealed the decisive role of motivation and engagement which are found to be positively related to students' academic success. Thus, this paper addresses whether or not low-achieving students who drop out of school significantly differ from those who graduate regarding their time spent on homework and motivation. The analyses are based on data of the Educational Longitudinal Study of 2002 (ELS, 2002) which assessed approximately 15,000 students in 10th grade as well as 12th grade. To address the research question we selected only participants who were in the lowest quartile regarding their school achievement in 10\textsuperscript{th} grade (N = 2938) and thus were the ones at risk for dropping out of school. The successful graduation served as grouping variable (drop out vs. graduate). Time spent on homework as well as students' motivation were assessed by a questionnaire administered in 10\textsuperscript{th} grade. Two separate MANOVAs were conducted. The results revealed a significant difference between those students who dropped out of school compared to those who graduated regarding their motivation, but not concerning their time spent on homework.

School selection drove me to an (un)favourable vocational track, should I believe it was fair? Assessing the motivational impact of justice beliefs in the attendance of low versus highly selective tracks in high school.
Fernando Núñez-Regueiro, Olivier Cosnefroy, Pascal Bressoux
Université Grenoble-Alpes, France

This paper presentation explores the protective role of justice beliefs in preventing school refusal behaviours (e.g., tardiness, truancy, absenteeism) among adolescents transitioning to high school, vocational tracks (9\textsuperscript{th} grade). Our study addresses school dropout processes relating to the way students respond to socially (de)valued contexts, namely (non-)selective vocational tracks. Building on extensive literature showing the stress-buffering effect of certain justice beliefs, we expected students who believe to be treated fairly in their lives to refrain from school refusal behaviours. However, following a few studies hinting to the adverse motivational effects of these beliefs in situations of negative social comparison and of low perceived capacities, we expected justice-bound students enrolled in less selective school tracks to engage in more school refusal behaviours, especially if poor grades or negative school competence and control were reported. Results from multilevel analyses (616 students, 39 classes, 10 schools) —controlling for sociodemographic, academic, psychological and behavioural variables— give some support to our hypotheses but further qualify the protective role of the justice motive, as it appeared to depend on the (un)favourable nature of the vocational track. For students enrolled in less selective tracks, justice beliefs increased refusal behaviours, especially when students reported poor grades and negative school competence and control. The reverse was true for students enrolled in more selective tracks. These findings —as well as methodological issues— will be discussed briefly in light of some dropout research acknowledging the impact of justice beliefs in sustaining feelings of school belongingness and academic resilience.
Motivational predictors and outcomes of students’ ways of coping
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¹Universidade do Porto, Portugal
²Instituto Politécnico de Viana do Castelo, Portugal

The ways students cope with daily difficulties and failures in school can make a difference to their motivation and achievement. The purpose of the present study was to describe the ways children cope with daily academic stressors, and to examine the motivational predictors of academic coping, as well as the role of coping in students’ achievement. Participants were 135 middle school (7th to 9th grade; mean age = 14.1; 47.6% female). Students reported on 11 ways of coping with academic problems (five adaptive and six maladaptive ways of coping) using the Multidimensional Measure of Coping (Skinner, Pitzer, & Steele, 2013). Social acceptance was assessed using teachers’ ratings, classmate’s nominations (Wentzel, Filisetti and Looney, 2007), and the Self-perception profile for children (Harter, 1985). Perceived scholastic competence was assessed using Harter’s (1985) measure. Anxiety was assessed using the State-Trait Anxiety Inventory for children (Spielberger, 1973). Students’ grades on mathematics and language were averaged as an indicator of students’ academic achievement. Results showed (1) that students use some ways of coping more frequently than others (means ranging from 1.5 to 2.4.), (2) significant correlations of the hypothesized predictor variables (social acceptance, perceived competence, and anxiety) with students’ profiles of coping (rs ranging from .23 to .48), and (3) different patterns of relation between specific types of coping and achievement. Results of the present study may shed some light on the factors that enhance students’ ability to cope adaptively with the inevitable challenges and difficulties of everyday life in the academic context, thereby also providing guidelines to the organization of the classroom learning and dynamics.

Reading skills, resilience, and psychological wellbeing in dyslexic and non-dyslexic adults
Anna-Kaija Eloranta¹, Tuija Aro¹&², Timo Ahonen², Vesa Närhi¹&³
¹Niilo Mäki Institute, Jyväskylä, Finland
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³University of Eastern Finland, Finland

Individuals with learning disabilities like dyslexia face more challenges in life than peers. Their difficulties may reflect to resilience and psychological wellbeing. Our aim is to better understand associations between childhood reading difficulties and adulthood wellbeing. We will report a) differences in reading skills, resilience and aspects of psychological wellbeing between adults with documented childhood dyslexia (n = 51) and matched controls (n = 22), and b) correlations of reading skills with resilience and psychological wellbeing. Reading fluency, accuracy, and comprehension were measured using standardized tests, and resilience and aspects of psychological wellbeing (wellbeing, life functioning, psychological symptoms, and depression) using three standardized self-administered questionnaires. Adults with childhood dyslexia had lower reading fluency ($p = .014$), accuracy ($p < .001$), and comprehension ($p < .001$) than control group. Resilience and aspects of psychological wellbeing did not differ between groups. Reading skills correlated with resilience and psychological wellbeing in the sample: reading fluency correlated with wellbeing ($r = .285; p = .016$), functioning ($r = .302; p = .010$), and depression ($r = .244; p = .041$), accuracy with resilience ($r = .246; p = .037$) and depression ($r = .279; p = .019$), and comprehension with resilience ($r = .297; p = .036$). Interestingly, correlations seemed to be mainly due to childhood dyslexia group, in which fluency correlated with total score of psychological wellbeing ($r = .283; p = .049$) and with functioning ($r = .377; p = .007$), accuracy with resilience ($r = .402; p = .003$) and depression ($r = .314; p = .028$), and comprehension with resilience ($r = .297; p = .036$). In control group, only reading accuracy correlated inversely with symptoms ($r = -.447; p = .042$). Results suggest that among individuals with dyslexia academic skills are associated with wellbeing and that these adults need more efficient emotional support in adult life.
Configurations of perceived autonomy support and control: do adolescents benefit or suffer?
Leen Haerens, Maarten Vansteenkiste, Nathalie Aelterman, An De Meester, Jochen Delrue, Isabel Talir
Ghent University, Belgium

Starting from Self-Determination Theory, we aimed at investigating whether youngsters’ perceive their teachers’ (study 1) or coaches’ (study 2) motivating style as either fully autonomy supportive or controlling, or whether their perceptions point towards a wider range of motivational styles characterized by different levels of autonomy support and control. Next, it was examined if the identification of motivating styles helps to explain differences in youngsters’ experiences and performances in physical education (PE) and sport. Participants for study 1 were 647 8th grade students (69% boys, Mage = 13.27 ± .68) from 41 classes taught by 14 different teachers. Participants for study 2 were 202 athletes out of four elite sport schools (69% boys, Mage = 15.63 ± 1.70). Students and athletes filled out validated questionnaires tapping into their perceptions of their instructors’ motivating style, their own motivation and relevant outcomes (e.g. performance). In both studies we found rather small negative correlations between perceived autonomy support and control (study 1, \( r = -.09 \); study 2, \( r = -.25 \)). Follow-up profile analysis led to the identification of a predominantly autonomy-supportive and a primarily controlling group, and two groups that were high and low on both. The predominantly autonomy supportive group displayed the most adaptive pattern of outcomes, while the primarily controlling group appeared the least adaptive. Both studies contribute to the theoretical debates as to whether an autonomy-supportive style is opposite to a controlling style, and are also of practical significance because it directs to a more refined diagnoses of an instructors’ motivating style.

Autonomy support, competence support, and relational support by high need-supportive teachers
Jiang Jingwen¹, Marja Vauras¹, Simone Volet², Anne-Elina Salo¹
¹ University of Turku, Finland
² University of Murdoch, Australia

Grounded in Self-Determination Theory, this study aims to identify the high need- supportive teachers, and simultaneously uncover their specific need-supportive behaviors. The participants were 16 teachers and 219 students in Grades 7-9 from a multicultural school in Finland. The students completed the surveys of their English and math teachers’ perceived autonomy support, competence support and relational support, perceived emotions during teaching, as well as their own emotions in learning. One English and one math teachers were identified as high need-supportive teachers based on ANOVA and correlation analysis of survey data. Semi-structured interviews of these two teachers revealed four themes in autonomy support: providing choice in students’ learning pace, encouraging students’ self-initiation and independent thinking, fostering interest regarding learning, and demonstrating the relevance of the expected behavior; three themes in competence support: providing assistance when needed, developing expectations tailored to students’ level of capacity, and scaffolding students’ learning environment; and four themes in relational support: showing care and/or affection to students, expressing interest in knowing about students, devoting time to students, and being available. In sum, it is found from these two cases that high need-supportive teachers provide the above-mentioned components of support during teaching. This study is significant in providing not only insights into components of need support, but also those specific need-supportive behaviors by high need-supportive teachers.
Configurations of autonomy support, structure, and involvement in higher education
Martijn J. M. Leenknecht1,2, Lisette Wijnia1,3, Sofie M. M. Loyens1,3, & Remy M. J. P. Rikers1,3
1 Roosevelt Center for Excellence in Education, Utrecht University, The Netherlands
2 HZ University of Applied Sciences, The Netherlands
3 Erasmus University Rotterdam, The Netherlands

Need-supportive teaching is supposed to increase students’ motivation and in consequence their achievement. In this study this assumption was tested in a higher education sample in The Netherlands (N = 623). Configurations of students’ perception of autonomy support, structure, and involvement were explored to establish their effect on students’ motivation and achievement. With a person-centered approach more insight is obtained in the association between the three dimensions of need-supportive teaching. Three clusters of need-supportive teaching were found: high, average, and low perceived need support. These clusters were respectively associated with relative high, average, and low student autonomous motivation and achievement.

The Situation in School Questionnaire: Development, dimensionality, and validity of a new measure of teachers’ need-supportive style
Maarten Vansteenkiste1, Nathalie Aelterman1, Johnny Fontaine1, Johnmarshall Reeve2, Jochen Delru1, Bart Soenens1
1 Ghent University, Belgium
2 Korea University, South Korea

The benefits of teachers’ need-supportive style for students’ learning and development have been documented in previous studies relying on student or observer reports. However, few studies have involved teachers’ self-reports. Relying on Self-Determination Theory, the present study aimed at developing and validating a new measure that taps into teachers’ need-supportive style, thereby making use of situation-specific vignettes rather than more generic items. Teachers indicated whether they engaged in autonomy-supportive, controlling, structuring and chaotic practices in response to 12 ecologically valid vignettes. After extensive pilot testing, the Situation in School Questionnaire (SIS) was validated in two large samples of secondary school teachers (N = 867; 36% men; Mage = 39.97 ± 22.00 years) and students (N = 730; 42.1% boys; Mage = 14.95 ± 1.94 years). Multidimensional scaling showed that the scale was most parsimoniously described along two dimensions representing teacher autonomy support relative to control and teacher structure relative to chaos. Each of the four separate styles was characterized by two subcomponents representing a circumplex model. The eight subscales related in predictable ways with external validation measures (e.g., TASCQ) as well as with hypothesized antecedents among teachers (e.g., burn-out; self-efficacy for teaching) and outcomes among students (e.g., teacher evaluations), testifying to the convergent, divergent and predictive validity of the SIS. It is discussed how this new instrument may be used as a diagnostic tool to screen teachers, a reflection tool to promote self-awareness among teachers, and an evaluation tool to examine the effectiveness of a teacher training.

The development of math anxiety among primary school children
Riikka Sorvo1, Tuire Koponen2, Eija Räikkönen1, Helena Viholainen1, Pilvi Peura1, Mikko Aro1
1 University of Jyväskylä, Finland
2 Niilo Mäki Institute, University of Jyväskylä, Finland

Already first- graders have been shown to report math anxiety, but still little is known about its development during primary school. Previously, math anxiety has been found to consist of two different dimensions which are differently related to math performance. Causal relations between those two dimensions and performance remain unclear, especially among children. The aim of this study was to examine the development of math anxiety in primary school children and the relationships between basic math skills and
the two math anxiety dimensions. Participants (n = 1326) were primary school children from grades 2 to 5. Math anxiety was measured with altogether six items and basic arithmetic skills were assessed with three tests focusing on addition and subtraction tasks. The longitudinal relationships between the math anxiety dimensions and basic arithmetic skills were examined using cross-lagged modeling. The development of math anxiety dimensions was examined with latent growth modeling. The findings indicate that, among primary school children, individual differences in math anxiety are less stable over time than those in basic arithmetic skills. Previous level of worry about performance predicted later worry (and negative affective reactions predicted later affective reactions, but separate math anxiety dimensions did not predict each other nor later basic arithmetic skills. Low basic arithmetic skills predicted later worry about performance, but the effect was small. On average, worry about performance did not change during follow-up in any grade level, but negative affective reactions decreased during 2nd and 3rd grade.

Hot reasoning in mathematics: How epistemic emotions arise and how they relate to motivational mechanisms during a complex proof task
Sandra Becker, Reinhard Pekrun, Stefan Ufer, Elisabeth Meier
Ludwig-Maximilians-Universität München, Germany
This study examined antecedents and effects of epistemic emotions during complex reasoning in mathematics. Data were collected from 80 mathematics university students working on a complex proof task. Before the task, participants were asked to report on their control- and value- appraisals concerning mathematics. Immediately upon completion of the task, students reported their epistemic emotions as well as cognitive and motivational processes they experienced during the task. Path analyses revealed that both perceived control and value concerning mathematics served as important antecedents of the epistemic emotions. In addition, epistemic emotions were found to predict task performance. These effects were mediated by motivation and effort while controlling for prior knowledge. The role of epistemic emotions for complex reasoning processes should not only be considered in future research but can guide instructional design efforts in educational practice.

Boys and girls: Do their mindset, self-, and motivation beliefs in mathematics differ by gender?
Annaline Flint, Lyn McDonald, Christine M. Rubie-Davies, Lynda Garrett, Penelope Watson, Elizabeth Peterson
University of Auckland, New Zealand
The aim of this study was to explore whether boys and girls in elementary schools differed in their self-concept, self-efficacy, perceived competence performance goal orientation, mastery goal orientation, interest value, utility value and mind set beliefs in mathematics. The main research question was: Are there differences between elementary school boys and girls in terms of their mindset, self, and motivation beliefs in mathematics? The participants in this study were 2263 students, from 12 New Zealand elementary schools, representative of a wide range of socioeconomic levels, ages, class levels and ethnicity. Approximately four weeks into the school year, students completed a three-scale questionnaire which measured students’ mindset, self, and motivation beliefs in mathematics. A one-way between groups multivariate analysis of variance (MANOVA) was conducted to assess gender differences in these beliefs constructs. Findings indicated girls’ and boys’ motivation-related beliefs and behaviours follow gender role stereotypes and further when students feel less competent about subjects, negative self-beliefs may lead to decreased motivation (Meece, Glienke, & Burg, 2006). The significance of the study was that the findings indicated even at the elementary school level, stereotypical beliefs about mathematics are clearly evident. However, few studies have explored multiple belief constructs at the elementary school level. There is therefore a need for education in the future to focus on reducing stereotyping from the beginning of schooling, because when students get to middle/high school, stereotypical beliefs are already firmly entrenched.
Developmental trajectories of school beginner’s perceived competence, interest and performance in mathematics
Anna Tapola, Markku Niemivirta
University of Helsinki, Finland

The purpose of this study was to examine how school beginners’ developmental trajectories in math-specific competence perceptions and interest are related to each other and whether they independently predict performance in mathematics. While suggested to be interrelated, knowledge on the early developmental dynamics of competence perceptions and interest is still scarce. Consequently, in this study, students’ (N = 285) competence perceptions, interest, and performance in mathematics were followed from the 1st to 3rd grade. The results from a series of latent growth curve models showed a significant decrease in both competence perceptions and interest across the years, although the decrease was less steep for those with higher initial mathematics performance, and for boys, in terms of competence perceptions. Moreover, the developmental trajectories of competence perceptions and interest were not independent of each other but the rates of changes were associated. Paralleling previous studies, the association with mathematics achievement became more accentuated in the course of the school years, the effect being stronger for competence perceptions than interest. Our results extend the previous research on the early developmental dynamics of perceived competence, interest and achievement on mathematics.

O4. Expectancy-Value Theory in Different Educational Settings
Chair: Jennifer Archer, University of Newcastle, Australia

Immigrant and non-immigrant families’ ascriptions of responsibility, expectancies, values and outcomes in school
Kerstin Helker, Marold Wosnitza
RWTH Aachen University, Germany

In the school context, students’, parents’ and teachers’ sense of responsibility does not only imply their own sense of obligation and commitment to produce or prevent designated outcomes (Lauermann & Karabenick, 2011), but also their sense of other stakeholder’s responsibility. Prior research has not only explored the link between a person’s sense of responsibility and their motivation, but also identified factors that may influence what a person feels or holds others responsible for. Thus, students’ motivation and sense of responsibility for their learning process and outcomes was found to be related to their parents’ expectancies, values and responsibility ascriptions (Author/s). In Germany, the role of students’ immigrant background has been documented not only with regard to parents’ school engagement, but also in students from a non-German background scoring significantly lower in the PISA studies. This paper aims to explore the meaning of families’ migrant background for their responsibility ascriptions, expectancies, values and outcomes in German and mathematics. 271 students and their parents participated in the study which revealed that in families from a non-German background, parents rate the importance of German and mathematics higher and are less proud of their child’s achievements although these students have higher faith in their ability in German and ultimately get better grades in German and mathematics than their non-immigrant peers. Further analyses explore these striking findings in more detail as these can be assumed to be highly meaningful with regard to the creation of learning settings in times of high migration across Europe.

Teachers matter: Expectancy effects in Chinese university English-as-a-foreign-language classrooms
Zheng Li1, Christine M. Rubie-Davies2
1 Southwest University, China
2 University of Auckland, New Zealand

This study was designed to investigate teacher expectation effects for intact student groups (rather than individuals) in foreign language classrooms in tertiary settings, which have been little studied in the literature. The participants were 50 teachers and their 4617 first-year undergraduate students learning English as a foreign language at two universities in China. Hierarchical Linear Modeling (HLM), clustering and one-way ANOVA were employed for data analysis and the major findings were: 1) class-level teacher expectations had
significant effects on student year-end academic achievement; 2) teachers who held high (or low) expectations for all students in one class, held high (or low) expectations for all their classes and 3) teacher-level expectancies were closely related to student academic achievement after one school year. This study provided evidence that teacher expectation effects did function in foreign language courses and in tertiary settings. It has been argued that some contextual factors of tertiary education and curriculum areas may contribute to those salient teacher expectation effects. Furthermore, the findings add weight to the argument that teacher expectation effects are a function of teacher beliefs rather than student factors.

The motivation of Vietnamese university students to learn English: A study using the Expectancy-Value model of academic motivation
Truong Cong Bang, Jennifer Archer
University of Newcastle, Australia

This study investigates the motivation of Vietnamese university students to study English, using the expectancy-value theory as its theoretical base. Students not majoring in English must attend English classes in addition to discipline studies. 1207 first-year students (50% males, 50% females) from three universities in Ho Chi Minh City studying business, engineering, or accountancy completed a questionnaire. A sub-group participated in interviews about studying English. How does students’ motivation to study English, as assessed by their expectancy to succeed and the values they attach to competency in English affect achievement in English, willingness to take additional English classes while at university, and willingness to take English classes after graduation? Values included interest in English, importance/utility of English for careers, effort required, and importance of honouring the family by achieving highly. The “family honour” value was added because of the Asian context. Stepwise regression analyses showed that importance/utility was the only predictor of willingness to take extra English classes at university and willingness to take English classes after graduation, while expectancy was the main predictor of final English marks, with cost/effort expended a second predictor. The interview data provided support for quantitative data. Structural equation modeling analyses are underway to look for gender differences, differences among the three universities (which have different entrance requirements), and differences between urban and rural university students.

Anxiety and enjoyment in content and language integrated learning: complementarity of expectancy-value and possible selves?
Audrey De Smet1, Benoit Galand1, Laurence Mettewie2, Luk Van Mensel2
1 Université Catholique de Louvain, Belgium
2 Université de Namur, Belgium

Research has shown that affective variables such as language attitudes, learning motivation and emotions play a significant role in language learning. Considering the growing importance of multilingualism, Content and Language Integrated Learning (CLIL) appears as an interesting alternative approach where certain content subjects are taught in the target language. Whereas motivation research in CLIL is mainly oriented towards identifying degrees and orientations in language learning motivation, this study explores whether and in which ways the theoretical frameworks of expectancy-value theory and possible selves might complement each other and, as such, contribute to the understanding of emotional engagement in second language classes. Secondly, we investigate to which extent motivational processes differ between CLIL and non-CLIL learners, controlling for linguistic background, school trajectories and socio-demographic variables. Data were collected from 497 CLIL pupils and 368 non-CLIL pupils (among which 385 in primary and 480 in secondary education) using a self-report questionnaire measuring self-efficacy, perceived task value, ideal L2 self, ought-to L2 self, anxiety, enjoyment as well as control and background variables. Over and above background differences, preliminary analyses indicate mean differences in motivational processes between CLIL and non-CLIL learners and between primary and secondary school pupils. Multiple regression analyses show complementary effects of task value, self-efficacy and possible selves on anxiety and enjoyment in second language classes. Both the expectancy-value theory and the identity dimension thus appear as interesting frameworks to study language learning. Further educational implications will be discussed during the presentation.
Psychometric properties of the Hellenic version of the “Life Challenges Teacher Inventory” (Iluz, Michalsky, & Kramarski, 2012)
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²Aristotle University of Thessaloniki, Greece

The “Life Challenges Teachers Inventory” was developed by Iluz, Michalsky and Kramarski (2012) and was based on the adaptation of the Definition and Selection of Competencies (DeSeCo) Project’s three-factor theoretical model to teachers’ professional context. It is a self-report inventory aiming at defining and assessing teachers’ competencies for life challenges, providing useful information which can be used for constructing intervention programs that promote teachers' capacities to maintain motivation efficacy, and, thus commitment to their work (Day, 2008). The aim of the present study was to examine the psychometric properties of the Hellenic version of the Life Challenges Teachers Inventory. The total sample consisted of 279 senior high school teachers, 196 women and 85 men. Participants were asked to complete the inventory, which is consisted of 35 questions loaded on three scales/factors, namely: “Using tools interactively”, “Functioning in socially heterogeneous groups” and “Acting autonomously”. Confirmatory factor analyses confirmed a slightly differentiated structure of the Hellenic version of the inventory than the one suggested by Iluz et al. (2012). Examination of the inventory’s internal consistency yielded satisfactory results for all three factors as well as for the three indexes that each factor comprised. Its good factorial validity and acceptable reliability indicate that the “Life Challenges Teachers Inventory” could be considered reasonably valid and be used for the measure of teachers’ competencies for challenges and demands of modern life in the Hellenic educational context.

Students’ well-being at school revisited: Development and initial validation of a unidimensional self-report scale
Kristina Loderer, Elisabeth Meier, Reinhard Pekrun
University of Munich, Germany

Student well-being has emerged as a focal construct in the positive education movement. Despite widespread agreement on the importance of considering affective components of students’ academic lives, adequate assessment of school-related well-being (SRWB) continues to be hotly debated. Central issues in this debate range from the use of psychometrically problematic single-item measures to complex and much less economic multi-scale instruments that subsume a number of academically relevant concepts under the label of subjective well-being. In light of these methodological challenges, we developed a single-scale multi-item measure to assess students’ SRWB, conceptualized as consisting of students’ cognitive and affective evaluations of their academic lives, in an economic but empirically sound manner. We present results from an initial validation study with 196 German fifth grade students that document the reliability, structural validity, and external validity of our scale. On a structural level, we found that, as intended, a one-factor model fit our globally-focused measure well. Correlations with positive and negative achievement-related emotions and students’ self-concepts revealed the expected patterns in terms of direction and magnitude. Specifically, we found that students’ SRWB is significantly related to their emotional experiences and self-concepts of ability, but conceptually distinct from these constructs. Furthermore, in line with previous
research, students with higher grades in math, German, and foreign language studies (based on mid-year progress report cards that were sent out two weeks prior to data collection) reported higher SRWB. Taken together, our scale provides a useful tool for advancing research on students’ quality of academic life.

Comparison of self-report techniques for measuring motivation, emotion and cognitive engagement: Use of experience-sampling method

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In an investigation with 126 pre-service teachers studying educational psychology, we measured motivation, emotion and strategy use with a pre-survey, a post-survey, and in the moment of studying using experience-sampling method. We compared these self-report techniques and found similar patterns that differed in details. Intrinsic motivation and future utility were higher at pre-studying than when measured in the moment of studying. Shallow processing was lower at pre-studying than in the moment. Pre-measures of future utility and shallow processing (with a negative correlation) related to exam performance, along with self-efficacy and boredom (with a negative correlation) measured in the moment of studying. Our findings were consistent with Expectancy-Value theory, which was our main theoretical framework. Overall, the findings supported the use of pre-studying measures and in the moment measures, obtained with experience sampling, as types of self-report measures.

Developing and validating a measure of children’s attitudes toward digital literacy

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This presentation is to discuss about the outcome of the nationally funded project, which has been conducted in South Korea, with a goal of designing and validating a self-report assessment instrument for digital readers and writers—what we call Digital Literacy Attitude Questionnaire (DLAQ). Assessing students’ digital literacy attitudes, defined as individuals’ emotional and behavioral tendencies that influence and intervene engaged (or disengaged) digital literacy practices, is an important task for improved research and practices in digital literacy. Research and theories in motivation, emotion, and self-regulation suggested the five factors that may account for digital literacy attitudes. Those included value (e.g., task, medium), expectation (e.g., ability, success), emotion (e.g., feeling, preference), participation (e.g., engagement, interaction), and self-control (e.g., regulation, reflection). The DLAQ was created based upon the five factor model. With the data collected from 1,609 third- and sixth-grade children in South Korea, the initial CFA was performed for the 67-item version of DLAQ to remove insufficient items by using modification indices in LISREL. Some items were removed in this phase, so the updated version of the DLAQ was a five-factor model with 33 items. The subsequent CFA result suggested that, overall, the items included in the instrument had substantial internal consistency and thus the DLAQ was a valid measure that adequately explained the five factors of digital literacy attitudes. In the presentation, we discuss the critical issues in conceptualizing and assessing children’s attitudes toward digital literacy practices that we have experienced throughout the above-described validation study.
Escape, learn and socialize: Developing a scale assessing motives for cultural consumption
Maria Manolika, Alexandros Baltzis
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In the past couple of decades, cultural organizations (e.g. museums, theaters, art galleries, etc.) have become one of the fastest growing sectors of the leisure industry and have received an increasing attention by academic researchers. Although motives are the driving force behind all human behaviors, in the cultural consumption domain the crucial role of motivation in people’s behavior has not been examined thoroughly. As a result, there is a lack of standardized questionnaires. To address this void, a questionnaire was designed and tested to identify the main motives for cultural consumption. The questionnaire was developed in three phases: i) a comprehensive review of the literature, ii) face and content validity, iii) construct validity by factor analysis, and iv) a reliability test by internal consistency. A variety of validity and reliability analyses suggest that content and construct validity are acceptable and that reliability in internal consistency is good (Cronbach’s alpha: 0.77 to 0.94). Factor analysis identified three higher order motivational factors: 1) Emotional motives (escape and entertainment/ arousal), 2) Cognitive motives (cultural exploration and learning/curiosity) and 3) Social motives (family togetherness, internal socialization and external socialization). This study introduces a newly developed questionnaire with sound psychometric properties that can assess the main motives for cultural consumption.

O6. Self-Determination Theory Applications in Educational and Sports Settings
Conference Hall II (-1)

Exploring the relation between achievement aims and self-determined motivation on goal progress
Kaitlyn M. Werner, Marina Milyavskaya
Carleton University, Canada

The objective of the present research was to examine whether the interaction between achievement aims (i.e., approach vs. avoidance) and self-determined motivation (i.e., autonomous vs. controlled) would influence goal progress over time. Toward the beginning of a university semester, participants from two studies (n1= 300, n2= 159) identified a series of goals that they planned to pursue. Participants then reported their motivation for pursuing each goal, including autonomous, controlled, approach, and avoidance reasons. At the end of the semester, participants reported on their goal progress. Results from multilevel analyses for both studies confirmed our hypothesis that autonomous motivation would be the best predictor of goal progress over time. That is, people made more progress on their goals that were pursued for autonomous reasons compared to other people, as well as compared to their other goals, whereas controlled, approach, and avoidance motivation were not significant. We were also interested in understanding whether achievement aims and self-determined motivation are orthogonal constructs, and so we also examined their interactions. Results from both studies did not reveal any significant interactions, although autonomous motivation once again emerged as the only significant predictor of goal progress. The discussion will focus on the implications and future directions for goal-related research from self-determination theory and achievement goal theory, as well as effective goal pursuit more broadly.

Moving beyond Amotivation: Autonomous and controlled reasons for non-participation in education
Nathalie Aelterman, Maarten Vansteenkiste, Bart Soenens, Leen Haerens
Ghent University, Belgium

Most theories of motivation, including Self-Determination Theory (SDT) focus mainly on students’ reasons for doing what is requested (e.g., putting effort in the lesson, studying learning material), at the expense of a focus on reasons for not doing what is requested. In terms of underlying reasons of such non-participation, SDT has focused almost exclusively on amotivation. In an attempt to broaden this perspective, the present study investigated the notion of controlled and autonomous reasons for non-participation in physical education (Study 1) and general education (Study 2), thereby relying on a dimensional and person-centered
approach. Results of Study 1 indicated that controlled motivated non-participation and amotivation represent distinct reasons for non-participation that can also be discerned from controlled and autonomously motivated participation. Multilevel regression analyses revealed that controlled motivated non-participation yielded unique associations with feelings of resentment towards both the lesson and the teacher, but not with learning and teacher-rated performance. Finally, person-centered analyses indicated that the group characterized by elevated levels of both controlled motivated participation and non-participation in combination with amotivation displayed the least beneficial pattern of outcomes. As for Study 2, data in the general education context are currently being gathered and will be available for the presentation at the conference. Specifically, the unique predictive validity of controlled and autonomous reasons for not studying above and beyond controlled and autonomous reasons for studying in relation to various adaptive and maladaptive student outcomes will be examined.

Assessment practices: within-student fluctuations in perceived motivational and affective experiences across lessons
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³ Fontys University, The Netherlands

Both Assessment for Learning (AfL; to build progress and detect personal progress) and grading have shown to play an important role in students’ motivational experiences. However, research examining this association has primarily focussed on between-person differences, while within-person fluctuations over a longer period of time have not been investigated yet. Grounded in Self-Determination Theory, the present study investigated whether perceived autonomy and competence, quality of motivation and fear fluctuated within students across lessons, and if these fluctuations were predicted by the students’ perceived extent of AfL, and the presence of grading. Twenty-four classes with 508 secondary school students participated in this study. On six repeated occasions, students reported on their perceived extent of AfL, motivational experiences and fear, after a regular lesson and after a lesson in which grading occurred, in three different series of lessons. Multilevel regression analyses were deployed. Preliminary analyses reported substantial within-person variation (range from 47.26% to 62.97%). This suggests that students’ motivational experiences fluctuated significantly within students from lesson to lesson. Also, preliminary results showed a decline in autonomy satisfaction and autonomous motivation and an incline in controlled motivation and amotivation throughout time. Further analyses are currently processed through multilevel regression analyses and will be presented at the conference. The understanding of motivational experiences representing a dynamic within-student concept is important, because when contributing factors explaining these oscillations can be indicated, key implications for education can be made in order to promote positive motivational student experiences.

Are unexpected tests always (de)motivating?
Beatrijs Vandenkerckhove, Silke Valckenier, Maarten Vansteenkiste, Bart Soenens
Ghent University, Belgium

This study examined how unexpected testing influences students’ motivational functioning and learning outcomes. According to Self-Determination Theory, unexpected tests are considered as a potentially controlling measure because they may frustrate students’ need for autonomy. However, teachers can communicate about the unexpected tests in an autonomy-supportive or in a more controlling way. Therefore, we explored whether teachers’ communication style could moderate students’ reactions to unexpected tests. Four vignettes, each describing a teacher setting assessment rules on the first day of a new school year, were presented to 392 secondary school students. The teachers in the vignettes differ in their assessment policy (presence versus absence of unexpected testing) and communication style (controlling vs autonomy-supportive). Afterwards, participants completed a questionnaire assessing anticipated study motivation, need satisfaction, positive and negative affect, learning strategies, procrastination, experienced autonomy and learning anxiety in the context of the given vignette. Our results indicated that unexpected tests were
associated with less intrinsic motivation, less need satisfaction, more learning anxiety, and less positive and more negative affect. In addition, an autonomy-supportive communication style related to more intrinsic motivation, more experienced autonomy and more procrastination. There was a significant interaction effect of assessment policy and communication style on students’ experienced autonomy and on positive and negative affect. Overall, these findings suggest that the fear-inducing nature of unexpected tests has negative consequences for students’ intrinsic motivation, affect and learning strategies. Nevertheless, teachers can reduce the negative consequences for students’ affect and experienced autonomy by communicating these tests in an autonomy-supportive way.

Identifying profiles of actual and perceived motor competence among different age groups: associations with motivation, global self-worth and physical activity

Leen Haerens, An De Meester, Isabel Tallir, Greet Cardon

Ghent University, Belgium

Self-Determination Theory (Deci & Ryan, 2000) suggests that children will be more autonomously motivated, and in turn engage in more physical activity (PA), if their need for competence is satisfied. In the current presentation, we explore the combined role of actual and perceived motor competence in relation to motivation for physical education (PE), global self-worth, and PA. We did so in two samples of children’s (study 1 & 2) and one sample of adolescents’ (study 3). Participants were (1) 161 Flemish children (40.4% boys; Mage = 8.82 yrs; SD = 0.66), (2) 361 American children (49.9% boys; Mage = 9.50 yrs; SD = 1.24), and (3) 215 Flemish adolescents (66.0% boys; Mage = 13.64 yrs, SD = 0.58). Actual motor competence was measured with the KTK (study 1 & 3) and the TGMD-2 (study 2). Validated questionnaires were used to assess perceived motor competence, motivation for PE, and global self-worth. PA was measured with accelerometers (study 2) and validated questionnaires (study 1 & 3). Cluster analyses were used to identify competence-based profiles, and differences among clusters in terms of motivation, global self-worth, and PA were examined through multilevel regression analyses. Adolescents with low actual or perceived motor competence were the least autonomously motivated and displayed the lowest levels of PA. Children with low perceived motor competence were less autonomously motivated and scored lower on global self-worth, irrespective of their actual motor competence. Among children with low actual motor competence, high levels of perceived competence served as a buffer. Together these results emphasize that perceived competence is crucial to stimulate autonomous motivation, self-worth, and engagement in PA, particularly when actual motor competence is low.

O7. Motivation and Culture
Conference Hall III (-1)

Chair: Christine Rubie-Davies, University of Auckland, New Zealand

Self- and other-oriented motivations associated with emotional suppression of internalized and externalized negative emotions: A multiethnic self-report study in the Netherlands

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We were interested in the motivations associated with emotional suppression, their relationship with negative emotions in self-reported emotional events, and their cross-cultural similarities and differences. Based on a framework of human values (Schwartz, 1994) and internalization-externalization (Krueger & Markon, 2006), we expected in the current study that self-reported motivations to suppress negative emotions are either self- or other-oriented. The sample consisted of 354 Dutch majority members, 319 immigrants from non-Western, and 368 from Western countries. The two-dimensional solution of self- and other-oriented motivations was confirmed. Non-Western immigrants scored higher on other-oriented motivation than Western immigrants, but no interethnic differences were found in self-oriented motivation. Non-Western immigrants scored higher on anxiety, compassion, guilt, and hate compared to Dutch group. Associations of negative emotions with self- and other-oriented motivation were the same in all groups.
Sadness was positively related to self-oriented motivation, whereas anger was positively related to other-oriented motivation. We concluded that emotional suppression depends not only on self- or other-orientation but also on the type of emotions (internalized versus externalized) and the relationships are not influenced by ethnicity.

Self-efficacy and goal orientation of four ethnic groups in New Zealand, and relations with academic achievement
Christine Rubie-Davies, Meissel Kane
University of Auckland, New Zealand

There is substantial evidence indicating that various psychological processes are affected by cultural context, but such research is comparatively nascent within New Zealand. As there are four large cultural groups in New Zealand, representing an intersection of individualist, collectivist, indigenous, colonial, and immigrant cultures, New Zealand is an important context in which to investigate the role of culture in such processes. This study investigated goal orientation and self-efficacy beliefs among students of different cultural backgrounds in New Zealand, associations between motivational beliefs and achievement, and whether any relations differed by cultural background. Participants were 2210 students attending three intermediate schools. The students responded to a questionnaire at the beginning of the school year to evaluate self-efficacy for mathematics and mastery and performance goal orientation. Participants also completed a standardized mathematics achievement test at the beginning and end of the year. The factor structure was sufficiently invariant by cultural group, but with statistically significant differences in average level of endorsement. Self-efficacy for mathematics predicted marginally higher end-of-year achievement after controlling for beginning-of-year achievement, with a stronger relationship for Māori and Pasifika, but no statistically significant relationship with achievement among Asian students. The questionnaire used was a valid instrument for the four main cultural groups in New Zealand. Differences were found in motivation levels and Māori and Pasifika were more affected by their self-reported self-efficacy. Teachers may be able to raise students’ self-beliefs by conveying high expectations for these students, potentially supporting higher academic outcomes.

Relations between teacher and student beliefs for Māori and Pākehā students
Christine Rubie-Davies, Peterson Elizabeth
University of Auckland, New Zealand

In the New Zealand context, the indigenous Māori group achieve below their Pākehā (European) peers in most academic subjects. The gap begins early in elementary school and is evident throughout schooling. Historically, this has been of concern to researchers, educators, and policy makers because Māori are disadvantaged socially and economically. Teacher expectations are known to contribute to student achievement and, similarly, some student beliefs have been associated with achievement. The current study explored student beliefs and teacher expectations in relation to 844 Māori and Pākehā middle school students, aged 10-14 years. Teachers were more likely to underestimate Māori and overestimate Pākehā students although this difference disappeared when school socioeconomic status was controlled. Māori students more strongly endorsed performance goals than Pākehā. Greater achievement gains over one year were found in schools in high socioeconomic areas. For Māori students, beginning-of-year achievement, school socioeconomic status, holding a performance orientation, and having low levels of peer support predicted gains whereas for Pākehā students, only prior achievement, school socioeconomic status and being male were associated with higher end-of-year achievement. The findings are discussed in relation to the implications for Māori and Pākehā students and their schooling. The inclusion of a culturally-based intervention which focuses on improving student-teacher relationships, raising teacher efficacy for teaching Māori, and including culturally appropriate teaching methods is recommended, particularly for teachers working in low socioeconomic schools. Such interventions may help to increase Māori achievement and decrease the ethnic achievement gap.
The effects of psychological needs support among pre-service teachers’ within a multicultural educational context: A Self-Determination theory perspective
Haya Kaplan 1, Nir Madjar 2
1 Kaye Academic College of Education, Israel
2 Bar Ilan University, Israel

The study was conducted within a multicultural college of education, comprising half Bedouin (generally characterized as collectivistic culture in previous research) and half Jewish (characterized as individualistic culture). The study examined cultural differences with respect to the effects of teacher-educators’ psychological needs support (Deci & Ryan, 2000) on students’ learning experience in the college. The participants were 308 pre-service teachers, 55.3% Bedouins and 44.7% Jews, who completed questionnaires regarding their lecturers’ behaviors during lessons, and various motivational factors related to their learning experience. Structural equation modeling with multiple-group analysis revealed that needs-support predicted autonomous motivation, sense of competence, and sense of relatedness in class, which in turn led to a sense of self-actualization, engagement in class and self-exploration. Sense of competence and controlled motivation predicted students’ burnout. Model-fit indexes supported the hypothesized model (CMIN/df = 1.82, CFI = .94, TLI = .93, RMSEA = .05). The study points to the need to train teacher-educators’ in methods that support autonomy, relatedness and competence of pre service teachers. The findings reinforce SDT claim regarding the applicability of the theory in different cultures. Following the understanding that SDT can also be applied to student teachers, we began a process of reform towards changing perceptions and teaching methods in the college, with the emphasis on autonomy-supportive teaching (e.g., incorporating project-based learning). We shall present these processes in our presentation.

O8. Teacher-Student Interaction and Academic Motivation Foyer (-1)
Chair: Pascal Pansu, Université Grenoble Alpes, France

Teacher and peer support in the interplay of school self-concept and achievement motivation in adolescence
Olga Bakadorova, Diana Raufelder
Universität Greifswald, Germany

Adolescence is often characterized by “storm and stress” (Arnett, 1999), rooted in biological, psychological and social changes that accompany the transition from primary to secondary school. Theoretical research and empirical evidence show that this period is often marked by negative trends, such as motivational decline (Peetsma et al., 2005) or lower self-concept levels (Ellis et al., 2005). At the same time, in adolescence, the roles of both teacher and peer groups gain in importance, producing a significant impact on adolescents’ self-perceptions (Furman & Buhrmester, 1992). Yet, little is known about the potential mediating role of socio-motivational support from peers/teachers at school in the association of individual school self-concept and achievement motivation. The current study examines the interplay of these constructs in a large sample of 1088 7th and 8th grade students, Mage = 13.7 from secondary schools in Brandenburg, Germany. Structural equation modeling was used to address the hypothesized associations between individual school self-concept, socio-motivational support and achievement motivation. To assess the effects of mediators, confidence intervals around the estimates have been constructed. The results showed that both teacher-referred variables (teacher-student relationship/teachers as positive motivators) mediated the association between individual school self-concept and achievement motivation. In contrast, the peer-oriented variables did not prove to be mediators. These findings support the assumption that maintaining positive teacher-student relationships at school and encouraging teachers to play the role of positive motivators could be an effective practical starting point for intervention programs aimed at preventing motivational decline in adolescence.
 Triggering students’ use of cognitive learning strategies in history classes through instructional prompts: Situational interest matters
Matthias Böhm\(^1\), Jutta Mägdefrau\(^1\), Andreas Michler\(^1\), Andreas Gegenfurtner\(^2\), Katharina Jonas\(^1\)
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As research in secondary education reflects the impact of instructional treatments on students’ use of cognitive learning strategies it seems plausible to assume that interest mediates which learning strategies students use when prompted by instruction. As task-specific research in this area is still in its infancy stage our study adopts a micro-analytical view in order to examine how instructional prompts influence the task-specific use of learning strategies and if situational interest mediates this influence. Research shows that prompts can modify task-specific behavior and can increase frequency of strategy use. For novices in particular, research indicates strong effects for explicit instruction. Additionally, students’ individual and situational interest affects strategy use and learning. This study explores how prompts affect the use of strategies in 34 history tasks and estimates if the effect of prompts on strategy use differs as a function of individual interest in history or situational interest in the task. In order to analyze the impact of instructional prompts, we measured 801 ninth graders’ (59.1% female) individual interest in history in 30 German history classrooms, their situational interest before their involvement in solving each task but after an initial reading, and the cognitive learning strategies, categorized as memorization, elaboration, and organization, immediately after solving each single task. Structural equation modeling revealed that 30 of 34 tasks show a significant effect of instructional prompts on the task-specific use of cognitive learning strategies and that situational interest shows stronger moderator effects than individual interest depending on the type of task.

Teachers’ involvement and disaffection in the classroom: a longitudinal analysis
Kim Stroet\(^1\), Marie-Christine Opdenakker\(^2\), Alexander Minnaert\(^3\)
\(^1\) Leiden University, The Netherlands
\(^2\) Groningen Institute for Educational Sciences (GION), The Netherlands
\(^3\) University of Groningen, The Netherlands

The first years of vocational secondary education are precarious for students, as their commitment to education tends to decline. Teaching practices can be critical in this regard. Yet, little is known on how teaching practices develop over time or differentiate between types of schools in this period. In the present study, in 20 math classes belonging to types of schools with contrasting educational approaches, at four time-points spread over the school year, daily teaching practices were videotaped and coded to assess levels of teachers’ involvement (positive) and disaffection (negative) from the perspective of Self-Determination Theory (Deci & Ryan, 1985; Ryan & Deci, 2000). Multilevel analysis showed declining trends for involvement, but no increases in disaffection. Further, differences were found between types of schools for levels of disaffection, these were lower in both social constructivist and traditional schools than in combined schools, but not for levels of involvement. In the final step of the analyses, the video-material was examined qualitatively to gain in-depth understanding of what teachers had changed in terms of involvement as the school year developed, as well as what had induced differences between types schools.

The mediation effect of students’ perceptions of teachers’ expectations on the link between self-evaluation bias of school competence and self-regulation
Ludivine Jamain\(^1\), Thérèse Bouffard\(^2\), Laurent Brun\(^1\), Pascal Pansu\(^1\)
\(^1\) Université Grenoble Alpes, France
\(^2\) Université du Québec à Montréal, Canada

Several studies have established links between self-evaluation bias of school competence and adaptation or success at school (Bouffard & Narciss, 2011). Self-regulation could be considered as a measure of adaptation because it represents the cognitive and behavioral engagement in learning (Zimmerman, 1986, 1989). Given that teachers’ feedback and expectations have an impact on the behavioral and cognitive processes of students at school (Butler & Winne, 1995), this study focuses on the links between students’ perceptions of
teachers’ expectations, self-evaluation bias and self-regulation. The main aim of this study tested the mediation effect of students’ perceptions of teachers’ expectations of school work on their bias of school competence in French and mathematics and their self-regulatory learning. Another aim was to assess the reciprocal links between these constructs over time. A longitudinal survey was conducted on a sample of 501 school students (8-9 years old) including measurements of school competences in mathematics and French, self-perception of school competence, self-regulation and perceptions of teachers’ expectations at two measurement points during third grade (CE2). A structural equation model with latent variables revealed that perceptions of teachers’ expectations mediate the effect of self-evaluation bias of competences on self-regulation in the two domains. In other words, the more the students overestimated their school competence, the more they believed they understood their teachers’ expectations which in turn increased their self-regulation in school work. Furthermore, self-regulation influenced students’ perceptions of their teachers’ expectations and self-evaluation bias of competences, suggesting a dynamic reciprocal process between these concepts.

10:00-10:30 Coffee break

10:30-11:30 KEYNOTE 3
Motivation, Self-Regulated Learning Strategies and the Special Case of Help Seeking
Stuart A. Karabenick, University of Michigan, Ann Arbor, USA
Chair: Anastasia Efklides, Aristotle University of Thessaloniki, Greece

Whereas considerable evidence supports the important role of motivation in self-regulated learning at the domain level (e.g., motivation for learning mathematics), less attention has focused on motivation for specific strategies (e.g., rehearsal). I begin with a cost-benefit analysis of motivated strategy use framed in terms of expectancy-value theory. Help seeking is presented as a special case since it often involves interactions that engender greater personal cost as well as learning benefits when compared to employing other strategies. The form and availability of helping resources, which have considerably expanded due to technological innovations, are examined for their critical current and future impact on cost-benefit help-seeking decisions and their consequences for learning and performance.

11:30-13:00 SYMPOSIA

Invited Symposium
S5. ‘Motivation, emotions and beliefs – all show?’ A critical examination of the evidence for the substantive connection between measured motivation and other self-constructs and academic performance.
Organizer & Chair: Dennis M. McInerney, Hong Kong Institute of Education, Hong Kong
Discussant: Allan Wigfield, University of Maryland, USA

This symposium will discuss the relationship between motivation and related constructs and educational achievement. Considerable research reports relations between motivation and related constructs such as emotions and beliefs (variously conceptualized and measured) and a range of desirable outcomes, but not strong and direct links with measured achievement. The direct links between these (usually) self-reported constructs and achievement outcomes, such as standardized test and grades, seem elusive, particularly when considered in the context of a range of other variables such as prior learning, family influences, SES, and a range of other factors. So does this relatively weak association between motivation and related constructs and achievement undermine the applied value of such theorizing and research? Four key speakers (Guay, Pekrun, Li, & Kaplan) who have a substantial and highly regarded background in motivation research were
Motivation at school: Between and within school subjects’ specificity matter in the prediction of academic achievement
Frédéric Guay, Université Laval, Québec, Canada

There are two approaches to the differential examination of school motivation. The first is to examine motivation toward specific school subjects (between school subject differentiations). The second is to examine school motivation as a multidimensional concept that varies in terms of not only intensity but also quality (within school subject differentiation). These two differential approaches have led to important discoveries and provided a better understanding of student motivational dynamics. However, little research has combined these two approaches. This study examines students’ motivations across school subjects (e.g., French, English and maths) from the stance of Self-Determination Theory. First, we tested whether students self-report different levels of intrinsic, identified and controlled motivation toward specific school subjects. Second, we verified whether students self-report differentiated types of motivation across school subjects. Third, we integrated these differentiation approaches (within-between) to predict academic achievement in various school subjects. Participants came from two cohorts: one cohort comprising elementary school children and one including high school students. Results from CFA analyses show that, for a given school subject, students self-report different levels of intrinsic, identified and controlled motivation. Results also indicate that students self-report different levels of motivation types across school subjects. Moreover, the integration of these two approaches (within-between) in a single CFA framework lead to interesting discoveries in the prediction of students’ achievement. However, these associations between motivation and achievement were low (.10) to moderate (.30) and mostly significant for intrinsic motivation for a given school subject. These results highlight the importance of distinguishing among types of school motivation toward specific school subjects in the prediction of academic achievement.

The impact of emotions on students’ academic achievement
Reinhard Pekrun, University of Munich, Germany

Longitudinal, evidence on the influence of emotions on students’ attainment is largely lacking. In two multi-wave longitudinal studies, we used large student samples and multiple annual assessments of students’ emotions and achievement in mathematics to examine this issue. The two studies combined spanning the entire age range from elementary school to the end of compulsory schooling (Study 1, N = 591, 51.4% female, grades 2-4; Study 2, N = 3424, 49.7% female, grades 5-9). The Achievement Emotions Questionnaire-Elementary School (AEQ-ES) and the Achievement Emotions Questionnaire-Mathematics (AEQ-M) were used to assess students’ emotions in Studies 1 and 2, respectively, and their end-of-year grades and test scores in mathematics were used to measure their achievement in both studies. In structural equation modeling controlling for students’ gender, intelligence, family socio-economic status, and prior math achievement, enjoyment had positive effects, and anxiety and boredom had negative effects on students’ math achievement scores in Study 1. Controlling for the same set of background variables as well as students’ prior math achievement, enjoyment and pride had positive effects, and anger, anxiety, shame, hopelessness, and boredom had negative effects on math achievement scores in Study 2. Correlations between emotions and achievement ranged from $r = .09$ to $.45$, median $r > .30$; standardized SEM path coefficients for the longitudinal effects of emotion on students’ grades over time, controlling for autoregressive effects, prior grades, reciprocal effects, and a number of covariates (IQ, gender, SES) ranged from $.05$ to $.16$. These findings document the important role of emotions for students’ achievement.
From learning beliefs to achievement among European American and Chinese immigrant preschool children
Jin Li, Brown University, USA

Preschool is the time children develop their beliefs about school (BASs), namely, their ideas and feelings about attending school. Despite some link between BASs and achievement, the relationship remains elusive. Many factors influence children’s BASs. This research examined how European American (EA) and Chinese immigrant (CI) children’s BASs influence their achievement by simultaneously considering three moderating factors of age, gender, and culture. We followed longitudinally a sample of 120 middle-class children from age 4 (Y1) to 5 (Y2), half EA and half CI with balanced gender. Children each heard two story beginnings depicting a child eager to go to school and another not. Children completed the stories. Seven significant BASs emerged: intellectual benefits, social benefits, positive affect, parental involvement, valuation, obligation, and teacher authority. We also tested children’s math and literacy achievement. Results showed some similar BASs among EAs and CIs, but Y1 EAs expressed more positive affect whereas CIs did so with parental involvement and teacher authority in Y2. Y1 intellectual benefits and parental involvement predicted Y1 achievement. From Y1 to Y2, all children’s achievement and the first four BASs increased. Regressing Y2 achievement on culture and four Y1 correlated BASs, CIs showed higher achievement while intellectual benefits and parental involvement remained significant. These findings suggest that children, regardless of culture, develop stronger BASs from age 4 to 5 while also achieving more. Being Chinese explains greater Y2 achievement. This indicates that for CIs, factors other than the two BASs contribute to their achievement (the relationship is modest $R^2 = .15$ to $R^2 = .19$). Possible research directions are discussed.

Research on motivation and achievement: Infatuation with constructs and losing sight of the phenomenon
Avi Kaplan, Temple University, USA

What is the meaning of prevalent research findings of low associations between motivation and students’ achievement? In this paper, I assume a critical perspective on this question, and argue that motivational researchers’ infatuation with constructs has led to losing sight of the phenomena involved in the production of achievement. Overall, I argue that motivational researchers have conformed too readily to the politically induced “reverence” for the achievement construct as the ultimate educational outcome. Holding achievement as the primary criterion by which to validate the utility of motivational research diverts attention away from other important educational outcomes, most notably, motivation itself. Moreover, the achievement construct lacks criterion validity. It masks the very variable, situated, and socio-cultural phenomenon of grade production, and thus it misguides motivational researchers’ theory and research. Finally, an understanding of the role of motivation in students’ grade production is further hampered by motivational researchers’ all-too-common infatuation with specific motivational constructs. The focus on specific constructs masks the situated, dynamic, and complex phenomenon of students’ engagement in a grade-bearing task. Losing sight of the phenomena involved in motivated engagement and grade production has led to misconceptualization, misrepresentation, and under-determination of the role of students’ motivation in achievement. I conclude the paper by considering the implications of this critique for the conceptual and methodological investigation of the role of students’ motivation in achievement.

S6. Support School Motivation in Different Learning Environments
Conference Hall II (-1)
Organizers: Christine Maltais, Université du Québec À Montréal, Canada
Thérèse Bouffard, Université du Québec À Montréal, Canada
Chair: Thérèse Bouffard, Université du Québec À Montréal, Canada
Discussant: Benoît Galand, Université Catholique de Louvain, Belgique

The challenge of supporting school motivation in different learning environments in which students’ progress is essential to foster their success. More precisely, studies indicated that school motivation is a function of various personal and contextual factors stemming from school, classroom or family environments (e.g. Bouffard et al., 2011; Gonida et al., 2009; Maltais et al., 2015). In this perspective, the goal of this symposium
is to identify some of the personal and contextual characteristics favourable for supporting students’ motivation at different school levels and discuss their educational implications. Four empirical studies are put together. In the first paper from France, Boissicat, Bouffard, and Pansu investigated if deliberate comparison lead to students’ perception of being less or more able than their potential with a study conduct with a sample of students in elementary school (5th grade). In the second paper, Chouinard examined the link between student-teachers relationships and achievement motivation in the context of the transition into secondary school in Québec. In the third paper, Maltais, Bouffard, and Vezeau examined the contribution of two different learning environments (school and family) on students’ adaptation at the beginning of secondary school. In the fourth paper from Switzerland, Busch investigated the potential ambivalence in University students’ judgments for cooperation and competition, and tested a short session intervention who prepares psychology students to cooperate in statistics learning context. Finally, Benoît Galand, a leading researcher from Belgium, will initiate discussion about the findings and educational implications for and with the audience.

Simultaneous implication of absolute and relative social comparison on academic pupils’ self-evaluation of competence in mathematics and language arts.
Natacha Boissicat\textsuperscript{1}, Thérèse Bouffard\textsuperscript{2}, Pascal Pansu\textsuperscript{3}
\textsuperscript{1}Université de Nice Sophia Antipolis, France \\
\textsuperscript{2}Université du Québec À Montréal, Canada \\
\textsuperscript{3}Université Grenoble Alpes, France

To evaluate their schoolwork, children often engage in comparison with classmates who slightly outperform them. Does that deliberate comparison lead pupils to feel less able or more able than they potentially are? The present study examined, among 139 pupils in their fifth year of primary school, the simultaneous impact of absolute comparison (effective comparison on the basis of their grades) and relative comparison (pupils’ perception of their standing relative to their comparison target) on their self-evaluation of competence in two academic domains, mathematics and language arts. We hypothesized that the relationship between absolute comparison-level choice and self-evaluation would be moderated by the identification with their comparison classmate. More precisely, when controlling for competencies, we predicted that when they engage in upward comparison, a high degree of identification would lead to a more positive self-evaluation than a low degree of identification. Concerning relative comparison, we predicted a negative relationship with self-evaluation: the more they feel inferior to their comparison choice, the more negative their self-evaluation would be. Results confirmed our predictions. An absolute comparison leads pupils to benefit from an upward comparison, provided they identify themselves with their more successful classmates. Indeed, in this optimal situation, they hold optimistic self-evaluation of their competence in both school domains. However, inferior’s feeling relative to their comparison choice leads to negative self-evaluation in the two domains.

Student-teachers relationships and achievement motivation in the context of the transition into secondary school
Roch Chouinard
Université de Montréal, Canada

The purpose of this study was to examine the link between student-teachers relationships and achievement motivation in the context of the transition into secondary school. A self-reported questionnaire measuring competence beliefs, utility-value, interest for school, achievement goals (mastery, performance-approach, work avoidance) and the quality of their relationships with their teachers was administered on a longitudinal basis to 323 French-Canadian students (mean age at the outset of the study = 12.83, \(\sigma = 0.7\); 153 males and 170 females) from 17 public primary schools of the Province of Quebec (Canada). Participants were followed into 12 public secondary schools and completed the questionnaire three times: at the end of 6th grade (last year in elementary school in Quebec), and then at the beginning and the end of 7th grade (first year in secondary school). Growth curve analysis showed that, overall, all motivational variables retained, except performance-approach goals, declined following the transition into secondary school. Results also indicated
that these changes co-varied with the evolution of student-teachers relationships. Thus, students who reported an increase in the quality of their relationships with their teachers following the transition also reported a lesser decrease (or no decrease at all) on the motivational variables measured. Results support stage-environment fit theory and highlight the link between connectedness and achievement motivation.

School adaptation at the arrival at secondary school: examining contributions of parents’ emphasis on performance, parent-students and teacher-students attachment.
Christine Maltais, Thérèse Bouffard, Carole Vezeau
Université du Québec À Montréal, Canada

The goal of this study was to examine whether the links between parents’ emphasis on performance, parent-students attachment and teacher-students attachment were involved in students’ adaptation during their first year at secondary school. Also, we examined the moderating effects of parent-students attachment and teacher-students attachment in the relationship between parents’ emphasis on performance and students’ secondary school adaptation. In this study, adaptation was indexed comprising two dimensions: adjustment and maladjustment. We tested two models, one for each dimension with a sample of 338 students (52% of girls) at their first year of secondary school (Grade 7), their parents and their teachers. Analyses based on structural equations modeling took into account measures reported by three categories of participants (students, parents and teachers) and controlled three variables (mental ability, gender and anxiety symptoms) assessed during last year of elementary school (Grade 6). Results of the first model indicated that teacher-students attachment reported by teachers was positively related with students’ school adjustment. Results of the second model showed that parents’ emphasis on performance reported by students was positively associated with students’ school maladjustment. No moderating effect was significant in neither model. Overall, these results suggested that students’ adjustment and maladjustment to their new learning environment could be oriented by two different social contexts establish by parents and teachers. They underlined the importance for parents and teachers to be available and install a supportive relationship with students, especially at the beginning of secondary school.

Preparing students to cooperate in order to favor statistics learning?
Céline Buchs
Université de Genève, Suisse

Cooperative learning is a powerful tool for learning, but its implementation faces several obstacles, especially at University. Previous research underlined that threatening social comparison is likely to take place during cooperative learning. We have first investigated the potential ambivalence in University students’ judgments for cooperation and competition. When students tried to appear likable, they scored higher on cooperation, but when they tried to appear likely to succeed, they scored higher on competition. Therefore, we propose it is important to make students aware of the social utility of cooperative learning. We tested this hypothesis in a one-session intervention with 185 first-year psychology students learning statistics. During a workshop involving a training phase and a subsequent individual learning post-test, we compared three conditions: individual learning, cooperative dyadic instructions (structuring the basic components of cooperative learning) and cooperative dyadic interactions (the basic components, with a short additional intervention for preparing students to cooperate, explaining why and how to cooperate in the task). Results indicated a linear trend in individual post-test learning from individual training to cooperative instructions, to cooperative interactions. A similar trend was found for students’ competence perception. Finally, competence perception mediated the effect of training on learning. Moreover, when working together, the preparation reduced threatening social comparison and favored the quality of relationship. This theory-based intervention revealed the importance of preparing students to cooperate for the quality of relationship, the competence perception and learning, and underline that these gains are possible even in difficult contexts.
This symposium brings together research that demonstrates the possibilities of interest theories (Hidi & Renninger, 2006; Krapp, 2002) for the analysis and effective design of learning environments. Although there has been much attention given recently to understanding the role of interest in learning, less is known about what creates and sustains interest during learning, and how this impacts learning outcomes and continued engagement. Contributions in this symposium look at a diverse set of stimulants and contexts. These include a large set of trivia questions, complex problems, essay tasks and digitally enhanced learning environments. Placing interest at the center of learning activities, these studies explore both conditions and consequences of interested engagement. Some of the studies provide in-depth information about underlying mechanisms which stimulate interest. They also highlight learners’ reflective capacities to identify conditions that are both favorable and unfavorable for their experience of interest. Whether and under which conditions interested engagement leads to higher levels of performance is also explored in this symposium. This research demonstrates that interest fully mediates the effect of initial curiosity and helps to activate deeper levels of processing and organizing information. This in turn supports individuals in memorizing content and getting better grades. Harnessing this information can help to continuously improve the design of learning environments by providing the best conditions for interest to develop or by amplifying its impact on learning through additional instructional support. These four symposium contributions will be discussed by one of the leading scholars in interest theory, K. Ann Renninger.

Creating a trivia question data base: How interest shapes our memory performance
Greta Fastrich, Kou Murayama
University of Reading, UK

There has been increased attention to how interest (or curiosity) influences learning, but few studies examined the nature of interest using experimental paradigms. One way to induce curiosity in experiments is to use trivia questions. Previous studies (e.g., Kang et al., 2009; Gruber, Gelman, & Ranganath, 2014; McGillivray, Murayama, & Castel, in press; Murayama & Kuhbandner, 2011), however, used only a limited number of trivia questions that differ substantially across studies, making it difficult for comparability and generalizability of the findings. These studies also did not differentiate between the curiosity about the question and interest in the answer. To address these issues, the current study established a normative database for 303 trivia questions with a large sample (N = 1897), and examined how interest and curiosity are related to learning performance. Participants were presented with trivia questions, asked to provide their best guess for the answer, rated their confidence in the guess and indicated their curiosity to learn the answer. Following the presentation of the answer, participants indicated their post-answer interest. One week later, participants were given a memory test on the questions. Our analysis showed that these epistemic states are positively (albeit not so strongly) related to memory performance. A multilevel structural equation model revealed that curiosity’s relationship to memory was fully mediated by the interest in the questions’ answer. Confidence was revealed to have both a direct and a mediated effect (over interest) on memory.
What makes and keeps complex problem-solving interesting?
Maximilian Knogler1, Alexander Gröschner2, Doris Lewalter1
1Technical University Munich, Germany
2Universität Paderborn, Germany

Although problem-based learning (PBL) has become a major alternative to direct instruction, knowledge about students’ motivational development during PBL activities is still quite limited (Belland, Kim, & Hannafin, 2013). Recent research on situational interest during PBL has shown that well-structured problems have the potential to temporarily stimulate interest (Rotgans & Schmidt, 2011; 2014). The current study extends this focus by investigating ill-structured, complex problems with the assumption that these problems have the potential to repeatedly stimulate interest and thus to continuously engage learners. This assumption rests on the evolving nature of complex problems which repeatedly challenge learners by offering new and previously unresolved problem aspects. The current study also explores underlying mechanisms that can be harnessed for supporting situational interest during PBL such as experiences of knowledge deprivation or novelty and basic needs satisfaction. Participants were 327 high school students, who took part in a 15 lessons PBL classroom intervention based on an ill-structured problem on the topic of energy supply. Results demonstrate that complex problems have the capacity to stimulate situational interest repeatedly as significant and substantial increases in situational interest were observed several times during the intervention. Analysis of both quantitative survey data and qualitative interview data showed that high levels of situational interest were related to students’ perceptions of knowledge deprivation or novelty and students’ basic needs satisfaction over time. Implications for further research and the design of motivational scaffolding for PBL instruction are discussed.

Do learning strategies matter at all? Mediation effects of task specific deep-processing strategies on the relationship between situational interest and achievement in history classes
Katharina Jonas1, Jutta Mägdefrau1, Andreas Gegenfurtner2, Andreas Michler1, Matthias Böhm1
1University of Passau, Germany
2Maastricht University, The Netherlands

The adequate use of cognitive learning strategies seems to be crucial for deep-level processing while working with tasks. Previous research has shown that situational interest predicts the use of deep-processing strategies, task engagement, and achievement. Therefore it can be assumed that deep processing also have a mediation effect on the relationship between situational interest and achievement. This study explores how deep-processing strategies mediate the relationship between situational interest and achievement in history education. In order to analyze the impact of deep-level processing strategies when writing history essays, we measured 801 ninth graders’ situational interest as relevance and interestingness of the task before their involvement in writing the essays but after an initial reading of the task description, and the cognitive learning strategies, categorized as memorization, elaboration, and organization, immediately after completing the task. Multilevel structural equation modeling (MLSEM) was applied to evaluate the mediation effect of cognitive learning strategies on the relationship between situational interest and achievement. The findings indicate that cognitive learning strategies function as a mediator between situational interest and achievement. The findings also indicate that, when focusing on the direct effects of situational interest on achievement, relevance had higher effect sizes than interestingness on the two achievement measures in four out of five tasks. Theoretical implications associated with interest theory and practical implications associated with task design and instructional prompts to evoke the use of cognitive learning strategies are discussed.

A comparison study of generation and development of interest in an inquiry learning environment
Marijana Veermans, Erkka Laine
University of Turku, Finland

It has been reported worldwide that students’ general interest towards science declines. One explanation may be the way science teaching is organized in schools; interest’s dependency on the quality and the type
of instruction offered in schools. The rapid development and uptake of advanced digital devices has created promises for the design of learning environments that would interest and engage students in learning. The aim was to compare how students’ interest is generated and developed over time in an inquiry learning environment supported by digital devices. The participants of the study were 36 lower secondary school students (12-13 years). An experimental group was one class of students (n = 18) who started their school year in an entirely new digital learning environment designed on principles of inquiry learning. All students were administered a set of self-report questionnaires on interest and motivational beliefs three times during the school year; and their grades were collected. In addition, the students were interviewed twice in small groups. The results of the statistical analyses did not reveal any major differences. However, the results from the qualitative analyses show that the students could point out many features in the learning environment that generated their interest as well as components of interest. It is concluded that students are able to reflect on their learning environments, and could be more involved in the design process of the learning environments. This way, challenging features in the students’ experience that suppress interest development could be addressed and resolved already during the process.

S8. Parental influences on children’s motivational beliefs: Multiple aspects, multiple pathways

Organizers & Chairs: Eleftheria N. Gonida, Aristotle University of Thessaloniki, Greece
Marja Vauras, University of Turku, Finland
Discussant: Julianne Turner, Notre Dame University, USA

Researchers agree upon the significance of parents’ contribution on children’s school attainment and acknowledge the limited evidence regarding its potential influences on student motivation (e.g., Fan & Chen, 2001; Hill & Tyson, 2009; Hoover-Dempsey et al., 2001; Patall, Cooper, & Robinson, 2008; Pomerantz & Moorman, 2010). The symposium will bring together researchers from three different countries attempting to shed further light on different aspects of parental involvement and their contribution on children’s motivation. All presentations indicate pathways to student motivation by focusing on different aspects of parental involvement, apply different methods, have data coming from multiple informants, and involve students of different age. The first study (Israel) examines the contribution of maternal socialization goals and practices in two cultures (Orthodox and secular Jewish) to the development of young children competence and motivation. The second study (Finland) focuses on the associations between family types differing in the levels of parenting self-efficacy beliefs and family communication patterns and elementary school students’ motivational orientations such as task or ego-defensive orientation. The third study (Greece) indicates how qualitatively different types of maternal involvement in homework (autonomy support, control, interference) affect students’ achievement goal orientations and achievement. The fourth study (Finland) emphasizes the importance of parental trust in their child’s classroom teacher for the enhancement of child’s academic interests during the first years of primary school and indicates the differences between maternal and parental trust. The symposium discussant (USA) will synthesize the evidence of the four studies and point out directions for future research and implications for parents and teachers.

Development in culture: Maternal socialization goals and the early development of motivated self-regulation

Ruth Butler, Miri Goldschmidt, Liat Hasenfratz, Malki Tversky
The Hebrew University of Jerusalem, Israel

Studies guided by achievement goal theory have shown that students’ perceptions of parental goals influence their own achievement-related goals and self-regulation. We propose that young children are already attuned to identifying the goals they are expected to attain in one or another achievement context, and are motivated to regulate their behavior accordingly. I shall present a new study designed to examine the novel proposal
that maternal socialization goals influence young children's competence and motivation, both directly and by influencing maternal practices. We examine (a) maternal goals in two cultures (Orthodox and secular Jewish in Israel) that are expected to differentially value interdependent versus independent socialization goals, and (b) relations between children's effortful competence on social-moral versus achievement tasks. The main predictions are that interdependent goals will be associated with superior performance on social-moral tasks and individualistic goals with persistence on an achievement task in both cultures and will thus mediate cultural differences favoring the Orthodox group in the social-moral domain and the secular group in the achievement domain. The sample comprises 120 4-5 year-olds and their mothers. Mothers complete measures of socialization goals and parenting; children's self-regulation is assessed with tasks assessing effortful control, compliance, and persistence on a hidden figures task. Results are expected to make novel contribution to establishing the importance of parental goals, and the ways in which cultural differences in socialization goals guide and impact early motivation and competence.

Mothers’ and fathers’ parental self-efficacy and family communication patterns in relation to children’s longitudinal development of motivational orientations
Anne-Elina Salo, Marja Vauras, Niina Junttila
University of Turku, Finland

In this paper, we discuss the associations between different family types, differing in the levels of parenting self-efficacy beliefs (PSE) and family communication patterns (FCP), and elementary school students’ motivational orientations. Unlike in most studies, both mothers and fathers assessed their own PSE and FCP in this study. Based on these self-assessments, the families formed four clusters, differing in how confident the parents were, how open or controlled the communication patterns were and whether these patterns were similar for mothers and fathers within the same family. Four family types were identified: 1) both parents low average in PSE, and communication patterns imbalanced, 2) both parents average in PSE, and communication patterns balanced; 3) mother strong and father average in PSE and communication patterns balanced, and 4) both parents high in PSE and communication patterns balanced. Children’s motivational orientations were assessed at four time points at 4th, 5th and 6th grades by their teachers. Children’s longitudinal development of motivational orientations and coping behaviors from 4th to 6th grade were then examined in regard to the different family types. Results indicated that open communication and high PSE were strongly associated with children’s task-orientation, and low levels of ego-defensive behavior or social dependence. Families, in which both the father and the mother were lower in PSE and communication patterns within family were imbalanced, children expressed more ego-defensive behavior, were less task-oriented and more socially dependent over the whole period of three years.

Maternal involvement in homework, student goal orientations and achievement: Supporting autonomy and avoiding interference.
Eleftheria N. Gonida, Dimitrios Stamovlasis
Aristotle University of Thessaloniki, Greece

Parental involvement in homework as a home-based type of involvement in children’s education has been associated to students’ learning and achievement. However, the evidence regarding the potential influences of parents’ homework involvement on children’s motivational orientation has been limited. The present study examined the contribution of different types of maternal involvement in homework (autonomy support, control, interference) in student achievement goal orientations and achievement. A sample of 221 dyads, mothers and children attending elementary school (5th grade) or junior high school students (8th grade) participated in the study. Surveys were used to measure maternal involvement in homework and student goal orientations, whereas achievement in math and language was taken by the school records. SEM analysis with maximum likelihood estimation using LISREL 8.80 indicated the following: (i) Mothers’ autonomy support positively predicted student mastery orientation, whereas maternal interference predicted the same variable negatively. (ii) Maternal control predicted both performance approach and performance-avoidance goals positively. (iii) Achievement was only predicted by student mastery goal orientation and indirectly by maternal autonomy support. Grade-level differences were also investigated indicating a decline in all types
of maternal involvement in their child’s homework when students moved from elementary to junior high school. The results will be discussed in light of current theory and evidence regarding adaptive ways of parental involvement in students’ homework and implications for parents will be pointed out.

**Cross-lagged associations between parental trust toward teacher and children’s interest in reading and math**

*Marja-Kristiina Lerkkanen, Eija Pakarinen*  
*University of Jyväskylä, Finland*

This study investigated the cross-lagged associations between parental trust in their child’s classroom teacher and children’s interest in reading and math across Grades 1–4. Finnish mothers (n = 1,115) and fathers (n = 788) filled in questionnaires measuring their trust in their child’s teacher and children (892 girls, 985 boys) rated their interest in reading and math at the end of Grades 1–4. In addition, the moderating effects of child’s gender, academic achievement, early risk for reading difficulties, and parental level of education in these associations were investigated. The results of cross-lagged path analyses showed first that high maternal trust in their child’s teacher in Grades 1 and 2 predicted child’s high subsequent interest in math. Second, high father’s trust in Grade 1 teacher also predicted child’s high interest in math in Grade 2. Third, child’s high interest in both math and reading in Grades 2 and 3 was related to fathers’ high subsequent trust in teacher. Finally, a child’s high interest in reading in Grades 2 and 3 predicted high father’s trust particularly among boys and children identified being at-risk of reading difficulties. These findings emphasize the importance of parental trust in their child’s teacher for child’s interest in academic skills during the first years of primary school. In addition, the results suggest that fathers base their trust in their child’s teacher on child’s interest in academic skills.

13:00-14:00 Lunch

**14:00-16:00 POSTER SESSIONS**

**P1. Motivation and Emotion from Different Theoretical Perspectives**  
*Foyer I (-1)*

**Chair:** Gale Sinatra, *University of Southern California, USA*

**P1.1 The role of and relationships between epistemic, social utility, and personal utility values in pre-service teachers’ decision to enter the teaching profession**

*Benjamin Torsney, Doug Lombardi, Annette Ponnock*  
*Temple University, USA*

The current study explored the values pre-service, in-service, and former teachers use as motivation for pursuing a teaching career. Pre-service, in-service, and former teachers (N = 99) from a large Northeastern urban university were chosen to complete a survey measuring personal utility value, social utility value, and epistemic value. Data analysis was conducted using exploratory factor analysis, correlations, and ANCOVA. Results indicated moderate and significant correlations among subscales; females were rated higher on the subscale desire to work with children/adolescents and job security; and participants pursuing Early Childhood Education were rated higher on the personal utility value and time for family subscales.

**P1.2 Predictors and consequences of Personal Best (PB) goals: Cross-sectional and longitudinal analyses of Australian students**

*Emma C. Burns, Andrew J. Martin, Rebecca J. Collie*  
*University of New South Wales, Australia*

Although most goal research focuses on ‘classic’ dichotomous goals, there is emerging recognition of the positive impact of growth goals on student academic success and development. “Personal Best” (PB) goals are a form of growth goals. PB goals are specific, challenging, and competitively self-referenced goals that match or exceed one’s previous best performance towards which individuals strive (Martin, 2006). PB goals
have been shown to positively predict numerous academic and nonacademic outcomes. However, research thus far has tended to examine PB goals in relatively restricted models (e.g., with regards to just its predictors or just outcomes). Harnessing the triadic causal model of social cognitive theory (SCT; Bandura, 1991), we explore an integrative model using cross-sectional and longitudinal data to investigate a process in which PB goal climate predicts personal agency (self-efficacy, control, adaptability) and interpersonal agency (relational support), which in turn predict individuals’ PB goal-setting and subsequent engagement and achievement. The Time 1 sample comprised 2,204 students, years 7-9; years 8-10. Time 2 data collection (1 year later) is just completed (envisaged approximate N = 1,650). Structural equation modeling (SEM) on the cross-sectional data revealed salient predictors and outcomes of PB goals. Longitudinal data - to be reported at ICM - extends this by controlling for prior variance (auto-regression) to ascertain unique variance associated with PB goals. Altogether, these findings substantiate the growth goal literature, as well as clarify the theory and impact of PB goals.

**P1.3 Future faculty’s motivation for teaching in Higher Education**

Annette Ponnock, Baris A. Gunersel

Temple University, USA

In order to improve college education in the United States we must focus on access to college in addition to the quality of education students receive once there. Various research has linked teacher motivation to student outcomes however very little research has examined teacher motivation in the context of higher education. While teaching is an important component of faculty members’ work, it is often de-emphasized in Research-I universities. Therefore, this study examined the motivation of future faculty (graduate students) from a Research-I university for teaching in higher education using Expectancy-Value Theory. 173 graduate students enrolled in a teaching in higher education seminar took online surveys before (Time 1) and after (Time 2) the seminar. The authors conducted an Exploratory Factor Analysis (EFA) yielding three factors aligned with the theoretical framework, which were then turned into scales. The authors then conducted a Hierarchical Cluster Analysis which created three clusters that differed on each of the three scales. The configuration of clusters stayed relatively consistent between Time 1 and Time 2, however only cost remained constant. Value and outcome expectancy both decreased. Implications and future directions are discussed.

**P1.4 Teachers’ coping strategies with students’ negative emotions - individual and interactional correlates**

Catherine Gosselin, Christa Japel, Marc Bigras, France Capuano

Université du Québec à Montréal, Canada

Teachers are important models in the socialization of young children. The aim of this study is twofold: 1) to validate a questionnaire on teachers’ coping strategies with children’s negative emotions, and 2) to examine individual and interactional correlates of teachers’ coping strategies. A sample of pre-kindergarten teachers (N = 22) working in disadvantaged neighbourhoods in Québec, Canada, reported on their reactions to children’s negative emotions and the quality of the relationship with their 4-year-old students (N = 304). They also provided personal information, and their educational and interactional practices were observed. Results show that two distinct coping constructs can be extracted from the teacher questionnaire. Positive coping strategies (α = 73) that include emotion- and problem-focussed responses, and negative coping strategies (α = 72) that are characterized by punitive responses and minimization of the child’s affective expression. The data reveal a significant inverse relationship between teachers’ self-reported use of positive and negative coping strategies (p < .01). While positive coping strategies were not related to personal or interactional variables, the use of negative coping strategies was significantly correlated with the teacher’s age, self-reported closeness or conflict with the students, observed sensitivity of the teacher, and the quality of disciplinary measures and dramatic play in the classroom. These results highlight the importance of supporting teachers in the development of a high-quality environment for preschoolers. This includes teacher-student interactions that should show a high degree of sensitivity to the children’s needs, validation of their feelings and non-coercive responses to the expression of negative emotions.
P1.5 Promoting interest and positive emotions when learning STEM content
Robert Danielson, Gale Sinatra, Morgan Polikoff, Julie Marsh
University of Southern California, USA

Interest in STEM generally declines through the primary and secondary grades (Wigfield, Eccles, Yoon, Harold, Arbreton, Freedman-Doan, & Blumenfeld, 1997). One way to promote student interest in STEM content during secondary school is to target younger students who have not yet lost interest in STEM content. To promote interest and engagement in STEM content we, in collaboration with a number of teachers and content experts, developed a 2-week curriculum aligned to both Common Core State Standards and Next Generation Science Standards (NGSS). In the present investigation, we test the viability of this intervention in a large scale, district-wide randomized control trial (RCT) including nearly 1500 student across 60 classrooms in a large, urban city in the United States. We also tested whether students would experience an increase in interest and positive emotions around STEM content. Our results revealed that students who participated in the intervention showed increased levels of content learning, as well as increased interest and positive emotions around STEM content. Additionally, students indicated lower levels of negative emotions (frustration and boredom, for example). These results indicate that our intervention appears to have been successful in teaching students as well as increasing their interest and positive emotions around STEM content. They also reveal that our measure of interest and emotions may be a viable way for other researchers to measure these constructs in large-scale settings.

P1.6 Relevance and interest in STEM and non-STEM college courses
Jeffrey R. Albrecht Jr., Alanna D. Epstein, Stuart A. Karabenick
University of Michigan, USA

Previous research suggests that perceptions of relevance increase interest and performance in underperforming students (e.g., Hulleman et al., 2010); however, these studies have not assessed students’ appraisals of relevance directly. The current investigation uses a novel measure, informed by Expectancy-Value Theory (Wigfield & Eccles, 2000) and Appraisal Theory (Scherer, 2013), of students’ appraisals of curricular relevance in three domains (career goals, personal interests, and ethical values). In a sample of undergraduate students (n = 1,043), we find that STEM classes are perceived as less relevant to personal interests and ethical values than non-STEM classes. In addition, while men found STEM and non-STEM classes equally relevant to personal interests, women in STEM courses found them less relevant to personal interests than women in non-STEM classes. Finally, relevance appraisals to personal interests, career goals, and ethical values all accounted for significant variance in maintained situational interest among STEM majors in STEM courses after accounting for triggered situational interest.

P1.7 Goal orientation and strategies of self-regulated learning in primary school students with learning disabilities and comprehension difficulties
Christina Kampylafka, Fotini Polychroni
University of Athens, Greece

In recent years, studies have underlined the importance of motivation and self-regulating strategies for students’ reading comprehension, and generally, their academic performance. The aim of the present study was to investigate motivation and, especially, goal orientation, as well as strategies of self-regulated learning and their relationship in students with learning disabilities (LD) and comprehension difficulties as compared to students without LD in Primary school. The sample consisted of 532 students, of which 52 were students diagnosed with LD and 480 students without LD, attending the 5th and 6th grades of Primary School. The Questionnaire of Achievement Goal Orientations, Children’s Perceived Use of self-Regulated Learning Inventory and two standardized tests measuring reading accuracy and reading comprehension were administered to the participants. The results showed that students with LD and comprehension difficulties reported lower scores in mastery goals, deep strategies, motivational strategies, monitoring and persistence in comparison with students without LD. Furthermore, students with LD reported higher levels of performance avoidance goals and surface strategies as compared to the other groups. Although there was
no diagnosis, students with comprehension difficulties, consisted a special group, between students with and without LD, that reported low use of self-regulating strategies and mastery goals. Moreover, it was observed that mastery goals and performance avoidance goals were strong predictors of surface, deep and motivational strategies, as well as of monitoring and persistence. The results of the study highlight the importance of goal orientation and self-regulating strategies for the reading comprehension of all students, regardless of diagnosis.

P1.8 Does favoring and endorsing mastery goals matter in a competitive educational context? Examining achievement goals in the Turkish educational System
Ayşenur Alp ¹, Ayşenur Demircioğlu ², Athanasios Mouratidis ²
¹ Middle East Technical University, Turkey
² Hacettepe University, Turkey

In education, multiple factors determine students’ endorsement of achievement goals. In our study we focused on the learning environment of the classroom because the degree of its importance is under studied in Turkish educational system. We used the Achievement Goal Theory (Elliot, 2005) to examine whether mastery-approach (i.e., learning) goals, performance-approach (i.e., competitive) goals, and performance-avoidance (i.e., avoiding being outperformed by the others) goals would mediate the relation between perceptions of the learning environment and challenges for mathematics and school-related subjective stress. Two hundred and eighty-one Turkish high school students participated in this correlational study. Students responded to a set of questionnaires measuring perceptions of the classroom environment (i.e., perceived classroom goal structures), achievement goals, challenge for maths and subjective stress. A path model showed that perceived mastery-approach goal structures (i.e., when the teacher is perceived to promote strivings for mastery) related positively to mastery-approach goals and performance-approach goals. Furthermore, perceived performance-approach goal structures (i.e., when the teacher is perceived to promote competition) related negatively to mastery-approach goals and positively to both performance-approach and performance-avoidance goals. In turn, mastery-approach goals related positively to challenge for mathematics, whereas performance-avoidance goals related positively to subjective stress. These findings suggest that a performance oriented classroom in Turkey is the least optimal environment for high school students as it is negatively related with students’ optimal motivation (i.e., mastery-approach goals) and desired educational outcomes and positively related to students competitive goals and stress.

P1.9 Motivational profiles: homework engagement, anxiety and academic achievement
Bibiana Regueiro ¹, Natalia Suárez ², Jose Carlos Nuñez², Antonio Valle ², Iris Estevez²
¹ Universidad de A Coruña, España
² Universidad de Oviedo, España

In the literature on motivation, the construct “academic goals” is the most prolific area of motivation with regard to categories and subcategories. On the other hand, there is some lack of knowledge of the important relationships among these motivation variables throughout the process of doing homework. Under these approaches, this work has two purposes: to determine whether there are combinations of academic and non-academic goals that lead to different motivational profiles in high school students and to investigate whether there are significant differences among the groups obtained in some relevant variables concerning student homework engagement, the anxiety produced by homework, and their academic achievement. Participants were 714 high school students (43.4% boys and 56.6% girls). The results of cluster analysis allowed us to identify four groups of motivational profiles: a first group formed of students with multiple goals (Multiple Goals Group), a second group of unmotivated students (Unmotivated Group), a third group comprising students with a predominance of learning goals (Learning Goals Group) and, finally, a fourth group of students with a high fear of failure (Failure Avoidance Group). Both the group with multiple goals and the learning goals-oriented group do more homework, spend more time on homework, make better use of that time, and have a higher academic achievement than the rest of the groups. The avoidance-failure group and the group with multiple goals present higher levels of homework anxiety.
The English Language: Just Because It’s Important, Does It Mean It’s Useful?
Zelinda Sherlock, Kaori Nakao
Kyushu Sangyo University, Japan

Experimental/correlational research has demonstrated that the quality of an individual’s goals play an essential role within future motivations, learning processes, and outcomes. Research has revealed that attitude towards the target language is considered to be one of the vital factors influencing the course of one’s language learning. Further still, scholars have proffered that utility value and attainment value plays a crucial role in learner motivation and interest in the subject matter. The aim of the study was to explore students’ perception towards why studying the English language was useful and why it was not. The research questions for the current study were: Why do students perceive English as lacking utility? Why do students perceive English as important? Prior to a quiz given during a university-wide seminar, students were asked to write up to three reasons they thought English was useful/important and three reasons they thought it was not useful/important. As a pilot to a larger investigation, 100 students’ responses to this questionnaire were randomly selected and analyzed qualitatively. For triangulation purposes a semi-structured interview was also conducted. Participants ranged from low-level competence in English to high-level. This study focused on the salient features of the qualitative data recorded. The content of structured responses provided by students were analyzed using first, second and third cycle coding processes. Student answers were descriptively coded in order to document and categorize the breadth of opinions stated by multiple participants; as well as utilizing values coding analysis to capture and label subjective perspectives.

Negative emotions and attributions: Understanding the actions and inaction of early career teachers
Ji Hong¹, Barbara Greene¹, Dionne Cross Francis²
¹University of Oklahoma
²Indiana University

This study attempted to expand the horizon of current teacher emotion research by unpacking the process of acting after teachers experience negative emotions and why they make the action choices (or not). Based on teacher emotion research and Weiner’s attribution theory, we identified different attribution beliefs early career teachers hold in relation to their negative emotions and their consequential choice of actions or inactions. Six teachers from a Midwestern State in the US were interviewed twice - the middle of first year teaching and towards the end of second year teaching. Findings showed that when teachers held internal-controllable beliefs, they tended to change their actions in a way to improve the classroom dynamics. On the other hands, teachers who held external-uncontrollable beliefs tended to blame students or situations, and thus not to exercise their agencies to change the situation. This study highlights both healthy and counterproductive impact of attribution beliefs on teachers’ choice of actions, and it provides an entry point to expand our understanding on teacher emotions, beliefs, and actions, while helping to generate further inquiry.

Longitudinal study of students’ perfectionism profiles and their associations with achievement goal orientations
Pulkka Antti-Tuomas¹, Markku Niemivirta², Heta Tuominen-Soini²
¹National Defence University, Romania
²University of Helsinki, Finland

The purpose of this study was to examine how university students’ achievement goal orientations vary as a function of their perfectionism profiles, and how stable these profiles are. Students’ perfectionism and goal orientations were measured twice one year apart. Participants (n = 90) were classified (based on latent class clustering analysis) into groups according to their perfectionism profiles, and then compared to each other in their achievement goal orientations. Three groups of students were identified based on their perfectionism profiles (healthy, unhealthy, and non-perfectionist), and 68% of the participants displayed identical profiles in both measurements. Perfectionism groups differed (based on analysis of variance) from each other in their achievement goal orientations. Healthy perfectionists and unhealthy perfectionists both endorsed mastery
orientations more than the non-perfectionists. Regarding performance-approach orientation, healthy perfectionists had highest score at Time 1, and unhealthy perfectionists at Time 2, and significant differences were observed when compared to non-perfectionists. Further, unhealthy perfectionists emphasized performance-avoidance orientation significantly more than the other two groups. Finally, regarding work-avoidance orientation, non-perfectionists had highest scores when compared to the other two groups. Results of this study indicate that perfectionism profiles are rather stable, and they are associated with achievement goal preferences to some extent.

**P2 Motivation and Emotion: Methodological and Theoretical Advances and Challenges**

**Foyer II (-1)**

Chair: Benoit Galand, *Université Catholique de Louvain, Belgium*

**P2.1 The secret life of students: Utilizing smartwatches and in vivo longitudinal experience sampling to understand students’ activities and affective states**

Roger S. Taylor  
*Oswego SUNY, USA*

Emotion has long been recognized as playing an important, albeit frustratingly unclear role in education. Research on emotions has begun to reveal the extent to which students’ emotions (or affective states) play a role in the learning process. Nonetheless, the complexities of this relationship are still not well understood, especially with respect to the emotions students may be experiencing during educational activities. One reason for this lack of understanding is that affective states that occur during academic activities are difficult to accurately measure. Smart-watches are an exciting new tool that can be used to help solve this problem. In this study eight undergraduate students were measured across one week using fixed and randomized longitudinal experience sampling. At each sampling the participants recorded their heart rate, activity, and affective state (discrete category, activation level, and valence level). Approximately one-third of the students’ activities were categorized as being academic (i.e., attending class, studying, doing homework) with the remaining two-thirds being categorized as nonacademic (e.g., eating, socializing, working, etc.). Students reported significantly higher activation levels when attending small section classes compared with large lectures. This result was supported by the physiological data that showed that the students had significantly higher heart rates when attending the small section classes. The educational implications of these and other significant results will be discussed in depth.

**P2.2 Variation of situation-specific engagement in day-to-day learning**

Sanni Pöysä, Kati Vasalampi, Joona Muotka, Marja-Kristiina Lerkkänen, Anna-Maija Poikkeus, Jari-Erik Nurmi  
*University of Jyväskylä, Finland*

The aim of the present study was to expand current knowledge on lower secondary school students' engagement by examining variation in students' situation-specific engagement and by analyzing the extent to which this variation depends on student-related and context-related factors. This line of research is needed to provide understanding of motivational and interactional processes in the classroom and the factors within the classroom ecology which foster engagement. An intensive one week day-to-day data collection was conducted in four Grade 7 classrooms. Students (n = 57; 57% boys, age 13–14 years) rated their situation-specific experiences after each lesson with a mobile-based InSitu instrument. Data comprising a total of 1328 ratings were analyzed with hierarchical modeling. The results indicated that ratings of situation-specific engagement varied depending on the day of the week, the subject being studied, and students' academic achievement. The findings provide tools for planning of optimal weekly timetables and lesson structure in which variation in situational engagement is taken into account.
P2.3 Capturing students’ adaptation in SRL processes over time using a self-report and event-based measure (Regulated Learning Questionnaire)

Aishah Bakhtiar, Sarah K. Davis, Allyson F. Hadwin

University of Victoria, Canada

As theory and research in self-regulated learning (SRL) advance, debate continues about how to measure SRL as strategic, fine-grained, dynamic adaptations learners make during and between study sessions. Despite movement towards objective measures such as trace data, we argue that recognizing learners’ perceptions are critical to understand the strategic adaptations students make during studying. This research examined the unique contributions of self-report data – measured using the Regulation of Learning Questionnaire (RLQ) – for understanding regulation as it develops over time. The RLQ is designed to be sensitive to time, task, and metacognitive processes students experience in a single, challenging study session. Students in a learning-to-learn course completed the RLQ twice in the course. Data collected will be analyzed using two sets of dependent-sample t-tests. One set compares the changes in regulation students made who completed the same task at both times, and the other set compares the changes students made who reported different tasks at both times. The results will contribute to the ongoing discussion about how to best measure SRL as an event.

P2.4 Grit’s relation to motivation and achievement outcomes

Katherine Muenks, Allan Wigfield, Seung Yang Ji

University of Maryland, USA

Grit is defined as trait-level passion and perseverance for long-term goals (Duckworth et al., 2007). Recently, researchers, teachers, and policymakers have become very interested in the grit construct. However, research on grit is still in its infancy, and important theoretical questions about grit remain, such as whether it is distinct from other motivational variables and whether it is a powerful predictor of school-based outcomes. In the present study we examined: (1) whether grit could be empirically distinguished from motivation variables such as students’ self-efficacy, task value, and instrumentality for specific math and science courses; and (2) whether grit significantly predicted high school students’ end-of-semester grades in their math and science courses when other motivation variables were taken into account. Our sample consisted of 190 high school juniors who completed measures of grit and motivation in the fall; spring grades from 70 of these students were collected via school records. Exploratory factor analyses on the full sample indicated that trait-level grit was empirically distinct from self-efficacy, task value, and instrumentality for specific math and science courses. Additionally, when all variables along with gender and ethnicity were entered into a regression model predicting students’ spring grades, grit remained a significant predictor (at α = .1), along with female, Black, and self-efficacy. Future work should examine the extent to which grit is predictive of achievement and other outcomes in order to determine whether it should be the focus of future school-based interventions.

P2.5 Fostering positive emotions in science education: An intervention study applying learning cycles

Gerda Hagenauer1, Franz Riffert2, Josef Kriegseisen3, Alexander Strahl2

1 Bern University; Institute of Educational Science, Switzerland
2 Salzburg University, Austria
3 Salzburg College of Teacher Training, Austria

The study aimed at exploring whether the “learning-cycles approach”, an instructional approach that can be traced back to John Dewey and Alfred North Whitehead, could support positive emotions of students’ in science education. Empirical evidence clearly reveals that students’ positive emotional and motivational attitudes towards science education steadily decrease during the school years. Thus, this research question is highly relevant from an educational perspective. The learning-cycles approach is based on moderate constructivist ideas on instruction. In this approach, knowledge is actively acquired by the student during three sequential phases of a learning cycle: romance, precision and generalization. Methodologically, due to well-known ethical constraints, a quasi-experimental design had to be selected. 311 Austrian high-school
students from grades 6 to 8 participated in this one-year study. Each of the participating regular teachers provided a traditional instruction and a learning cycle instruction to one of two classes. The teachers were trained in the learning-cycles approach by the research-team. Students’ emotions were assessed by short-questionnaires which were filled in at the end of each phase of the two learning cycles. First results show more positive emotions in the treatment group compared to the control group in the romance phase as well as in the generalization phase (albeit a bit less clearly). No differences between groups were found for the precision phase and also not for students’ negative emotions. These results will be discussed with regard to instructional practices in science education as well as with regard to implementing interventions in regular science classrooms.

**P2.6 Which motivational factors and organizational capacity affect the implementation process of a new educational program at secondary school?**

Sébastien Dellisse, Benoit Galand, Xavier Dumay, Vincent Dupriez, Jean-Louis Dufays

*Université Catholique de Louvain, Belgium*

The literature on policy implementation in education has largely come to the conclusion that implementing instructional change at a large-scale level is a substantial challenge. For a long time, researchers have aimed at identifying the mechanisms explaining the deviations between the political intentions of the reforms and the teachers’ work. Recently, different researchers have focused on the implementation process to understand how to promote implementation. Other researchers have been more interested in individual or collective factors affecting implementation. In a review of literature Durlak and DuPre (2008) highlight factors like self-efficacy or collaboration could have effects on the implementation process. In a first time, our research attempt to understand how motivational aspect, more precisely self-efficacy and task-value, and organizational capacity, like collaboration and the support of educative team, affect the implementation. In a second time, we try to understand how individual and collective factors interact with each other and affect the implementation process. To answer those questions, we conducted an experimental study in 12 Belgian secondary school and 55 teachers were involved. They have received an educational program based on reading and writing strategies to implement. Data were collected through questionnaires validated by factor analysis and Cronbach’s alphas. Preliminary analyses show that there is a positive and significant correlation between the value given by teachers to reading and writing strategies and the teaching practices promote during the intervention. It seems also that teachers who collaborate around program activities are more likely to implement faithfully the program.

**P2.7 A meta-analysis of teacher self-efficacy and three dimensions of effective classroom teaching**

Colleen M. Kuusinen¹, Fani Lauermann²

¹*University of Michigan, USA*

²*University of Bonn, Germany*

While teacher self-efficacy (TSE) has been associated with general teacher attitudes such as willingness to innovate and persistence with students, little consensus has been reached on the importance of TSE for effective classroom teaching practices. The present meta-analysis examined the relation of TSE to three research-based domains of effective teaching (structured management, supportive climate, and cognitive activation) and potential moderators of these associations. The overall effect size between TSE and effective classroom teaching in any domain was found to be small, $r = .17$. The domains of supportive climate and cognitive activation demonstrated significant associations with TSE, while structured management did not. Teaching experience and type of TSE measure used did not moderate the associations. Findings are discussed relative to the meaning and implications of teachers’ self-efficacy judgments.
P2.8 Factorial analysis of attributional style in primary school children
Miriam Roussel-Bergeron¹, Thérèse Bouffard¹, Michael Meaney²

¹Université du Québec à Montréal, Canada
²McGill University, Canada

Attributional style is a central element of research on motivation and is related to a number of variables, including self-esteem, achievement, helplessness and depression. An important attributional style model, the reformulated learned helplessness model of depression (Abramson, Seligman, and Teasdale, 1978), conceptualizes a helplessness attributional style formed by three dimensions: internality, stability and globality. The usual way of operationalizing the measure of attributional style is by adding the scores of the three dimension scales of attributional style. This cognitive model of attributional style has been elaborated to use with adults and has been transposed to children with very few developmental adaptations and, notably, without considering studies that point to the fact that the three dimensions of attributional style might not develop at the same rhythm. This study aims to verify if the use of a composite score for attributional style is developmentally adapted to young children. The Children’s attributional Style Interview was used to perform a confirmatory factorial analysis in 6 year old children (N = 210). Consistent with developmental theories of cognitive development, results suggest that children’s understanding of causal relations is different from that of adults since they differ in their understanding of internal characteristics. Our study confirms that the internality dimension should be excluded from the composite score of attributional style in younger children. Developmental implications for attribution theory and its impact on research on motivation and helplessness in children are discussed.

P2.9 A theoretical and empirical examination of the links between individual differences in cognitive skills and grit
Roney Pooneh
University of Bristol, UK

Personality traits are viewed as stable across contexts and over time (McAdams & Pals, 2006), yet some believe that the stability of personality across domains and contexts is often overestimated (Mischel, 2013). This research focuses on grit, a non-cognitive personality trait. It is defined as: “perseverance and passion for long-term goals” despite facing obstacles and setbacks (Duckworth, Peterson, Matthews, & Kelly, 2007). Grit has been reported to have incremental predictive validity in challenging domains, beyond measures of talent. Research to date has shown that grit and talent are orthogonal (Robertson-Kraft & Duckworth, 2014) and that there are vast individual differences in stamina in pursuit of long-term goals. Moreover, casual observation of individuals in different situations points to great within individual variance brought about by the demands and affordances of the context. If we view cognitive skills as a resource (Finn et al., 2014) that impacts goal selection and adherence, then we can infer that an individual’s task-specific self-concept and perceptions of task difficulty will be tied to this resource. Participants in this study are fifty 16-17 year old students in a UK secondary school. It is predicted that in order for a learner to be “gritty”, there is a minimum level of cognitive skill required. Furthermore, it is predicted that the individuals’ skill level in a given domains affects their grit in that domain. This research uniquely contributes to the current understanding of grit by examining its relationship with cognitive skills and considering its domain specificity.

P2.10 The influence of scaffolded computerized science problem-solving on motivation: a comparative study of support programs
Zvia Fund
Bar-Ilan University, Israel

The current study examines the motivational aspects of cognitive support for science learning while problem solving in a computerized environment. The research was carried out with junior high school students (n = 430), who used a problem-solving computerized environment in science. Four scaffolding components were identified (structure, reflection, subject-matter and enrichment) and used in different configurations to construct four unique cognitive and meta-cognitive support programs based on human teaching. The support
programs ranged from low (Enrichment) through intermediate (Strategic and Operative) to full support (Integrated). We compared the experimental groups to one another and to a control condition (Control). Two research instruments tapping motivational aspects were used: an attitudinal scale administered twice to all participants; interviews at the conclusion of the study, conducted with a sub-sample of the participants (n = 143). Findings indicate positive attitudes at both intervals for most groups, yet some decrease at the second interval, significant (in two measures) for the Control and Operative groups. Similarly, the reflection groups (Integrated and Strategic whose support includes reflection) favoured the less supportive Strategic support platform and the enrichment questions, while the Operative and Enrichment groups strongly preferred the full support platform and disliked the enrichment questions. The reflection groups explained their preferences by stating that they wanted to "put effort in solving the problems" and to "work hard". The Operative group preferred "the easiest way to solve the problem". Further theoretical considerations, elucidating the effects of the support components on motivation might explain the presented results. These are elaborated upon in the paper.

P2.11 Remembering and appraising the wars of the nation against its rivals: Emotion discourse and heroism in the narrative of the Greek history schoolbooks
Efthalia Konstantinidou
University of Western Macedonia, Greece

This presentation focuses on analyzing the narratives of war against rival nations in the Greek history schoolbooks, with a particular interest in the use of emotion discourse in constructing a heroic image of the Greek nation. As the analysis theoretically and methodologically draws on discursive social psychology, major psychological notions such as knowledge, memory, evaluation and emotion, are defined as discursive accomplishments rather than as cognitive processes. Consequently, history schoolbooks are analyzed as texts by which school historical knowledge is constructed and thus as contexts of learning, as well as texts by which memory is constructed and thus as contexts of remembering. In the analysis it is claimed that describing and evaluating military action are interwoven in the narrative and that emotion language is used for making the positive evaluation of victory upon rivals explicit. By those textual tropes a heroic image of the nation is constructed, simultaneously creating an asymmetry in presenting the Greek nation and its rival nations. In the context of theorizing prejudice in discursive social psychology, this asymmetry can be interpreted as positive prejudice towards the national self, against an implicit negative prejudice towards national others. This reading allows drawing conclusions about a concern in history schoolbook writing in terms of avoiding explicitly negative images of national others. This concern can be explained in the context of the “prejudice problematic” as a curriculum issue as well as a public one. Nevertheless, this problematic still acquires its importance within nationalism as its banal frame of reference.

P2.12 Interindividual differences in motivation, achievement and behavior of secondary school students: a mixed methods perspective
Elisa Kupers, Marieke Boelhouwer
University of Groningen, The Netherlands

The fulfillment of students' psychological needs is central to their well-being, motivation and achievement in school. Although research has shown us that the teacher's need support improves student engagement and achievement (Stroet, Opdenakker, & Minnaert, 2013), much less is known about how the teacher is supposed to differentiate between students with varying levels of motivation (Vallerand, 2000). In this presentation, we will discuss the added value of a mixed methods perspective on inter-individual differences between students. By means of questionnaires, diaries and video observations, we look at how general differences in motivation, achievement and behavior between students can be related to students' day-to-day experiences in the classroom and interactions with their teachers. In a pilot study (n = 55) (see also Loopers, 2015; Drost, 2015), we found different types of students by means of a hierarchical cluster analysis on the questionnaire data: average students, students at risk, perfectionistic students and confident students. Related to the day-to-day experiences reported in the diaries, students-at-risk (with relatively high scores on externalizing behavior, and low levels of achievement and motivation) report less feelings of competence, relatedness and
autonomy in their everyday school interactions compared to the other students. The different student types also related to observed student-teacher interactions in the classroom.

**P2.13 Training teachers to assess in a more motivating way – the effects on teacher and student outcomes.**
Nathalie Aelterman¹, Jolien Maes ¹, Christa Krijgsman ², Jan Van Tartwijk ², Greet Cardon ¹, Leen Haerens ¹ ¹Ghent University, Belgium
²University of Utrecht, The Netherlands

Ideally, assessment is used as a means to enhance students’ motivation and learning. However, assessment methods involving grading or norm-referenced comparisons might hamper rather than foster students’ motivation, and may even elicit negative emotions. As such it is important to train teachers on how to assess in a more motivating way. In this study it was investigated whether participation in a Continuous Professional Development (CPD) program on motivating assessment strategies based on the principles of Assessment for Learning (AfL) and the Self-Determination Theory (1) effectively increases physical education (PE) teachers’ implementation of motivating assessment strategies, and (2) positively affects students’ motivational and affective outcomes. A sample of 14 PE-teachers (53.30% men) and 222 students (25.70% boys) out 12 different secondary Belgian schools agreed to participate in this quasi-experimental multi-method, multi-informant study. Validated questionnaires measured teachers’ application motivating assessment strategies, students’ motivational experiences, learning progression, engagement and levels of fear. To evaluate the effectiveness of the CPD-training repeated measure MANOVA’s were conducted for the teacher data, and multilevel repeated measures were deployed with the students’ data. Favorable intervention effects concerning implementation of the motivating assessment strategies were found in the student reports. Students in the intervention group reported that their teachers more often set achievable goals, provided more feedback and feed forward, and stimulated more self-regulation. Encouraging effects on students’ quality of motivation and engagement and levels of fear were also notified. To conclude, an effective CPD-program was established to train PE-teachers in assessing students in a more motivating way.

**P3. Self and Significant Others: Their Motivational Power**
Chair: Athanasios Mouratidis, Hacettepe University, Turkey

**P3.1 Trajectories of perceived parental conditional support and psychological adjustment**
Audrey Marquis-Trudeau¹, Thérèse Bouffard¹, Carole Vezeau², Rebecca Lévesque-Guillemette¹ ¹Université du Québec à Montréal, France
²Collège de Lanaudière à Joliette, Canada

Links have been established between perceived parental conditional support and children’s psychological difficulties (Kollat, 2007). However, no study has yet explored if it is a lasting phenomenon, if and how it evolves over time and if some longitudinal trajectories are associated with distinct effects on children’s psychological adjustment. The first goal of this study was to examine whether distinct longitudinal profiles of perceived conditional support could be identified over a 5-year period in 533 youths (242 boys) at Grades 4-5 at the outset of the study. The second goal examined whether children’s psychological adjustment at the sixth year differed as a function of these trajectories. Psychological adjustment referred to children’s self-esteem, contingent self-esteem, perfectionism and internalizing problems. A group-based modeling strategy (Nagin, 1999) served to compute developmental trajectories of changes of perceived parental conditional support. Four distinct profiles were identified: unconditional support, low, decreasing and increasing conditional support. A MANOVA using gender and trajectories as groups revealed that students from the unconditional group reported higher self-esteem, lower contingent self-esteem, perfectionism and internalizing problems than those from the other groups. Students from the low group reported better psychological functioning on all indices, compared to those from the increasing group. No difference was observed between students from the low and the decreasing group, nor between students from the decreasing and the increasing group. In line with several other studies, girls reported higher contingent self-esteem, perfectionism and internalizing problems. The discussion will focus on the importance of sustained perceived parental unconditional support.
P3.2 The role of parenting behavior, parent goal orientations and student goal orientations in experiencing learning-related emotions and academic achievement
Rosanda Pahljina-Reinic, Svjetlana Kolic Vehovec, Tihana Hrkac
University of Rijeka, Croatia

The aim of this study was to examine the effects of students’ achievement goal orientations on their achievement emotions and achievement, as well as to examine the mediational role of students’ achievement goal orientations between perceived parenting behavior and parent goals on these learning outcomes. The self-report questionnaires were administered in a sample of 208 high school students. Separate path analyses examining the hypothesized role of students’ achievement goal orientations as mediators of the effects of parenting behavior and parent goals on each outcome variable were conducted. Students’ mastery goal orientation mediated the beneficial effects of parental support and parent mastery goal on activity emotions (enjoyment, boredom) as well as on achievement. Psychological and behavioral control exerted an indirect effect mediated by parent performance goal on students’ performance goal orientation which further mediated theirs effects on outcome emotions (pride, anxiety). Students’ work avoidance goal endorsement mediated the effects of psychological and behavioral control on all the examined achievement emotions and proved to be a maladaptive achievement goal orientation. These findings suggest that there is a need for further research on the role of family environment in adolescents’ achievement goal adoption, learning and achievement.

P3.3 Perceived maternal psychological control and adolescent adjustment: The mediating role of basic psychological needs
Aylin Koçak¹, Şule Selçuk², Athanasios Mouratidis³, Aïkaterini-Aliki Michou², Melike Sayıl³
¹Hacettepe University, Turkey
²Bilkent University, Turkey
³TED University, Turkey

Psychological control has been found to be associated with negative child and adolescent outcomes such as autonomy, competence and relatedness need frustration and diminished self-esteem. In this study, we investigated whether perceived maternal psychological control relates to need satisfaction and need frustration which in turn relates to self-esteem and academic self-concept among Turkish adolescents (N = 281, Mage = 16.70, SD = 1.50). We relied on self-determination theory and examined adolescent’s perception of maternal psychological control as currently defined by Soenens as Achievement-Oriented and Dependency-Oriented Psychological Control. It is the first time that these two types of psychological control employed in a Turkish context. We examined our hypothesis that psychological control will relate to academic self-concept and self-esteem by means of need satisfaction and need dissatisfaction. Results indicated that psychological control has an adverse effect on self-esteem and academic self-concept by means of need frustration. This finding implies that perceived maternal psychological control may have negative implications on adolescents’ adjustment. Moreover, the basic psychological needs for autonomy, competence, and relatedness seem to be a mechanism through which maternal psychological control may have an impact on adolescents’ adjustment.

P3.4 Motivating students with different background characteristics and ability levels: A teacher training in autonomy-support and structure
Desirée Weijers ¹, Lisette Hornstra ¹, Ineke Van der Veen ², Thea Peetsma ³
¹Utrecht University, The Netherlands
²Kohnstamm Institute, The Netherlands
³University of Amsterdam, The Netherlands

Students’ motivation for school is found to be declining with age, starting already from upper primary school. Teachers face an increasingly complex task of meeting the different motivational needs of every student in the classroom, since they are confronted with growing diversities between students in academic ability and
Autonomy-support, instead of control, is found to be an effective teaching strategy to foster the motivation of students. However, teachers tend to be more controlling toward students with lower ability levels, from ethnic minority backgrounds, or with lower socio-economic status, because they perceive these students to have a greater need for structure. However, structure can also be offered in autonomy-supportive instead of controlling ways. Therefore, this study is aimed at investigating whether a teacher training focused on providing autonomy-support in combination with the provision of differentiated structure will lead to more autonomy-support and provision of structure by teachers and consequently result in higher intrinsic motivation, self-efficacy, and effort of students. Differences in students’ background characteristics, and ability levels will be taken into account. 19 teachers (primary and secondary) will participate in a training. The training and control group, including 41 teachers, 284 first year secondary students and 562 students in upper primary school will fill in questionnaires at three moments throughout the academic year. Results will be analysed with the use of multivariate latent growth curve models. At the end of March 2016, outcomes of the first and second data collection will be available.

P3.5 Valences and sense of personal autonomy with regard to professional development in Dutch primary teachers: Do decision contexts make a difference?
Folke J. Glastra, Cornelis J. De Brabander
Leiden University, The Netherlands

In a study on determinants of readiness for action (RFA) with regard to professional development (PD) of primary school teachers in the Netherlands, we have collected data through interviews (95 teachers). We coded motivational constructs such as RFA, cognitive and affective valences (CV and AV), sense of personal autonomy (SPA) and perceived freedom of action (PFA), using de Brabander and Martens’ Unified Model of Task-specific Motivation (2014) in different conditions as to who decides over teachers’ engagement in PD: school board, teacher teams, or individual teachers. We answer research questions pertaining to the AV and CV that primary teachers associate with PD activities, their SPA and PFA in engaging in those activities, the ways in which SPA and valences are interlinked in the interviews, and whether and how the different decision contexts impact these variables and their interrelations. Results give insight into teacher criteria for positive CV of PD in different decision contexts and various roles that PSA and PFA fulfill in teacher motivations for PD. Personal choice can by itself enhance SPA experienced in or through PD activities and is associated with positive AV, while non-personal choice is associated with experiences of absence of autonomy, but less with negative AV. Conclusions about the meanings of autonomy in PD and about the results of a mixed, quantitative-qualitative research design will be drawn. Our research suggests the overall importance of SPA and PFA in teacher PD, perhaps especially in non-personal decision contexts.

P3.6 Implicit theories of ability: Testing alternative social cognitive models to science motivation
Jason A. Chen¹, Shane M. Tutwiler²
¹ The College of William and Mary, USA
² Harvard University, USA

Our overall goal was to empirically test using a confirmatory latent profile analytical approach what we called the Growth Mindset as Inoculation hypothesis, which states that believing in the malleability of intelligence serves a protective role against negative motivational and achievement outcomes. Participants were Grade 6 students (n = 506) from a public middle school in the Southeasteri United States, and were participating within an Earth and Space Science course. Results suggest that the various configurations of implicit theories of ability, goal orientations, and self-efficacy that we uncovered in our sample are not consistent with Dweck’s model. For one, there were no profiles in which a clear fixed mindset was evident. The only profile that did not evince a growth mindset was one in which students were fairly undecided regarding their implicit theory, low on mastery goal orientations, relatively low on performance approach, relatively high on performance avoid goal orientations, and relatively low on self-efficacy. Our results also do not support the Growth Mindset as Innoculation hypothesis. Rather, our results point to a significant role of self-efficacy in outcomes within our sample of students. That is, although students in three of the latent profiles could arguably be classified as being growth minded, the factor that seemed to relate most strongly to differential outcomes
was students’ self-efficacy. We discuss these results in light of Dweck and Leggett’s (1988) social cognitive framework.

P3.7 Remembered utility in mathematical problem solving: The role of person characteristics, affect and metacognition
Markos A. Ampantli, Anastasia Efklides
Aristotle University of Thessaloniki, Greece

The aim of this study was to examine the remembered utility effect, which is the retrospective evaluation of the pleasure and pain associated with a past experience. Remembered utility influences future decision making about the repetition or the avoidance of a particular, or other similar, situation (Finn, 2010). The design of the study repeated that of Finn’s (2010), but differed in the stimuli provided, i.e., mathematical problems, instead of word lists. Seventy six psychology students participated in the study. They answered, firstly, questionnaires on metacognitive knowledge, self-concept, and attitudes towards mathematics, and a mathematical ability test. Then they solved 3 out of 6 mathematical problems of high difficulty (Task A), and 3 out of 9 mathematical problems, 3 of which were of moderate difficulty and 6 of similar difficulty as those of Task A (Task B). Before and after each problem participants reported their affect and metacognitive experiences (ME). When they completed this part of the study, participants were asked which type of task (A or B) they would like to work on the next day, when they would be given Task C, and later on that day. The results demonstrated that the extended list of math problems (B) was preferred to the shorter-one (A), as in Finn (2010). Besides affect, the mathematical abilities and particular metacognitive experiences (FOD, FOS) predicted the future study choices of the participants. Self-concept was the main predictor of affect and ME as well as some of the responses for selection of group C problems.

P3.8 Student’s reactions to stressing academic situations: validation of a coping scale in the academic domain
Teresa Goncalves 1, Vera Sousa 2, Marina S. Lemos 2
1 Instituto Politécnico de Viana do Castelo, Portugal
2 Universidade do Porto, Portugal

Research on adaptive coping in children and youth aims at identifying the ways how coping may protect them from the harmful effects of stress and also may contribute to positive development. As part of a model of motivational resilience in the academic domain, Skinner and colleagues (2013) elaborated a Multidimensional Measure of Coping (MMC) that assesses a variety of adaptive and maladaptive ways of coping. This study presents the results of a validation of the MMC with a sample of 257 Portuguese students, from 5th to 9th grade from 3 public schools aiming to meet the need for the standardization in the measurement of coping in childhood and adolescence to further develop research in the field. Also the study aims to identify the repertoire of most typical ways of academic coping in early adolescence and within a specific cultural context. Results evidenced the multidimensional nature of academic coping. Overall young adolescents reported the use of adaptive ways of coping higher than maladaptive ways of coping. Relations of the different ways of coping with criterion variables such as social and motivational resources (e.g., social acceptance, perceived competence) as well with academic outcomes, will contribute to further explore the nature and the distinctiveness of the different ways of academic coping.

P3.9 Personality and perfectionism factors as predictors of stress and academic engagement among university students
Jessica Gladstone, Lara Turci, Allan Wigfield
University of Maryland, USA

Researchers have examined the relations of stress and engagement to academic outcomes in K-12th grade students. They have found that specific dispositional characteristics, such as personality and perfectionism, are predictive of stress in a variety of occupations (Childs & Stoeber, 2010; Miquelon et al., 2015). However,
relatively little is known about the relations between personality, perfectionism and stress in university contexts and how they relate to academic engagement in this setting. In this study we utilize the Big Five model of personality and Hewitt and Flett’s (1991) concept of multidimensional perfectionism to examine the understudied relations between university students’ dispositional characteristics and perceptions of stress and academic engagement. University students (N = 151) from a mid-sized university completed four measures: Big Five Inventory (John, Donahue, & Kentle, 1991), Perceived Stress Scale (Cohen, Kamarck, & Mermelstein, 1983), Utrecht Work Engagement Scale (Schaufeli & Bakker, 2003), and the Multidimensional Perfectionism Scale (Hewitt & Flett, 1991). Regression analyses demonstrated that undergraduates’ perceived stress was significantly positively related to neuroticism and socially prescribed perfectionism, and was significantly negatively related to engagement. Undergraduate’s engagement also was significantly positively related to their conscientiousness, openness to experience, and self-oriented perfectionism, and was significantly negatively related to their perceived stress. Results shed new light on the associations between these important constructs at the university level and theoretical implications of the findings will be discussed.

P3.10 Adolescents' possible selves as motivators for action: The role of self-esteem level and stability
Iro Drakopoulou 1, Eleftheria Gonida1, Grigoris Kioseoglou1, Angeliki Leontari2
1 Aristotle University of Thessaloniki, Greece
2 University of Thessaly, Greece

The aim of the present study was to investigate the relationship between possible selves and self-esteem. Specifically, the present study aimed to explore the interaction between the likelihood of attaining hoped-for selves or avoiding feared selves and the level and stability of self-esteem. A total of 545 10th graders were asked to complete self-reports. Log-linear models (2D and 3D models) were applied on the data. The results revealed that the majority of the adolescents reported hoped-for possible selves in the career category and feared selves in the personal category. Girls reported more academic hoped-for selves and more academic and interpersonal feared selves compared to boys who reported more career-related and material-related feared selves. Furthermore, girls, compared to boys, were more likely to have a low and unstable self-esteem profile. Students having such a profile (low and unstable self-esteem) perceived the likelihood of attaining their wishes and goals as less certain compared to the ones with high and stable feelings of self-worth who perceived the attainment of their goals as more probable. The results are discussed in light of current theory and research on possible selves. Limitations and practical implications are pointed out.

P3.11 The concept of self-efficacy for school transitions: Examining structural validity, antecedents and outcomes
Nir Madjar, Ronny Chohat
Bar-Ilan University, Israel

It has been found that self-efficacy believes are key factors in students' engagement and performance in various educational contexts. Moreover, self-efficacy is domain specific; for instance, one may have high levels of self-efficacy in mathematics and low levels in sports. The purpose of the current study was to examine the concept of "transition self-efficacy" (TSE), defined as students' believes in their ability to successfully address the academic and social challenges that accompany the transition from elementary to middle school. A sample of 175 sixth grade students from three different elementary schools (54% female) were followed at three time-points with approximately six months gap (i.e., at the beginning of sixth grade, end of sixth grade, and beginning of the seventh grade). All students transitioned to middle school after the end of sixth grade. At the first time-point students reported their perceived classroom goal structures (i.e., teacher emphasis on mastery and performance goals), at the second time-point the academic and social aspects of TSE were assessed, and at the third time-point students reported their sense of behavioural and emotional engagement in class. A path analysis using Structural Equation Modeling revealed that teacher emphasis on mastery goals in elementary school positively predicted students' academic and social aspects of TSE. The social aspect of TSE positively predicted behavioural and emotional engagement after the actual transition. These findings demonstrate the importance of the goals teachers emphasize before transitioning,
and that researchers and practitioners should note the role that TSE may play in adjustment after transitioning.

P3.12 The relationships between self-downing beliefs, coping strategies and academic math performance in Greek adolescent students: a Rational Emotive Education approach

Alexandra Katsiki¹², Alexander Minnaert ², Dimitris Katsikis ¹

¹ Hellenic Institute for Rational Emotive and Cognitive Behavioral Therapy, Greece
² University of Groningen, The Netherlands

Rational Emotive Behavior Therapy (REBT) focuses on the negative impact of irrational beliefs (e.g. self-downing beliefs as blaming oneself and overgeneralizing to global judgments of self-worth) on students’ academic achievement. In this REBT framework irrational beliefs – leading to maladaptive outcomes – might be changed into rational and more adaptive beliefs by means of coping strategies. Hence, this study focused on investigating a) the relationship between students’ self-downing beliefs and their academic math performance and b) a likely interaction between students’ coping strategies and self-downing beliefs in the prediction of academic math performance. Greek adolescent students (N = 116) completed self-report questionnaires, assessing their self-downing beliefs and coping strategies. Students’ scores of mathematical tests were gathered from school records. A regression analysis revealed that students’ self-downing beliefs significantly predict their academic math performance by means of a curvilinear relationship ($R^2 = .10$). A stepwise multiple regression analysis showed that self-downing beliefs is the most significant predictor of academic math performance, while the addition of avoidance coping on top of self-downing beliefs, was marginally significant ($p = .08$) for the prediction of academic math performance. Furthermore, the inclusion of interaction terms into the stepwise multiple regression analysis, indicated non-significant interaction effects between positive approach coping and self-downing beliefs for the prediction of academic math performance. Overall, the results above are in line with REBT theory that students’ irrational beliefs may have a substantial impact on their academic achievement. Results are discussed within the context of Rational Emotive Education, the social-emotional and educational derivative of REBT theory.

P3.13 The “Chip-on-the-Shoulder” Effect: The motivational and performance consequences of disrespecting students

Caitlin Courshon, Tim Urdan

Santa Clara University, USA

In the United States, a “chip-on-the-shoulder” refers to the enhanced motivational effect of being disrespected. Although it is common wisdom on the sports world that being disrespected increases motivation to perform, there is little research examining whether this assumption is true, or whether it applies to the academic domain. The purpose of this study was to examine the consequences for performance of encouraging or disrespecting college students. All participants (n = 140) received an identical online academic task that involved answering 15 test questions and pattern recognition items. Before completing the task, students were divided into three groups: Control, Encouraged, and Disrespected. Participants were told either to try hard (Control condition), that they were expected to do well because they were attending a good college (Encouraged condition), or that they were not expected to perform as well on the task as students are a more prestigious university (Disrespected condition). One-way ANOVAs revealed that students in the Disrespected group performed worse than students in the other two groups on the task. In addition, we found that students in the Encouraged group did not perform better than students in the Control condition. We also found a tendency for students in the Encouraged condition to perceive that they tried harder, and performed better, than students in the other two groups. These results defy the common perception that encouragement and high expectations enhance performance. Our results also contradict the view, perpetuated most commonly in sports, that being disrespected has motivational or performance benefits.

P3.14 Cognitive-motivational determinants of career decision-making processes: Validation of a conceptual model
In the 12th grade, students are called to make a decision about their intention to proceed for higher education or to entering the job market. The accomplishment of this task mobilizes multiple psychological processes that not always translate into career choices aligned with the individual’s true interests, values and career goals, and quite often are accompanied by feelings of alienation and ill-being. However, research has gathered little consensus about the processes and dynamics that determine the selection of more, or less, self-determined career pathways, as well as the way in which these processes facilitate or hinder the successful resolution of career transition tasks (Waterman, 1990). On the other hand, the explanations provided often reflect the independent exam of the cognitive, motivational and social determinants of the career decision-making processes, rooted in cross-sectional research studies and are essentially focused on constructs which bear a strict vocational nature. Thus, it seems important to develop more integrative conceptual models about the processes involved in career decision-making (Super, Savickas, & Super, 1996).

In this study we present a comprehensive study of the way as several contextual, cognitive and motivational variables combine to predict differentiated trajectories of career decision-making and adjustment in adolescents who are making the transition from high school to higher education/job market. With this purpose in mind, we developed and tested an integrative conceptual model, which includes constructs obtained from motivational, social cognitive and clinical models. The study presented has a longitudinal research design with two measurement waves: the first was carried out in the first term of the 2012-2013 school year and a second in the third term of the 2013-2014 school year. In this study participated 12th grade students enrolled in Portuguese secondary schools. Students were assessed in several constructs, including perceived parenting, psychological needs, career self-efficacy beliefs, dysfunctional schematic functioning, career exploration and commitment-making processes, regulation of career commitments and psychological well/ill-being. Findings suggest that experiences of parental need-support seem to associate to the adolescents’ feelings of higher need satisfaction and to an increased self-confidence in career decision-making, what, in turn, leads to the proactive exploration of career options, to more self-determined career choices and to feelings of higher well-being. On the other hand, they suggest that active parental need-thwarting experiences associate to the adolescents’ to an increase in feelings of psychological need frustration, which, in turn, lead to exploration and career choice processes based on dysfunctional schematic functioning, namely to ruminative exploration an exploration of career options, controlled choices and to the experience of higher ill-being. Overall, these associations seem to indicate the existence of substantively distinct pathways of career identity development and adjustment, one essentially self-determined and adaptive, and a second one more controlled and dysfunctional. This argument, despite somehow speculative, extends the SDT-based distinction between bright” and “dark” pathways of development, to the field of career development. It also suggests the need to differentiate career interventions of a promotional and remediate nature, in function of the degree of self-determination that is associated to the processes of exploration and commitment-making. We hope that with this research we have inspired the development of more integrated career interventions focused on building more self-determined psychological processes.

P3.15 The contribution of emotional intelligence to teacher resilience
Lucas Lohbeck
RWTH Aachen University, Germany

Over the past years research on teachers’ health has identified factors that enhance resilience, i.e. the ability to deal with stressful situations in a way that is constructive and beneficial for both health preservation and improvement. The positive influence that emotional intelligence – which is defined as encompassing an array of emotional competences that facilitate the identification, processing, and regulation of emotion – has on health has been mentioned in several studies (e.g., Austin, Saklofske, & Egan, 2005) and it has been suggested that there is a connection with resilience (e.g., Ashley, Saklofske, & Leschied, 2013). However, up until now no study has established a direct link to the concept of resilience yet. In order to better understand the correlation between emotional intelligence and resilience this study focuses on the connection between the
concept of resilience and the intra-personal side of emotional intelligence taking the form of Attention to Feelings, Clarity of Feelings and Mood Repair. 325 teacher-students answered Mansfield’s (2013) Teacher Resilience Questionnaire and the Trait Meta Mood Scale (Salovey et al., 1995). A significant correlation between the subscales of the Trait Meta Mood Scale Attention to Feelings, Clarity of Feelings and Mood Repair with scales for resilience can be shown. On closer examination it becomes clear that the most important aspect for the degree of resilience is the controllability of negative emotions and the aptitude to sustain and rebuild positive emotions.

16.00-16.30 Coffee break

16:30-17:30 KEYNOTE 4
Conference Hall II (-1)
Children’s Declining Perceptions of Competence: Inevitable or Manufactured?
Deborah Stipek, Stanford University, USA
Chair: Eleftheria N. Gonida, Aristotle University of Thessaloniki, Greece

Research has consistently shown that children’s perceptions of their academic competence declines from about the time they begin formal schooling. Researchers have attributed the decline to increased attention to and ability to process evaluative feedback as well as shifts in how children define success. Research findings will be presented which suggest that educational contexts may also play a role. In the first study of 4-7 year olds, declines in perceived competence were found when children rated themselves, but not when they rated their classmates, suggesting that the decline cannot be entirely explained by cognitive capacities to process evaluative feedback. In a second study, 5-6 year olds in classrooms in which teachers provided salient evaluative performance feedback rated their academic competence lower than children in classrooms that were focused more on learning and process. In a third study, children aged 4-6 in classrooms that were narrowly focused on academic achievement had lower perceptions of their competence as well as lower expectations for success, preference for challenge and pride in accomplishments than children in classrooms that encourage children’s choices and initiative. In the final study 9-12-year olds’ motivation was strongly associated with the kind of written feedback teachers gave them. Taken together the studies presented suggest that developmental change in children’s perceptions of their academic competence is affected by an interaction between their cognitive capacities to process evaluative feedback and the nature of feedback they receive. Findings suggest practical strategies for preventing the decline.

17:30-18:00 SIG8: Motivation and Emotion Awards
Conference Hall II (-1)
Chair: Marina S. Lemos, SIG8 Co-ordinator, President of the Awards Committee,
University of Porto, Portugal

18:00-19:30 PAPER SESSIONS

O9. Developmental Issues in Motivation
Conference Hall I
Chair: Åge Diseth, University of Bergen, Norway
How quality of motivation develops across two years of elementary school: A person-centered approach
Oga-Baldwin W. L. Quint ¹, Luke K. Fryer²
¹ Fukuoka University of Education, Japan
² Kyushu Sangyo University, Japan

How students’ motivation develops over time is a question of central importance to both researchers and educators. According to self-determination theory, quality of motivation helps explain why students engage
adaptively with their learning. The current study investigated the longitudinal development of 513 Japanese elementary students’ motivational profiles across two years of schooling. Students completed a modified version of the self-regulation questionnaire–academic (SRQ-A) to measure the continuum from extrinsic to intrinsic motives. Employing latent profile analysis at three time points, students’ motivation consistently revealed three motivational profiles: high quality motivation, represented by higher intrinsic than extrinsic motivation; high quantity motivation, represented by consistent ratings of both intrinsic and extrinsic motives; and low quality motivation, represented by higher extrinsic than intrinsic motives. Across the two year study, few individuals displayed low quality profiles, significantly more showed high quantity, and the largest group presented a high quality motivational profile. Latent profile transfer analysis indicated that the majority of students in high quantity and quality profiles remained within their original sub-groups, while individuals in the low quality subgroup generally moved to a more adaptive group over time. Furthermore, those in the two lower motivation groups who moved generally improved in quality of motivation. Overall, participating students demonstrated a pattern of increase in internally regulated motivation, and thereby, their motivational quality. Findings are further considered in light of current educational policies.

A longitudinal study of implicit theories of intelligence and academic achievement among students: Comparison between two samples
Åge Diseth
University of Bergen, Norway

There has been an increasing interest to investigate the degree to which students perceive their abilities as a relatively fixed entity, or as possible to improve by means of effort, described as students’ implicit theories of intelligence (Dweck, 1999). An entity theory of intelligence implies that although it is possible to learn new things, the underlying intelligence remains the same. In contrast, students holding an incremental view of intelligence believe that it is possible to become more intelligent through effort (Dweck, Chiu, & Hong, 1995). These implicit theories of intelligence may be significant for educational outcomes (Diseth, Meland, & Breidablik, 2014). Previous research has shown that the belief that incremental theory predicted an upward trajectory in grades over the two years of junior high school, while entity theory predicted a flat trajectory (Blackwell, Trzesniewski, & Dweck, 2007). A meta-analysis concluded that implicit theories of intelligence are moderately related to achievement in some studies, but that the effect is mostly considered to be indirect (Burnette et al., 2013). However, most of this research has been cross-sectional, with little effort to investigate longitudinal relations between incremental and entity theories of intelligence. Hence, the aim of the present study is to investigate this longitudinal relation in a time span of two years, including a comparison between two subsamples of Norwegian students (6th – 8th grade and 8th – 10th grade), and how they are related to academic achievement.

The role of task orientation in the development of child’s interest and pre-reading skills in 4-6-year-olders
Satu Laitinen, Janne Lepola
University of Turku, Finland

Previous studies have shown predictive link between vocabulary knowledge and reading interest and task orientation as unique contributor in the growing demands of learning to read and write. However, there is insufficient knowledge about the developmental dynamics between task-oriented behavior, child’s interest in literacy activities in day care and language skills from preschool to kindergarten age. The present longitudinal study examines, first, the developmental associations between child’s interest in literacy activities and vocabulary knowledge. Second, we ask to what extent child’s interest in literacy activities and vocabulary knowledge are also determined by early task-oriented behavior, and how they predict later task orientation in kindergarten 130 Finnish-speaking children participated in the study. Task-oriented behavior was rated by teacher and child’s self-reported interest in literacy activities (i.e., shared reading and story book viewing) in day care was assessed and vocabulary knowledge measured at ages of 4, 5, and 6 (from preschool to kindergarten). The developmental relationship among the variables was analyzed by means of the path analysis. Path analysis showed that teacher-rated task orientation at age 4 made a significant contribution to child’s literacy interest at age 5, and child’s literacy interest at age 5 predicted later task orientation at age 6.
The development of sciences and language interest in a group of Spanish and Finnish secondary students across the transition into high school

Milagros Sainz, Katja Upadyaya, Katarina Salmela-Aro

1 Internet Interdisciplinary Institute, Spain
2 University of Helsinki, Finland

The aim of the present three-wave longitudinal study is to examine the co-development of science, math, and language (e.g., Spanish/Finnish) interest among both Spanish and Finnish secondary school students during and after the transition to high school, taking into account the role of gender, performance, and socio-economic status. A total of 424 Spanish (M = 14 years at time 1) and 871 Finnish (M = 15 years at time 1) students participated in the present study. The research questions were analyzed with parallel process latent growth curve (LGC) modeling. The results for the Spanish sample showed that interest in each domain slightly decreased over time. However, Finnish students experienced a high initial level of math/science and Finnish interest, which remained relatively stable across time. Further, in both countries positive associations between language and science interest were found. Similarly, in both countries boys showed higher interest in math and science, whereas girls reported higher interest in language. Spanish students from higher SES families showed high initial interest in science. Moreover, in the Spanish sample, students with high math performance showed a lower decrease in their interest in math than in Spanish. Nevertheless, a high performance in science predicted a lower decrease in students’ interest in both science and Spanish. Finally, in the Finnish sample students with high GPA reported a high initial level of math/science and Finnish interest, which, however, slightly decreased later on. The theoretical and practical implications will be discussed.
An intervention program promoting abilities to recognize and use psychological lexicon on achievement emotions with secondary school students

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Within educational psychology, achievement emotions have recently roused particular interest for both their theoretical and applied importance (Pekrun & Linnenbrink-Garcia, 2014). Notwithstanding the large amount of research studies focused on them, scarce attention has been paid to specific interventions aiming at developing the abilities necessary to understand and describe achievement emotions, considering these abilities as key components of the construct of emotional competence (Denham, 1998). Therefore, we involved 74 seventh-graders (included in an experimental or in a control group) to test the efficacy of an eight-units intervention program aiming at promoting abilities to recognize and use psychological lexicon related to achievement emotions, embedded within the domain of Italian. First, the students were emotionally involved in a stable way during the whole intervention, with positive emotions more intense than negative emotions. Second, after the intervention students’ abilities to recognize and use psychological lexicon related to achievement emotions improved. Third, the positive effects of the intervention generalized to achievement emotions associated with the domain of Italian and partially of school in general. Finally, these emotions were coherently related to students’ final achievement in Italian. Acknowledging limitations such as the nature of self-report data or the short duration of the intervention, we provided evidence-based indications on the goodness of the program. From an applied perspective, our findings encourage the development of further intervention programs focused on other components of the emotional competence, such as the ability to regulate emotions, based on the awareness of the role played by achievement emotions within school contexts.

Domains of students’ pride – What are students proud of in the school context?

Judith Fraenken, Marold Wosnitza

RWTH Aachen University, Germany

Positive emotions, such as pride, have been under-researched in the achievement goal literature of prior research. The present study focuses on what students state to feel proud of in everyday school life. The main aim of this exploratory study is to categorize different domains of students’ pride and whether different emphases can be found. The object of investigation are learning logbooks of students (N = 133), in which pupils, on a weekly basis, state what they are proud of in the past week. A whole school year (= 40 weeks) provided 1170 statements overall, which were coded into emerging categories representing the different foci of students’ pride. Results show that pride often results from student’s performance (N = 798) including the personal progress in learning, results and students’ engagement. Regarding the number of statements, students’ pride of social aspects (e.g., social behavior, taking responsibility) is considerably small (= 57). The number of statements related to activities besides (performance) at school (= 17) includes for example students’ pride on learning at home or their way to school. If students name persons that they are proud of, they typically name themselves (= 121) and secondary other persons (= 22). Findings in this context are relevant as pride can be assumed to be an authentic, i.e. positive emotion, which activates students and therefore influences their motivation and learning outcomes. After having found in this study, that pride often results from students’ performance, further research will thus in more details focus on how pride may again influence their school performance.

Do I have to be in good mood? The interaction of mood and learning with inference prompts

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University of Mannheim, Germany

The purpose of this study was to investigate the effect of mood (positive vs. negative) on learning with desirable difficulties (text vs. inference prompts). The fundamental idea of learning with a ‘desirable difficulty’ is, that it leads to an active and self-generated processing. Self-generating in turn might lead to deeper
comprehension and therefore better learning outcomes. However, learners’ mood might be a potential moderating factor for engaging in self-generated learning. Particularly, positive mood as a motivational factor is supposed to be more promotional for active self-generated learning compared to solely receiving text. Contrary, negative mood leads to more methodological thinking which seems to be more supportive for learning with text compared to self-generating. Hence, an interaction between mood and desirable difficulty was hypothesized: Learners in positive mood should show better learning outcomes when learning with inference prompts compared to text, whereas learners in negative mood should learn better with text compared to inference prompts. Or to put it in another way: Learning with inference prompts should be enhanced by positive mood, whereas learning with text should be promoted by negative mood. Moreover, this interaction was also hypothesized regarding learners’ motivation. Results revealed an interaction for a retention test: Learning with text was significantly better in negative than in positive mood. However, when learning with inference prompts, learners’ mood had no significant influence. Regarding transfer test, learning with inference prompts led to significantly better learning outcomes than learning with text. Surprisingly, neither mood nor desirable difficulty had effects on learners’ motivation.

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Chair: Anna-Maija Poikkeus, *University of Jyväskylä, Finland*

The effects of classroom interaction on students’ lesson-specific engagement

Sanni Pöysä, Kati Vasalampi, Joona Muotka, Marja-Kristiina Lerkanen, Anna-Maija Poikkeus, Jari-Erik Nurmi

*University of Jyväskylä, Finland*

The aim of the present study was to examine the extent to which the quality of classroom interaction is associated with students’ lesson-specific engagement. An intensive one-week day-to-day data collection was conducted in four Grade 7 classrooms (age 13-14 years) in two schools. Students (n = 57, 57% boys) rated their lesson-specific experiences after each literacy and mathematics lesson with a mobile-based InSitu instrument. Quality of videotaped classroom interaction, i.e., emotional and instructional support and classroom organization, was assessed with the Classroom Assessment Scoring System Secondary (CLASS-S). Data comprising a total of 327 ratings of students’ lesson-specific engagement and observed quality of the 24 lessons (literacy and mathematics) were analyzed with hierarchical multivariate analysis of variance (MANOVA). This type of analysis provides understanding of motivational and interactional processes in the classroom and factors within the classroom ecology which foster engagement. The results indicated that after controlling for classroom and teacher effects, there was variation in students’ lesson-specific engagement which was associated with quality of classroom interaction: in classrooms where the quality of emotional and instructional support was high students reported low level of disaffection. Overall the results of this study indicated that students’ lesson-specific engagement was fostered by teachers’ high emotional and instructional support at the classroom level.

Promotion of primary and lower secondary school students’ classroom engagement through dialogic teaching

Kati Vasalampi, Riitta-Leena Metsäpelto, Anna-Maija Poikkeus

*University of Jyväskylä, Finland*

The present data were collected in the context of professional development (PD) program aiming at enhancing in-service teachers’ practices for fostering student engagement and learning motivation in the classroom. The study examines the impact of the program on students’ classroom engagement by utilizing mobile technology to collect data on students’ lesson specific experiences of engagement. Participants of the study are three teachers (a classroom teacher teaching grade 6 students, and two lower secondary school teachers) their students (n = 56) from one school serving students from Grade 1 to 9. As part of the PD program the teachers attended workshops on dialogical teaching and videotaped their classroom lessons and student ratings were collected using the newly developed InSitu Instrument during these lessons. The results showed that the program increased particularly students’ experiences of emotional engagement and
facilitated help-seeking during the lesson. These findings suggest that group-based consultation focusing on
dialogic teaching contributes to students’ classroom engagement.

**Predicting students’ cynicism toward the meaning of school in the transition from primary to lower secondary school: The role of students’ affective and cognitive engagement**

Tuomo Virtanen, Kati Vasalampi, Noona Kiuru

*University of Jyväskylä, Finland*

There is evidence to show that school transitions represent a risk for school maladjustment for students. At
the same time student affective engagement (teacher-student relationships, family support for learning, and
peer support at school) and cognitive engagement (future aspirations and goals) are potential protective
factors against cynicism. The aim of the study was to investigate the relationships between student-perceived
affective and cognitive engagement measured at Grade 6 and student-perceived cynicism (detached attitude
and a loss of interest and motivation toward academic work) at Grade 7. The analyses were carried out in the
sample of 1,899 Finnish students using structural equation modeling. Students’ behavioral engagement,
academic achievement, and parental education were controlled. The results showed, first, that student-
perceived cynicism was highly stable. Second, after controlling the initial level of cynicism and the three afore-
mentioned covariates, only peer support at school predicted subsequent cynicism: The lower the students’
level of peer support at Grade 6 was, the higher the probability of cynicism was at Grade 7. The findings
provided evidence for the importance of peer relations in the transition phase from primary school to lower
secondary school. Peer support seems to be a pivotal aspect in fulfilling students’ need to relate to others at
school decreasing the probability for students to become cynical in the new post primary school environment.

**The engaged mathematics student: How emotional and behavioural engagement in maths lessons is
facilitated by cognitive engagement**

Sandra Becker1,2, Dave Putwain2, Reinhard Pekrun1

1 Ludwig-Maximilians-Universität München, Germany
2 Edge Hill University, England

This study examined how emotional, cognitive and behavioural components of engagement are linked during
mathematics learning and classroom activities and offers theoretical propositions on how these facets of
engagement can be integrated based on the Control-Value Theory (Pekrun, 2006). Data were collected at
three time points throughout one academic year from 1,156 students from 29 schools during mathematics
lessons. Emotional and behavioural engagement data were collected at t1 and t3, whilst cognitive engagement
data was collected at t2. Data were analysed using structural equation modeling (SEM) and mediation
analyses. First, emotions and behaviour at t1 effected cognitive strategies at t2. Next, cognitive engagement
at t2 predicted subsequent emotional and behavioural engagement while controlling for the influence of prior
engagement. In particular, deep cognitive strategies positively predicted enjoyment and negatively predicted
boredom, while surface cognitive strategies positively predicted behavioural engagement. Consequently,
emotional, cognitive and behavioural engagement during maths lessons should not only be considered in
future research but can be considered as promising candidates for designing interventions in order to engage
students in classroom activities and mathematics lessons respectively.

**O12. Avoidance Behaviors in Academic Settings**

Chair: Despoina Xanthopoulou, Aristotle University of Thessaloniki, Greece

**Academic procrastination in secondary education: Evolution and effects of learning environment
characteristics**

Marie-Christine Opdenakker

*University of Groningen, The Netherlands*

Academic procrastination (AP) is a widespread phenomenon in education with important adverse effects on
academic performance. AP refers to delaying the completion of class assignments and pulling of the
preparation for tests. While viewed as an immutable personality trait/disposition in the past, nowadays empirical and theoretical support is found for temporal and situational variability. However, studies on the evolution of AP and effects of contextual factors are scarce. In the current study, the evolution of AP was investigated in 20 mathematics and English grade-7 classes of secondary education in The Netherlands (n students: 566) and effects of learning environment (LE) characteristics (student perceptions) were explored. Self-determination theory was used as the encompassing framework and guided the selection of LE characteristics. Multilevel growth curve analysis was applied and revealed a linear increase of AP during the school year and differences in this evolution between students within classes. The increase was most pronounced for girls in mixed-ability classes and for students in homogeneous high-ability classes. No effects on (the evolution in) procrastination were encountered for prior achievement and subject. Furthermore, significant effects of LE characteristics and psychological basic need satisfaction (BNS) were found. In addition, BNS partially mediated the effects of the LE characteristics. Together, almost 20% of the total variance in AP (after accounting for the effect of time) could be explained. The study adds to our theoretical understanding of procrastination and delivers empirical evidence and cues for the important role LE/teachers (can) play in students’ AP.

Why do some adolescents avoid seeking help? The role of personal and contextual factors
Glykeria Chatzikyriakou, Eleftheria N. Gonida, Grigoris Kiosseoglou
Aristotle University of Thessaloniki, Greece

The study aimed to investigate avoidance of academic help-seeking during adolescence. Avoidance of help-seeking refers to instances when a student needs help but does not seek it. As an avoidance strategy, it is associated to maladaptive patterns of learning resulting in poor academic outcomes. In the present study a number of personal and contextual factors are examined in regard to their potential contribution in the development of help-seeking avoidance during early and middle adolescence. Specifically, prior achievement and strategy use, motivational factors such as students’ personal achievement goals, self-esteem and self-efficacy beliefs, and contextual factors as perceived by the students themselves, such as perceived classroom goal structures and perceived parent goals were examined in the present study. A sample of 392 (7th and 9th grade) secondary school students completed a set of self-report questionnaires measuring the above-referred variables. Data analyses indicated that students who are more vulnerable in terms of their cognitive and motivational profile are more likely to adopt help seeking avoidance behaviors. In addition, it seems that when students perceive an emphasis on mastery and skill development, either at the classroom or at the parent level, help-seeking avoidance is less likely to occur. The results will be discussed in light of recent theory and implications for educational practice will be pointed out.

“Motivated” self-regulation failure? Task-related distractedness as a mediator of the relationship between trait reactance and procrastination
Tatiana Malatincová
Masaryk University, Czech Republic

The present study further explores a previously supported positive relationship between procrastination and trait reactance. It is proposed that trait reactance might increase procrastination through preventing the individual from entering the implementation mindset when internal pressure to engage in the task threatens their freedom to engage in alternative activities. Reactance is expected to manifest as a sudden increase in the attractiveness of previously irrelevant activities, inability to disengage from other activities mentally, and increase in general distractedness in response to any attempts at working. This mechanism is expected to explain procrastination beyond the well-established personality predictors related to persisting self-regulation problems. The assumption was tested on a sample of 174 participants who completed measures of trait procrastination, trait reactance, conscientiousness, prospective action orientation, and the above hypothetical mediator variables. As expected, reactance was related to both procrastination and the hypothesized mediator variables, but was unrelated to either conscientiousness or action orientation. Results of a path analysis and a mediation analysis indicated that the effect of reactance on procrastination could be completely explained by the “reactive distractedness” represented by the tested mediators. This was not true.
about the personality predictors. In addition, reactance explained a substantial amount of variance in reactive
distractedness independently of the two personality predictors of procrastination.

Motivation, self-regulation and academic self-handicapping in Higher Education students in Greece: A
comparison with students in Germany and Scotland
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National and Kapodistrian University of Athens, Greece

The aim of the present research was to investigate specific dimensions of motivation and self-regulated
learning of Higher Education students in different educational contexts, in Greece, Germany and Scotland
across different disciplines in terms of a number of student characteristics. The sample included 638
undergraduate students studying different disciplines at three Universities in Athens (N = 570), the University
of Glasgow, U.K., (N = 42) and the University of Osnabrueck, Germany (N = 26). Of these participants 27
students had a formal assessment of dyslexia. The students completed the Study Process Questionnaire, the
Academic Self-Handicapping Strategies Scale and the Motivated Strategies for Learning Questionnaire. The
results showed that 3rd and 4th year students, those in theoretical courses with higher GPA and those who
reported that they planned to complete their studies timely had significantly higher scores in motivation, self-
regulated strategies and deep strategies. Comparisons between the Greek sample and the Scottish and
German samples showed that the first had significantly lower scores of motivation and self-regulated
strategies. Students in social sciences courses reported higher ASH as compared to students in biomedical
courses but ASH did not vary neither as a function of the student characteristics nor as a function of culture.
Finally, students with dyslexia reported higher exam anxiety and use of surface approach to learning. The
findings provide evidence regarding the link of the students’ motivational beliefs and use of strategies to
important student variables. Implications of the cultural differences that may be attributed to the different
teaching culture dimensions will be discussed.
Engagement and learning during digital game-based reading intervention
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University of Jyväskylä, Finland

GraphoGame is a digital learning environment designed to support children who have difficulties in reading acquisition. Studies have shown that GraphoGame is generally an effective method of intervention, but there are children who do not seem to benefit from the training. One of the potential factors explaining the individual differences in learning gains is the quality of children's engagement during training. This pilot study focuses on the children's engagement in GraphoGame training, and the relationships between different types of engagement and development of reading and spelling skills. The participants (n = 51) were seven- to nine-year-olds who had difficulties in reading. The children used GraphoGame for six to eight weeks under the supervision of parents and teachers. After the intervention the children responded to GraphoGame Engagement Survey, which included statements that were designed to evaluate affective, cognitive and gameplay-based aspects of engagement. According to the results, cognitive engagement was positively associated with the development of word-level spelling and reading skills whereas affective engagement was related to improvement in a phonological awareness. Gameplay-based engagement or the time spent playing GraphoGame had no positive associations with learning outcomes. These findings suggest that the quality of children's engagement during intervention seems to explain some of the individual differences in children's learning gains. Supporting children's cognitive involvement during training seems especially important.

School starters’ motivation for reading
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2 Brock University, Canada

Motivation for reading is associated with reading performance and related to the development of reading skill. Struggling readers tend to lose motivation as a result of repeated failures with leaning how to read. However, the exact point when reading motivation start to interact with reading performance is yet to be established. The current study examines levels of reading motivation and associations between different motivational constructs for children at risk of reading difficulties and their average and high performing peers at the very start of formal reading instruction in school. The present study is based on data from the ongoing On Track study, and includes 1171 first graders. At-risk students (n = 229) were identified by measures of letter knowledge, RAN and phonemic awareness and familial risk for dyslexia. Reading self-concept and literacy interest was measured by self-report at the onset of grade 1. T-tests and effect sizes were carried out to investigate differences between the groups. In addition, Covariance Structural Modeling was used to explore construct validity and the role of literacy interest in the relationship between the students’ phonological reading skill and self-concept. While there were no significant differences regarding literacy interest between the at risk and not at risk students, the at-risk children had significantly lower reading self-concept compared to their average and high performing peers at school entry. Analysis indicated literacy interest as a highly significant moderator in the relationship between phonological reading skill and self-concept. Results suggest a more negative self-concept as an additional risk factor for the at risk children and concurrently suggest resilient literacy as a protective factor of reading self-concept for first graders at risk of reading difficulties.
Student self-reported motivation and teacher-rated engagement as predictors of reading achievement

Stephen D. Whitney, David A. Bergin
University of Missouri, USA

Using data from the Early Childhood Longitudinal Study (ECLS-K), we examined 3rd and 5th grade teacher-rated classroom engagement and student self-reported motivation for reading as predictors of reading achievement. The classroom engagement variable measured teacher-rated aspects of classroom behavior such as eagerness to learn, flexibility, attentiveness, and learning independence, while the motivation variable measured self-reported perceived interest and competence in reading. We investigated whether teacher-rated engagement in broad classroom activities and student-reported motivation specific to reading would show similar patterns of prediction. Our second purpose was to investigate motivation in the context of the achievement gap. We examined the patterns of prediction of achievement for White, Black and Hispanic and five levels of SES in a within group model. Groups were created by crossing race with SES to form 15 independent groups for each grade level. Multiple linear regression to predict students’ IRT reading scores based on levels of reading motivation and engagement was conducted separately for each of the 15 groups of race/SES. To control for the relatively large number of significance tests, a significance level of ≤.01 was used. Achievement was highest for White students, followed by Black and then Hispanic. Self-reported motivation was a significant predictor of reading achievement only for White students in 3rd and 5th grades, while teacher-reported classroom engagement predicted for white students and for minority students for both 3rd and 5th grade reading achievement. It may be concluded that student engagement shows more promise for possible classroom interventions to increase future student motivation.

Reading self-efficacy and reading skills among primary school children: Specificity of self-efficacy affecting the relation

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University of Jyvaskyla, Finland

Self-efficacy beliefs have been found to be related to skills; however we have little evidence of this relation from young children, especially in the context of reading. Bandura (1997) has suggested that self-efficacy beliefs differentiate at different levels of specificity, but empirical support for this view is scarce, especially regarding children of primary school age. Also that, how the specificity of self-efficacy influences the relationship between reading self-efficacy and reading skills in the early stages of school, is unclear. The purpose of this study was to assess the relationship between reading self-efficacy and reading skills 2nd to 5th grade children (n = 1327). Children’s reading skills were assessed in reading fluency and reading self-efficacy in different specificity levels. Using confirmatory factor analysis, three distinct but correlated specificity levels of reading self-efficacy were found. Structural equation models showed that relation between self-efficacy and reading fluency was related to the specificity of self-efficacy. Intermediate-level self-efficacy was related to reading fluency: children with higher self-efficacy in everyday life reading tasks performed higher in reading fluency tasks. General- and specific-levels were not directly related. These findings suggest that the specificity of self-efficacy is important already in young children and that in young children especially self-efficacy in everyday life tasks seems to be connected to reading skills. The results indicate that association between self-efficacy and reading skills might differ depending on the specificity of self-efficacy and therefore the specificity of self-efficacy should be paid explicit attention to already in young children.

Cultivating the benefits of daily solitude: The role of autonomous motivation in moderating the effect of practicing solitude on daily well-being

Thuy-vy Nguyen1, Edward Deci1, Richard Ryan1&2
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2 Australian Catholic University, Australia
Drawing evidence from a limited body of empirical research on solitude, which mostly suggested that time spent alone has negative effect on well-being, we conducted 2 diary studies. In the first study, we tracked the amount of time people spent alone on a daily basis and examined how it related to the participants’ well-being levels at the end of each day. In the second study, we introduced solitude to people’s daily life by asking them to take 15 minutes each day to sit with themselves while not engaging in any other tasks. In this study, we also looked at how this would affect their well-being at the end of the day. Whether solitude was targeted spontaneously through self-reported questionnaires or whether people were instructed to practice it deliberately just for 15 minutes on a daily basis, it affected their daily well-being negatively. Nonetheless, the benefits of solitude, evidenced by heightened experiences of relaxation and calmness, and lower stress, emerged when the authors accounted for autonomous motivation for solitude as the moderator; that is, when people treated solitude as a meaningful and valuable part of everyday life.

Maternal knowledge as a mediator of the relation between maternal psychological control and prosocial and antisocial behavior

Athanasios Mouratidis\(^1\), Melike Sayil\(^2\), Asiye Kumru\(^3\), Bilge Selçuk Yaşmurlu\(^4\), Bart Soenens\(^5\)

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\(^5\) Ghent University, Belgium

Past research has shown that maternal knowledge of adolescents’ whereabouts, activities, and friendships restricts adolescents’ delinquency and antisocial behavior. Yet, the psychological processes behind this association are poorly understood (Racz & McMahon, 2011). It could be (a) either because maternal knowledge engenders a certain degree of anxiety and threat in adolescents wherein adolescents run the risk of being caught (and perhaps punished) in case they engage in misbehavior; (b) or because maternal knowledge reflects a trustworthy and open mother-child relationship in which adolescents feel free to disclose about their activities. If the latter, then adolescents are less likely to disclose their activities to their mothers if they perceive their mothers to exert psychological control on them and more likely to identify with their parents’ expectations for appropriate behavior. Hence, they tend to engage in appropriate behavior willingly rather than because they feel pressured to do so. If this assumption is true, then one should expect maternal knowledge not only to restrict antisocial behavior but also to predict more altruistic (but not instrumental) prosocial behavior. In this one-year, multi-informant, longitudinal study we aimed to address these questions by recruiting a sample of early Turkish adolescents (N = 229; M\(_{\text{age}}\) = 11.89 years; SD = 0.32; 47.0% males) and their mothers. Our structural equation modeling analysis provided support to most of our hypotheses. Either assessed through mothers’ reports, or through adolescents’ perceptions, psychological control negatively predicted maternal knowledge (either mother-reported or adolescent-reported). In turn, maternal knowledge related negatively to antisocial behavior and positively to altruistic prosocial behavior (but not to instrumental one). These findings highlight the key role that maternal knowledge and psychological control can have on adolescents’ social functioning. It seems that to cultivate her adolescent’s true prosocial behavior a mother should be aware of her offspring whereabouts, activities, and friendships. To do so, she should abstain from psychologically controlling practices.

University students’ well-being and academic procrastination: The role of social relatedness with peers and faculty

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Self-determination theory (Deci & Ryan, 1985) maintains that the basic psychological needs for autonomy, competence and relatedness are antecedents of intrinsic motivation, which in turn is related to many behavioral and affective outcome variables, such as achievement, persistence, positive emotions and well-being (Guay, Ratelle, & Chanal, 2008). In this study we investigated students’ perceptions of relatedness with
faculty (RF) and with peers (RP) as predictors of intrinsic motivation, academic procrastination and well-being. Responses from N = 301 undergraduate university students indicated that RF and RP were associated with all outcome measures. We tested a mediation model in which perceived RF and RP predict intrinsic motivation, which in turn predicts academic procrastination and well-being. Results indicate that RF and RP independently predict university students’ intrinsic motivation and intrinsic motivation was a significant predictor for all outcome measures. Specifically, intrinsic motivation fully mediated the association between RF and all outcome variables. The association between RP and academic procrastination was also fully mediated by intrinsic motivation. However, intrinsic motivation mediated the association between RP and well-being only partially. Our results corroborate the utility of a multi-dimensional approach to the basic need social relatedness that considers the independent, as well as interactive contributions of faculty and peers to university students’ intrinsic motivation and related outcomes.

A Self-Determination Theory discussion of ethics
Alexios Arvanitis
University of Crete, Greece

Kantian-based ethics will not endorse heteronomous acts that appear to satisfy ulterior motives and contingencies going beyond the acts themselves. I will argue that, although not formally developed, a Self-Determination Theory (SDT) perspective of ethics can specify what it means, motivationally, to have autonomy in the application of a moral norm. More specifically, I will argue that this is possible when a moral norm is fully endorsed by the self through a process of internalization that is energized by intrinsic motivation and is facilitated by the fulfillment of the basic needs for autonomy, competence and relatedness. The conditions of the fulfillment of these needs may even implicitly reveal which norms will be integrated and treated as moral norms. I will conclude that SDT offers a useful motivational approach in understanding the development of moral norms.

O15. Motivation and Emotion Regulation
Chair: Susanne Narciss, Technische Universität Dresden, Germany

Emotion regulation abilities and achievement emotions in primary school children
Daniela Raccanello ¹, Angelica Moe ², Margherita Brondino ¹, Stephanie Lichtenfeld ³

¹University of Verona, Italy
²University of Padova, Italy
³University of Munich, Germany

Nowadays, great attention has been devoted to the role played by emotions within school contexts, given its relevance for students’ wellbeing and performance (Pekrun & Linnenbrick-Garcia, 2014). However, just a few studies have focused on how emotion regulation, a component of emotional competence (Denham, 1998), may affect achievement emotions within specific contexts. Therefore, our aim was to describe primary school children’s emotion regulation abilities, exploring their relationships with several distinct achievement emotions. The participants were 846 Italian second- and fourth-graders and their parents. The children completed two self-reports instruments, the “How I Feel” questionnaire (HIF, Walden, Harris, & Catron, 2003) to evaluate their emotionality and emotion regulation abilities, and the “Achievement Emotions Questionnaire—Elementary School” (AEQ–ES, Lichtenfeld, Pekrun, Stupnisky, Reiss, & Murayama, 2012) to evaluate three emotions referring to two different domains (Italian, mathematics) and three school settings (class, test, homework). Their parents completed the “Emotion Regulation Checklist” (ERC, Shields & Cicchetti, 1997), another report instrument measuring children’s emotion regulation and lability/negativity. The results show that children’s emotion regulation abilities are more sophisticated in the later years, but at the same time older children feel less positive and more negative emotions concerning their life. In addition, emotion regulation abilities predict the intensity of achievement emotions felt by children in specific contexts, indicating that these abilities seem to be important antecedents of students’ emotional experiences. Despite limitations, this knowledge could be useful in planning intervention programs to promote students’ wellbeing and performance, focusing on emotion regulation as an antecedent of achievement emotions.
Functional effects of the regulation of motivation – A field study with university students over the course of a semester
Carola Grunschel, Axel Grund, Stefan Fries
Bielefeld University, Germany

The regulation of motivation is an important aspect in self-regulated learning. However, research on the ability to regulate motivation and, particularly, its effects on experiences and behaviors in the learning process have received little attention. With our present research, we wanted to extend current knowledge about the regulation of motivation and its direct or indirect effects on different criteria in the learning process (students’ motivational state, subjective learning progress, and prospective achievement emotions regarding an exam). We conducted a field study with seven points of measurement accompanying a lecture in educational psychology. The analyses were based on data of 97 students. The results showed that students’ ability to regulate motivation was related to a functional motivational state during the lectures (i.e., high experience of flow, low distractibility, and low experience of motivational conflicts). Moreover, the regulation of motivation had an indirect effect on students’ subjective learning progress, as well as on their hope and anxiety concerning the final exam that was taken at the end of the semester. The effect of the regulation of motivation on the learning progress was fully mediated by indicators of a functional motivational state, whereas low motivational conflicts (want and should conflicts) partly mediated the relation to hope, and strong should conflicts partly mediated the association to anxiety concerning the final exam. Our findings emphasize the power and impact of the regulation of motivation during learning and illustrate the mechanisms behind students’ academic experiences and behaviors in the learning process.

Emotional design in multimedia learning: Effects on intrinsic motivation and learning outcomes
Steffi Heidig1, Julia Müller2, Susanne Narciss1
1 Technische Universität Dresden, Germany
2 University of Erfurt, Germany

Previous research into multimedia learning has mainly focused on cognitive factors to investigate different instructional conditions and design principles. Emotional factors have so far been widely neglected. However, recent studies showed that the emotional design of multimedia learning material can evoke positive emotions in learners that in turn facilitate the learning process. Following this lead, our study aims to further explore the potential of an emotional design. We seek to differentiate the current findings by systematically deducing emotionally relevant design features using concepts from web design (e.g., visual aesthetics of interfaces), and also taking into account negative emotional states. German college students (N = 334) were assigned to one of nine conditions, created by two design factors (classical vs. expressive aesthetics), each with two levels (high vs. low) and a usability factor (high vs. low usability) as well as a control group (no color/gray scale). Unexpectedly, our manipulation failed – despite theoretical deduction of the design features and thorough pre-testing. Subsequent regression analyses revealed that the perceived aesthetics and usability positively affected the emotional states of the learners. Learners’ emotional states had a minor impact on learning outcomes but a larger impact on learners’ intrinsic motivation, including the motivation to continue working with the material. The results of the study present a differentiated picture of the relationships between design, emotional states and the learning process. They show that we are only beginning to understand the role of an emotional design in multimedia learning and highlight directions for future research.

“I may smile, but I hate it right now”- Exploring participants’ emotions during group work
Carolin Schultz1&2, Marold Wosnitza1&2, Snežana Stupar-Rutenfrans3, Igor Mayer3
1 Institute of Educational Science, Germany
2 RWTH Aachen University, Germany
3 NHTV University, The Netherlands

Working in groups is a popular working style in higher education. How groups perform, however, depends on different factors such as communication or work distribution as well as group members’ perception of the
group-work process. Both can have major motivational and emotional consequences. Research focusing on the emotional aspects of learning has noted the relevance of this affective dimension for individual learning and achievement (Schutz & Pekrun, 2007). For group-work situations, it is, however, still unclear which distinct emotions participants actually experience and what triggers these emotions in collaborative learning activities. In this study, video footage and stimulated recalls of 40 university students working in collaborative groups of 4 during a serious game were analyzed. The main aim was to explore which distinct emotions are actually experienced by participants and whether specific aspects of the collaborative activity can be identified that give rise to these emotions. Preliminary results show that participants knowing each other before the collaboration solve challenges faster and report more positive emotions in their group-work. Moreover, these groups estimate their collaboration more effectively than participants who had not known the group members they worked with before. Further analyses will focus on the issue of gender composition and on specific circumstances in which emotions arise and explore the mutual dependence of the participants' emotions. The results will provide useful pragmatic clues and beneficial advice for educators regarding group-work design and implementation with the aim to foster favorable emotional experiences and thus positive attitudes towards group-work.
secondary schools spread all over the Netherlands by means of four different instruments. 41 teachers and 919 students of seven pre-university schools participated in this study. Analysis of variance is used to scrutinize the differences between regular and talented students (i.e., students that can handle more than the regular curriculum) with respect to their feeling of competence. Besides, differences in the feeling of competence between boys and girls were taken into account. The results showed a significant higher feeling of competence among students with teachers providing more structure compared to students with teachers providing less structure in class. Talented students scored significantly higher on their feelings of competence compared to regular students. Also, talented students seemed to benefit more from structure compared to regular students. With respect to gender, the results show that the effect of structure on the feeling of competence is larger for boys than for girls. A recommendation for practice is highlighting the importance of structure for pre-university students’ motivational self-regulation in teacher training.

Examining the academic and social goals of adolescents who excel only academically, only socially, in both areas, and in neither
Kara A. Makara
University of Glasgow, UK

Students who have positive peer relations also tend to do better academically, and extensive research finds positive associations between students’ peer relations, motivation, and academic achievement. However, some adolescents may only be successful academically, or only socially, when at school. The current study expands upon previous research by examining the academic and social achievement goals of four groups of adolescent students: academic-social (high GPA and high number of peer nominations), academic-only (high GPA, low peer nominations), social-only (low GPA, high peer nominations), and neither (low on both). This study draws on Achievement Goal Theory to conceptualize students’ motivation. 759 students in grades 9-11 from a U.S. public high school completed surveys to assess their academic goals, social goals, and peer nominations at the beginning and end of the year. The four groups differed in meaningful ways in their levels of mastery, performance-approach, social development, social demonstration-approach, and social demonstration avoidance goals. For example, the academic-social group reported higher social development goals than students in either the social-only or academic-only groups, while the academic-only group reported significantly higher social demonstration-avoidance goals than all other groups. While the levels of academic and social goals differed in meaningful ways across the groups, the trajectories of change across the school year were similar across groups with the exception of academic performance-avoidance goals, which decreased more for the academic-social group. The findings have implications for how schools can better promote students’ academic and social development.

10:00-10:30 Coffee break

10:30-11:30 KEYNOTE 5
The Development of Children’s Expectancies and Values and Interventions to Improve Them
Allan Wigfield, University of Maryland, USA
Chair: Deborah Stipek, Stanford University, USA

In the first part of my talk I will give an overview of the research on the development of children’s motivational beliefs and values across the kindergarten through 12th grade school years, focusing primarily on work coming out of the expectancy-value theoretical model developed by Eccles, Wigfield, and colleagues. Work looking at overall or normative change in these important beliefs and values shows an overall decline in children’s competence beliefs, valuing of school achievement, interest, and intrinsic motivation. However, recent work shows that there are different patterns of change in these constructs among different groups of children, thus providing a more nuanced understanding of motivation’s development. I then turn to an overview of
intervention work designed to foster children’s motivation in school. I will focus on our work with Concept Oriented Reading Instruction, a classroom-based reading comprehension instruction program designed to foster children’s reading motivation and comprehension. I also will discuss recent work on briefer social psychologically based interventions that are having positive impacts on different aged students’ motivation in a variety of different school subject areas.

11:30-13:00 SYMPOSIA

Invited Spotlight Session

S9. Spotlight on Motivational Applications: Contribution of Motivational Self-Diagnostics in Reducing the Incidence of Tertiary Education Dropout
Ornagizers, Chairs & Presenters: Marold Wosnitza, RWTH Aachen University, Germany
Fani Lauerman, University of Bonn, Germany
Stuart Karabenick, University of Michigan, USA
Katharina Zay, RWTH Aachen University, Germany

High dropout and low graduation rates at universities in Europe have dramatic institutional, social and personal costs, which schools have tried to mitigate, especially through the Bologna-Process, with changes in policies and procedures. These changes address a key reason for high dropout rates: the mismatch between prospective students’ preparation for and the demands of tertiary education. Included is the recognition that adequate preparation encompasses not only students’ skills but also their beliefs and motivations to successfully master the demands they face. Here we spotlight the German educational context. Germany represents an intriguing case study in the European higher education area, because of relatively high dropout rates at the tertiary level (up to 28% in Bachelor programs; Heublein, Richter, Schmelzer, & Sommer, 2014), and because the selection into tertiary education is largely driven by the students’ self-selection, rather than by an externally competitive process. The students’ self-perceptions—including their beliefs and motivations—thus play a particularly important role in this context.

Invited Symposium

S10. Engagement and Emotions in Collaborative Learning: How Do They Interrelate and What Are The Implications?
Organizers: Simone Volet, University of Murdoch, Australia
Marja Vauras, University of Turku, Finland
Chair: Simone Volet, University of Murdoch, Australia
Discussant: Gerda Hagenauer, University of Bern, Switzerland

This symposium addresses the inter-relatedness of engagement and emotions in collaborative learning. Understanding the relationship between engagement and affect in collaborative learning as it unfolds in real-time is gaining momentum (e.g. Järvenoja & Järvelä, 2013; Sinha et al, 2015; Pekrun & Linnenbrink-Garcia, 2014; Tomas et al., 2015). The symposium comprises four short presentations, each raising one key aspect of the overall topic, followed by the Discussant’s comments, leaving ample time for general discussion. The first presentation by Nolen, Scalone, and Koretsky addresses the multifaceted nature of engagement, conceptualized in multiple ways in the literature, most recently as social practice. They interrogate the complex relationship of emotions in engagement or disengagement in real-life group learning, with illustrations from their own research on productive disciplinary engagement. Järvenoja, Järvelä, and Malmberg explore this relationship by focusing on emotion regulation in mathematics group learning activities, and examining how emotion regulation is situated in groups’ engaged, regulated learning process. Volet and Ritchie investigate further the importance of emotion regulation in collaborative learning, with a focus on the regulation of positive emotions during group science learning. Specifically, they scrutinize situations when the excitement generated by a motivating laboratory activity takes over, and groups miss out on pursuing the intended
scientific understanding. Finally, Vauras, Pietarinen, Kinnunen, and Volet further unpack the relationship of engagement and emotions, by scrutinizing the relationship of emotions to disciplinary engagement, group functioning and group outcome in collaborative digital science learning environment.

**Emotion and engagement in collaborative learning: Theoretical introduction and empirical questions**

*Susan Nolen¹, Giovanna Scalone², Milo Koretsky²*

¹University of Washington, USA
²Oregon State University, USA

Engagement is a “multifaceted construct” (Fredricks et al. 2004), with emotional engagement as one of those facets. Emotional engagement is often studied as an individual difference variable through self-report or structured observation protocols (Reeve, 2013; Skinner et al., 2008). More recently, investigators have used a sociocultural or situative approach to study engagement as a social practice, with the individual-in-social-context or the group as the unit of analysis (e.g., Nasir & Hand, 2008; Ryu & Lombari, 2015). Many studies of engagement in activity have included expressions of emotions as indicators of engagement (e.g., Engle & Conant, 2002; Herrenkohl & Guerra, 1998). Engle and Conant (2002), for example, list as one of five indicators of a group’s engagement, “students often expressed passionate involvement by making emotional displays (p. 402).” But what role do emotions play in engagement (or disengagement)? In video examples from our work on productive disciplinary engagement in project-based learning, we will show both positive (excitement, joy) and negative (frustration, despair) emotions as indicators of engagement. These emotions seem related to changing notions of success or failure and available resources for engagement. But the relationship between emotion and engagement is complex. For example, frustration can indicate current engagement, but left unresolved can lead to disengagement. Emotions in group work can be in response to both academic activity and social interactions; does this matter for engagement?

**Understanding how emotion regulation is situated in collaborative learning**

*Hanna Järvenoja, Sanna Järvelä, Jonna Malmberg*

University of Oulu, Finland

Learning takes place in constantly changing contexts and is re-formed every time. Furthermore, learning today is highly interactive creating situations where groups’ emotional atmosphere is challenged, which an individually oriented perspective to regulated learning does not consider. The aim of this study is to investigate how groups engage in the regulation of emotions and motivation in the course of collaborative learning, and how these regulation processes are situated in regulated learning phases (forethought, performance and reflection). The participants in this study are 44 teacher education students who took part in a mathematics course. During the course, the students were required to complete an extensive collaborative assignment during several video-recorded group sessions. First in the analysis, the groups’ motivation and emotion regulation taking place during socio-emotional interaction, and the regulated learning phases corresponding with the socio-emotional interaction, were coded. Second, the quality of the regulation (co- or shared-regulation) was analysed and matched within the regulated learning phases. The results show that the groups engaged in co-regulation of emotions or motivation more often than in socially shared regulation, but when shared regulation was activated it lasted longer. This indicates that groups engaged in regulation particularly in situations where they were willing to reciprocally improve the group’s emotional atmosphere and joint motivation. Socio-emotional interaction occurred mainly during the forethought phase but regulation of emotions and motivation was activated in each phase of regulated learning. To conclude, the results indicate that emotion and motivation regulation emerge in situations when students’ engaged learning is challenged.
Regulation of positive emotions in collaborative science activities: Why is it needed for productive engagement in science learning?
Simone Volet, Stephen Ritchie
Murdoch University, Australia

The value of positive emotions during science learning is widely recognised as promoting interest, confidence and engagement in science (e.g., Morris 2014). Yet, recent research (e.g., Tomas et al, 2015) suggests that positive emotions generated through fun science activities can sometimes interfere with learning. This could be the case when task enjoyment is derived dominantly from the manipulation of objects or from social interactions, rather than from the outcome of thinking efforts and a better understanding of the scientific principles underpinning the task. This phenomenon has received little empirical attention so far since most of the literature on regulation of emotions in collaborative learning has concentrated on regulation of negative emotions and socio-emotional challenges (Järvenoja et al., 2013). In this presentation we examine how four small groups of 3-4 future primary teachers enrolled in an introductory science unit regulated, or failed to regulate their positive emotions during two enjoyable science learning activities. When excitement took over students missed out on the intended learning. The extent to which these future teachers were aware of this phenomenon is examined. Data sources are video footage of salient interaction moments and self-reported experiences from group interviews. Preliminary analyses point to substantial differences in the focus of groups’ engagement, and evidence in many groups that excitement generated by the activity was not regulated, taking the group away from engaging in co-construction of scientific knowledge. There also appears to be limited students’ awareness that exciting science activities could inhibit productive engagement in science learning.

Emotions and engagement in collaborative digital science learning environment
Marja Vauras1, Tarja Pietarinen1, Riitta Kinnunen1, Simone Volet2
1University of Turku, Finland
2Murdoch University, Australia

The aim of this paper is to examine and discuss emotional processes and collaboration with respect to productive disciplinary engagement and group functioning in challenging digital science learning environment. High school students (n = 95) worked in small groups (31 groups of 2-3 peers for 3 sessions of 75-90 mins), conducting a scientific experiment integrating biology and chemistry and, finally, preparing the group’s joint presentation. This group outcome was assessed by science experts in regard to the quality of scientific language, hypotheses, research plan, and conclusions. After each session, the students were asked to fill in the questionnaire, including self-assessments on their emotions, and self- and peer-assessments on the nature of their collaboration. Two sets of outcomes will be briefly highlighted: (1) emotions and their relation to disciplinary engagement and group functioning, and (2) emotions, disciplinary engagement and group functioning in relation to the quality of group outcome. Preliminary analyses point out to meaningful differences both in emotions and engagement, partly influenced by the group composition and the stability of the group composition. In regard to group outcome, task motivation, mutual support, shared goals, equal participation and engagement in scientific discourse were perceived to be stronger in high performing than in low performing groups. Interesting discrepancies, though, within some groups in individual students’ views on their group’s engagement and collaboration emerged. Emotions and views on the group’s functioning in relation to the quality of group outcome will be discussed in view of current understandings on productive disciplinary engagement in science.
This symposium is dealing with students’ emotional, motivational, and psychosocial factors and how they interact with learning, achievements, and academic life. The four papers included offer data from elementary school to university students using self-referent measures that are either domain-general or focused on language or mathematics. The study by Hatzichristou et al. presents evidence for individual and contextual factors that contribute to student engagement and psychosocial adjustment in elementary and junior high school students, such as achievement goals, academic efficacy, home-school relationships, support by staff, etc. The findings are useful for effective evidence-based interventions in schools. Filippatou and collaborators study the relations between elementary students’ academic emotions, motivational factors, self-regulation and academic performance with a focus on reading comprehension and written expression. Statistical analyses of the data are in progress using SEM models for testing the hypothesized relations. Peixoto et al. offer longitudinal data on the relations between 5th and 7th graders’ emotions, motivation and math achievement. Their study confirms the reciprocal influences between students’ achievement emotions, performance and perceived competence in the long term. Finally, Dermitzaki et al. showed that in university students different test-related emotions were significantly associated with their academic self-efficacy, reported strategy use, and psychosocial adaptation to academic life. The strength of the associations was dependent on the emotion. The findings of these studies shed further light on the complex interactions between socio-emotional and motivational factors with students’ learning, achievement and academic adjustment and they will be discussed in terms of implications for educational practice and effective interventions in school/academic settings.

An examination of individual and systemic factors that contribute to student engagement and student psychosocial adjustment in school
Chrysse (Sissy) Hatzichristou, Roula Mihou, Vassiliki Bampanasiou
National and Kapodistrian University of Athens, Greece

In recent years, there has been growing awareness of the importance of student engagement in school and psychosocial adjustment. School engagement is a multidimensional construct encompassing three dimensions: affective, behavioral and cognitive. The aim of the present study is to examine individual and systemic factors that contribute to student engagement and student psychosocial adjustment in school (elementary and junior high school students). The current study is a part of a broader project funded by the ISPA/SSSP Research Initiative. The sample consisted of 797 elementary and secondary school students in Greek schools. The students completed the following questionnaires: Test of Psychosocial Adjustment (Hatzichristou, Polychroni, Besevegis, & Mylonas, 2008), Goal Orientation (Sideridis, 2005), Student Engagement - SE (Lam et al., 2010), The ClassMaps Survey (Doll, Kurien, Leclair, Spies, Champion, & Osborn, 2009), Classroom goal orientation (Sideridis, 2005), and School as Caring Community Profile—II (SCCP-II) (Lickona & Davidson, 2003). The findings of the current study point to a number of individual and contextual factors that promote psycho-emotional adjustment and school engagement, such as mastery and performance approach goals, achievement, academic efficacy, home-school relationships, behavioral self-control, support by staff and shaping of the environment. The findings will be discussed as a basis for effective evidence-based interventions in schools.
The role of academic emotions, motivation and self-regulated learning in language performance: A pilot study

Diamanto Filippatou, Panagiota Dimitropoulou, Elissavet Chrysochoou, Kleopatra Diakogiorgi, Fotini Polychroni, Asimina Ralli, Petros Roussos, Spyros Tantaros

National and Kapodistrian University of Athens, Greece

Evidence on the relationship between academic emotions, self-regulated learning, motivation, and language achievement in elementary school children is scarce. Pekrun’s control-value theory of emotions and Self-Determination Theory serve as a theoretical framework for the present study. SDT proposes that the individual’s experience of autonomy, competence, and relatedness foster motivation and engagement in activities, thus enhancing performance. In the context of a broader project regarding the interaction of cognitive and psychoemotional factors in language performance, the present study focuses on the role of academic emotions on elementary pupils’ self-regulated learning in reading comprehension and written expression. Participants were pupils from year 3 to 6 from elementary schools in different cities in Greece. Assessments involved the AEQ-pre adolescence questionnaire (Peixoto et al., 2015), the SRQ-A - Academic Self–Regulation Questionnaire (Ryan & Connell, 1989), two subscales from the Basic Psychological Need Satisfaction and the Need Frustration Scale (BPNSNF; Chen et al., 2015), the Motivations for Reading Questionnaire (MRQ) (Wigfield & Guthrie, 1997), and the Writing Activity and Motivation Scales (WAMS; Troia et al., 2013). Reading comprehension skills were assessed using both sentences and narrative texts of different difficulty levels (Padeliadou et al., 2008; Chrysochoou et al., 2011). Writing was measured with a standardized Greek written expression test (Porpodas et al., 2008) and other informal assessments. The data are analyzed using SEM models to reveal relationships between emotional and motivational variables and academic performance in written language. Specific implications of the findings regarding the promotion of students’ engagement and positive affect in learning are discussed.

“Happy or Bored?”– Relationships between motivation, emotions and Math achievement in pre-adolescents

Francisco Peixoto, Lourdes Mata, Vera Monteiro, Cristina Sanches

ISPA – Instituto Universitário / CIE-ISPA (Research Center in Education – ISPA), Portugal

Control-value theory maintains that control appraisals and value appraisals are critical antecedents of achievement emotions. Control-Value Theory also states that the relations between antecedents, emotions and effects are dynamic processes sustained by reciprocal causation over time. In this study our aim is to analyse the relationships between emotions, motivation and math achievement over two years. The data analysed in this study is part of a longitudinal research project that began with students from 5th and 7th grades, which were followed for two years. Participants were 1060 students from 5th (n = 569) and 7th grades, in the first year. To collect data we used the Achievement Emotions Questionnaire – Pre-Adolescents (AEQ-PA) and the Intrinsic Motivation Inventory (IMI). The AEQ-PA assesses 6 emotions (Boredom, Hopelessness, Anger, Anxiety, Enjoyment, and Pride). IMI comprises 3 dimensions: Value, Perceived Choice, and Perceived Competence. SEM models relating motivational dimensions, emotions and achievement in year 1 and year 2 were tested separately for each emotion. The results showed different patterns depending on the emotion included in the model. Some of the students’ achievement emotions in year 2 were influenced by previous academic achievement, while others were influenced by previous perceived competence. Considering the impact of emotions on students’ subsequent motivation and math achievement, the results showed that only positive emotions and anger in year 1 influenced students’ motivation and their academic achievement the year after. Results will be discussed in terms of the implications for future research on emotions in academic settings and the implications for educational practice.
Examining test-related emotions in university students: Relations with motivational and psychosocial factors related to academic life
Irini Dermitzaki, Fotini Bonoti, Maria Kriekouki, Aikaterini Aroni
University of Thessaly, Greece

Previous research has shown that students’ academic emotions interact with cognitive processing, learning behaviours, motivation, and psychosocial interactions, thus, proacting or impeding learning and achievement outcomes. In order to effectively assess emotions in education, well elaborated instruments are needed. This study had a twofold aim: a. to adapt the Test Emotions Questionnaire (TEQ, Pekrun et al., 2004) in Greek and, thus, examine how multiple emotions are shaped in a different educational context, and b. to investigate the relations of distinct academic emotions with students’ psychosocial, motivational and learning factors. Participants were 550 students from various university departments. The students completed the TEQ which includes 77 items and assesses eight positive (e.g., enjoyment, pride) and negative (e.g., anxiety, hopelessness) test-related emotions. Moreover, scales assessing students’ psychosocial adaptation to university, academic self-efficacy, and learning strategy use were administered. It was found that the emotion scales had good internal consistency and acceptable validity in terms of factor structures and relations to the variables examined. Students’ positive test-related emotions associated positively and negative emotions associated negatively with academic self-efficacy, psychosocial adaptation to university, and reported strategy use. The strength of the associations was dependent on the emotion. Hope and hopelessness were associated more strongly, especially with self-efficacy and psychosocial adaptation. Overall, this study provides further clarity regarding the theoretical conceptualization of emotions in a different language and educational setting and it showed that other emotions could be also as significant as test anxiety for the university students’ individual factors related to academic life.

13:00-14:00 Lunch

14:00–15:30 PAPER SESSIONS

O17. Teachers’ and School Professionals’ Motivation and Emotion
Chair: Avi Kaplan, Temple University, Philadelphia, USA
Conference Hall I

Do we fit the FIT? Norwegian and Dutch student teachers’ motivation to become a teacher.
Esther T. Canrinus ¹, Katrine Nesje ¹, Marjon Fokkens-Bruinsma ², Christian Brandmo ¹
¹ University of Oslo, Norway
² University of Groningen, The Netherlands

Motivation for becoming a teacher may provide more insight into how to prevent (student) teachers dropping out of teaching/teacher education. This is important, as countries around the world have to cope with teacher shortages and attrition among newly qualified teachers. However, research into motivation for becoming a teacher has, until recently, been hindered by a need for a shared theoretical framework. Contributing to the development of an internationally validated framework and instrument, we investigate to what extent the original structure of the FIT-Choice model (Watt & Richardson 2007) can be observed in data on Norwegian (N = 635) and Dutch (N = 246) student teachers’ motivation to become a teacher. Additionally, we investigated the similarities and differences between Norwegian and Dutch student teachers regarding their motivation to become a teacher. Using confirmatory factor analysis, the structure is replicated with the Norwegian, but to a lesser extent with the Dutch data. Also, more adjustments had to be made to the Dutch model to arrive at satisfactory levels of the fit-indices. Furthermore, the Norwegian student teachers rate the importance of all motives significantly higher than the Dutch student teachers. These differences are discussed as potentially stemming from the difference in acceptance rates between the programs, with all students being accepted in the Dutch program and a long waiting list for the Norwegian program.
Primary school pre-service teachers’ views about self-efficacy, motivation and sources of support during school practicum
Efstratios Xafakos, Stavroula Kaldi
University of Thessaly, Greece

School practicum is a very important part of the prospective teachers’ preparation. Teacher education courses focus on the development of pre-service teachers’ self-efficacy through systematic implementation of school practicum. Previous research has shown that pre-service teachers’ efficacy beliefs have an important implication for effective teacher practices, teaching knowledge, motivation and achievement (Skaalvik & Skaalvik, 2007; Klassen & Chiu, 2010). Researchers also suggest that pre-service teachers should have the appropriate support, because sources of support and feedback play a crucial role during teaching in their practicum (Laker, Laker, & Lea, 2008) and that high motivation levels is needed (Levesque, Blais, & Hess, 2004 in Fernet et al., 2008). The present study examined pre-service teachers’ views regarding their support (sources of support) during school practicum, autonomous motivation and self-efficacy. Self-administered questionnaires were completed by 210 Greek elementary pre-service school teachers in two different academic years (two cohorts). Moreover, a random sample of 14 pre-service teachers participated in focused interviews. Results showed that elementary pre-service school teachers expressed positive views concerning the support they received during practicum, they have a sense of self efficacy and they are highly motivated. Sources of support seemed to have contributed to the development of pre-service teachers’ autonomous motivation (intrinsic and extrinsic) and self-efficacy. Furthermore, motivation was found to be an important predictor pre-service teachers’ self-efficacy.

University instruction as achievement arena: Structure and relationships of university instructors’ achievement goals
Martin Daumiller, Markus Dresel
University of Augsburg, Germany

In analogy to the significance of school teachers’ achievement goals for their teaching quality, achievement goals of university instructors appear as an auspicious concept. Due to systemic differences however, respective results cannot be transferred to the university context without further ado. The present study examines the structure of university instructors’ achievement goals and their relationship with antecedent and dependent variables. In an online questionnaire, a representative sample consisting of 1018 university instructors (451 females; highest degree: 398 master, 377 PhD, there of 221 full professors) filled out a questionnaire measuring achievement goals, enthusiasm, attitudes towards help, procrastination, instructional behavior, and personality traits. The results reveal that the in the research about school teachers established mastery, performance-approach, performance-avoidance, work-avoidance goals, and relational goals (cf. Butler, 2012) are likewise valid for university instructors. Furthermore, results indicate that also task-goals (focus on the quality of given tasks) and a differentiation between an appearance (focus on the impression others have of own competence) and a normative (focus on how well one does in comparison to others) component of performance goals are necessary to best describe the achievement goals of university instructors. Path modeling attests the relevance of these goal classes: Each goal class showed distinct and sensible relationships with antecedent variables (e.g., personality traits, academic position) as well as dependent variables (e.g., enthusiasm, attitudes towards help, procrastination, and instructional behavior). All in all, the study highlights the prolificacy of the theoretical construct of university instructors’ achievement goals and helps to make it comprehensively accessible.

“It’s not like I hate my job”: Insights into the deceptive nature of positive emotions
Francis Dionne Cross 1, Ji Hong2
1 Indiana University, USA
2 University of Oklahoma, USA

As research suggests, teachers’ emotional experiences influence their instructional behavior. This influence becomes salient with respect to mathematics teaching because of the critical role mathematics achievement
plays in the overall academic success of students. In this study, I explore the relationship between elementary teachers’ mathematical knowledge for teaching (MKT) and their emotional experiences related to their mathematics teaching. I focus on five key emotions - pride, enjoyment, anxiety, frustration and anger. Twenty-five teachers from eight school districts in the Midwest responded to interview questions and completed the Learning Mathematics for Teaching and emotions (adapted Achievement Emotions Questionnaire for Teachers) surveys. Results showed that over 80 percent of the teachers experienced high levels of pride and enjoyment in their mathematics teaching even those teachers with low-quality teaching practices. A majority of the teachers who experienced high levels of negative emotions also had low-quality teaching practices. These findings are disconcerting as teachers who are not engaging in high-quality teaching (low MKT) enjoy and have pride in their teaching - emotions that result from feelings of proficiency and contentment - which may indicate decreased openness to modifying their practices. They suggest that although predominant positive teaching emotions may lead to decreased teacher attrition, they may also result in diminished student outcomes. As such, these findings highlight the importance of examining emotions relative to other teaching-related (and domain-specific) constructs and using multiple data sources to examine emotions.

Professional identity formation and motivation of the school counselors: A case study
Mirit Sinai 1, Inbal Tossman 2, Avi Kaplan 3
1 The Max Stern Yezreel Valley College, Israel
2 The David Yellin Academic College of Education, Israel
3 Temple University, Philadelphia, USA

In Israeli schools, school counselors are involved in diverse functions, from individual consultation to group interventions to school-wide strategic planning. The multiplicity of functions and complexity of the role render the training of school counselors very challenging. The current study describes a single-case in-depth analysis of an interview with a recent graduate of a school counseling training in Israel. The study employs a dynamic systems model of identity and motivation to characterize the professional identity formation and motivation for practice of this early career professional as she prepares to step from her training into this challenging field of practice. The findings highlight the complex integration of previous and current role identities as well as the impact of the training process on the professional identity formation and motivation of this school counselor. Previous role identities created a basis for but also obstacles to the formation of certain facets of the counselor professional identity, while the training promoted change and elaboration in other facets of this identity. The findings have implications for theory of professional identity formation and emergence of motivation for practice, as well as for the design of professional education. The findings also highlight the utility of the dynamic systems model for capturing the complexity and dynamics of professional identity and motivation in professional training.

O18. Achievement Goal Orientations: Antecedents, Consequences and Individual Differences
Conference Hall II (-1)
Chair: Jean-Luc Gurtner, University of Fribourg, Switzerland

Achievement goals and attitudes towards errors: A developmental perspective
Jean-Luc Gurtner, Veronica Besomi
University of Fribourg, Switzerland

Two issues related to the development of students’ achievement goals are discussed. The first one investigates whether parents have some influence on the development of their children’s achievement goals. The second deals with the development of a relationship between goals and reactions to actual mistakes. 170 lower secondary school students have been asked to posit themselves with respect to their own performance/mastery goals and to those they attribute to their parents. Their answers were then contrasted with the responses given by their parents. Students’ attitudes towards mistakes were collected by presenting them with 10 situations flawed with an error and asking them to judge how likely they would hide such a
mistake or admit it and try to take advantage of it to improve their behaviour. Results show that while 6th Graders tend to attribute to their parents a performance goal level equal to their own one, 9th Graders are pretty accurate in evaluating their parents performance goals. The picture is less clear with respect to mastery goals with no significant correlations between the level children attributed to their parents and the level indicated by the parents themselves. The expected relationship between goals and attitudes towards errors is confirmed among 9th Graders, with hiding errors predicted by performance goals and using errors predicted by mastery goals. Among 6th Graders however, this relationship is confirmed only for mastery goals. Implications of these results for teaching practice as well as for our understanding of the origin of achievement goals are discussed.

**Individual differences in patterns of achievement goals and affect: Effect on motivation, cognition and achievement**

Svjetlana Kolić-Vehovec, Rosanda Pahljina-Reinić, Barbara Rončević Zubković  
*University of Rijeka, Croatia*

Assuming multiple achievement goals perspective, we used latent profile analysis to classify 398 first year university students according to their achievement goal orientation and affect (enjoyment and anxiety). The four-group solution obtained the best statistical support. According to the score mean profiles, we labeled the groups as avoidance-oriented/high anxiety (13%), approach-oriented/high enjoyment (37,7%), indifferent (45,2%) and unmotivated (4,1%). The aim of the present study was to examine differences between groups of students in their affect (pride, and boredom), motivation (interest, and self-efficacy), learning (surface and deep learning strategies), and achievement (course grade, and perceived learning outcomes). The series of univariate ANOVAs yielded significant differences between groups in all measured variables. Unmotivated group showed maladaptive pattern in all motivational and cognitive outcomes, as well as in academic achievement. The most adaptive profile was obtained in approach oriented/enjoyment group for all measures. The students in that group showed the highest interest, perceived self-efficacy, pride, and they used the most deep processing learning strategies, and attained the best academic achievement. The avoidance oriented/high anxiety group showed similar cognitive-motivational pattern. However, the students in that group perceived less self-efficacy, feel more boredom, and used more often surface learning strategies than approach oriented/high enjoyment group.

**A multiple goal perspective: Antecedents and consequences of achievement goal profiles**

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The multiple goal perspective posits that certain combinations of achievement goals are more favourable than others in terms of educational outcomes. In this study, the relationships between students’ achievement goal profiles and school effort, achievement, and aspects of the learning environment (authentic learning, collaborative learning, and focusing on self-regulation) were examined. Seven hundred and twenty-two students reported on their effort in language and math, 68 teachers reported on the students’ general school effort and levels of innovative learning, and achievement was assessed by obtaining test-scores from the school records. Using latent profile analyses, three similar profiles could be distinguished at each measurement and for both subject domains. Results from multilevel analyses indicated that for both subject domains theoretically more beneficial achievement goal profiles were associated with higher levels of effort and achievement, while less beneficial profiles were associated with lower levels of effort and achievement. Likewise, transitions to more favourable goal profiles during the year resulted in better educational outcomes. Regarding the learning environment, a higher degree of collaborative learning was associated with (transitions to) more beneficial goal profiles in language and mathematics, and more authentic learning was associated with (transitions to) more beneficial goal profiles in language, but not mathematics. In all, the outcomes of this study provide further support for the multiple goal perspective and show that collaborative and authentic learning can contribute to the adoption of more favourable goal profiles by students.
Instrumental help-seeking as a function of normative performance goal orientations: A “Catastrophe”
Georgios Sideridis¹, Dimitrios Stamovlasis ²
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² Aristotle University of Thessaloniki, Greece

Research on achievement goal theory has suggested significant links between goal adoption and help-seeking behaviors. The present study investigates the effects of actual achievement and emotions on help-seeking behavior under conditions of normative and non-normative performance approach goals. Data were collected from 120 university students who were tested individually in a number of tasks with the aid of a specialized software. A cusp catastrophe model was tested, which significantly predicted help-seeking as a function of student’s affective experience during the normative goal condition only. The emotions of anger, sadness and surprise acted as bifurcation factors, while achievement on the task acted as the asymmetry variable. Findings were not replicated in the non-normative goal condition with the linear model fitting the data best in the absence of normative evaluations.

The effects of metacognitive knowledge and regulation on self-regulated learning on subsequent performance expectation and performance in various school subjects
Georgia Stephanou, Maria-Helena Mpiontini
University of Western Macedonia, Greece

This study aimed to examine (a) students’ metacognition with respect to metacognitive knowledge and metacognitive regulation, and their self-regulated learning regarding motives (external, introjected, identified and intrinsic), (b) the effect of metacognition on self-regulated learning, and (c) the role of metacognition and self-regulated learning in performance expectations, in performance and in the between them link in mathematics, language and physical education. The sample comprised of 243 primary school students, fifth and sixth grades, boys and girls, who completed the scales at the middle of a school year. The results showed that (a) the students’ metacognitive knowledge (declarative was the highest) and metacognitive regulation (mainly, planning) were at a moderate level, (b) when students work on their homework or schoolwork or when they globally try to do well in school, they use a mixed profile of self-regulation, since they mainly used identified regulation style, followed by introjected regulation style, (c) the higher the students’ metacognition (particularly, metacognitive regulation) the higher their self-regulated learning, mainly identified style, (d) metacognition and self-regulated learning, together, were influential factors of performance expectations, particularly in language and mathematics, (e) identified self-regulated learning and introjected self-regulated learning had unique contribution in performance expectation in physical education and both language and mathematics, respectively, and (f) metacognition, self-regulated learning (most, introjected) and, mainly performance expectations had positive effects on school performance, less in physical education. Theoretical and practical applications of the findings are discussed.

Dispositional and motivational antecedents of college students’ use of self-regulation strategies
Christopher Wolters, Won Sungjun, Hensley Lauren,
The Ohio State University, USA

The purpose of this study was to advance a model of college students’ self-regulated learning. In week 2, a sample of undergraduates (N = 380) completed a self-report survey that assessed their grit (Duckworth & Quinn, 2009), growth mindset (Dweck, 2006), and conscientiousness (Bidjerano & Dai, 2007). In week 5, they completed measures of their value and self-efficacy for self-regulated learning (Hulleman, Durik, Schweigert, & Harackiewicz, 2008; Usher & Pajares, 2006). Finally, in week 8, students’ use of metacognitive, environmental control, and help-seeking strategies were assessed (Pintrich, Smith, Garcia, & McKeachie, 1993; Karabenick, 2004). We used structural equation modeling to address two goals. First, we examined whether the three dispositions could be used to predict college students’ use of self-regulation strategies.
Second, we evaluated whether relations between these dispositions and students’ later strategy use were mediated by their reported motivation. Results indicate that aspects of grit, conscientiousness, and incremental mindset each useful for understanding at least one of the self-regulatory strategies. Hence, findings support the importance of incorporating stable dispositions, as well as motivational beliefs, as antecedents of college students’ use of self-regulated learning strategies.

Task-specific motivational interpretations and regulation processes in small group interaction
Piia Näykki, Hanna Järvenoja, Jaana Isohätälä, Sanna Järvelä
University of Oulu, Finland

This study explores teacher education students’ small group working, and particularly students’ task-specific motivational interpretations (i.e., outcome expectations) prior the group working and student groups’ regulation processes during the task (planning, monitoring and evaluating). The aim is to understand how students in groups plan and monitor their learning processes during collaborative interactions. What kind of learning situations are the most active in terms of planning and monitoring? How students’ task-specific motivational interpretations are in connection to their regulation processes? Five groups of teacher-education students (N = 26) were observed throughout a three-month natural science course. The video analysis of face-to-face group workings indicate that within the situations where students were indicating high outcome expectations they were also more actively engaged in planning and monitoring their learning activities. This relation was particularly visible with the tasks where group-level outcome expectation was higher than individual-level outcome expectation.

International orientation, learning attitudes and parental influence as predictors of reported frequency of language learning strategy use by junior high school students
Maria Platsidou, Zoe Kantaridou, Iris Papadopoulou
University of Macedonia, Greece

Reported strategy use in L2 learning has been extensively researched in relation to factors such as positive attitudes towards EFL learning. In this paper, we investigated another potential determinant of reported strategy use, international orientation, which is based on the concepts of international posture (IP) and ideal L2 self. IP reflects the redefinition of integrative motivation given the internationalisation of the English language (Yashima, 2000; 2002). An individual’s IP refers to their approach or avoidance of intercultural communication whether for vocational or mere friendship purposes. Ideal self (Dornyei, 2005) motivates communication by formulating the forces that shape learners’ possible future visions of themselves when they are engaged in language learning. Thus, the two concepts together indicate the learners’ openness to foreign cultures, and their vision of themselves working or co-existing harmoniously with people of different cultural backgrounds, using English. This study aimed at investigating how international orientation, positive attitudes towards L2 learning (such as importance of learning English and enjoyment of learning) and parental influence on children’s language learning (as indicated by their parents’ knowledge of English) affect the frequency of reported of language strategy use in EFL learning. Based on quantitative data from 329 Greek secondary school students, we employed confirmatory factor analysis to test whether international orientation fully or partially mediates intended learning effort as illustrated by strategy use. We concluded that international orientation partially mediates parental influence and attitudes to language learning to predict motivated strategy use. We discuss the pedagogical and teaching implications of our findings.
Although implementation intentions are known to facilitate goal attainment, the link between implementation intentions and effort mobilization is still uninvestigated. According to the motivational intensity theory (Brehm & Self, 1989), effort is mobilized proportionally to subjectively experienced task demand as long as success is possible and justified. The present work investigates the influence of implementation intentions on effort-related cardiac activity during task performance. According to the psychophysiological literature (Obrist, 1981; Kelsey, 2012; Wright, 1996), we quantified effort intensity as performance-related changes in cardiac contractility force in terms of cardiac pre-ejection period (PEP). Results from a first study showed significantly weaker performance-related cardiac PEP responses by participants in the implementation intention condition compared to participants in the goal intention and control conditions. These findings suggest that the heightened task performance caused by implementation intentions is automatic as it leads to less effort expenditure in task performance context (indicated by lowered PEP).

The effect of achievement goals on cognitive performance: Interaction with task difficulty
Ayumi Tanaka, Tatsuki Kawakami, Shoko Ohashi
Doshisha University, Japan

Achievement goals are acknowledged as having a differential impact on individuals’ cognition and emotions in achievement settings, thereby affecting task performance. Recently, Crouzevialle and Butera (2013) found that manipulation of performance-approach goals, i.e., the goal to outperform others, decreased performance in a demanding cognitive task, suggesting that this effect is due to distraction caused by the activation of normative goal attainment concerns. The purpose of the present study was to examine the effects of four types of goals on cognitive performance. We used One Touch Stockings of Cambridge test (OTS) in the Cambridge Neuropsychological Test Automated Battery (CANTAB), the standardized cognitive test, assessing spatial planning and working memory. Based on Crouzevialle and Butera (2013), it was hypothesized that both performance-approach and avoidance goals impair performance, because of a disruptive concern about evaluation. One hundred and seven undergraduate students (37 male and 70 female) participated in the experiment. They were randomly assigned to one of the five conditions: mastery-approach goal, mastery-avoidance goal, performance-approach goal, performance-avoidance goal, and a control condition. Participants completed both easy (5-choice mode) and difficult (7-choice mode) tests to examine the joint effect of achievement goal and task demands. Results show that when measuring percentage of problems solved on the first choice, participants in the performance-approach and the mastery-avoidance goal conditions showed a lower level than the control condition on a difficult task. No impairment was revealed in the performance-avoidance goal condition, suggesting concern about evaluation is not the only reason for the impairment in cognitive performance.

Generating internal feedback and receiving external feedback fosters achievement, strategies and motivation in experimental concept learning tasks
Lugain Khalifah, Hermann Körndle, Claudia Prescher, Susanne Narciss
Technische Universität Dresden, Germany

Informative tutoring feedback (ITF) refers to external feedback types providing strategically useful information that guides the learner towards successful task completion without immediately offering the correct response. ITF fosters performance and motivation in experimental concept learning tasks (Narciss, 2004). ITF-model developed by Narciss (2013) suggests that not only providing external feedback but also prompting students to generate internal feedback may have beneficial effects on performance. Few prior studies support this assumption (e.g., Taras 2003; Siegler, 2002). In addition, these prior studies did not address effects on motivation. The aims of the present study are to investigate the impact of different combinations of internal and external feedback not only on achievement but also on motivation. Self-explanation has been selected as method of generating internal feedback. The study follows a 2-factorial design (self-explanation vs. no self-explanation; no external feedback vs. KR-feedback: correct/incorrect vs. KR+KM-feedback: correct/incorrect + location of mistake). External and internal feedback had a positive impact on achievement. Students who received KR-feedback and generated internal feedback performed as
well as students who generated internal feedback and received KR+KM-feedback. For motivation, the results revealed a significant three way interaction: Self-explanation had only a positive effect on motivation when students received external feedback. Intrinsic value of learning was positively affected when students received KR-feedback; perceived competence was promoted when students generated internal feedback and received either KR- or KR+KM-feedback. These results provide empirical support that combining internal and external feedback can be a powerful means of fostering not only performance, but also motivation.

Exploring the Unified Model of Task-specific Motivation: Teachers’ readiness to learn about teaching and learning supportive modes of ICT use
Cornelis J. de Brabander, Folke J. Glastra
Leiden University, The Netherlands

This paper tests the tenability of a Unified Model of Task-specific Motivation (UMTM). The UMTM integrates task-specific components from several theories of motivation. Core of the model are four interacting but relatively independent types of valences. Affective and cognitive valences represent expected feelings while doing an activity and thoughts about the value of its consequences respectively; both affective and cognitive valences can be positive and negative, hence calling for approach and avoidance motivation respectively. The interaction between these four types of valences results in a valence expectation that influences readiness for action. Task-specific antecedents, like autonomy, feasibility, social relatedness and subjective norm, influence valences. 282 Primary school teachers provided judgments of all components of the model except social relatedness for two imaginary professional learning activities. The two activities were framed as learning activities about teaching supportive ICT use and about learning supportive ICT use. Structural equation modeling showed that for each activity a separate model was needed. Positive cognitive valences dominated the interaction between valences. For learning about learning supportive ICT use perceived freedom of action, sense of personal competence, and subjective norm played a more prominent role than for learning about teaching supportive ICT use, possibly because the former type of ICT use is seen as more threatening and difficult. In conclusion, the UMTM offers sound possibilities for the explanation of complex motivational phenomena and promises a significant reduction of the superabundance of theories in motivation research.

15:30-16:00 Coffee break

The Many Faces of Success: Balancing Between Well-doing and Well-being
Markku Niemivirta, University of Helsinki, Finland

Chair: Marina S. Lemos, Universidade do Porto, Portugal

The model of adaptive learning argues that in learning and performance situations, students balance between the goals of increasing competence and maintaining well-being. Both goals serve an adaptive function, but for different reasons and through different mechanisms. Thus, success in learning activity has different meaning depending on what one seeks to attain in a situation and for what purpose. Students’ subjective appraisals of learning situations are a function of the beliefs they hold about themselves and how “the world operates” as well as how they perceive and interpret the situation and its features. In this presentation, I will examine the patterning of goals and beliefs that constitutes the motivational lenses through which students view the achievement-related situations they encounter at school as well as the antecedents, correlates and consequences of such patterning. I will draw on various sources of findings ranging from neuroscientific studies to cross-cultural comparative studies in order to identify a network of variables that contribute to how students approach learning tasks and how they engage in them. I will also discuss the implications of this analysis for pedagogical practices.
Engagement is a popular and widely studied construct. Azevedo (2015) found more than 32,000 articles in PsychInfo about engagement, published in the last 14 years. Theorizing on student engagement has proceeded along different paths and has branched out in different directions, mainly because engagement researchers have come from different walks of educational research. They borrowed constructs from different psychological theories to study engagement in the classroom and this lead to remarkable differences in the definitions, operationalizations of the constructs, and the measurement instruments used, as well as in the issues studied. Azevedo compared and contrasted the different definitions of engagement and concluded that “engagement is one of the most widely misused and over-generalized constructs found in the educational, learning, instructional, and psychological sciences”. In her commentary to the Special Issue on Engagement, Boekaerts (2015) questioned whether the engagement literature has contributed in a significant way to our understanding of the learning process. She concluded that the boundaries of the construct are fuzzy and that the relations of engagement to theories of motivation, metacognition, and self-regulation are not clear. This resulted in confusion and misconceptions. The aim of the symposium is to make this over-inclusive construct more manageable. Another aim—no less important—is to give SIG members a clear signal that we need to reflect periodically on the quality and soundness of our conceptualizations, operationalizations, and models.

Studying student engagement: How to avoid conceptual misunderstanding?
Monique Boekaerts, Leiden University, The Netherlands

Engagement research is characterized presently by specialization, fragmentation, and proliferation rather than by synthesis. Yet, it is synthesis what is needed. Without synthesis we cannot answer the question of whether use of the ‘engagement’ construct creates more confusion than it helps us understand phenomena in the classroom. If we are serious about our mission to improve classroom teaching and learning, we need conceptual models that accurately describe the relations between the key constructs involved in student engagement and how it is related to the learning process, motivation, metacognition, and self-regulation. Researchers who study engagement need to be able to fall back on a clear and consistent conceptual framework and validated measurement instruments. In my opinion, the study of engagement would greatly profit from the formation of an international task force. Such a task force should organize a consensus building meeting on the meaning of engagement and its boundaries (in analogy to the consensus building conferences in the medical and natural sciences). In addition, this international strategic alliance could formulate guidelines for future research and stimulate collaborative research efforts between different research groups. Are we ready to join efforts and set up empirical research that goes beyond the testing of existing models? I hope that our symposium will promote scholarly discussions on what engagement is and on the degree of overlap with related constructs— and more generally— on how we are going to systematically manage the process of knowledge acquisition in this important area of research.

The engagement construct and engagement measurement: Is the tail wagging the dog?
Gale M. Sinatra, University of Southern California, USA

Engagement is one of the most discussed topics in the field of motivation, learning, and self-regulation. Research shows multifarious benefits occur when students are engaged in their own learning, including
increased motivation and achievement. However, there is little agreement on a concrete definition and effective measurement of engagement. In a recent Special Issue on the challenges of measuring engagement in the context of science learning, Sinatra, Heddy, and Sinatra (2015) proposed a continuum of engagement measurement. They describe how engagement suffers from a “tail wagging the dog” phenomenon, in that the choices researchers make in regards to measurement (such as the grain size of measurement) becomes determinative of how they define engagement, rather than construct definitions driving the construction of measures. This presentation will provide an overview of the engagement measurement continuum, that attempts to capture engagement on a continuum from person oriented to context oriented. At the person-oriented end, researchers focus on the individual’s engagement with a topic or task. Here, engagement is characterized by the cognitive, emotional, or motivational engagement of the individual learner. At the other end of the continuum, researchers focus on the characteristics of the classroom, school, community, or culture that afford or impede engagement. Each point along this continuum is being measured at different grain sizes, from eye-tracking to classroom observations. The implication of the measurement tail wagging the theoretical dog will be discussed.

A situative perspective on engagement
Julianne Turner, University of Notre Dame, USA

In this presentation, I consider engagement from a situative perspective. This perspective considers the engaged person as interacting with others and materials in a particular organizational and cultural place in historical time. Thus, I do not focus on the person as separate from the context. I present a heuristic, Engeström’s (1987) triangle, to help explain this situative view of engagement.

Invited Symposium
S13. Moving the Achievement Goal Approach One Step Forward: Towards a Systematic Study of the Reasons Underlying and the Values Relating to Achievement Goals
Conference Hall II (-1)
Organizers: Maarten Vansteenkiste, Ghent University, Belgium
Athanasios Mouratidis, Hacettepe University, Turkey
Chair: Maarten Vansteenkiste, Ghent University, Belgium
Discussant: Tim Urdan, Santa Clara University, USA

To move the achievement goal approach one step forward, it has been argued that it is not only critical to focus on the type of achievement goals people pursue but also on the reasons why they do (Urdan & Mestas, 2006; Vansteenkiste, Lens, Elliot, Soenens, & Mouratidis, 2014). The present symposium aims to meet this deepen our understanding of these underlying reasons, thereby aiming to spur the discussion and reflection about critical future directions for the achievement goal approach. Although a variety of theoretical angles have been used to conceptualize the reasons underlying achievement goals (e.g., Dompnier, Darnon, & Butera, 2013), Self-determination Theory (SDT; Deci & Ryan, 2000) is ideally suited given its long tradition in this area. SDT maintains that a person can regulate achievement goals in a more autonomous or rather controlled way. In addition, social contexts can vary in the extent to which they encourage the adoption of particular achievement goals as well as the style that is used to pursue these goals, which impacts on the reasons students have for pursuing the prompted goals. The overall aim of the present symposium was to examine whether both the type of pursued or induced goal and the reasons underlying the goal matter in terms of predicting a broad variety of outcomes. Specifically, the present studies extends previous work by (a) examining a broader variety of outcomes, including engagement (paper 1 & 4), behavioral-reported cheating (paper 2) and enjoyment (paper 4); (b) examining the reasons underlying a variety of achievement goals (i.e., task-based, intrapersonal goals and normative goals; (c) showing evidence for the validity of the self-reported reasons underlying achievement goals via student-generated reasons (paper 3); (d) using both cross-sectional (papers 3 and 4), longitudinal (papers 1) and experimental (paper 2) designs; and (e) zooming-in on the contextual factors that lead to the adoption and regulation of achievement-goals (papers 2 through 4); (f) addressing these questions in four culturally diverse nations (i.e., Peru, Turkey, Israel, and Switzerland). As a whole, the findings suggest that it is critical to move beyond the consideration of the pursued and
promoted achievement-goals as such and to additionally take into account the reasons for pursuing achievement-goals as well as the degree of autonomy support versus control in the social environment.

Beyond the “what” of achievement goals: The “why” of achievement goals also matters in terms of predicting changes in learning outcomes
Lennia Matos¹, Maarten Vansteenkiste², Athanasios Mouratidis³
¹Pontificial Catholic University of Peru, Peru
²Gent University, Belgium
³Hacettepe University, Turkey

Recently, achievement goals have been defined as aims (the “what”), thereby opening the door for the systematic study of reasons (the “why”) underlying achievement goals. Grounded in Self-Determination Theory, we distinguished between autonomous and controlled reasons for pursuing achievement goals. The purpose of the current longitudinal study among university students (N = 214) was to examine if these reasons would matter above and beyond the achievement goals themselves in predicting various learning outcomes (i.e., engagement, disengagement). We performed hierarchical linear regression analyses considering goal-specific reasons besides the achievement goals. Overall, much of the effects in Time 2 outcomes were predicted by Time 1 but, achievement goals did not predict the studied outcomes while controlled regulated achievement goals yielded more detrimental outcomes.

Necessary but not sufficient: The interconnected role of mastery-goals and autonomous motivation in the reduction of academic cheating
Caroline Pulfrey¹, Maarten Vansteenkiste², Aikaterini-Aliki Michou³, Fabrizio Butera¹
¹University of Lausanne, Switzerland
²University of Gent, Belgium
³Bilkent University, Turkey

What kind of learning context should educators set up if they want to reduce cheating? Research in Achievement Goal Theory and Self-Determination shows that a mastery-goal focus and autonomous motivation are both associated with less cheating, but no research has tested how autonomy-supportive versus controlling achievement goal contexts might interact. We explored this question with a two-by-two experimental study manipulating the controlling versus autonomy-supportive promotion of performance and mastery-approach goals, hypothesizing that the least cheating would occur in a context promoting mastery-approach goals in an autonomy-supportive way. In the two controlling conditions, participants were told in controlling language that they were expected to prove themselves as a way of impressing others, whilst in the two autonomous conditions, they were told in autonomy-supportive language to try the exercises as a personal challenge. The dependent variable consisted of twelve puzzles in two sets, with three puzzles in each set that could only be solved by cheating. Results revealed lower amounts of overall cheating in the autonomy-supportive, mastery-approach goal condition compared with the other three conditions. Additional results revealed interaction effects between participants’ individual values and the experimental conditions in the prediction of cheating behavior. Autonomy-support and mastery-approach goals reduced generalized cheating, resulting in relatively higher levels of cheating for participants high in self-enhancement values, values traditionally associated with cheating. These results indicate the combined benefits of autonomy-support and a mastery-goal orientation in education, underlining the fact that both seem to be needed to reduce academic dishonesty for all but the hardcore cheaters.

A qualitative and quantitative examination of the “What” and the “Why” of students striving and their relation to the “What” and the “How” of teachers’ practices
Aikaterini-Aliki Michou¹, Athanasios Mouratidis², Aikaterini Vasiou, Vasilis Stavropoulos¹
¹Bilkent University, Turkey
²Hacettepe University, Turkey

The autonomous and controlled motivation has been suggested as the regulatory basis (the “why”) of achievement goals pursuit (the “what”). However, little is known about how students conceptualize their AGs
and their regulatory basis as both have been studied only with surveys or experimental manipulations. Moreover, little is known about the teachers’ practices that are related to the endorsement of specific AGs for autonomous or controlling underlying reasons. In two studies (N = 606, Greek adolescent students; N = 279, Turkish adolescent students), we examined (a) AGs and underlying reasons as expressed by students own words, (b) the relation of the student-generated AGs and underlying reasons with survey-assessed AGs and reasons and (c) the relation of the student-generated reasons and survey-assessed AGs and reasons to the achievement goal structures (GSs) and need-supportive teaching style. In Study 1, the qualitative data generated by students showed that students use mostly the autonomous or controlling regulations to describe their motivation in a specific course. The AGs were rarely reported by students. More importantly, in Study 1, logistic regression analysis showed that the student-generated autonomous and controlling reasons were positively associated with the self-assessed autonomous and controlling reasons underlying AGs supporting the validity of the self-assessment. Finally, in Study 1 and 2, logistic and hierarchical regression analysis respectively showed that mastery-approach GS was a positive predictor of both AGs and the underlying autonomous reasons, whereas performance-approach GS was a positive predictor for the controlling reasons underlying AGs over and above the need-supportive practices.

**The consequences of promoting achievement goals using autonomy supportive and controlling practices in class**

Benita Moti  
*University of Haifa, Israel*

Recently, several studies in the school context has indicated that achievement goals pursued with underlying autonomous reasons are more adaptive than those pursued with underlying controlled reasons. The current research’s goal was to test whether, when promoting achievement goals, teachers’ autonomy supportive practices predict better educational outcomes than controlling practices. Study 1 presents the development of a new tool for the measurement of teachers’ autonomy support and control when promoting achievement goals. 250 7th and 8th class students filled questionnaires assessing the autonomy supportive and controlling practices their teachers use to promote achievement goals. CFA results clearly identified four separate structures for each goal (mastery and performance) adopted in each context (autonomy supportive controlling). In study 2, 300 7th and 8th class students filled questionnaires containing the tool developed in Study 1, as well as scales measuring their motivation in class. Results from SEM analysis indicated that teachers’ autonomy support with relation to performance goals predicted students’ interest and enjoyment through the mediation of identified regulation for learning, whereas teachers’ control in relation to performance goals predicted student’ restricted engagement in class through the mediation of introjected regulation for learning. Interestingly, whereas the promotion of performance goals in a controlling way predicted children’s adoption of performance goals, the promotion of the same goals in autonomy supportive way predicted children’s adoption of mastery goals. Therefore, these results suggest that in order to create optimal class engagement, teachers should take into account the motivational climate in which they promote goals in class.


Conference Hall III (-1)

Organizers & Chairs: Carola Grunschel, *Bielefeld University, Germany*  
Ulrike Nett, *University of Ulm, Germany*  
Discussant: Thomas Martens, *Medical School Hamburg, Germany*

Self-regulated learning has been in the focus of educational research for years. Well-established models of self-regulated learning emphasize the importance of emotional and motivational components as well as their regulation in order to initiate and continue effective learning (e.g., Boekaerts, 1999; Zimmerman, 2002). As of yet, trait based questionnaires have been the most common assessment method of these emotional and motivational components as well as of their regulation (Winne & Hadwin, 1998). However, these instruments do not take the situational variations into account that actually occur in self-regulated learning (e.g., Heiy &
Moreover, the assessment of constructs by questionnaires can be biased, for example, by subjective beliefs (e.g., Robinson & Clore, 2002). In the studies that are presented in the symposium a different methodological approach, namely the experience sampling method, was chosen to examine emotional and motivational components and processes in contexts of self-regulated learning. The experience sampling method (Ebner-Priemer, Kubiak, & Pawlik, 2009) provides the opportunity to assess self-reports in real-time and is therefore free of retrospective biases. The contributors present research that investigates emotional and motivational components (achievement emotions, achievement goals, types of autonomous vs. controlled motivation) and processes (e.g., emotional regulation strategies) in learning contexts, either of students in school or at university. Some of the contributions focus on special situations in students’ lives (e.g., challenging activities, multitasking). Hence, the contributions uncover emotional and motivational mechanisms that play an important role in different contexts of self-regulated learning.

Achievement goals as antecedents of students’ discrete achievement emotions: An inter- and intra-individual approach across four academic domains

Fabio Sticca¹, Thomas Goetz¹, Reinhard Pekrun², Kou Murayama³, Andrew J. Elliot⁴
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²University of Munich, Germany
³University of Reading, UK
⁴University of Rochester, USA

While theories in the behavioral sciences commonly focus on within-person psychological functioning, empirical studies have typically analyzed between-person variation. To address this issue, the present study (N = 120 10th grade students) analyzed both the interindividual and the intraindividual relations between achievement goals and six achievement emotions. To examine interindividual relations, students’ trait goals and emotions were assessed using self-report questionnaires. To examine intraindividual relations, students’ state goals and emotions were assessed using the experience sampling method (N = 1,409 assessments). Results revealed that the interindividual relations between goals and emotions were consistent with theoretical expectations and prior research. Most importantly, the intraindividual relations between these constructs were similar to the interindividual relations: Mastery goals were positive predictors of enjoyment and negative predictors of boredom and anger; performance-approach goals were positive predictors of pride; and performance-avoidance goals were positive predictors of anxiety and shame. Strategies for integrating inter- and intraindividual paradigms in research on achievement goal and emotions are discussed. Furthermore, implications for educational practice are outlined. Knowledge of intraindividual functioning is a prerequisite for developing intervention programs (Voelkle, Brose, Schmiedek, and Lindenberger, 2014). Thus, the present study can contribute to the development of emotionally sound learning environments that aim to foster students’ learning behavior and their psychological and intellectual growth.

Students’ Emotion Regulation Before Exams: An Experience Sampling Study

Anna-Lena Harter, Ulrike Nett
University of Ulm, Germany

Negative achievement emotions (anxiety, anger, frustration and boredom), which usually occur during students’ learning process, can have undesirable effects, like losing motivation and focus on the task. Successful emotion regulation reduces these undesirable effects. Suppression, reappraisal, distraction and expression are four prominent emotion regulation strategies which are explored in this study. We made use of the experience sampling method and assessed the variables in real-time, to avoid retrospective bias. Previous studies investigated emotion regulation with this method outside the learning context related to affect. The aim of this study is to explore discrete negative achievement emotions and their corresponding emotion regulation strategies before taking an exam via the experience sampling method. Seventy German first-year university students answered a short questionnaire on an electronic device five times a day during a period of 6 days before an important exam. We measured achievement emotions, emotion regulation strategies, and mood while they were thinking about the upcoming exam. Results show that when students
have negative emotions, they suppress them, however suppression decreases mood. Reappraisal, distraction and expression are generally used more within neutral or positive emotional states, but on the contrary they show mood increase on at least one mood dimension. This demonstrates that an intervention of functional but seldomly used strategies would be helpful for students’ exam period.

Experienced challenge and emotional responses: Individual and intra-individual variation

Elina Ketonen, Kirsti Lonka, Hanni Muukkonen, Lars-Erik Malmberg

1University of Helsinki, Finland
2University of Oxford, UK

This study focused on the individual differences and situational variability in the relationship between experienced challenge and emotional responses. In addition, we investigated whether experienced importance moderates this relationship and whether the academic year (phase of the studies) have any effect. University students kept mobile phone diaries over 14 consecutive days during their first (N=72) and second (N=56) academic year. We asked students about their current activity, how challenging and important they perceived this activity and their emotional experiences. Our repeated measures diary data represent a hierarchical two-level structure, with situations (Level 1) nested within students (Level 2). The results of multilevel modeling showed that both negative and positive activating emotions were higher in situations when experienced challenge was higher (within-level fixed effects). However, there was individual variation (random slope effects): students’ emotional responses to challenging situations varied both in magnitude and valence (i.e., opposite emotional reactions to challenges). Second, the importance of the activity predicted more positive and less negative emotions. In addition, experienced importance moderated the challenge-emotion relation: the findings suggest that personal value of the activity could further increase positive activating emotions and prevent negative ones especially in tasks that are perceived as highly challenging. To conclude, instructional settings should be sensitive to the individual variation in academic emotions in response to challenge and support students in discovering personal importance. We are further investigating whether the patterns of these relations are different during the first and second academic year (fixed and random effects of year/academic experience).

Why do students multitask? Exploring the motivational background

Olga Bachmann, Carola Grunschel, Stefan Fries

Bielefeld University, Germany

Multitasking has become a defining characteristic of the current student generation. However, little is known about the reasons why students engage in multitasking. One attempt is to construe multitasking as an avoidance behaviour, in which persons engage in a secondary activity because they lack motivation for their main activity. We test this reasoning in two experience sampling studies (N = 51 and N = 45), in which we recorded multitasking behaviour and, taking a self-determination theory perspective, the level of intrinsic, identified, introjected and extrinsic motivation for the main activity. The results are consistent for both studies. A high level of identified motivation (i.e. doing the activity because it is important) is associated with less multitasking behaviour. In contrast, students multitasked irrespective of how much they liked their current main activity (intrinsic motivation), or to what extent they thought they should (introjected) or must (extrinsic) do their main activity. The results suggest that identified motivation plays a particularly important role when it comes to persistence and multitasking behaviour. Moreover, suboptimal motivation for the main activity may not be the sole reason for multitasking behaviour. We discuss an alternative reason for multitasking, namely that multitasking may also reflect approach behaviour towards an attractive secondary activity.

18:30 – 19:30  SIG8 Members’ Meeting

Chairs: Marina S. Lemos, SIG8 Co-ordinator, University of Porto, Portugal
Hanke Korpershoek, SIG8 Co-ordinator, University of Groningen, The Netherlands

20:30 CONFERENCE DINNER
SATURDAY, AUGUST 27th

08:30 – 10:00 PAPER SESSIONS

O21. Supporting School Commitment and Lifelong Learning Competencies and Limiting Drop-out: Person and Context Variables
Chair: Hanke Korpershoek, University of Groningen, The Netherlands

Relationships among students' school motivation, school commitment, cognitive capacities, and their academic achievement in secondary education
Hanke Korpershoek
University of Groningen, The Netherlands

The aims of the present study were (1) to identify to what extent school motivation and school commitment contributed to the explanation of students' academic achievement in addition to the effect of students' cognitive capacities, (2) to find out whether school commitment mediated the relation between school motivation and academic achievement, and (3) to find out whether school motivation mediated the relation between school commitment and academic achievement. New in the field is that perspectives from two different research traditions were adopted, resulting in a selection of variables introduced by identity development theory and by motivational theories on achievement goals. The overall goal was to provide insight in the underlying structure of the relationships among these variables by providing new empirical evidence derived from a large student sample. A sample of more than 6,000 secondary school students from the Netherlands was therefore used in the study. Path models (structural equation models) were used to analyse the data. The results showed that both school motivation and school commitment contributed to the explanation of academic achievement in addition to students' cognitive capacities. The model fit indices showed satisfactory fit for the model including direct effects of cognitive capacities, school motivation, and school commitment on academic achievement. The mediation models showed unsatisfactory model fit. School motivation and school commitment thus both had unique effects on students' academic achievement. Suggestions for further research are discussed.

Austrian students' lifelong learning competencies and their relation with classroom structure and achievement
Julia Klug, Marko Lüftenegger, Barbara Schober, Christiane Spiel
Universität Wien, Austria

There is a strong urge to foster lifelong learning (LLL) competencies with its key components motivation and self-regulated learning from early on in the education system. School in general is presently not considered to be successful in systematically imparting motivation and self-regulated learning. At present, the central sources of information about the situation in Austria are international monitoring studies dealing with selected aspects of specific target groups. Thus, it is important to conduct additional and more differentiated national surveys of the actual state. That is why this study aimed at answering the following questions: (1) how well are Austrian students equipped for the future in terms of their lifelong learning competencies, (2) can perceived classroom structure predict students' LLL, and (3) is there a correlation of students’ LLL with their achievement. 5366 students (52.1% female) from 36 Austrian schools took part in the online-questionnaire, which measured their perceived LLL competencies in the subjects Math and German language, their perceived classroom structure and their achievement. Results showed that the great majority of Austrian students - independent from domain and sex - do know and declare to apply learning strategies. However, there is a lack of interest and students often report to follow performance approach goals. Classroom structure positively predicted students’ LLL and some of the LLL variables in turn predicted achievement. Results show that by creating a motivating classroom structure those parts of LLL that need promotion can be changed by the teacher for a higher motivation and achievement.
Examining the relationship between goal orientations and students’ performance calibration in elementary physical education

Athanasios Kolovelonis, Marios Goudas
University of Thessaly, Greece

This study examined the relationship between students’ basketball shooting performance calibration and their task and ego orientations in physical education settings. Participants were 236 Greek elementary students (102 boys, 134 girls) who attended five fifth and six sixth grade physical education classes from six elementary schools. Students completed the Task and Ego Orientations in Physical Education Questionnaire. Then, for evaluating performance calibration, students performed eight shots from the distance of 2.5 meter in front of the basket after they had provided their estimation regarding the number of successful shots they would make. Calibration bias was computed as students’ estimated performance score minus the actual performance. The absolute values of the bias scores resulted in the accuracy index. The results showed that task orientation was negatively correlated with bias ($r = -.30, p < .001$) and accuracy ($r = -.27, p < .001$) indexes of calibration. No correlation was found between ego orientation and calibration indexes (i.e., bias and accuracy). Moreover, multiple regressions reveal that goal orientations significantly predicted both bias and accuracy, with the task orientation to be the unique significant predictor for both calibration indexes. These results showed that students who were more task-orientated in physical education were also more accurate in estimating their basketball shooting performance. Task-orientated students tend to focus on improving their personal performance using self-referenced evaluative standards and detecting and improving their errors. Thus, they are more aware regarding the status of their personal performance and consequently more accurate in estimating these levels of performance.

Student worries, their relation to institutional sources of help and drop-out ideation

Philipp Nolden 1, Stuart A. Karabenick 2, Marold Wosnitza 1
1 RWTH Aachen University, Germany
2 Eastern Michigan University, USA

Drop-out intentions of university students can be a function of multiple reasons. This survey study aimed to explain drop-out intentions as a function of worries framed in terms of person-in-context-interactions. Data were collected in Germany, Italy, United Kingdom and Luxembourg. The results show that worries about achievement and external issues (e.g., funding) are directly related to drop-out intentions, and that being aware of institutional support is related to decreased drop-out intentions. This suggests that providing students with institutional support offered, and making students aware of them, can lead to lower drop-out rates. The preliminary results suggest also that different target groups of students have different worries and needs requiring differentiated support services.

O22. Promoting Motivation in Science
Chair: Susan Nolen, University of Washington, USA

Exploring preschool children’s science motivation

Elisa Heinig 1, Jacquelyne Eccles 2, Yvonne Anders 1
1 Freie Universität Berlin, Germany
2 University of California, USA

Learning in science starts long before children enter school. In fact, preschoolers are typically curious about the world around them and highly motivated to learn. Yet, we still know very little about preschool children’s science motivation. Our study explores the motivational beliefs of preschoolers aged 5-6 years using a new instrument. Specifically, we aim to answer the following research questions: In the research literature motivation is distinguished into beliefs about self-confidence and interest (see Eccles & Wigfield, 2002), but is this theoretical distinction justified for preschool children? Do they further distinguish between life science and physical science? Are there differences between groups of children due to gender or age? For the study
211 children were interviewed individually using questionnaire-type puppet interviews. In order to ensure that all children understand the items, we referred to science content that preschoolers likely encounter in everyday activities. Answers were rated on a 4-point Likert Scale. EFA and CFA results confirm that preschoolers’ motivation in science can be distinguished into their interest and self-confidence. However, children’s motivational beliefs could not be distinguished further into the areas of life science and physical science. There were no significant age differences, but we did find gender differences: Boys reported higher self-confidence than girls ($p < .05$), whereas girls reported higher interest than boys ($p < .05$). Since early science motivation predicts children’s engagement and future achievement (Leibham, Alexander, & Johnson, 2013; Valeski & Stipek, 2001), this is an alarming finding and calls for more investigation.

**Developing tools to support productive disciplinary engagement in project-based science**

Susan Nolen, Lia Wetzstein, Alexandra Goodell  
*University of Washington, USA*

Project-based learning (PBL) can increase student motivation and engagement in science (Blumenfeld, Kempler, & Krajcik, 2006). But Blumenfeld and her colleagues note problems with designing PBL curricula, including scaffolding students’ disciplinary thinking without diminishing autonomy, supporting self-regulation, and helping teachers monitor and support engagement. In a design-based implementation research project, we worked with science teachers to develop material tools to support students’ productive disciplinary engagement (PDE) in a project-based advanced high school environmental science course. Video analyses showed how the revised tools supported sustained engagement in disciplinary practice, formative assessment, and the completion of complex authentic tasks. We will present longitudinal video data from one teacher’s classroom across two years, detailing how we designed, tested and revised tools based on design principles and informed by Engle’s PDE framework (2012). Fostering disciplinary engagement requires attention to the nature of disciplinary activity along with motivational considerations like supporting competence and autonomy. Engle’s framework provided a way to design tools to help maintain a balance among authority, accountability, problematization and resources during PBL. The redesigned tool adjusted that balance while further scaffolding disciplinary thinking, maintaining engagement while supporting authentic use of science practices, thus addressing several problems with PBL noted previously. The PDE framework promises to be useful for developing authentic, complex learning contexts that support student engagement.

**This is a tool for you to use:” The impact of framing and discourse on productive disciplinary engagement in project-based science**

Susan Nolen, Kendall Becherer  
*University of Washington, USA*

Project-based learning (PBL) has been recommended to engage students in disciplinary activity. Blumenfeld and her colleagues (2009) explained that PBL increases autonomy, competence, and relatedness. But problems with designing and implementing PBL, include scaffolding disciplinary thinking without diminishing students’ autonomy, supporting student self-regulation, and helping teachers support disciplinary engagement, going beyond seeking “correct” answers rather than learning from tasks. In this case study, we examine teachers’ implementation of tools to support productive disciplinary engagement (PDE) using Engle & Conant’s (2002) PDE framework. In two comparable advanced environmental science classrooms, similarly-skilled teachers who co-planned the implementation of the same project-based curriculum nonetheless created environments in which students’ engagement with disciplinary tools was markedly different. We analyzed video recordings of classroom interactions of students and teachers. Findings suggest that the ways teachers framed tool use throughout the activity influenced students’ motivations and engagement in ways consistent with Engle’s (Engle, 2012; Engle & Conant, 2002) theory of productive disciplinary engagement. When tools were framed as resources supporting students’ authority and accountability in a complex task, students engaged productively in using scientific understandings to negotiate conflicting positions regarding natural resource management. When tools were framed as products to be completed for school, in contrast, students’ engagement was more superficial and less scientific. Evidence of transfer was greater in the class.
where tool use was framed as a resource. Implications for teacher professional development in supporting motivation and engagement in PBL are discussed.

Motivational trainings improve mental rotation abilities in no-STEM student
Angelica Moè
University of Padua, Italy

Mental rotation abilities are crucial for success in STEM disciplines (Uttal, Miller, & Newcombe, 2013): students scoring low, mainly women and girls, are less prone to engage in STEM careers (National Science Foundation, 2011). Mental rotation abilities can be improved by practising spatial tests (Wright et al., 2008), or sketching 3-D objects (Sorby, 2009), but the efficacy of training sessions that focus on motivational factors has never been tested. This is surprising because among the factors affecting mental rotation performances are experience with spatial tasks and motivational aspects (Miller & Halpern, 2014), such as ability and gender-related beliefs (Moè, 2012). The aim of this study was to assess the effectiveness of long and brief motivational training in improving mental rotation abilities compared with a strategic only or a strategic plus motivational training, and with a control condition. Two experiments were conducted with high school students and with first year Psychology students. Participants were trained in improving their mental rotation scores either suggesting strategies or functional beliefs or both. Exp 1 showed that non-STEM girls double their mental rotation scores after each training: there was no difference between teaching strategies or motivation. Improvements occur after the second session of training, which lasted for three 1-hr sessions. Exp 2 demonstrated that a 1-hr intensive training increases two-fold the MRT scores of women and men attending no-STEM university courses. The discussion focuses on the motivational factors that account for the difficulties that women, girls and no-STEM students encounter in performing mental rotation tasks.

Predicting students’ STEM career paths: Parent and student interrelations from middle school to college
Isabelle Häfner1, Chris S. Hulleman2, Judith M. Harackiewicz3, Chris S. Rozek4, Benjamin Nagengast1, Ulrich Trautwein1, Janet S. Hyde3
1 University of Tuebingen, Germany
2 University of Virginia, USA
3 University of Wisconsin, USA
4 University of Chicago, USA

The parent socialization model (Jacobs & Eccles, 2000) suggests that parents play a major role in shaping students’ motivational beliefs. Yet, the impact of parents’ motivational beliefs on students’ beliefs is not merely a one-way street, as students’ motivational beliefs and achievement may also influence their parents’ beliefs. As college is a major step into adolescents’ career paths, investigating the bidirectional relations between parents’ and students’ motivational beliefs would yield valuable insights in the development of academic motivation and also major transitions and career aspirations. Using longitudinal data, the interrelations between parents’ and students’ science, technology, engineering, and mathematics (STEM) motivational beliefs (utility value and ability beliefs), and their associations with students’ courses taking, achievement, and career aspirations are investigated. Students and parents were followed from middle school through high school and college. The results of path analyses of 301 families indicated that mothers’ perceptions of students’ ability in 7th grade predicted students’ motivational beliefs, course-taking, and achievement in high school. Students’ value and ability beliefs in 7th grade did not predict mothers’ value beliefs in high school. However, students’ achievement during 10th grade predicted mothers’ value beliefs later in high school. Finally, mothers’ value beliefs predicted students’ future STEM motivation, course-taking, and STEM career aspirations in college—over and above students’ motivational beliefs, course-taking, and achievement in high school. To conclude, even during adolescence, parents play a major role in shaping the development of their children’s academic motivation and achievement and thus their career paths.
“To be or not to be happy, seems to be the question”: Relationships between parental involvement, emotions and self-regulation
Lourdes Mata, Francisco Peixoto, Pedro Isaura
ISPA - Instituto Universitário, Portugal

The main aim of this paper is to examine how the potential effects of parental involvement on students’ achievement can be mediated by the perceived emotional quality of parent/student interaction (positive and negative emotions) and students’ motivational orientations for school work (internal/external). Participants were 631 students attending 2nd and 3rd Cycle of Compulsory School (5th to 9th grade) from 6 schools in Lisbon area. Students age ranged from 10 to 16 years old (M = 12.8; SD = 1.64) and 53% are female. Instruments tap Perceived Parental Involvement (Support, Communication), Parent-child Involvement Emotions (positive, negative), Students Homework Self-regulation (internal, external) and Academic Achievement. A hierarchical analysis using structural equation modeling with Amos 20.0 was carried out considering three blocks of variables (background, perceived parental involvement and emotions) to predict homework self-regulation and academic achievement. Each model add more explained variance to both variables and the final model explains 31% of academic achievement, 12% of external regulation and 37% of internal regulation. Results also show differential effects of various aspects of parental involvement (Communication and Support) and emphasize the mediated role of emotions and motivation. Data point in the sense of the importance to consider affective components in parent-child interactions in order to understand not only their motivational orientations but also academic achievement.

Perceived parental involvement in homework and children’s math performance and motivation in Grade 6
Gintautas Silinskas¹, Eve Kikas ²
¹ University of Jyväskylä, Finland
² Tallinn University, Estonia

The present study examined the longitudinal associations between child-perceived parental involvement in homework (i.e., control and support) and children’s math performance and motivation (task-persistent homework behavior and math self-concept). Also, gender differences in these associations were investigated. Children (249 boys, 263 girls) completed math performance tests and evaluated their self-concept in math in Grade 3 and Grade 6. Mothers (n = 420) evaluated children’s task persistence during homework in Grade 3 and Grade 6. Children reported their perceptions concerning parental homework involvement in math in Grade 6. In all the analyses, children’s general ability in Grade 3 and maternal education were controlled for. The results showed, first, that low self-concept in math predicted increased perceived parental control, which, in turn, predicted low math performance, low task persistence in homework situations, and low math self-concept. Second, perceived parental support was related to increased children’s motivation (i.e., task persistence during homework) in Grade 6. Finally, child gender moderated associations between perceived parental control and motivation, suggesting that parental control was detrimental for boys’ task persistence and math self-concept. The present study is one of the few studies that relate child-perceived parental involvement not only to children’s performance but also to children’s motivation, after accounting for children’s general ability and maternal education. The results of the present study suggest that motivational and gender-related aspects should be emphasized when encouraging parents to get involved with their children’s homework.

Young children’s regulation of motivation during learning: Associations with parenting practices that support learning
Eleni Kallia, Irini Dermitzaki, Fotini Bonoti, Violetta Paraskeva
University of Thessaly, Greece

Previous literature reports associations between parenting practices, such as children’s positive emotional support and autonomy promotion during learning, children’s characteristics, such as temperament, and students’ motivation, self-regulated learning skills and academic performance. The purpose of this study was to explore the role that specific child and parenting factors might play in the development of children’s skills
for regulation of their motivation towards a task. These relations were examined in a micro-level with a focus on actual parent-child interactions during joint problem solving episodes. Thirty five dyads of mother-kindergarten child participated in the study (65.7% boys). The participants were examined twice (some months apart) in visuo-spatial and language tasks. Structured observation was used to record the children’s skills to regulate their motivation during learning (e.g. persistence, autonomy in learning) and mothers’ practices to support their children in problem solving (e.g., emotional/motivational support, autonomy promotion). Children’s temperament was also taken into account. As the second data collection phase is still in progress, the data analyses from the first phase suggest that maternal boost to the child’s independent action was positively correlated while maternal overcontrol was negatively correlated with children’s motivational/volitional skills and with their cognitive outcomes. Children’s temperament/extraversion was negatively correlated with positive maternal emotional-motivational support but only in the visual-spatial tasks. This study highlights the importance of child and parenting characteristics that might act in combination in students’ early learning careers to affect the development of their skills for regulating learning. Implications for family and educational settings will be discussed.

**O24. Basic Needs Support**  
Chair: Thomas Martens, *Medical School Hamburg, Germany*

**A cross-lagged analysis of the relationships between basic needs support and autonomous motivation based on the Relative Autonomous Index**  
Noa Fellner, Levi Shiran, Nir Madjar  
*Bar-Ilan University, Israel*

Previous studies have been established the notion that supporting basic psychological needs can enhance autonomous motivation. Furthermore, it has been suggested that processes associated with the development of motivation are gender depended. Less emphasis was given on the intersection between gender and the impact of basic psychological needs support across time. The purpose of the current study was to explore the moderating role of gender in the relationships between basic need support and the development of relative autonomous motivation, within the same school year. A sample of 355 middle and high-school students (62.3% females; mean age = 14.4) from an urban area in the center of Israel completed the surveys twice during the same school-year (approximately five months gap). The surveys included measures of their perceived teachers’ support of basic psychological needs, and their own personal motivations based on self-determination theory (i.e., intrinsic, identified, introjected and external). Relative Autonomy Index (RAI) was calculated for each participant at each time-point. Multiple-groups cross-lagged analysis (using SEM) revealed that support in psychological needs predicted an increase of RAI. Although the coefficient was higher for female ($\beta = .19, p < .01$) comparing with male students ($\beta = .09, p < .05$), the differences were only marginally significant ($p < .06$). Results indicated that support in psychological need enhance RAI over time, while female students may be more affected. These findings provide further evidence to the utility and importance of self-determination theory within various educational settings and cultural contexts.

**The longitudinal development of 4th to 6th grade students’ basic need satisfaction – the possible attenuating effect of using flexible grouping**  
Kaare Bro Wellnitz  
*Aarhus University, Denmark*

With increasing grades students continually lose motivation for school. This trajectory is explained through school context not developing in sync with students’ development (Stage Environment Fit), challenging the experience of basic need satisfaction (Self-Determination Theory). Knowledge of how different ways of organizing school influences students is scarce, and longitudinal knowledge about the development of motivation before middle school is lacking. This study longitudinally measured experienced basic need satisfaction of 4th to 6th graders five times during two years ($N = 169$, no missing). Students attended two
publicly funded primary schools, matched on SES, but organized differently: one used traditional stable class groups, and the other used flexible age-integrated groupings that varied across subjects and activities. It was hypothesized that students’ experienced need satisfaction would diminish with increasing age. Furthermore, the traditional school was expected to show the steepest drop due to greater context mismatch. Results from multilevel modeling of longitudinal development (Singer & Willett, 2003) showed experienced autonomy, competence, and relatedness to drop significantly with increasing age. However, when school was added at level-2, only the traditional school showed a significant drop in competence with increasing age. Adding school did not change slope significantly for experienced autonomy and relatedness. These results suggest that the drop in motivation is starting as early as 4th grade, but ways of organizing school may help attenuate this effect. Future school reforms may consider opening for more flexible ways of organizing school. Due to including only two schools, findings should be used carefully, and replication is needed.

**Support of students’ basic needs and reading performance: An association mediated by mastery goals?**

Désirée Theis¹, Natalie Fischer²

¹ German Institute for International Educational Research, Germany
² Universität Kassel, Germany

Transition to middle school is generally associated to decreases in student motivation and achievement. The stage-environment fit approach postulates that the maladaptive development of students in middle school is due to a misfit between students’ basic needs for autonomy, social relatedness, and competence and the school context. Research confirms that classroom processes significantly affect students’ achievement and motivation. The aim of this study is to investigate the association between the support of students’ basic needs during German lessons, students’ reading motivation (namely mastery goals) and performance. Moreover, we investigate whether the adoption of mastery goals mediates the effect of perceived quality of instruction on reading performance. 2.105 fifth grade students answered questionnaires about their mastery goals and the amount of perceived autonomy, competence and social support by the teacher as indicators of quality of instruction in German lessons. Reading performance was assessed by a reading comprehension and speed test. The association between perceived quality of instruction, students’ mastery goals and reading performance was tested by latent regression analysis. Moreover, the Sobel test was used to test mediation. All quality criteria were positively related to students’ mastery goals. Mastery goals, perceived support of feelings of competence and social support by the teacher predicted higher values on the reading test. The effect of perceived quality of instruction on academic achievement was mediated by the students’ mastery goals. Our findings underline the importance of the students’ basic needs and their support and indicate that perceived classroom processes are mediated by the students’ motivation.

**Self-determination of Greek primary school students with learning and intellectual disabilities**

Constantinos Vouyoukas

Aristotle University of Thessaloniki, Greece

Promoting self-determination has become an important practice in the education of students with developmental disabilities. Two of the most widely used tools on assessing self-determination are the ARC Self-Determination Scale (Wehmeyer & Kelchner, 1995) and the American Institutes for Research (AIR) Self-Determination Scale (Wolman et al., 1994). The ARC scale is based on a functional theory of self-determination developed and validated by Whemeyer (1996; 2001) and the AIR scale is based on self-determined learning theory proposed by Wolman et al. (1994). There are, to date, no studies within the Greek context that have examined the relationship between the Arc’s Self-Determination Scale and the AIR Self-Determination Scale on primary school students with learning and intellectual disabilities, nor the impact of their disability on the level of their self-determination. The aims of this study were to explore: (a) the relationship between the two assessment tools of self-determination and (b) the impact of the type of students’ disabilities on the level of their self-determination. The study sample consisted of primary school students and their teachers from the 4-5-6 grades at public primary schools in northern Greece. Students’ general learning aptitude quotient was assessed by administering the Greek version of DTLA-4. For measuring the level of students’ self-determination, the ARC scale and the AIR scale were used. This study suggests that
different outcomes can be obtained depending on the theoretical perspective of the assessment of self-determination utilized.

10:00-10:30 Coffee break

10:30-12:00 SYMPOSIA

Invited Symposium
S15. Future Time Perspective as a Motivator in Different Life Domains
Conference Hall I
Organizer & Chair: Thea Peetsma, University of Amsterdam, The Netherlands
Discussant: Stuart A. Karabenick, University of Michigan, USA

Future time perspective (FTP) is considered a motivator for people’s behavior. It belongs to the well-known value respectively goal components, which besides expectations are traditionally constituting the predictors of behavior, like in the Expectancy x Value theory of Atkinson. The time dimension has been adjusted to the motivation theory via time perspectives on long or short term, and even retrospective perspectives. Time perspective is generally described as a conceptualization of a particular life domain in terms of time. Lens defined this time perspective as a cognitive-emotional concept, characterized by “extension” and “valence”. Peetsma conceptualized time perspective in terms of three components (i.e., affect, cognition, and behavioural intention) aimed at a certain life domain on a term of time. In studies in different life domains, the FTP concept has proved to be a good predictor of behavior, like students’ investment in learning and academic achievement. The symposium includes four presentations on a broad variance of studies focused on FTP as a motivator. First, a meta-analysis of FTP as a motivator in the domains Education, Work and Health, in which also different conceptualizations of FTP are compared. Second, developments in older adolescents students’ FTP on a school and professional career in relation to their self-regulated learning. Third, the motivational impact of FTP for subjects with addictive behaviours, including implications for counseling. Fourth, a comparison of the concept FTP on a school and professional career with academic self-efficacy by studying the development of these concepts in relation to learning behaviours of young adolescents.

Future Time Perspective as a motivator: Meta-analyses in the domains of education, work and health
Lucija Andre, Annelies E.M. van Vianen, Thea Peetsma
University of Amsterdam, The Netherlands

The human capacity of contemplating about the future is a premise of human motivation and behavior in everyday life. Future Time Perspective (FTP; Peetsma, 1992; Zimbardo & Boyd, 1999) is a promising construct for predicting individual attitudes and behaviors in the crucial life domains of education, work and health. However, the proliferation of FTP research has led to diversity of FTP definitions, conceptualizations and outcome types causing difficulty to systematically generalize the findings. Also, FTP research lacks interdisciplinary integration and little is known about the factors that may moderate the FTP effects. We conducted a first meta-analysis in the educational, work, and health domain by: (1) measuring the overall effect of the relationships between FTP and educational, work, and health outcomes; (2) testing FTP construct type and measure as moderators; (3) exploring if the relationships are generalizable across cultures; and (4) investigating the FTP-outcomes relationships based on the Theory of Planned Behavior. In total, 77 studies (k = 28 in education; k = 17 in work, and k = 32 in health domain) from 1984 to 2014 were analyzed with the CMA3 software. To distil constructs and measures into a parsimonious model of FTP as a motivator we developed a conceptual model for grouping the FTP constructs. We revealed that the FTP effects hold across the life domains by finding small to medium FTP relationships with educational, work and health outcomes. Also, we found that the effect sizes depend on the FTP construct and measure type, age, gender, and culture.
Developments in time perspectives on school and professional career of students in intermediate vocational education
Ineke van der Veen, Thea Peetsma
University of Amsterdam, The Netherlands

For decades educators have been concerned about the decline in self-regulated learning behaviour of students after school transitions. Many explanations have been given for the decline in self-regulated learning behaviour in secondary school, however on students in intermediate vocational education, less is known on the development in self-regulated learning behaviour and on factors related to this development. Information on this is especially needed, as, in the Netherlands, in this school type the dropout rate is quite high. This leads not only to loss of qualified future workforce, but also to wastage of time and commitment from both teachers and students. As students in intermediate vocational education are expected to be focused on working in a profession, in this study the focus was on future time perspective (FTP) developments, which were related to developments in self-regulated learning behaviour (school investment and academic delay of gratification). 616 first-year students in intermediate vocational education of two schools in different large cities participated. At wave 1 these students were on average 18-years old. They filled out a self-report questionnaire for four times during regular class time. Relationships in developments were analysed performing multivariate latent Growth Curve Analyses. Results showed a decline in long-term FTP on school and professional career, while long-term FTP on leisure stayed stable. A found decrease in self-regulated learning behaviour was partly explained by developments in FTP.

The motivational impact of FTP in subjects with addictive behaviors: Implications for motivational counselling
Maria Paula Paixão, Cristina Esteves
University of Coimbra, Portugal

Assessing motivation is an indispensable first step in helping people enhance their motivation for desirable goal pursuits and reduce their motivation for undesirable one. Motivationally-based interventions have proved to be very relevant in dealing with problem behaviors). This presentation will focus on the results of a research project (comprising 3 independent studies) aiming to analyse the role played by FTP (as a cognitive-motivational variable, Nuttin & Lens 1985), consideration of future consequences (CFC, Strathman, Gleicher, Boninger, & Edwards, 1994) and personal projects’ evaluation characteristics (Cox & Klinger, 2011) in problematic behaviour maintenance vs change, in young and older subjects with addictive and behavioural problems and who are at risk or already under the care of the justice system. In the first study we compared (t test for independent samples) TP, FTP, optimism and consideration of future consequences (CFC) between young offenders (n = 60) and young students with risk factors who remain in school (n = 60). While both groups of young people were mostly present oriented, with a low regard concerning the future consequences of their current behaviour, they presented several differences regarding de content of their FTP (with young offenders displaying more self-centred, self-development and relationship goals and young students with risk factors showing more humanitarian, career, academic and leisure goals). Motivational counselling in educational contexts is required in order to help students with risk factors formulate and assess goals in the domains that are critical in preventing them from being involved in delinquent behaviour.

Relations between developments in students’ academic self-efficacy and in future time perspectives on school and professional career
Thea Peetsma, Jaap Schuitema, Ineke van der Veen
University of Amsterdam, The Netherlands

For the concept Future time perspective (FTP) different definitions have been used. In our study the used concept FTP had affective, cognitive, and intentional components and focussed on a particular life domain. FTP defined like this proved to be a better predictor for investment in the related life domain than instrumentality for the future in that life domain. Possibly, the combination of the mentioned components in FTP, especially the intentional component, could include an idea of (self)efficacy, as intention for a behaviour
requires an expectation to be able to perform a behaviour. In this study, we tested the dependence of both the concepts, FTP and academic self-efficacy, used in an academic context, as FTP on a school and professional career and academic self-efficacy both proved to be strong predictors of students’ school investment. 700 students in the first two years of secondary education participated in the study. They filled in self-report questionnaires measuring students’ FTP (short and long term) on school and professional career and academic self-efficacy five times during two school years. The relationship between students’ FTP and academic self-efficacy was analysed using latent Growth Curve Analyses. The results showed strong positive relationships between the initial values FTP on students’ school and professional career and their academic self-efficacy. In addition we found that the development of FTP was also positively related to the development in self-efficacy during the first two years. The results were found for the short term as well as for the long term FTP.

Invited Symposium
S16. Promoting Student Motivation with Utility Value Interventions
Conference Hall II (-1)
Organizer: Ulrich Trautwein, University of Tübingen, Germany
Chair: Hanna Gaspard, University of Tübingen, Germany
Discussant: K. Ann Renninger, Swarthmore College, USA

Educators often struggle to find ways to motivate their students. One strategy that is commonly proclaimed is making the material meaningful to students’ lives. Drawing on expectancy-value theory (Eccles et al., 1983), fostering students’ perceptions of the value of the learning content can lead to higher engagement and achievement. During the last decades, researchers have developed targeted interventions to promote students’ value beliefs, with a particular emphasis on utility value (for an overview, see Harackiewicz, Tibbetts, Canning, & Hyde, 2014). Previous studies have shown that utility value interventions can indeed be an effective tool to promote motivation and achievement. However, little is still known about how these interventions can be implemented in diverse student settings as well as which strategies are suited best for fostering utility value. This symposium therefore brings together several teams of researchers who have been investigating utility value interventions in different contexts applying different strategies. The presentations in this symposium will address key questions for continuing research on utility value interventions such as: (1) How do utility value interventions work? (2) For whom are utility value interventions most beneficial? (3) Should students discover the usefulness of the learning material on their own or do they need more guidance?

Closing achievement gaps with a utility-value intervention
Judith M. Harackiewicz, Elizabeth A. Canning, Yoi Tibbetts, Stacy J. Priniski, Janet S. Hyde
University of Wisconsin-Madison, USA

Many college students abandon their goal of completing a degree in STEM when confronted with challenging introductory-level science courses. In the U.S., this trend is more pronounced for underrepresented minority (URM) and first-generation (FG) students, and contributes to persisting racial and social-class achievement gaps in higher education. Previous intervention studies have focused exclusively on race or social class, but have not examined how the two may be confounded and interact. This research therefore investigates the independent and interactive effects of race and social class as moderators of an intervention designed to promote performance, measured by grade in the course. In a double-blind randomized experiment conducted over four semesters of an introductory biology course (N = 1040), we tested the effectiveness of a utility-value intervention in which students wrote about the personal relevance of course material. The utility-value intervention was successful in reducing the achievement gap for FG-URM students by 61%: the performance gap for FG-URM students, relative to CG-Majority students, was large in the control condition, .84 grade points (d = .98), and the treatment effect for FG-URM students was .51 grade points (d = 0.55). The UV intervention helped students from all groups find utility value in the course content, and mediation analyses showed that the process of writing about utility value was particularly powerful for FG-URM students. Results highlight the importance of examining the independent and interactive effects of race and
social class when evaluating interventions to close achievement gaps and the mechanisms through which they may operate.

Fostering ninth grade students’ value beliefs for Mathematics with a utility-value intervention in the classroom

Hanna Gaspard¹, Brigitte Brisson¹, Isabelle Häfner¹, Anna-Lena Dicke², Barbara Flunger³, Benjamin Nagengast¹, Ulrich Trautwein¹

¹University of Tübingen, Germany
²University of California, USA
³University of Utrecht, The Netherlands

Interventions targeting students’ utility value have been shown to effectively promote student motivation within science classes (e.g., Hulleman & Harackiewicz, 2009). Yet, further research is warranted to understand better how such interventions should be designed in order to be successfully implemented in the classroom setting. A cluster randomized controlled study was conducted to test whether ninth-grade students’ value beliefs for mathematics could be fostered with utility value interventions in the classroom. Eighty-two classrooms were randomly assigned to one of two experimental conditions or a waiting control condition. Both experimental groups received a 90-minute intervention within the classroom on the relevance of mathematics, consisting of a psychoeducational presentation and relevance-inducing tasks (either writing a text or evaluating interview quotations). Intervention effects were evaluated via self-reports of 1916 participating students six weeks and five months after the intervention. Both intervention conditions fostered utility value for mathematics among students at both time points. Compared to the control condition, students in the quotations condition also reported higher mathematics attainment value, intrinsic value, and self-concept and showed higher teacher-rated effort as well as achievement in a mathematics test. Thus, more extensive effects on motivation and achievement were found for the quotations condition than for the text condition. As a side effect, however, students in the quotations condition reported lower German value at the follow-up than students in the control condition. Intervention effects were moderated by students’ gender and students’ family background with more beneficial effects for “at risk” students.

Helping students find value in online math courses: Comparing three utility value interventions in Algebra and Geometry

Emily Q. Rosenzweig¹, Chris Hulleman², Kenn Barron³, Jeff J. Kosovich², Stacy Priniski⁴, Allan Wigfield¹

¹University of Maryland, USA
²University of Virginia, USA
³James Madison University, USA
⁴University of Wisconsin-Madison, USA

Much research has shown that classroom interventions targeting students’ utility value for math can improve their achievement, and researchers have also evaluated ways to make these interventions maximally effective. However, no studies have tested whether or how utility value interventions work for students who learn math online, even though they represent a large segment of STEM education. We explored how three different types of utility value interventions affected the value perceptions of online students learning Algebra 1 and Geometry compared to a control group. Students were randomly assigned to write a brief essay describing why math was relevant to their lives (Write Only), read quotations from other students about how those students thought math was relevant, then write an essay (Read + Write), read the quotations and respond to several questions evaluating them (Read + Rank), or participate in a survey control group (Survey Only). There was no significant course x condition interaction, but in Algebra, Read + Rank students reported higher post-intervention utility value than did Survey Only students, whereas in Geometry, Read + Rank and Read + Write students both reported higher utility value than did Survey Only students. Results suggest that a brief utility value intervention can improve utility value perceptions for online students, and that reading quotations from other students is more effective than simply writing an essay is; this supports prior research using non-online students. Different utility value interventions also seem to show different effects across math subjects, which no previous studies have explored directly.
Utility value interventions in Biology: Exploring their effectiveness within Hispanic youth

Anna-Lena Dicke¹, Chris S. Hulleman², Jeff Kosovich²

¹University of California, Irvine, USA
²University of Virginia, USA

Recently, utility value interventions based on expectancy-value theory (Eccles et al., 1983) have proven to be a potential remedy against high school students’ motivational struggles (Jacobs et al., 2002). By targeting students’ perceptions of the usefulness of the educational content either through the generation of utility value (essay writing, Hulleman et al., 2009) or through the reflection and interaction with relevant utility information (use of quotes, Gaspard et al., 2015), their motivation and achievement can be improved. However, previous samples mostly consisted of Caucasian students from advantaged socioeconomic backgrounds. The potential of this intervention for helping students from different ethnic and socioeconomic backgrounds has not been explored. The goal of the present study was, thus, to investigate the effects of a utility value intervention on students’ biology achievement within a Hispanic high school sample from disadvantaged socioeconomic backgrounds. Using a within-classroom randomization, students (N = 159) were randomized to either a utility value intervention or control condition. Combining previous approaches, students in the utility condition first reflected on the value of biology through quotes, and then generated their own sense of utility through essay writing. Control students wrote and reflected on the utility value of memory skills. Preliminary analyses showed that students in the utility condition showed greater improvement in their biology achievement after the intervention than students in the control condition. Further analyses will explore the type of utility information generated by participants to develop a better understanding of the utility value that Hispanic high school students find in biology.

S17. Advances and Issues in the Study of Gender and Motivation for STEM

Conference Hall III (-1)

Organizers & Chairs: Jenna Cambria, University of Arkansas, USA
Eike Wille, University of Tübingen, Germany

Discussant: Dionne Cross Francis, Indiana University, USA

There continues to be a large gender gap in the mathematically intensive STEM workforce, which is of economic concern in terms of maximizing the potential of the workforce, but also a social issue, because this area provides high status career options (Watt, 2008). In order to address the gender inequity in STEM employment, it is crucial that we understand the mechanisms that drive these career choices (OECD, 2014). Furthermore, there is a general consensus that motivation is a central predictor of career choices in addition to achievement in predicting STEM outcomes (Su, Rounds, & Armstrong, 2009; Wigfield & Eccles, 2000) and thus, we will explore the effects of both achievement and motivation in predicting STEM outcomes in this session. This session provides insights on potential factors related to gender differences in STEM motivation and outcomes by drawing on data from around the world and ranging from adolescence through adulthood, including longitudinal studies and using advanced quantitative techniques to address this timely social and economic issue. The first paper documented gender differences in the development of career aspirations and attainment from early adolescence into adulthood. The second paper examined the associations between adolescents’ individual achievement, classroom achievement, and females’ and males’ STEM vocational interests. The third paper examined whether a school reform can reduce gender differences in math achievement and motivation. The fourth paper examined cross-domain effects of adolescents’ math and English self-concept of ability, values, and gender on career preferences.
Examining gender differences in patterns of STEM-related career aspirations and attainment from early adolescence to adulthood

Nayssan Safavian¹, Arena C. Lam¹, Fani Lauermann², & Jacquelynne Eccles¹

¹University of California, USA
²University of Bonn, Germany

This research examines the longitudinal profiles of STEM-aspirers to describe the trajectories that lead into STEM and non-STEM careers by: (a) detailing the development and changes in career aspirations from early adolescence into adulthood (grades 7, 10, and 12, and 6 years after high school), and (b) documenting gender differences in aspiration trajectories and career attainment (at age 42). Career aspiration and attainment data from the Michigan Study of Adolescent and Adult Life Transitions were categorized into four domains: traditional STEM-related careers in the physical sciences, engineering, mathematics, and technology (PMET); life sciences (e.g., biology, health sciences); social sciences, and non-STEM. Using latent profile analysis, three common patterns of career aspirations emerged: those who consistently aspired to non-STEM careers (63% of sample); those who aspired for PMET careers in-and-throughout adolescence but began shifting to non-STEM aspirations by adulthood (17%); and those who aspired to life science careers in-and-throughout adolescence but began shifting to non-STEM aspirations by adulthood (20%). Logistic regressions predicting eventual career attainment indicated that males were more likely to be characterized by the PMET career aspiration profiles, whereas females were more likely to be characterized by the medical/life career aspiration profile. In addition, males were more likely to attain PMET-related occupations, and females were more likely to attain careers in medical/life at age 42. The findings underscore the importance of distinguishing between PMET and life sciences for understanding gendered career preferences and choices within STEM (e.g., life sciences vs. PMET).

Vocational interests: The impact of class achievement and gender

Jenna Cambria¹, Holger Brandt², Benjamin Nagengast², Ulrich Trautwein²

¹University of Arkansas, USA
²University of Tübingen, Germany

In order to address the preparedness for a skilled STEM workforce, a better understanding of the influences on vocational interest is required. Previous research has indicated that achievement impacts motivation and choices (Wigfield & Cambria, 2010); however, too little is known about how boys’ and girls’ achievement is related to vocational interests in a future STEM career (Su, Rounds, & Armstrong, 2009) and how class level achievement may impact motivation for a STEM career (Trautwein, Lüdtke, Marsh, Köller, & Baumert, 2006). We collected data from 2590 students in grade 10 on a series of achievements in mathematically and verbally intensive achievement domains as well as on their vocational interests. The first trend we found in a series of hierarchical linear models was that achievement in mathematically intensive domains was positively associated with STEM vocational interest. Achievement in verbally intensive domains was positively associated with vocational interests less related to STEM. These trends tended to be stronger for males than females. We also found that students with the same individual achievement level in mathematically intensive domains had higher vocational interests in STEM if they came from a class with a higher mean level achievement in mathematically intensive domains. Finally, results of hierarchical structural equation models revealed that the latent mathematical and verbal achievement variables differentially predicted STEM vocational interests and that there were significant differences between boys and girls.

Maximizing gender equality in STEM by minimizing personal choice? Differential effects of obligatory math coursework on girls’ and boys’ math achievement, math self-concept, and vocational interests.

Eike Wille¹, Nicolas Hübner¹, Jenna Cambria², Kerstin Oschatz¹, Benjamin Nagengast², Ulrich Trautwein¹

¹University of Tübingen, Germany
²University of Arkansas, USA

Math achievement, math self-concept, and vocational interests are critical predictors of STEM careers and
closely linked to high school coursework in math. Women are less likely to choose advanced math courses in high school and there is evidence that encouraging women to enroll in such courses may bring more women into STEM careers (Ma & Johnson, 2008). We examined the effects of a statewide educational reform in Germany that required all students to take advanced math coursework for males and females. We compared data from 4,730 students before the reform and 4,715 students after the reform. In order to investigate possible effects of the reform, we specified multiple regression models and tested gender as a moderator of the effect of the reform on math achievement, math self-concept, and realistic and investigative vocational interests. We found clear gender differences before the reform with higher scores for boys in all studied outcomes. Different effects on the outcomes were found after the reform: Whereas gender differences in math achievement decreased, differences between boys and girls in math self-concept and both interest facets increased. Results indicated that reforming course choice options possibly has differential impacts on various outcomes. Because motivation and interest are critical for gendered STEM career choices above and beyond the impact of achievement, changes in math coursework requirements may even stream females away from STEM. This study is making an important contribution towards developing a better understanding on how women’s participation in STEM careers could be manipulated through educational reforms.

Cross-domain effects of adolescents’ expectancy and value beliefs about Math and English on Math/Science-related and Human-Services-Related career plans
Fani Lauermann¹, Angela Chow², Jacquelynne S. Eccles³
¹University of Bonn, Germany
²Indiana University, USA
³University of California, USA

Informed by Eccles’s expectancy–value theory and Möller and Marsh’s dimensional comparison theory, we examined the predictive effects of adolescents’ motivational beliefs (self-concept of ability and subjective task value) across two academic domains, English and math, on adolescents’ math/science-related and human-services-related career plans at the end of high school (N = 425). Consistent with earlier evidence, male adolescents were more likely to aspire to math/science-related careers, whereas female adolescents favored human services occupations. The effects of gender on these career plans were mediated by adolescents’ valuing of English. Compared to males, females were less likely to consider math/science-related careers and more likely to consider human services occupations, partially because they valued English more than males did. In addition, a negative interaction effect suggested that adolescents’ math-related self-concept of ability was a weaker predictor of math/science-related career plans at higher levels of perceived ability in English. Accordingly, the combination of high perceived ability in both math and English implied a somewhat lower probability of pursuing math/science-related careers, relative to individuals with a high math, but lower English self-concept of ability. These findings underscore the importance of considering cross-domain influences in choosing a career, and especially with regard to gendered choices in the domains of math and science.

12:00-13:30 EXPERT PANEL SESSION
Conference Hall II (-1)

Motivation and Emotion: Current Issues, Future Directions
Organizer & Chair: Eleftheria N. Gonida, Aristotle University of Thessaloniki, Greece
Panelists:
Reinhard Pekrun, University of Munich, Germany
Ann Renninger, Swarthmore College, USA
Gale Sinatra, University of Southern California, USA
Julianne Turner, Notre Dame University, USA
Tim Urdan, Santa Clara University, USA
Maarten Vansteenkiste, Ghent University, Belgium

13:30-14:30 Lunch
Considerable progress has been made in the development of “relevance interventions” in recent years. Such advances have provided strong empirical and experimental support for the value of relevance interventions for promoting motivation and achievement across student populations and disciplinary contexts; however, efforts to establish relevance as a sound theoretical construct require further conceptual work, esp., by clarifying the unique contributions of the construct through syntheses of multidisciplinary perspectives. In this conceptual symposium, presenters will discuss current conceptualizations of relevance, their place within diverse theoretical perspectives in motivational research, areas of conceptual agreement and disagreement, and specify areas needing further conceptual and empirical work.

**Utility value and relevance: Interventions, processes, and conceptual distinctions**  
Chris S. Hulleman, Jeff J. Kosovich  
*University of Virginia, USA*

Relevance is a connection between two ideas. In contrast, utility value (UV) is a specific type of relevance where the connection is between what students are learning and attaining proximal or distal goals. Our interventions strive to help students see both relevance and UV, but do not force students to explicate utility value over and above relevance. Relevance is necessary, but not sufficient, for motivated learning. In other words, simply seeing the connections between one’s life and what one is learning is not enough to be highly motivated. Specific, high quality personal connections are essential. The results from coding the intervention essays in several of our studies reveals relationships between the quality of students’ utility value writing and learning outcomes, including interest and performance (Hulleman, 2007; Hulleman et al., under review; Kosovich & Hulleman, 2014; Kosovich et al., 2015). This presentation will discuss the implications of this conceptualization of relevance, drawing upon empirical studies to illustrate its role in motivation and achievement.

**Relevance and interest**  
K. Ann Renninger  
*Swarthmore College, USA*

Relevance refers to one type of connection that a person may make to some object, event, or idea (henceforth, content) on the basis of prior experience and/or identity. From an interest researcher’s perspective, relevance affords the possibility that a person’s interest will be triggered (see Hidi & Renninger, 2006; Renninger & Su, 2012). Relevance only affords a possibility of triggering because whether triggering occurs is dependent on the alignment between the trigger, in this case relevance, and the person’s present understanding. Relevance is only one of a number of ways that interest can be triggered and that such connections can be made. In studying life science students (e.g. premedical students) taking reformed physics classes that include extended use of examples of different topics deemed relevant to life science students learning physics, we found that the effectiveness of relevance in triggering interest depended upon several aspects of students’ prior familiarity with the topic (Renninger, Crouch, Cai, & Wisittanawat, 2015). Responses to open-ended questions about each of the topics revealed that the interest of students with more developed interest was likely to be triggered if the example extended their present understanding. If, on the other hand, the students’ perceived the example to provide information that they already knew, it may have been relevant but it was not interesting. Our data suggest that under certain conditions relevance can trigger
interest, and when it does, it is both motivating and engaging. Discussion will focus on these conditions.

**Perceived relevance from an expectancy-value perspective: Multiple facets and the role of the school context**

Ulrich Trautwein, Hanna Gaspard, Benjamin Nagengast  
*University of Tübingen, Germany*

Educators are regularly faced with the challenge to find ways for motivating students and several scholars have proposed increasing the perceived relevance of the learning material as one possible avenue. We take an expectancy-value approach to explaining relevance, focusing on the connection between relevance intervention and multiple subfacets of task value and relevance (Gaspard et al., 2014; Trautwein et al., 2013). In a large cluster-randomized study, Gaspard et al. (in press) showed that an intervention highlighting the relevance of mathematics fostered value facets to different extents. Adding to the complexity of perceived relevance, we conceive it as influenced through intraindividual as well as social processes. Students’ value beliefs are formed through learning experiences in the school context and this context can be described in terms of multiple levels. Processes at higher levels (e.g., the classroom level) can also be utilized for fostering perceived relevance in the school context. Whereas relevance interventions generally aim at triggering intraindividual psychological processes through engagement with certain tasks or certain pieces of information, applying an intervention within the classroom opens up the opportunity to engage students as a group. Within the context of one of our intervention studies, for instance, students participated in an interactive presentation session within the classroom setting. Such group activities might lead to stronger engagement for a larger group of students creating a snowball effect. This presentation will discuss the implications of the multiple facets approach for the fine-tuning of relevance interventions.

**Context personalization as a relevance intervention**

Candace A. Walkington, Matthew Bernacki  
*Southern Methodist University & University of Nevada, USA*

Relevance involves the objects, events, and ideas that a learner finds familiar, or likes, or values, combining cognitive, affective, and motivational components. Relevance accomplished through connections to valued areas may have outcomes that vary based on the degree of learner control and prior attitudes. Relevance constructed by only drawing upon affective reactions can sometimes lead to undesirable outcomes because of the potential of such connections to be seductive details. Ideally, classroom interventions that utilize relevance would incorporate areas where the learner has significant knowledge, and value, and affect. One type of relevance intervention that can accomplish this is context personalization, where instruction is matched to students’ individual interests. In this presentation, we discuss research in mathematics education involves interventions that draw upon this kind of “relevance” as a means to enhance motivation and learning, and place particular emphasis on drawing upon students’ knowledge, including personal background experiences and canonical mathematical abstractions. For this reason, what counts as “relevant” will vary across students in the same classroom, or even for a single student over a school year. However, there are particular objects, events, and ideas that tend to be relevant to many learners of an age group, from a school, or from a geographic location. In this presentation, we discuss this conceptualization of relevance and its implications for interventions and classroom instruction.
motivation. It has inspired research in different cultures, domains and age groups. Within this symposium, we discuss current trends and future directions that link the theoretical framework of achievement goal theory to other research traditions. Thereby, we especially investigate the reasons for goal pursuit both grounded in individual as well as contextual variables. The first paper examines the role of different reasons derived from a wide array of motivational theories for the pursuit of achievement goals. The second paper investigates whether achievement goals serve as situated agents of broader life goals derived from goal research within Self-Determination Theory. The third paper takes on a more contextual perspective on reasons to adopt certain achievement goals and presents the development and validation of a new conclusive inventory for the assessment of classroom goal structures that includes all TARGET dimensions. The last paper investigates the complex interplay between mastery goals and an adaptive belief about errors. While both constructs share conceptual similarities, they contribute differentially to the prediction of achievement related outcome variables. All four contributions of our symposium supplement research on achievement goals with research on other achievement related constructs or achievement relevant contexts. Thereby, the symposium gives an important outlook on the ongoing odyssey for a stronger theoretical integration of theories on achievement motivation into one comprehensive theoretical network.

Different reasons for different goals – Patterns and predictions
Markku Niemivirta¹, Antti-Tuomas Pulkka², Anna Tapola¹, Heta Tuominen-Soini¹
¹University of Helsinki, Finland
²National Defence University, Finland
Although it has been suggested that a differentiation between the achievement goals themselves and the reasons for striving for those goals should be made, we still know surprisingly little about the different reasons for different goals. In this study, we sought to identify different types of reasons for different achievement goals and then examine the extent to which they predict the strength of the given goal preferences. In our view, different goals reflect the way students balance between the motives of self-improvement, self-enhancement and self-protection, depending on how they perceive and experience different achievement situations. We constructed sets of reasons that would correspond to this assumed motivational dynamics. In essence, then, our scheme of reasons reflected anticipated consequences, sources of reward and criteria for success. For a novel way of assessing the reasons for goals, we developed an online-questionnaire with a “conditional” response structure. The questionnaire included anchor items for goals with conditional additional items referring to a list of reasons for each goal. The participants were 376 university students. According to our findings, the prevalence of certain reasons suggests which types of reasons are most commonly linked to particular goal categories, whereas the covariation of the different reasons and the intensity of a given goal inform us about the relative importance of different reasons in predicting goal preferences. For example, reasons associated with mastery goals seem to be linked to self-improvement, while reasons predicting performance goals more likely reflect self-enhancement or self-protection.

On the relationship between life aspirations and achievement goal Orientations
Stefan Janke, Oliver Dickhäuser
University of Mannheim, Germany
Researchers in the field of achievement goal research often adopted the view that the stability of achievement goal orientations is based on individual differences in more general aspects of achievement motivation like self-perceived competence or fear of failure. However, this perspective does not take into account that achievement goal orientations might be rooted in broader factors, which are not confined to achievement motivation, e.g., factors like life goals. Using the terminology of Self-Determination-Theory, we assume that intrinsic life aspirations (i.e., the striving for self-actualization and personal growth) are predictive for the strength of learning goal orientation (i.e., the striving for skill development). Additionally, we hypothesize that extrinsic life aspirations (i.e., the striving for fame, wealth and recognition) are predictive for the strength of performance goal orientation (i.e., the striving for competence demonstration). We tested
these hypotheses within two cross-sectional samples from different achievement related contexts ($n_1 = 397$ German university students; $n_2 = 294$ German teachers) with structural equation modeling. In line with our hypotheses, we found in both samples that intrinsic life aspirations were positively predictive for the strength of the learning goal orientation, whereas extrinsic life aspirations were positively predictive for the strength of the performance goal orientation. These results are in line with the assumption that life aspirations are part of the stable foundation of achievement goal orientations. The findings encourage motivation researchers to investigate indirect effects of life aspirations on achievement related outcomes as well as their long-term effects on the development of achievement goal orientations.

Measuring a classroom mastery goal structure using the TARGET dimensions: Development and validation of a classroom goal structure scale
Marko Lüftenegger, Marlene Kollmayer, Ulrich Tran, Lisa Bardach
University of Vienna, Austria

Much research has been conducted to identify classroom structures that promote students’ mastery goals. In these studies, classroom goal structures were measured as macroscopical and holistic constructs that refer to all activities in the classroom setting associated with learning and performing on a meta-level (e.g. PALS). A more comprehensive approach for identifying concrete classroom structures is provided by the TARGET framework with its six instructional dimensions (Task, Authority, Recognition, Grouping, Evaluation, Time). These six dimensions form a classroom mastery goal structure that fosters students’ personal mastery goals. However, measurement instruments assessing students’ perceptions of all TARGET dimensions are largely lacking. The main aim of this study was to develop and to validate a new student questionnaire for the comprehensive assessment of the multi-dimensional TARGET classroom structure. Scale construction used a rational–empirical strategy based on classical conceptions of the TARGET dimensions (Epstein, 1988; Ames, 1992b) and prior empirical research. The instrument was tested in a study using a sample of 1080 secondary school students. Findings indicate that the scales are reliable, internally valid as demonstrated by confirmatory factor analyses and externally valid in terms of relationships with students’ individual achievement goals. More concrete, multi-level regression analyses revealed that a perceived TARGET classroom structure positively predicted personal mastery goals and performance approach goals. No associations were found between a perceived TARGET classroom structure and performance avoidance goals. Directions for future research and implications for educational practice are discussed.

Mastery goal orientation and adaptive beliefs about errors: Conceptual similarities and differences
Maria Tulis, Markus Dresel
University of Augsburg, Germany

Recent research findings emphasize that errors and impasses contribute to individual learning—provided that learners are motivated to persist in the face of setbacks, and that they deal with them in an adaptive manner. There is comprehensive empirical evidence that adopting mastery (approach) goals has positive implications for diverse motivational outcomes, particularly in the face of failure. In addition (and related to mastery goal orientation), beliefs about errors as learning opportunities support adaptive affective-motivational self-regulatory processes and learning activities following errors (e.g., Keith & Frese, 2005). Based on self-report data, the main purpose of the presented study ($N = 545$ undergraduate students, $M_{age} = 21.5$ years, $SD = 2.93$, 76% female) was to investigate the distinctiveness of these two related concepts. Our results indicate the validity of a differentiation between adaptive beliefs about errors and mastery goal orientation. Results from confirmatory factor analysis suggested two distinct factors. Furthermore, both concepts proved different associations with affective-motivational variables and self-regulation strategies (mastery self-talk, cognitive reappraisal), and with effort management following errors. Adaptive error-related beliefs mediated the positive effect of mastery goal orientation on the use of cognitive reappraisal. The findings emphasize the importance of learners’ adaptive beliefs about errors for affective-motivational functioning and metacognitive.
Motivational theories have been applied in different educational context like reading, mathematics, sport etc. The aim of the symposium is to give an overview of how motivational theories have been implemented in different settings and find common motivational schemata that influence behavior in educational and sport settings. Self-determination and achievement goal theories provided the theoretical basis for the studies in this symposium. Mouratidis and Barkoukis et al. used self-determination theory to investigate the impact of motivation on students’ learning strategies and doping use intentions respectively. Metallidou et al., Vassiou and Mouratidou employed an achievement goal approach to study the association of goal orientations with reading comprehension, students’ affect and perceived ability, and athletes’ demographic characteristics. The findings of the studies included in this symposium suggest that both theories can provide valuable information about the motivation of students and athletes. Kostas Bikos will discuss the findings of the five studies as well as the implications for students and athletes.

The contribution of personal goal orientations, general comprehension motivation beliefs and task-specific motivation to primary school students’ reading comprehension

Panayiota Metallidou, Maria Valougeorgi, Vaitsa Giannouli, Mara Gioka, & Anthi Borodimou
Aristotle University of Thessaloniki, Greece

The aim of the present study was to examine the contribution of personal goal orientation, general comprehension motivation beliefs and task-specific interest to primary school students’ reading comprehension. A Greek sample of 670 primary school students (girls n = 361) from fifth (n = 360) and sixth (n = 310) grades and from 14 different public schools participated in the study. The participants were tested in groups in their school classes. A word task on environmental problems followed by an 8-item multiple choice test was used to measure students’ reading comprehension performance. Before reading the text, the students were asked to estimate on a 7th point scale their interest in reading about environmental problems in general and after reading the text their interest in this specific text. As regards their general motivational orientation, they were asked to complete a questionnaire about their personal achievement goals as well as their comprehension motivation (self-efficacy and comprehension value beliefs). Path analyses indicated direct and indirect significant paths. The results provide evidence for the significant contribution of general as well as task-specific motivational beliefs to primary school students’ performance on reading comprehension. The educational implications of the results are discussed.

Autonomous motivation, perceived classroom environment, and students’ learning strategies among Belgian adolescents: Evidence from a longitudinal, multilevel study

Athanasios Mouratidis
Hacettepe University, Turkey

Quality of motivation and perceived classroom environment constitute important determinants of learning processes and practices, but their joint role in the long run remains unclear. In this three-wave, one-year, longitudinal study with 886 adolescent students, it was found, through path analysis that autonomous motivation predicted positively effort and metacognitive regulation and negatively procrastination; an opposite pattern was found for controlled motivation. Also, perceived structure and autonomy were, respectively, positive and negative predictors of autonomous and controlled motivation. Multilevel analyses further revealed that students in autonomous supportive and well-structured classrooms reported, on average, more effort regulation and less procrastination six months later. These findings suggest the combined benefits of being autonomous motivated and belonging to autonomous supportive and well-structured classrooms.
Students’ achievement goals, emotion perception ability, affect and performance in the classroom: A multilevel examination
Aikaterini Vassiou, PhD, Greece

Performance at school is affected not only by students’ achievement goals but also by emotional exchanges among classmates and their teacher. In this study, we investigated relationships between students’ achievement goals and emotion perception ability and class affect and performance. Participants were 949 Greek adolescent students from 49 classes as well as their Greek language and mathematics teachers. Results from multilevel analyses indicated that students’ mastery-approach and performance-approach goals were positively related to positive affect, whereas performance-avoidance goals were negatively related to positive affect. At class-level, relationships between achievement goals and affect were moderated by students’ emotion perception ability. These findings highlight the importance of emotion abilities and their role in motivational processes for class-level outcomes.

Predictors of athletes’ motivational profile
Katerina Mouratidou
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The aim of the present study was twofold: a) to examine whether athletes’ demographic characteristics, and perceptions regarding their sport-ability and sport-league could predict or are related to their achievement goals, and b) whether the type of a team-sport, players’ level of competition and their regular playing position affect athletes’ goal orientations. A total of 615 athletes from four different team-sports participated in the study. In order to assess players’ achievement goals the Task and Ego Orientation in Sports Questionnaire was adapted. Also, players’ perceptions as well as demographic data were reported. From the findings it was evident that, the overall model is appropriate for the interpretation of an athlete’s task/ego orientation. Moreover, the type of team-sport, level of sport participation, and one’s regular playing position as well as their interaction affect significantly athletes’ task and ego orientation. These findings indicate that in order to interpret an athlete’s motivational profile one should consider several demographic characteristics and perceptions regarding sport-participation of the former.

Reasons for using doping substances in recreational sport
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Recently there has been observed an increase in the use of doping substances by recreational athletes. The aim of the present study was to investigate recreational athletes’ reason for using doping substances. The sample of the study consisted of 202 recreational exercisers including fitness, crossfit and bodybuilding, with an age range from 17 to 25 years old (M = 21.8, SD = 2.65). Participants completed a questionnaire including reasons for using doping substances and the variables of the planned behavior theory. Approximately 25% of the participants admitted prior or current use of doping substances. The results of the analyses demonstrated that among the most important reasons for using doping substances were recovery from training (48.1%), curiosity (42.3%), doping use in an inherent part of exercise (40.4%), getting faster results (38.5%), and social norm (38.5). The reasons were classified based on self-determination theory into autonomous and controlling reasons. The results of the regression analysis indicated that controlling reasons were more strongly and positively associated with attitudes, subjective norms, perceived behavioral control and intention to use doping substances. The findings of the present study highlight the mindset of recreational athletes towards using doping substances.
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