

Keynote Prof. Ada Pellert 1

29 August 2018 09:30 - 10:30

Lecture Hall (AUB1)

SIG 04 Keynote Session

Prof. Ada Pellert

Keywords: Academic Development, educational trajectories, feedback, Higher Education

Interest group: SIG 04 - Higher Education

Chairperson: Edith Braun, Justus-Liebig-Universitaet Giessen, Germany

Higher education management: between theory and practice

Keywords: Academic Development, educational trajectories, feedback, Higher Education

Presenting Author: Prof. Dr. Ada Pellert, FernUniversität in Hagen, Germany

Does higher education management theory help in mastering higher education management practice? Definitely, yes. It sets the ground to develop a personal theory of practice which all professionals need to develop strategic action. And it helps in developing an adequate institutional management culture since the theory of the management of expert organizations allows joint understanding of the institutional management functions. A theory based developing of a joint management understanding is an essential need for sustainable development of higher education institutions.

Papers 1

29 August 2018 11:00 - 12:30

Seminar room 3 (AUB3)

Single Paper

Assessment and Evaluation, Higher Education

Performance Assessments - Scientific Reasoning - Generic Skills

Keywords: Academic achievement, Assessment, educational trajectories, Higher Education, student learning outcome

Interest group: SIG 04 - Higher Education

Chairperson: Caroline Buts, Vrije Universiteit Brussel (VUB), Belgium

Students' critical ways of dealing with information when solving performance-based assessments

Keywords: Academic achievement, Assessment, Higher Education, student learning outcome

Presenting Author: Susanne Schmidt², Johannes Gutenberg-Universität Mainz, Germany; **Co-Author:** Olga Zlatkin-Troitschanskaia, Johannes Gutenberg-Universitaet, Germany; **Co-Author:** Marie-Theres Nagel, Johannes Gutenberg-Universitaet, Germany; **Co-Author:** Dimitri Molerov, Humboldt-University Berlin, Germany; **Co-Author:** Klaus Beck, Johannes Gutenberg-Universitaet, Germany; **Co-Author:** Richard Shavelson, Stanford University, United States

Not only educators have called attention to students' generic skills such as critical thinking, analytic reasoning, and problem-solving. Due to recent societal developments regarding the (mis)use of information and (inappropriate) trust in information sources, employers and policy makers are also complaining about the lack of skills academic graduates have in their ability to make elaborated and critical decisions based on valid and reliable information. So far, these kinds of skills have typically been assessed using student self-reports or with short tests (e.g., Liu et al. 2014). An alternative approach, presented in this study, is criterion-sampling measurement, where performance assessments (PA) are developed using "criterion" tasks drawn from real-world decision making and judgment situations across academic domains (Shavelson et al., 2018a). We present an assessment framework and exemplify it with a newly developed and validated PA task. We present our first results about how students performed in this task and how the provided information was considered, particularly in terms of their relevance and validity and draw first conclusions.

The task was designed to measure how information is critically dealt with in five central facets: (1) Evaluating and using information and sources in terms of relevance to the argument; (2) Recognizing, evaluating and using arguments and their components; (3) Developing own sound and valid arguments based on information provided in the task; (4) Recognizing and evaluating consequences of decision-making and actions; and (5) taking communicative action appropriate to delivering results in line with the task prompt (Shavelson et al. 2018b).

A total of 30 students from a German university participated in this study (25 bachelor's and 5 master's students); the average age was 24 years (SD = 4.2 years). All students had acquired a higher education entrance qualification in Germany. The average grade of the school leaving qualification was 2.27 (SD = .51).

The test is computer-based, and the test performance was scored using a newly developed 6-point Likert-type anchored rating scheme. Performance scores were constructed as the average of two raters' ratings of the 23 items in the assessment. On average, participants scored 82 out of a maximum of (23x6) 138 points, with a minimum of 32 points and a maximum of 107 points.

Additionally, we gathered data on how the quantity and quality of the different documents were perceived while completing the task and examined the participants' ability to judge information source quality in terms of its validity and relevance. For every single given piece of information (22 in total) the participant was asked whether they rated this information as

(ir)relevant or (in)valid. Afterwards, the rating's degree of correctness was calculated, showing extreme heterogeneity among test takers (min. 0 – max. 32, $M=14.03$, $SD=8.39$). A significant correlation was found between the correct judgements of relevance and validity and task performance in the individual scoring dimension "Recognizing and evaluating consequences of decision-making and actions" ($r=.37$, p

Validating a scientific-reasoning test: Comparing known groups with hypothesized mean equivalence

Keywords: Academic achievement, Assessment, Higher Education, student learning outcome

Presenting Author:Stefan Hartmann, Humboldt-Universität zu Berlin, Germany; **Co-Author:**Matthias Ziegler, Humboldt-Universität zu Berlin, Germany; **Co-Author:**Dirk Krueger, Freie Universität Berlin, Germany; **Co-Author:**Annette Upmeier zu Belzen, Humboldt-Universität, Germany

In the current study, we investigate the criterion-based validity of a scientific reasoning test by comparing the test scores of pre-service science teachers—the group the test was originally designed for—with the scores of psychology students. Such known-groups comparisons, which constitute an economic yet effective tool to investigate the validity of test score interpretations, are usually based on hypothesized group differences. However, similarities in the methodological trainings in science teacher education and psychology led to the hypothesis that both groups perform equally well in the test. Our test instrument is a paper-and-pencil test, consisting of 63 multiple-choice items. The items are distributed among nine test booklets; each booklet containing a set of 21 items (balanced incomplete design). Item parameter estimates for this study were based on 1,655 observations.

Prior to group comparison, we conducted a differential item functioning (DIF) analysis to ensure the test provides the same psychometrical properties for both groups. A one-parametric logistic model was then used to draw weighted likelihood estimates (WLE) as measures of individual ability. Propensity score matching was applied to minimize potential bias, resulting in subsamples ($n_1, n_2 = 70$) with balanced covariate distributions. To test our hypothesis of equal performance in both groups, we defined equivalence bounds, setting a smallest effect size of interest (SESOI) based on effects we found in previous studies on group differences (*Cohen's d* = 0.17). Effects larger than 0.17 would lead to rejecting our hypothesis. The results of the DIF analysis show slight DIF for two items. For the remaining 61 items, DIF was negligible. Comparison of the weighted likelihood estimates of pre-service science teachers and psychology students finds almost identical distributions with a mean difference of 0.079 logits ($d = .10$). The mean difference is non-significant ($t = 0.60$, $df = 127.49$, $p = .546$). To test for mean equality, a TOST (two one-sided tests) procedure was applied. This so-called equivalence test was non-significant as well ($t = 0.40$, $df = 127.49$, $p = .345$). The absence of noteworthy DIF on the majority of test items indicates that the test provides the same psychometrical properties for pre-service science teachers and psychology students. The mean difference between the two groups is non-significant, and its effect size ($d = 0.10$) is below the smallest effect size of interest ($d = 0.17$). Therefore, we can reject the alternative hypothesis. However, the result of the TOST procedure is non-significant as well, indicating that our data are not yet sensitive enough to accept the null hypothesis. To narrow the confidence interval around the observed effect, we decided to continue data collection. From a methodological point of view, we advise to perform propensity score matching for all known-groups comparisons, given that the requirement of a large enough sample is met. Furthermore, the application of TOST procedures allows to test equivalence hypotheses, which we consider a useful complement to the more common "known-differences" validation approach.

A Cross-national Analysis of 21st Century Generic Skills in German and Japanese Higher Education

Keywords: Assessment, educational trajectories, Higher Education, student learning outcome

Presenting Author:Olga Zlatkin-Troitschanskaia, Johannes Gutenberg-Universität, Germany; **Co-Author:**Reiko Yamada, Doshisha University, Japan; **Co-Author:**Yuji Shirakawa, Chiba University, Japan; **Co-Author:**Corinna Lautenbach, Humboldt Universitaet Berlin, Germany; **Co-Author:**Christiane Kuhn, Johannes Gutenberg University Mainz, Germany; **Co-Author:**Dimitar Molerov, Humboldt Universitaet Berlin, Germany; **Co-Author:**Miriam Toepper, Johannes Gutenberg University Mainz, Germany

Higher education students are expected to develop 21st century generic skills such as critical thinking, analytic reasoning and problem solving to address life's everyday judgments, decisions and challenges so as to be engaged, globally oriented citizens and to ensure life-long learning (National Research Council 2012; OECD, 2014). There is a growing demand for objective, reliable and valid assessments that simulate as closely as possible real-life decision making and judgment situations (Authors 2018). According to the Assessment Triangle (Pellegrino et al. 2001), in addition to this, curricular and instructional validity are particularly important when assessing higher-ordered skills such as 21st century generic skills, as this focuses on implementing students skills in concrete actions. Test developers need to explore "the extent to which an assessment is aligned with curriculum and instruction[...]" (Pellegrino et al. 2016). An overview of curricula in higher education has indicated that there has been significant progress internationally in describing and assessing generic skills, although the work is highly contextualized through discipline-specific assessments in various subject areas (see the review in Authors 2016a). The aim of our German-Japanese collaborative project PAL is to model 21st century generic skills as student learning outcomes (SLOs) in HE and to investigate the similarities and differences between the two countries, as a basis for cross-national analyses. To make this task manageable, we focused on generic skills in a sample of economics, social sciences and humanities students, since comparability, e.g., of curricula in economics has already been established between Germany and Japan (Authors, 2016b). In order to analyze what is defined as "generic skills" in the study areas of

economics, social sciences and humanities in Japan and Germany, our work program consists of three major steps: (1) an in-depth curricular analysis of Japanese study programs and a re-evaluation of the existing curriculum analysis in Germany; (2) expert panels and (semi-structured) interviews with university professors (lecturers, directors, deans) from Japan and Germany (N=12); and, based on findings and results from document analyses and interviews, (3) online student surveys in Germany and Japan. We present results of the curricular analysis and interviews, as well as preliminary evidence from the student surveys. Results of the curricular analysis indicate that the targeted generic skills were not usually included in the curriculum maps and none of the curricular maps analyzed included assessments of these skills. Little evidence was revealed that modules emphasize the teaching of generic skills in Germany and Japan, with results of the expert panels and interviews confirming the findings of the curricular analyses. However, a range of distinctive features concerning the definitions as well as the understanding of generic skills became apparent when comparing the disciplines as well as the countries. The determined differences lead to far-reaching consequences concerning the modeling, operationalization and measurement of this complex construct and its facets in a cross-national study. Based on the presented results, implications for this innovative field in higher education research and further cross-national analyses of 21st century skills will be critically discussed.

Papers 2

29 August 2018 11:00 - 12:30

Seminar room 2 (AUB5)

Single Paper

Developmental Aspects of Instruction, Higher Education, Motivational, Social and Affective Processes

Blended Learning - Emotion in Statistics - Students' Motivation

Keywords: Academic Development, cultural diversity, Doctoral studies, Emotion, Higher Education, Motivation, student perceptions

Interest group: SIG 04 - Higher Education

Chairperson: Sude Peksen, Germany

BL4AL: Investigation of blended learning affordances for active learning and student persistence

Keywords: Academic Development, Higher Education, Motivation, student perceptions

Presenting Author: Brenda Such, University of Florida, United States

Within the last 10 years, higher education has seen the accelerated development of blended learning (BL), active learning (AL), and STEM education. The presented mixed methods study examined a proposed framework that BL affordances enable or constrain AL, as a representation of constructivist learning theory, and that the relationship between BL affordances and AL influences student persistence in introductory science courses. Graham's (2006) definition of BL along the four dimensions of space, time, humanness, and fidelity was paired with Meyers and Jones' (1993) framework for AL as the combination of basic elements to learning, teaching resources, and learning strategies. The BL-AL relationship was then examined along the lines of Graham, Frederick, Byars-Winston, Hunter, and Handelsman's (2013) four dimensions of student persistence—student motivation, student confidence, science learning, and identification as a scientist. The research design followed Yin's (2014) recommendations for a multiple-case study, in which one introductory physics course and one introductory chemistry course were the units of analysis. Interviewed were two student volunteers from each of the following groups: high-, average-, and low-performing. Content analysis was conducted for course documentations on the course website and the learning management system Canvas™. In-class and online observations were evaluated using Eddy, Converse, and Wenderoth's (2015) Practical Observation Rubric To Assess Active Learning (PORTAAL) examining student practice, logic development, accountability, and reduction of apprehension. The researcher developed a survey instrument, Blended Learning for Active Learning (BL4AL), capturing students' perspectives concerning AL through traditional and nontraditional learning methods for their persistence in the sciences. Findings indicated students from all levels had varying views of BL affordances in comparison to the original intention of the instructors. Study Edge®, a third-party tutoring service, was discovered to be an integral component to the students' experiences of BL for AL and student persistence. The regression model using BL4AL responses was found to be significant in the physics course ($F(8, 218) = 7.69, p < .01, = .28$) and in the chemistry course ($F(8, 293) = 6.84, p < .01, = .19$), and explained 19% of variance in the former and 13% of variance in the latter.

The Role of the Learning Environment in Emotional Appraisals within a Large Statistics Lecture

Keywords: Academic Development, Doctoral studies, Emotion, student perceptions

Presenting Author: Andreas Maur, Johannes Gutenberg-Universitaet Mainz, Germany

RELEVANCE / AIM OF THE STUDY. Despite the attested impact of emotions on achievement-related determinants, there is only little research on causes and antecedents stemming from the setup of the learning environment derived from longitudinal data. Knowledge about the interrelations between students' perceptions of the learning environment and their emotional states would however provide valuable clues on how to adapt instructional characteristics so that they foster favorable emotional appraisals and learning processes. Such information is particularly relevant for higher education statistics courses, given that research frequently indicates that students hold unfavorable attitudes towards statistics and

take the course with negative attitudes impinging their achievement-related behavior. Against this backdrop, this paper examines the relationship between students' perceptions of the learning environment and their emotional states over the course of a large statistics lecture in business and economics. **THEORY AND MEASURES.** The theoretical rationale for expecting the above-mentioned interrelations lies in the control-value theory of achievement emotions (Pekrun, 2006), which refer to affective arousal contingent to achievement activities. The theory thereby assumes that the quality of the learning environment positively relates to students' appraisals of controllability and value regarding the subject matter, which thus evoke certain emotional states. For instance, instructional clarity may enhance students' perceived competence and thus positively influence pleasant achievement emotions. Aiming at empirically substantiating the relationship between achievement emotions and instructional quality, this study focuses on activity-related emotions enjoyment, boredom, hope, and hopelessness, which are operationalized by means of the "Achievement Emotion Questionnaire" (Pekrun, 2005). Students' perceptions of the learning environment are assessed by means of the questionnaire "Students' Evaluations of Educational Quality" (Marsh, 2007), including questions on the interaction, organization and the cognitive learning processes triggered in the lecture. As further control variables, students' appraisals of controllability, value, and interest were assessed by means of the "Survey of Attitudes Towards Statistics-36" (Schau, 2003). **DATA AND METHODS.** During a 13-week term, students' emotional states were assessed at four regular intervals by means of a paper pencil survey. 261 students answered all four questionnaires and further 327 students answered exactly three questionnaires. Students' perceptions of the learning environment were assessed three times with 327 students participating at all three times of measurement, and 186 more students participating twice. Cronbach's alpha reliabilities for the emotion scales range from .860 to .940 and from .652 to .840 for the perceptions of the learning environment. The recently obtained data will be analyzed by means of autoregressive structural equation modeling to investigate in how far students' perceptions of the learning environment and students' emotional appraisals relate to each other. Of particular interest is in how far different aspects of traditional large and anonymous lectures contribute to the development of negative or positive emotional states in order to determine beneficial components promoting students' affective learning processes.

Analyzing Change in Students' Motivation and its Relation to Gender and Previous Knowledge

Keywords: Academic Development, cultural diversity, Motivation, student perceptions

Presenting Author:Manuel Förster, Johannes Gutenberg University Mainz, Germany; **Presenting Author:**Andreas Maur, Johannes Gutenberg-Universitaet Mainz, Germany

AIM OF THE STUDY Even though studies have shown that students often exhibit rather low motivation while taking statistics courses, there is only little and inconsistent evidence concerning its change over the course of a whole semester and its relation to personal background variables, such as gender and previous knowledge. These factors have been documented to cause heterogeneity in students' attitudes towards mathematics in secondary education OECD studies and higher education cross-sectional studies. This lack of research is opposed to the fact that motivation was found to be the most salient predictor of academic achievement in statistics. Addressing this research gap, the paper analyzes in how far motivation generally changes over the course of the semester and whether these changes were related to students' gender and achievement-related prior knowledge.

MEASURES

The theoretical rationale for our research lies in Wigfield's and Eccles' expectancy-value theory, which construes students' motivation to be a result of their achievement expectations and value judgements, whose development is fostered by individual characteristics and achievement-related experiences. Students' motivation was assessed by means of the "Survey of Attitudes Towards Statistics-36" (Schau, 2003), construing motivation as a result from students' expectancy (constructs such as cognitive competence) and value judgements (constructs such as value, interest, and cost). Furthermore, we assessed gender and achievement-related prior knowledge (such as previous math grades and attended math courses). Wigfield's and Eccles' model assumes that various contextual factors, such as past performance, the cultural milieu or socialization influence their motivational beliefs. For instance, female students might have lower achievement expectations and value judgements due to prevailing gender role stereotypes which allege that female students perform worse in mathematical and statistical domains than male students. As for prior knowledge, it is assumed that students with accumulated and positive experience in a certain domain feel more positive as regards future expectancies of failure or success and are more likely to value that domain. These theoretical assumptions could also be replicated in some cross-sectional studies, while there is only scarce and inconsistent evidence on the development of students' motivation over the course of a large lecture in statistics.

DATA AND METHODS. We assessed students' motivation towards statistics by means of three paper-pencil surveys at the beginning, in the middle, and the end of the semester with Cronbach alpha ranging from .722 to .834. In total, 332 students answered all three questionnaires while 194 further students answered exactly two questionnaires. Latent change modelling will be used to examine the change in motivation during the semester. Subsequently, gender and previous knowledge will be included as covariates to analyze whether these different subgroups of students develop differently in terms of their motivation during one semester. In the paper, the recently obtained data will analyzed with due regard to the existing research and theories and practical implications for internal differentiation in higher education teaching will be derived from the results.

Papers 3

29 August 2018 11:00 - 12:30
Seminar room 1 (AUB4)
Single Paper
Higher Education

Learning Gain - Intercultural Interactions - Motivation Scales

Keywords: Assessment, cultural diversity, Higher Education, internationalisation, learning patterns, Motivation, self-regulation, Student learning, Teaching

Interest group: SIG 04 - Higher Education

Chairperson: Bernadette Charlier, University of Fribourg, Switzerland

Longitudinal development of learning gain throughout university studies

Keywords: Higher Education, learning patterns, self-regulation, Student learning

Presenting Author: Sonia Ilie, University of Cambridge, United Kingdom; **Presenting Author:** Jan Vermunt, University of Cambridge, United Kingdom; **Co-Author:** Anna Vignoles, University of Cambridge, United Kingdom

Longitudinal development of learning gain throughout university studies
Objectives With learning gain measurement firmly at the centre of emerging policy discourses about teaching excellence in England (Higher Education Research Act, 2017) and elsewhere, its definition and operationalisation into reliable, practical, and scalable measurement instruments have gained recent prominence. This paper introduces a new comprehensive conceptual model of non-subject specific learning gain and an accompanying measurement instrument. It then presents empirical evidence concerning learning gain, drawing on a longitudinal combined survey and test instrument of students in 11 English universities. Its main aim is to explore the patterns of learning gain across a series of conceptually-based dimensions, while also investigating the differential change across academic subjects. **Theoretical framework** Learning gain is defined here as the change over time spent in higher education in students' skills, competencies, abilities, knowledge, engagement and values. A theoretical framework is proposed, drawing on existing evidence from North-America, Europe, and Australia, but specifically reflecting structures and processes in the English higher education sector. The framework is underscored by four components (cognitive; meta-cognitive, affective, socio-communicative) and three cross-cutting dimensions (view of knowledge, attitude to research, and morality), each with associated measurement scales. **Methods and data sources** A two-year longitudinal study is currently in progress (two rounds have been completed, the third to follow Spring 2018) tracking in excess of 6,000 students over the course of their degrees in four broad disciplinary fields (Business, Chemistry, English and Medicine) at 11 English universities. The instrument employed in this study, representing the operationalisation of the above conceptual framework, consists of 12 measurement scales (self-reports and test-like), and demographic information. The obtained data will be linked to background and achievement data from administrative sources. **Results** The paper will first provide information as to the quality of the measurement scales across the two survey rounds reported here. These show a high degree of internal consistency for a wide majority of the chosen measurement instruments, as well as confirmed factor structures. It will then turn to its major focus on learning gain, presenting the patterns of learning gain that emerge for the different components and dimensions in the framework. Additionally, the paper will report on the extent to which these patterns vary across the four disciplinary fields, and also by student background, providing conclusions as to the feasibility of cross-disciplinary measurement. Finally, the paper will show the developmental trends of learning gains across the different waves of data collection. **Discussion**

The paper contributes to existing scholarly debates in the field by: a) providing novel longitudinal evidence on learning gain using the largest sample of English students to date; b) exploring the discipline-specific and generic nature of learning gain; and c) providing empirical evidence as to the learning gain observed for higher education students in a range of academic disciplines and institutions. The discussion will be related to the current, and often heated, debates around the Teaching Excellence Framework for the English higher education system.

Intercultural Interactions in Chinese Classroom

Keywords: cultural diversity, Higher Education, internationalisation, Teaching

Presenting Author: Tracy Zou, The University of Hong Kong, Hong Kong; **Co-Author:** Janet Yu, The University of Hong Kong, Hong Kong

Creating a learning environment conducive to intercultural interactions is essential in today's higher education, where the internationalisation strategy has increased student diversity. Encouraging intercultural interactions is not only beneficial for students to develop intercultural competence, but also a sensible way to achieve 'internationalisation at home', meaning that every student benefits from the strategy. Intercultural interactions do not often happen naturally in classroom; instead, well-designed instructional strategies are necessary. However, academics are inadequately prepared for teaching across cultures (Harrison, 2015). As a result, teaching and learning in classroom has not yet exploited the cultural diversity. The universities in Hong Kong are actively developing internationalisation strategies. In 2017, the University of Hong Kong is ranked the world's third most international university among 150 institutions around the world, according to Times Higher Education. Meanwhile, the Quality Audit Report of the University also points out a lack of instructional strategies for teaching across cultures. This study aims to unpack the complexities in intercultural interactions and formulate effective strategies. There is currently an insufficient understanding of Chinese classroom. For example, existing literature usually regards international students as having language barriers and deficiencies in active learning. On the contrary,

international students in Chinese classrooms are typically seen as more active and with higher language proficiencies. The main methodology was a multiple-case study and the methods included interviews as well as classroom observations. Eight courses, two from each of the four faculties (i.e., Science, Social Science, Architectures, and Law) were selected for investigation. The interview with teachers covered course design and instructional strategies. The interview with students focused on their perceptions and experiences in interactions. Observations recorded instructions leading to intercultural interactions. Data were firstly analysed within each course and then compared across courses and disciplines. The findings show intercultural interactions are highly complex. Most teachers found it difficult to encourage intercultural interactions and felt extremely hesitant to intervene when there was such as need. Students' experiences were different across courses. More positive experiences were found in the courses with well-designed groupwork and sufficient formative feedback. Consistent with the literature, structured learning opportunities are necessary to make intercultural interactions meaningful to students' achievement of the course intended learning outcomes (Leask, 2015). Examples include creating comparative tasks or facilitating cultural related discussions. In this study, preparatory learning tasks are found to be important in building trust and creating an open atmosphere. In large classes, an effective task is to solicit students' opinions with their identity protected, for example, asking them to input their responses in their mobile phones anonymously. An additional point is to ensure that all students speak English in small group discussions. This study contributes new insights into the dynamics embedded in intercultural interactions in Chinese classroom, which can be used to design suitable teaching strategies that respond to the university' mission of internationalisation. References Harrison, N. (2015). Practice, problems and power in 'internationalisation at home': critical reflections on recent research evidence. *Teaching in Higher Education*, 20(4), 412-430. Leask, B. (2015). *Internationalising the Curriculum*. London: Routledge.

Intrinsic & extrinsic motivation scales of the adapted MLSQ: A Rasch-based construct validity study

Keywords: Assessment, Higher Education, learning patterns, Motivation

Presenting Author: Tine Nielsen, University of Copenhagen, Denmark

The aim was to conduct a validity study to ascertain the psychometric properties of the Danish translation of the intrinsic and extrinsic motivation (IM and EM) subscales of the Motivated Strategies for Learning Questionnaire (Pintrich et al., 1991) in a higher education context. The items of the IM and EM scales were translated using a forward-backward approach involving three subject matter and psychometric experts. The response scale was adapted from a 7-point scale with meaning anchors only at the extremes to a 4-point scale with meaning anchors for all response categories. Rasch measurement models; the ordinal Rasch model (RM; Masters, 1982) and graphical loglinear Rasch models (GLLRM; Kreiner & Christensen, 2002, 2204, 2007), were employed. The analyses emphasized whether the IM and EM were separate constructs or either end of a single construct, local independence of items, and measurement invariance (i.e. no differential item functioning) relative to age, gender, year cohort and admission quota. The data sample was collected to be highly comparable across for the purpose of conducting a validity study. The sample consisted of three consecutive year cohorts of psychology students enrolled in a full term course in personality psychology placed in the second term of the bachelor program in psychology (N = 590, cohort response rates 88%, 84%, and 84%, for the 2015, 2016 and 2017 cohorts, respectively). Data was collected one month into the personality course/the second term thus addressing student motivation in relation to personality psychology and at the same time point in the bachelor program. Result confirmed that the IM and EM subscales were two separate subscales, which were negatively though weakly correlated. Neither the IM or the EM subscales fit the pure RM, but the departures could be adjusted for in in both cases. No evidence of DIF relative to gender, year cohort, or admission quota. Thus both the IM and the EM subscales fit GLLRMs of slightly different complexity: the IM fit a GLLRM adjusted for DIF on one item relative to age and local dependence between two items, while the EM fit a GLLRM only with local dependence between two items. Targeting of the subscales to the students was good for both subscales, while reliability was good for the EM subscale and the oldest students on the IM subscale. The EM score was associated with age, so that the youngest students were more extrinsically motivated, while there was no significant association between the IM score and age after adjusting for DIF. The Implications of the results are that the Danish IM and EM subscales can be used to study motivation in a higher education context. However, it is suggested to also undertake further validity studies focusing on measurement invariance across academic disciplines, at different time points in degree programs, and addressing motivation in relation to a variety of courses or subjects. Further, validity studies focused on the issue of cross-cultural measurement invariance across a number of language version, could substantially advance the understanding of motivation in higher education across cultural settings.

Papers 4

29 August 2018 11:00 - 12:30

Lecture Hall (AUB1)

Single Paper

Higher Education

Students' Beliefs - Dropout in Economics - Students' Knowledge

Keywords: Assessment, Higher Education, learning patterns, Student learning, student learning process, student perceptions

Interest group: SIG 04 - Higher Education

Chairperson: Nicholas Munro, South Africa

University Students' beliefs about the utility of various sources of scientific information

Keywords: Higher Education, Student learning, student learning process, student perceptions

Presenting Author:Sabrina Viehauser, University Regensburg, Germany; **Co-Author:**Sebastian Schmid, University Regensburg, Germany; **Co-Author:**Klaus Wild, University Regensburg, Germany

Primary scientific literature, textbooks or scripts? University Students' beliefs about the utility of various sources of scientific information One peculiarity of academic learning is that students are comparatively free in their choice of sources of information. Potentially useful sources range from primary scientific literature, textbooks, and popular science articles (cf. Goldman & Bisanz, 2002) to informal sources such as scripts and other students' lecture notes. General frameworks of multiple document use (e.g., MD-Trace; Rouet & Britt, 2011) conceptualize source selection as a goal-directed process, in which readers do not only rely on a document's content but also consider whether it belongs to a genre that is likely to contribute to their aims. However, little is known about the instrumentality beliefs students entertain with regard to different scientific genres. In the present study, we investigated, first, how frequently university students use sources that fall into various genres for achieving the aims of (a) "reproducing the content" (i.e. surface learning), (b) "gaining a deeper understanding" (i.e. deep learning), (c) "examining the validity of claims" (i.e. deep learning) and (d) "getting a general idea about an issue". A second goal was to find out which instrumentality they ascribe to different genres for achieving these aims. Study participants were 67 students (80.6% female, 19.4% male) majoring in the natural sciences (17.9%), the social sciences (26.9%), the humanities (20.9%), and teacher training (32.8%). On average, participants had studied for 3.97 semesters ($SD = 2.01$). In a qualitative-quantitative interview, students were presented with 11 genres selected on the basis of Goldman and Bisanz (2002). Genres were printed on cards, and students were encouraged to add cards with further genres they use in their studies. Then students rated how frequently they used these genres for achieving their aims by placing the cards on different Likert scales for each of the aims. A similar procedure was used to assess instrumentality ratings. Students were asked to explain their ratings after placing each card. For the aims of "reproducing the content" and "getting a general idea about an issue", high frequency ratings were obtained for informal genres (e.g., scripts) and textbooks. For the aims of "gaining a deeper understanding" and "examining the validity of propositions", high frequency ratings were obtained for primary scientific literature. Scripts received high frequency ratings irrespective of aim. Students' instrumentality ratings mirrored these results. Further analyses showed that informal genres were rated to be more useful for the aims of "reproducing the content" and "getting a general idea about an issue" than for the aims of "gaining a deeper understanding" and "examining the validity of claims". Thus, students seem to have a clear understanding of the functionality of different scientific genres. However, the exceedingly high frequency and instrumentality ratings for scripts across all aims point at a preference for sources that facilitate surface learning even if a student's aim requires sources that facilitate deep learning.

Dropout students in economics – Empirical analyses from a German-wide study

Keywords: Assessment, Higher Education, Student learning, student learning process

Presenting Author:Carla Kühling-Thees, Johannes Gutenberg-Universität Mainz, Germany; **Co-Author:**Roland Happ, Johannes Gutenberg University Mainz, Germany; **Co-Author:**Olga Zlatkin-Troitschanskaia, Johannes Gutenberg-Universität, Germany; **Co-Author:**Jasmin Schlax, Johannes Gutenberg-Universität Mainz, Germany; **Co-Author:**Judith Jitomirski, Humboldt-University Berlin, Germany

Although economics is the most common field of study in Germany, there is an insufficiency of studies that examine why students decide to terminate their studies. According to research, degree success particularly depends on the study entry preconditions (highschool GPA; prior knowledge; general intellectual abilities). Other "risk" factors include if the family of the student has a low educational and/or a migrant background. Over the course of the degree, other factors (study conditions and students' motivation) may result in them deciding to terminate their studies. In our presentation, we focus on the following questions: 1. What social and education-related demographical traits can be found in students who decide to terminate their studies, and are there any theory-based indicators that would imply that certain traits have an impact on students deciding to drop out? 2. What study and learning-process factors help describe dropout-students, and are there any theory-based indicators that would imply that certain traits have an impact on students deciding to drop out? 3. What other reasons do dropout-students provide as a way of justifying their decision to terminate their economic studies? In a German-wide study carried out at the start of the winter term of 2016/2017, 7,640 first-semester economic students (33 universities and 21 universities of applied science) were questioned concerning their university's entry preconditions. Their study-relevant prior knowledge and general intellectual abilities were tested using the TEL VI and BEFKI-Test and they also provided their personal and study-relevant details. At the end of the summer semester of 2017, the same students were surveyed again using the in-depth questionnaires on study- and learning-process-relevant conditions. A total of 1,115 students took part. The average grade of the university entrance grade is 2.3; 16.5% have completed vocational training and 32% have participated in a course in economics as major at secondary school. The average age is 20.7 years; 56% were male. There was neither a significant difference in the test scores for the economic knowledge of drop-out students ($M=13.22$, $SD=4.1$) and other students ($M=13.77$, $SD=4.4$) ($p=.22$, $d=0.127$) nor a significant effect on the general intellectual abilities of drop out students ($M=8.32$, $SD=2.4$) and successful students ($M=8.60$, $SD=2.7$) ($p=.29$, $d=0.108$). In their first year, 52% of the students participated in lectures in economics and 24% achieved a grade higher than 2.0. Only 10% reported having failed in exams. 44% participated in at least one lecture in mathematics/statistics. 14% achieved a

grade higher than 2.0 and 22% failed. In terms of the students' individual study progress, approx. half (56%) of the dropout students reported being behind schedule in their degree. These results suggest that the reasons for students to drop out of their studies can neither be completely traced back to the cognitive conditions of the students nor to performance problems in their studies. 61% of dropout students reported to have dropped out because they lacked interest in the economics study programs' content. In our presentation, we will critically discuss further surveys' findings and implications for study success research and practice.

Modelling students' knowledge practices and competence development during higher education

Keywords: Higher Education, learning patterns, Student learning, student learning process

Presenting Author:Auli Toom, University of Helsinki, Finland; **Co-Author:**Hanni Muukkonen, University of Oulu, Finland; **Co-Author:**Pekka Lahti-Nuutila, University of Helsinki, Finland; **Co-Author:**Minna Lakkala, University of Helsinki, Finland; **Co-Author:**Liisa Ilomäki, University of Helsinki, Finland

Introduction During university education, students are expected to learn professional competencies relevant for future work. Generic collaborative knowledge competencies have been defined as key capabilities in changing academic working environment and develop in the profession (Paavola et al., 2004; 2011; Greiff et al., 2014; Authors 2017abc; Strijbos et al., 2015). Pedagogies utilised in higher education play important role in cultivating students' knowledge practices. Still, research on student learning of knowledge practices during higher education is scarce. The study aims to gain a better understanding about the complexity of student learning of collaborative knowledge practices during higher education. We investigate the interactive knowledge practices, which are expected to cultivate generic skills (Greiff et al., 2014) central in collaborative knowledge work (Authors, 2011; 2017). The reciprocal relationships between the components of knowledge practices were examined. On the basis of the previous studies (Authors, 2011; Greiff et al., 2014) two hypotheses were tested: 1 The following interrelated knowledge practices are crucial for the collaborative object-oriented knowledge work: learning to *collaborate on shared objects*, learning to *exploit technology*, *integrating efforts*, *development through feedback* and *persistent development* of knowledge objects. 2 Interactive knowledge practices, especially learning to *exploit technology*, *integrating efforts*, and *development through feedback*, contribute significantly to students' learning of *persistent development of knowledge objects*. Methods **Participants.** 580 students attending to courses including collaborative practices at research university and university of applied sciences in Finland completed a survey. The mean age of the respondents was 23 years ($SD=5.15$; *Min/Max: 18/54 years*). **Measures.** The Collaborative Contextual Knowledge Practice (CKP) survey (Authors, 2017ab) data were collected in 2016-17. The scales measuring *learning to collaborate on shared objects* (4 items), *learning to exploit technology* (4 items), *integrating individual and collaborative working* (4 items), *development through feedback* (4 items) and *persistent development of knowledge objects* (4 items) were used (5-point Likert). The hypothesized path model was tested using structural equation modeling (SEM) with Mplus ver8. Survey items were used as ordered categorical variables and model was estimated with WLSMV estimator. **Results** Knowledge practices crucial for collaborative object-oriented knowledge work. The tested model confirmed the crucial knowledge practices [r (min-max) = 22.8–61.1]: learning to collaborate on shared objects (SHO), learning to exploit technology (TECH), integrating individual and collaborative working (INT), development through feedback (FEEDB), and persistent development of knowledge objects (PDKNO). Student learning was anchored to collaboration on shared object, and other key knowledge practices contributed to it. **Contribution of interactive knowledge practices.** The tested model confirmed that there existed positive correlations between the interactive knowledge practices, *exploit technology*, *integrating efforts*, and *development through feedback*, and other key knowledge practices (H2). They contribute significantly to students' learning of persistent development of knowledge objects. Discussion

The key aspect in student learning of collaborative knowledge practices is learning to work on shared object. The other measured practices contributed to competence development. Better understanding of the complexity of learning knowledge practices is needed when creating optimal learning environments in higher education. Key references Greiff, S., et al. (2014). Domain-general problem solving skills and education in the 21st century. *Educational Research Review*, 13, 74–83. Strijbos, J., et al. (2015). Criteria and standards of generic competences at bachelor degree level: a review study. *Educational Research Review*, 14, 18-32.

Papers and Posters 1

29 August 2018 14:00 - 15:30

Seminar room 2 (AUB5)

Single Paper

Higher Education, Teaching and Teacher Education

Service Learning - Access - Teacher Education

Keywords: approaches to learning, engagement, feedback, Higher Education, returns to higher education, student learning outcome, Teaching, vocational education

Interest group: SIG 04 - Higher Education

Chairperson: Ines Langemeyer, Germany

Effectiveness of service learning. Comparison between teaching methods in project management.

Keywords: approaches to learning, engagement, Higher Education, student learning outcome

Presenting Author:Maren Schlegler, Goethe-Universität Frankfurt / Frankfurt University of Applied Sciences, Germany;
Co-Author:Susanne Koch, Frankfurt University of Applied Sciences, Germany

In service learning classes students combine learning experiences from university and community (Furco, 2009; Kreikebaum, 2009). Service learning raises motivation and supports students' personal development (Reinders, 2010), but there are hardly any studies about the effectiveness; Especially studies comparing service learning to seminars or lectures (Reinders & Wittek, 2009). The aim of this contribution is to proof the effectiveness of service learning on learning project management. The focus lies on the comparison of service learning with other traditional teaching methods (project work, lecture). The following questions will be answered: (1) Is service learning more effective in teaching project management than traditional methods? (2) How does service learning influence self-efficacy, subjective learning outcomes and perceived usefulness? (3) What are students' subjective perspectives on the different teaching methods?

Method: The mixed-methods study has three steps: (1) questionnaire (quantitative), (2) valuation (quantitative) and (3) guided interviews (qualitative). The paper-pencil-questionnaire consisted of 4 parts: socio-demographic data, self-efficacy (Beierlein et al., 2012), subjective learning outcomes and perceived usefulness (Ritzmann et al., 2014) with satisfactory reliabilities between .76 and .83. Subjective learning outcomes and perceived usefulness were only questioned during the second measurement. Additionally a valuation of project plans for determining the objective learning outcomes and guided interviews with students took place.

Sample: The project took place in winter 2016/2017. The sample consists of n=133 students (57.9% male) of a university, differentiated in the test group "service learning" (n=57), control group "project work" (n=44) and control group "lecture" (n=31). Due to two points of measurement information on influence of time on variables can be supplied.

Results:

Self-efficacy. In all groups self-efficacy stays the same with small positive differences in control groups and negative difference in test group ($M_1=4.011$, $M_2=4.007$). ANOVA could not find significant effects of time, teaching method or gender ($p>.05$). **Subjective learning outcomes.** Test group shows lower scores ($M=3.51$, $SD=.93$) than control groups ($M=3.79$, $SD=.69$) but the effect was not significant ($p=.09$). **Perceived usefulness.** Test groups shows lower scores ($M=3.01$, $SD=.96$) than control groups ($M=3.63$, $SD=.86$). Control groups experience significantly more perceived usefulness than the service learning group ($F=1.41$, $p=.004$). Post-Hoc-Tests of ANOVA show that students in the lecture group perceive significantly more usefulness than service learning students (difference in $M=.6965$, $p=.006$). **Objective learning outcomes.** The project proposals do not show any formally or in terms of content differences. **Interviews.** Service Learning students experience a high level of difficulty and recognize a positive effect of the project on their social competence. They do not feel any influence on their later career. Instead they experience Service Learning as a welcome change to other teaching sessions. Students in the control group report an increase in social competence. Subjective learning outcomes in the control group are mainly influenced by the amount of theoretical input.

The findings offer a first insight into the effectiveness of service learning in project management. They indicate that service learning is not superior to traditional methods. Based on these results, an optimization of the service learning class will take place at the university.

Higher Education: Are Access and Excellence Compatible?

Keywords: Higher Education, returns to higher education, student learning outcome, vocational education

Presenting Author:Nitza Davidovitch, Ariel University of Samaria, Israel

This study explores the old-new question of increasing access to higher education versus maintaining outstanding academic standards from a perspective of 25 years of experience in Israel. The efforts to hold on to both ends of this stick led to a continuing debate on the social versus the academic missions of higher education and the examination of the academic "toll" that higher education institutions have paid to fulfill a role in promoting educational opportunities for all social groups. This study explores traditional questions that remain important challenges for higher education institutions today, such as, who are the people who are worthy of an advanced education; what is the true mission of higher education and who defines its target population; how the new reality of the twenty-first century affects academic standards and students' learning habits; and the skills that students acquire from higher education. Tracing Israel's important reform in higher education in the 1990s, which was interestingly sparked by a massive wave of immigration from former Soviet Union countries and a growing awareness of social differences between center and periphery, this study traces the various missions imposed on higher education and how these drove change in the higher education system as well as the social fabric of the country. The paper wishes to spark a discussion of the challenges of demographic change for the future of higher education systems across countries, and the different responses that countries offer to meet these important challenges.

Achievement-related appreciation determines students' success in preservice teacher education

Keywords: feedback, Higher Education, student learning outcome, Teaching

Presenting Author: Christoph Lindner, Leibniz Institute for Science and Mathematics Education (IPN), Germany; **Co-**

Author: Uta Klusmann, Leibniz Institute for Science and Mathematics Education (IPN), Germany

Studies provide evidence that preservice teachers are subject to considerably negative stereotyping. The group of preservice teachers is perceived as being less competent and less achievement-motivated than various other student groups (Ihme & Möller, 2015). Whereas studies found no differences between the groups' cognitive abilities and motivational behavior (e.g., Roloff, Klusmann, Lüdtke, & Trautwein, 2015), we assume that preservice teachers receive less achievement-related appreciation from lecturers during university courses, due to negative stereotyping. In the present study we investigate the role that achievement-related appreciation (i.e., recognizing and valuing students' positive qualities) plays in predicting teacher students' academic success in preservice teacher education. Furthermore, we examine differences between science, technology, engineering, and mathematics (STEM) and non-STEM subject teacher education programs concerning the perceived achievement-related appreciation that students receive from lecturers. For our investigation we drew on a sample of $N = 1,440$ preservice teacher students (65.7% ♀; $M_{\text{age}} = 24.17$, $SD = 3.64$).

The sample stems from the project STePS (Student Teacher Professional Development Study), which aims to investigate the professional development of preservice teachers over the course of the university teacher education program. Preservice teachers rated the amount of achievement-related appreciation they received from lecturers during university courses (e.g., In my opinion and experience, lecturers appreciate teacher students to the same degree as other students) on a 4-point Likert scale using three items ($\alpha = .77$; $M = 2.86$; $SD = 0.53$). Furthermore, the Big Five personality traits, teacher self-concept, pedagogical interest, as well as age, gender, grade point average and the number of STEM subjects were assessed as covariates. As dependent variables, we measured students' satisfaction with their teacher training program, their intention to drop out, their emotional exhaustion, and the grade point average of their bachelor degree. First, we found that preservice teacher students perceived significantly less achievement-related appreciation in STEM subjects than in non-STEM subjects. Using multiple linear regression models, our results revealed that perceived achievement-related appreciation is positively related to students' satisfaction with their teacher training program and to the grade point average of their bachelor degree. Achievement-related appreciation was negatively related to dropout intention and to students' emotional exhaustion during studying. Even after controlling for various covariates, all of the results remained stable.

Our findings suggest that preservice teachers' perceived achievement-related appreciation might reflect negative stereotyping in preservice teacher education. Furthermore, less appreciation might threaten preservice teachers' success in teacher education, especially in the case of STEM subjects.

Papers and Posters 2

29 August 2018 14:00 - 15:30

Seminar room 1 (AUB4)

Single Paper

Higher Education, Instructional Design

Hybrid Learning - Mathematics Learning - Digitization in Computer Science

Keywords: approaches to learning, Higher Education, online education, Student learning, student perceptions

Interest group: SIG 04 - Higher Education

Chairperson: Rachelle Esterhazy, University of Oslo, Norway

Understanding the effects of hybrid learning courses in HE

Keywords: Higher Education, online education, Student learning, student perceptions

Presenting Author: Bernadette Charlier, University of Fribourg, Switzerland; **Co-Author:** Claire Peltier, University of

Fribourg, Switzerland; **Co-Author:** Maria Ruberto, University of Fribourg, Switzerland

This proposal put forward an exploratory research project, following longitudinal quantitative method research plan, to verify hypotheses of relations between variables characterizing students, distance-learning environments and their learning results. To address this aim the project assess specific hypothesis related to three major questions and develop validated instruments to test them: · How do student characteristics and the features of distance learning environments interact? · What are the configurations emerging from these interactions? · Do they influence learning results? To what extent and in which way? Research is carried out in 4 Higher Education hybrid courses offered in educational sciences in Switzerland. These courses are hybrid learning as they integrate, by means of technology, characteristics of distant and face-to-face education. The students ($N = 148$ students) has been asked about the following topics: their approach to learning (Marton & Säljö, 1976; Deschryver & Lebrun, 2014); orientation of their learning goals (Darnon & Butera, 2005); their learning motives (Carré, 2001); their disposition to understand for oneself (Entwistle & Mc Cune, 2013); their perception of the hybrid learning course they were following (Deschryver & Charlier, 2012) and their perceptions of the learning effects of the course. Socio demographic data, learning path (adult returning to university or regular university student) have been also questioned. Quantitative analysis have been carried out to identify correlations between specific student profiles, perceptions of the learning environment, and learning results perceptions. The results will be used on several levels. With regard to scientific impact, the work will enable the validation of data collection instruments and measurement protocols, enabling the

development of the field of research. It will also contribute to the development of a conceptual framework and validated knowledge supported theoretically. In terms of higher education, results will contribute to identifying the conditions needed to deliver new forms of teaching and learning based on distance learning environments so that students enhance their learning results. For policy makers and teachers, results will also provide resources for improved methods of design and evaluation of the quality of teaching courses. The overarching outcome will be to make new forms of teaching and learning more intelligible. Eventually, the contribution will also evaluate the limits of the research presented and suggest pathway to address these limitation.

Supporting quality of learning in university mathematics: comparison of two instructional designs

Keywords: approaches to learning, Higher Education, Student learning, student perceptions

Presenting Author: Juulia Lahdenperä, University of Helsinki, Finland; **Co-Author:** Liisa Postareff, University of Turku, Finland; **Co-Author:** Johanna Rämö, University of Helsinki, Finland

Traditionally, the main emphasis of university mathematics instruction has been on content delivery, and the instruction relies heavily on lectures built around axioms, definitions, theorems and their proofs. However, student-centred instruction has attracted more interest in current research as there is a need for further identifying effective instructional practices and transferring knowledge from research into teaching practices. The aim of this study is to investigate the relationship between instructional design and quality of learning. This quantitative study approaches the learning environment by comparing students' approaches to learning, self-efficacy, and experiences on the teaching-learning environment in two undergraduate mathematics courses using different pedagogical approaches. The first course functions within a traditional lecture-based framework with the inclusion of student-centred elements, and the second course is implemented with Extreme Apprenticeship, a novel student-centred teaching method. The analysis is based on the same cohort of students in these two contexts (N=91). Students are clustered based on their deep and surface approaches to learning, and three clusters are identified: students applying a deep approach, students applying a surface approach, and students applying a context-sensitive surface approach. The results show that the more student-centred course design succeeds in supporting more favourable approaches to learning, higher self-efficacy levels, and promotes more positive experiences on the teaching-learning environment. In addition, all three clusters benefit from the more student-centred course design, with students applying a context-sensitive surface approach benefiting the most. Overall, the results suggest that it is possible to promote quality of learning in university mathematics with instructional designs that besides content, take a holistic approach to the learning environment.

The Impact of Digitalisation on Computer Sciences Programmes in Germany: Gender Implications

Keywords: Higher Education, online education, Student learning, student perceptions

Presenting Author: Sude Peksen, CHE Centre for Higher Education, Germany; **Co-Author:** Cort-Denis Hachmeister, CHE Centre for Higher Education, Germany; **Co-Author:** Isabel Roessler, CHE Centre for Higher Education, Germany

As digitalisation of the society inspires debates in different areas, the discussion on the impacts of digital learning on students is still going on. In Germany the data situation on digitalisation in the context of teaching and learning is still rare and the available literature, focuses on the general impact and changes of digital learning in higher education institutions (Albrecht & Revermann, 2016). Indeed, digitalisation is also of high interest for gender equality debates. Some - mostly small-scale studies - suggest that there might be gender differences regarding digitalisation of higher education (Kamphans, Metz-Göckel, & Tigges, 2003; Karapanos & Fendler, 2015). For example it is argued that digitalisation allows students to be more flexible, because digitalisation enhances self-study and makes students more independent of the location of higher education institutions (Middendorff, Poskowsky, & Kandulla, 2013). That could promote study opportunities for students with caregiving and could increase as a result the share of women in study programmes. This aspect is of high interest especially for male dominated study programmes, such as engineering programmes in Germany. With regard to labour market trends there is a need for more students in these subjects. Because of the huge interest of male students in engineering it seems necessary to increase the number of female students to meet the demands of the labour market. Thus, there is a need to explore more closely the impact of digitalisation. This paper thus explores the impact of digitalisation in higher education regarding gender differences in computer science (CS) study programmes. We ask the following questions: *What kind of differences can we observe in the usage of digital media by gender? How do female and male students evaluate digital and traditional teaching and learning at their study programme? Which forms of teaching and learning do female and male students prefer?* In order to answer these questions, we currently conduct a student survey in CS programmes in Germany. By the end of February our survey will be closed. Until now more than 2.000 students participated. We will compare the frequency distributions and apply a multiple regression to measure the impact of different variables on digitalisation on gender differences. Additionally, we will measure the strength and form of relationships between these variables. The results will show the differences of the way male and female students learn. It will demonstrate the impact of digitalisation on higher education as well as what aspects of study programme design can contribute to promote measures in favour of women in male dominated study programmes. References Albrecht, S., & Revermann, C. (2016). *Digitale Medien in der Bildung. Endbericht zum TA-Projekt*. Berlin: Büro für Technikfolgen-Abschätzung beim Deutschen Bundestag (TAB). Kamphans, M., Metz-Göckel, S., & Tigges, A. (2003). *Wie Geschlechteraspekte in die digitale Medien integriert werden können - das BMBF-Projekt "MuSoft"*. Dortmund. Karapanos, M., & Fendler, J. (2015). *Lernbezogenes Mediennutzungsverhalten von Studierenden der Ingenieurwissenschaften. Eine geschlechterkomparative Studie*. *Journal of Technical Education*, 3(1), S. 39-55. Middendorff, E. A., Poskowsky, J., &

Kandulla, M. (Juni 2013). Die wirtschaftliche und soziale Lage der Studierenden in Deutschland 2012 - 20. Sozialerhebung des Deutschen Studentenwerks. Hannover.

Papers and Posters 3

29 August 2018 14:00 - 15:30

Lecture Hall (AUB1)

Guided Poster

Higher Education, Learning and Special Education, Motivational, Social and Affective Processes

Session 2

Keywords: Academic Development, Assessment, Doctoral studies, feedback, Higher Education, internationalisation, Motivation, scholarship of teaching and learning, Student learning, student learning outcome, student learning process, student perceptions, Teaching

Interest group: SIG 04 - Higher Education

Chairperson: David Parkinson, University of Saskatchewan, Canada

Teaching Analysis Poll: A technique to identify subject-specific need of improvement

Keywords: Academic Development, feedback, Higher Education, student perceptions

Presenting Author:Stephanie Hiltmann, University of Regensburg, Germany

Teaching Analysis Poll (TAP) is a qualitative evaluation technique. An external evaluator asks students what facilitates and what impedes most their learning in a class. In small groups, the students discuss the questions and post their results. With the whole class, the evaluator discusses the comments and clarifies ambiguities. The instructor receives an anonymized report by email. During a follow-up meeting, instructor and evaluator develop shared ideas to respond to the feedback and develop the course. Because of its open form, TAP gives the instructor more detailed feedback than do quantitative evaluations. Moreover, is well suited to uncover specific strengths and weaknesses of a course from a student perspective. As subject-specific beliefs are a crucial factor in determining the teaching approach, the authors hypothesized, that TAP can also identify subject-specific weaknesses in courses beyond individual requirements. To check this, TAP-data of 20 mathematical exercise courses are compared with TAP-results of 20 seminars of educational science. Only the critical assessed aspects were analyzed as they reflect the students assessed need for improvement.

For encoding and interpreting the data, a guideline with a scheme of 6 categories and 17 sub-categories coding qualitative data was used. The scheme is based on evidence of good teaching as well as theories of learning and describes different didactic means instructors can use to support their students' learning process. It is proved to be complete and easy to handle, which is also reflected in a high intercoder-reliability. An U-Test was used to compare the main negative tendencies of both groups. Effect sizes were calculated for significant results. Regarding the content, the critical aspects differ significantly with moderate and high effect size. Thus, the didactic activities, which are important for students' learning, can be derived from the differently named critical aspects in the two subjects.

Therefore, TAP-results could not only be used for an individual data-based advice, but also for the conceptual design of subject-specific higher education trainings.

Feedback in higher education: Students' perceptions, reasons for providing it, and how to improve it

Keywords: feedback, Higher Education, student perceptions, Teaching

Presenting Author:Jessica Schütz, Justus-Liebig-Universität Giessen, Germany; **Co-Author:**Jan Hense, JLU Gießen, Germany

Feedback is an important instrument for effective learning and teaching. It is one of the ten most potent factors ($d = 0.75$) when it comes to positive influences on learning performance (Hattie & Timperley, 2007). But when used in the wrong way it can also have negative effects on learning performance, (Kluger & DeNisi, 1996), as the feedback process is influenced by a multitude of factors (Brinko, 1993; Hattie & Timperley, 2007; Ilgen, Fisher, & Taylor, 1979; Narciss, 2014; Shute, 2008).Despite its potential, it seems as if feedback is used only rarely systematically to foster learning in higher education. Accordingly, feedback research in higher education is still fragmentary in many regards. To improve on this situation we present a research project consisting of three interconnected studies. Study 1 will investigate the perception of feedback from the perspective of students. It will consider the following potential influences: traits of the feedback recipient (e.g. locus of control, self-efficacy expectations, motivation, previous knowledge), the feedback source (e.g. credibility, power), the feedback itself (e.g. positive or negative, specific or broad, simple or complex) and the content (e.g. situation, time, individual or group feedback). Data will be collected with a cross-sectional questionnaire survey. Study 2 will investigate which factors of the cognitive model of motivation by Heckhausen and Rheinberg (1980) influence the motivation of lecturers to provide students with feedback. Again, the data will be acquired through a cross-sectional questionnaire survey. In study 3, the findings from current literature and from the previous studies will be used to develop, test and research an intervention program for lecturers. The aim is to improve the capability and motivation of lecturers to give feedback in an effective and satisfying way. For this, we will develop a workshop for lecturers and investigate its effects on the transfer of new feedback behavior in their courses in comparison to lecturers in control conditions. The paper will present the concept of the research project its theoretical framework, and the results from the first study.

References Brinko, K. T. (1993). The practice of giving feedback to improve teaching: That is effective? *The Journal of Higher Education*, 64(5), 574–593. Hattie, J., & Timperley, H. (2007). The Power of Feedback. *Review of Educational Research*, 77(1), 81–112. <https://doi.org/10.3102/003465430298487> Heckhausen, H., & Rheinberg, F. (1980). Lernmotivation im Unterricht, erneut betrachtet. *Unterrichtswissenschaft*, 8(1), 7–47. Ilgen, D., Fisher, C. D., & Taylor, M. S. (1979). Consequences of Individual Feedback on Behavior in Organizations, 64(4), 349–371. Kluger, A. N., & DeNisi, A. (1996). The effects of feedback interventions on performance: A historical review, a meta-analysis, and a preliminary feedback intervention theory. *Psychological Bulletin*, 119(2), 254–284. <https://doi.org/10.1037/0033-2909.119.2.254> Narciss, S. (2014). Modelle zu den Bedingungen und Wirkungen von Feedback in Lehr-Lernsituationen. In H. Ditton & A. Müller (Eds.), *Feedback und Rückmeldungen. Theoretische Grundlagen, empirische Befunde, praktische Anwendungsfelder* (pp. 43–82). Münster, New York: Waxmann. Shute, V. J. (2008). Focus on Formative Feedback. *Review of Educational Research*, 78(1), 153–189. <https://doi.org/10.3102/0034654307313795>

Longitudinal impacts of short-term international courses: students' personal growth

Keywords: Academic Development, Higher Education, internationalisation, student learning process

Presenting Author: Yusuke Sakurai, University of Tokyo, Japan

In response to societal expectations to nurture students' global perspectives and skills, universities have adopted faculty-led short-term international courses (SICs) which are shorter than traditional semester/year-long exchange programs. The learning outcomes of this relatively new pedagogical format have yet to be elucidated under different pedagogical conditions such as disciplines, sojourn destinations, participants' backgrounds, and academic levels. In addition, few prior studies have revealed the long-term impacts of SICs on the participants (Campbell, 2016). This study firstly sought to fill in these gaps by exploring impacts of SICs in an underexplored setting, namely a liberal arts program at a Japanese higher educational institution. It further explored students' perceptions of the long-term impacts of SIC experiences on their learning and development approximately one year after the course. Students in SICs get directly involved in the mutually influential interactions between themselves and their environment, where realities are indeed the objectives of learning (Kolb, 2014). An Interpretative Phenomenological Analysis approach illustrated the ways in which the students interpreted their experiences (Smith, Flowers, & Larkin, 2009). First-wave interviews were carried out with 20 liberal arts Japanese undergraduates after they returned from SICs which were two to three weeks in length in several countries. The analysis revealed four major themes capturing the impacts of SICs: *global perspective*, *discipline-specific matter*, *generic skills*, and *personal growth*. One year later, second-wave interviews asked six students whose courses were carried out a year ago about their SIC experiences and perceptions of their development during the past year. Since they consistently reported episodes of their *personal growth*, this paper exclusively focuses on their perception of the development of their *personal growth*. The theme, *personal growth*, included motivation for self-development, self-understanding, tolerance, empathy, and new interpersonal relationships. Above all, SIC experiences continued to play a key role for their motivation for self-development which sequentially impacted their broader development. For example, during the SICs, many of them developed the motivation to further improve their foreign language competence because they often realised the lack of their communicative skills (self-understanding). After the courses, some of them took elective English taught courses, participated in events for international exchange, or became a member of a group of tutors who support exchange students. These proactive and supplemental efforts also allowed them to perceive that their English skills improved (*generic skills*). Their renewed motivation was also closely associated with their interpersonal relationships (under the theme *personal growth*). In the first interviews, they often highlighted the development of their interpersonal relationships with both international and local peers via online communication platforms and even bilateral international travel. These relationships gave them opportunities to learn that some of their peers engaged in international activities, which further encouraged their motivation for global learning experiences. This study, concentrating on students' *personal growth*, demonstrated that students' long-term development via formal curriculum or informal opportunities was closely interrelated with other developmental domains. Further investigation with more student informants will reveal the complexities of their developmental paths.

Conformity of scientific results and expert opinions in university teaching. A mixed-method study.

Keywords: feedback, Higher Education, student learning outcome, Teaching

Presenting Author: Immanuel Ulrich, Goethe University Frankfurt, Germany

People tend to trust expert opinions more than results of scientific research, if both differ (Yates, 2008). However, studies showed that results of scientific research are the better orientation if people have to decide how to act (Grove, Zald, Lebow, Snitz & Nelson, 2000; Meehl 1954, p. 83 ff.). It is yet a debatable point whether that divergence will also occur when the experts are scientists. In our study comprising of three parts we first interviewed 62 scientist in a Delphi study who were also experts in higher education teaching (criterion: relevant papers). The interviews were analyzed using qualitative content analysis (cf. Mayring, 2015) and the extracted categories were afterwards rated by the interviewed scientists regarding good higher education teaching (e.g. category "Clarity and understandability of higher education teachers", $M = 3.80$, $SD = 0.76$, scale 1 "not important" to 5 "very important"). In the second step, we identified the main factors of (good) higher education teaching in the recent meta-analysis (Feldman, 2007; Hattie, 2015). One of the important factors was the clarity and understandability of higher education teachers, which has an effect of $d = .52$ on the teacher's result in academic course evaluation. Additionally, it has shown an effect of $d = 1.35$ on the students' grades at the end of the semester (Feldman, 2007). In a third step, we compared the expert opinions resulting from the Delphi study with the

identified main-factors of the meta-analysis using a regression analysis. Our results show that the experts mostly mentioned factors which foster good results in academic course evaluation over factors which foster students' grades, which were mentioned significantly less. We assume that the results from academic course evaluations might lead to an overestimation of the importance of higher education teaching factors associated with better course evaluation instead of better student results in the expert opinions. We suggest the development of didactical (feedback-)approaches which are focusing more on students' grades instead of teachers' evaluation results in higher education settings.

Literature:Feldman, K. A. (2007). Identifying Exemplary Teachers and Teaching: Evidence from Student Ratings. In R. P. Perry & J. C. Smart (Eds.), *The Scholarship of Teaching and Learning in Higher Education: An Evidence-Based Perspective* (S. 93-143). Dordrecht: SpringerGrove, W. M., Zald, D. H., Lebow, B. S., Snitz, B. E., & Nelson, C. (2000). Clinical versus mechanical prediction: A meta-analysis. *Psychological Assessment*, 12(1), 19–30.Hattie, J. A. (2015). The applicability of visible learning to higher education. *Scholarship of Teaching and Learning in Psychology*, 1(1), 79–91.Mayring, P. (2000). Qualitative Content Analysis. *Forum Qualitative Sozialforschung / Forum: Qualitative Social Research*, 1(2). Retrieved from <http://www.qualitative-research.net/index.php/fqs/article/viewArticle/1089/2385> Meehl, P. E. (1954). *Clinical versus statistical prediction: A theoretical analysis and a review of the evidence* Minneapolis: University of Minnesota Press.Yates, G. (2008). Roadblocks to scientific thinking in educational decision making. *Australasian Journal of Special Education*, 32(1), 125–137.

On-task student to teacher feedback: “Was that interesting?”

Keywords: feedback, Motivation, Student learning, Teaching

Presenting Author:Luke K. Fryer, The University of Hong Kong, Hong Kong; **Co-Author:**Lily Zeng, The University of Hong Kong, Hong Kong; **Co-Author:**Chi Wing Wong, The University of Hong Kong, Hong Kong

On-task student to teacher feedback: “Was that interesting?” Background: Feedback and it's related constructs are some of the most powerful predictors of student learning within higher education specifically (Richardson, Abraham, & Bond, 2012) and across education more broadly (Hattie, 2009). What is less often discussed, is that perhaps the most powerful form of feedback is from students to their instructors. This issue coupled with the longstanding problem of quality and timeliness of course evaluations open up a gap that current educational theory and burgeoning educational technology is ready to fill.Aims: This poster will report on the development of a model and on-line tool for the assessment of student interest in lecture hall tasks/activities. Methods: Scales were adapted from previous on-task interest research (Authors, 2016; 2017). A preliminary smartphone-/tablet-based tool was piloted across two courses (three classes) with first-year students at a research-intensive university in pacific-Asia. The finalised tool was employed to collect data for modelling across a single class—task interest twice and class interest once at the end—utilising PLS small-sample latent modelling.Preliminary Results: Results from the on-going study presents an increasingly efficient and valid tool for short, on-task self-report of student interest. The instrument's backend (in its present form) is a helpful organisational platform for both designing and implementing measurement, and also visualising results in real-time. Initial class-based modelling results are consistent with previous research employing the task-course-domain model of interest (Authors, 2016), highlighting the importance of every task in supporting students' growing individual interest in the topic understudy.Preliminary Conclusions: At the current stage, the study confirms the usefulness of the practical model of interest development utilised and the tablet based instrument for enabling student to teacher feedback in large-scale teaching and learning contexts. Fine-grained results from the year-long study with students from five first-year courses will be presented in the proposed poster. Hattie, J. C. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement* London & New York: Routledge, Taylor & Francis.Richardson, M., Abraham, C., & Bond, R. (2012). Psychological correlates of university students' academic performance: A systematic review and meta-analysis. *Psychological Bulletin*, 138, 353-387. doi:10.1037/a0026838

Assessment of teaching qualifications – views from below, above and the middle

Keywords: Academic Development, Assessment, Higher Education, Teaching

Presenting Author:Sofie Kobayashi, University of Copenhagen, Denmark; **Co-Author:**Jens Dolin, University of Copenhagen, Denmark

Recruitment of academic staff entails an assessment of the applicants' qualifications in universities' two main functions; teaching and research. In research intensive universities the emphasis has long been, and continues to be, on research – although there are signs that teaching qualifications slowly gain more attention from management as well as assessors (Chalmers & Gardiner, 2015; Mårtensson, Roxå & Olsson, 2011). Internationally it is increasingly common to require applicants to submit a teaching portfolio to document their teaching qualifications, as an attempt to place teaching on a more equal standing relative to research (Christiansen, Damlund & Jacobsen, 2014). However, there is only little research investigating how teaching portfolios are assessed, and whether the inclusion of teaching portfolios in applications for academic positions actually help level out the difference in status between research and teaching. This study aims to uncover how the assessment of teaching qualifications based on teaching portfolios are viewed by management, assessors and applicants in a Northern European research-intensive university. The study is based on interviews with six deans, one from each of the six faculties of the university, interviews with nine experienced assessors across faculties, and a questionnaire distributed to 112 academic staff who were hired in 2016. The data will be analysed using Interpretive Phenomenological Analysis (Smith & Osborne, 2008). It has only been possible to distribute the questionnaire to successful

applicants, and the bias that result from this might limit the conclusions to be drawn from the study. Since the data was collected, the university has taken steps to spread the use of teaching portfolios to other domains and make it an integrated component of development of teaching competences as well as courses and study programmes. The university has also since then put more concise criteria in place through the so-called Pedagogical Competence Profile (Authors, 2017). Preliminary results point to some degree of discrepancy between perceptions voiced by management on one hand and assessors and applicants on the other hand. This tension will be discussed in the light of university strategy and initiatives to introduce more concise criteria for assessment of teaching qualifications. Authors (2017) Chalmers, D., & Gardiner, D. (2015). An evaluation framework for identifying the effectiveness and impact of academic teacher development programmes. *Studies in Educational Evaluation*, 46 81-91. Christiansen, F. V., Damlund, V., & Jacobsen, J. C. (2014). *Undervisningsportfolio - erfaringer og veje frem. Delrapport 1-1 i KUUPI udviklingsprojekt om undervisningsportfolio* København: Institut for Naturfagernes Didaktik, Københavns Universitet. Mårtensson, K., Roxå, T., & Olsson, T. (2011). Developing a quality culture through the scholarship of teaching and learning. *Higher Education Research & Development*, 30(1), 51-62. Smith, J. A., & Osborne, M. (2008). Interpretative Phenomenological Analysis in Smith, JA (Ed.) *Qualitative psychology: A practical guide to research methods*.(pp. 53-79): London: Sage Publications.

Longitudinal Development Of Teaching Assistants' Teaching Ability in a Mandatory Training Course

Keywords: Doctoral studies, feedback, Higher Education, Teaching

Presenting Author:Alex Shum, The University of Hong Kong, Hong Kong; **Co-Author:**Peter Lau, The University of Hong Kong, Hong Kong; **Co-Author:**Luke Fryer, The University of Hong Kong, Hong Kong

Teaching assistants (TA) are vital to higher education (Park, 2004; Santandreu Calonge et al, 2013; Parker et al, 2015). As many TAs are assigned duties with little prior experience, formal training of teaching skills is essential (Blouin & Moss, 2015). For practical teaching, microteaching sessions serve as a valuable substitute to in-class observations (Dar, 2015). The studied training program (for graduate-student TAs) is facilitated by a teaching centre at a research-intensive university in Hong Kong (class size about 20, training about 600 TAs a year, 24 face-to-face hours). Participants of the program facilitate two in-class teaching demonstrations, which occur mid-course (five minutes) and end of the course (ten minutes). Training includes active learning facilitation (Ueckert & Gess-Newsome, 2008) and Outcomes-Based Teaching and Learning (Biggs & Tang, 2011). Areas of improvement are identified using Kolb's reflective cycle (1976) by the participant in the first demonstration and changes are identified and implemented in the second demonstration.

In addition to written feedback, participants receive a grade only in the form of "pass" or "fail". To facilitate development based on quantitative feedback, an analytic 4-point (0,1,2,3) rubric was designed with descriptors in five areas: *Learning Outcomes (LO)*, *Active Learning Strategies (ALS)*, *Supporting Materials (SM)*, *Explanations (EXP)* and *Presentation Skills (PS)* using previous feedback written for students.

The study investigated the teaching demonstrations of 40 participants enrolled in Sept-Dec 2016 (32 STEM TAs, and 8 TAs from other faculties). Approval was granted by the university ethics committee. Inter-rater reliability (weighted Cohen's Kappa) between two graders over all (40 mid-course, 40 end-of-course) presentations was .93 indicating excellent (>.75; Fleiss, Levin & Paik, 2013) agreement. Scores increased (out of 15) from the first (Mean=8.27, SD=1.71) to the second (Mean=10.38, SD=1.59; $t(39)=8.70$, $p.50/.80$; Cohen, 1992) in *LO*, *SM*, *EXP*, *PS* and large ($d>.80$) in *ALS*.

Observed development suggests that training teaching skills coupled with microteaching in these initial stages can provide an increase in overall teaching ability. Most participants had little exposure to *LO* and *ALS* previously. Increases in *LO* and *ALS* can be partly attributed to their required implementation in the second demonstration. Increases in *PS* and *SM* are likely a result of training from the class or implementation of individualized feedback from the trainer. The authors suggest using Kolb's reflective cycle as participants are readily able to identify and make changes with some guidance. Self-reported data on self-efficacy and other areas would provide a more complete narrative of the TA training experience. Latent Profile Analysis may help to describe how training impacts students with differing experience, and faculty designations. Further investigation towards in-class service teaching would inform the sustainability of developments. These preliminary results indicate that TAs improved largely between the two teaching demonstrations. Results should be treated with caution as the sample size is small and the improvement is dependent on specific areas of need for participants of this program. Studies that further test the validity of these results are warranted.

Towards Building a Community of Teaching and Learning in a Research-intensive University

Keywords: Academic Development, Higher Education, scholarship of teaching and learning, Teaching

Presenting Author:Tracy Zou, The University of Hong Kong, Hong Kong

This poster will showcase the design and development of an e-newsletter as an essential step towards building a community of teaching and learning in a research-intensive University. The e-newsletter publishes articles contributed by faculty members on their teaching and learning practices. Up to the moment, it has published 40 articles. Teaching and learning receives increasing attention in today's higher education due to the demand for high quality teaching by multiple stakeholders. There are also calls for a more integrated practice of research and teaching in research-intensive universities. However, any initiatives to enhance teaching and learning are seen as challenging in research-intensive universities, in which teaching needs to constantly compete with disciplinary research. Research on teaching or Scholarship of Teaching and Learning has not yet been valued or seen as proper research in most research-intensive universities. Before committing to promoting SoTL, one university in Hong Kong takes an initial step to build a community of practice on teaching and learning, aiming at fostering dialogue about teaching. An e-newsletter is seen as a viable

approach to creating such a dialogue. As expected, there are many challenges involved in developing an e-newsletter specifically focused on teaching and learning. The two most difficult challenges are to solicit articles from faculty members and to ensure that the articles are written in a reflective manner. Following a first-person action research approach, the author documented the process of designing and developing the e-newsletter at a number of stages (e.g., establishing, launching and promoting, maintaining) and reflected on the actions taken and responses received from faculty members. During the process, feedback was collected from e-newsletter contributors (as well as those who declined to contribute). The actions and reflections at each stage (or cycle) generated improvements and new initiatives in the next stage. This on-going journey generates a number of findings. First, the article writing needs to be in a co-constructing manner. Many academics with excellent teaching competence were uncertain about how to write about their teaching. Around 50% of the contributors felt difficult to highlight a key aspect of their teaching. The writing thus became much more effective if it is co-constructed between the teacher and the editor. Second, the co-construction needs to start as early as possible as it was often the idea that mattered most rather than the writing. Third, feedback to the contributors should be evidence-based with teaching and learning literature support. Fourth, the e-newsletter should be promoted as a practice for writing about teaching, which would ultimately benefit the contributors for preparation of teaching portfolios. In addition, the institution's continuous development in its teaching has a considerable influence on faculty members' attitudes towards the e-newsletter. The study witnessed a change in submission before and after the launching of a teaching accreditation programme in the institution. This study contributes unique insights to the literature by providing a detailed reflective account on the development of an e-newsletter as an essential step towards building a teaching and learning community.

Papers and Posters 4

29 August 2018 14:00 - 15:30

Seminar room 3 (AUB3)

Single Paper

Assessment and Evaluation, Higher Education

Math Ability - Economics Test Fairness - Economic's Knowledge

Keywords: Academic Development, Assessment, Higher Education, research ethics, Student learning, Teaching

Interest group: SIG 04 - Higher Education

Chairperson: Anne Haarala-Muhonen, University of Helsinki, Finland

Stat Anxiety, Self-efficacy & Motivation given student perception of math ability for learning stat

Keywords: Assessment, Higher Education, Student learning, Teaching

Presenting Author: Tine Nielsen, University of Copenhagen, Denmark

The aim of the study was, from a criterion validity perspective, to conduct an initial exploration of the associations between student perceptions of adequacy of mathematical knowledge for learning statistics and expectations to need statistics as a psychologist on the one side, and statistical anxiety, attitudes towards statistics, and statistics course specific self-efficacy and motivation on the other side. The student sample consisted of 169 freshmen psychology students at the University of Copenhagen (77% of year cohort) exactly one month into their bachelor program and one month into their first statistics course. Data was collected at the end of the 5th lecture in Statistics. The instruments included were the Attitudes and Relationship to Statistics Inventory Revised (HFS-R; Nielsen & Kreiner, 2018), the Specific Academic Learning Self-efficacy and Specific Academic Exam Self-efficacy scales (SAL-SE and SAE-SE; Nielsen et al., 2017), and the Intrinsic and Extrinsic Motivation subscales of the Motivated Strategies for Learning Questionnaire (IM and EM; Nielsen, submitted 2018; Pintrich et al., 1991). Further, a package of demographic and other survey questions included questions on perception of adequacy of mathematical knowledge for learning statistics (*more than adequate, adequate, not quite adequate, entirely inadequate*) as well as expectance to need statistics in their future work as psychologists (*yes, maybe, no*). Analyses were conducted as two sets of simple one-way analyses of variance in order to detect patterns across the mean values on the statistical anxiety, attitude, self-efficacy and motivation scales for students with different perceptions of adequacy of mathematical knowledge for learning statistics and different expectations to need statistics as a psychologist. In concordance with a-priori expectations, results showed that as the perception of adequacy decreased: the mean scores on *test and class anxiety, fear of asking for help, and interpretation anxiety* increased systematically, while mean scores on *worth of statistics, specific academic learning self-efficacy, and specific academic exam self-efficacy* decreased systematically (F-test significant in all cases). Further, and most interestingly, in the case of the statistical anxiety and attitude scales this relationship was upheld by solely the female students – not just because there were more females, as the pattern is totally absent for males when stratifying by gender. For intrinsic and extrinsic motivation no clear (or significant) patterns were found. Almost identical patterns were found when student expectations to need statistics in their future work as psychologist decreased. A cautious interpretation might be that it appears that the male students' statistical anxiety and attitudes are independent from their perceptions of adequacy of mathematical knowledge for learning statistics and whether they think they will need statistics in their future work, while female students adhere to a more stereotypical and expected pattern. Replications with future cohorts of psychology students are needed to explore findings further and possibly solidify them. Additional studies with students of other academic disciplines should also be undertaken as to investigate whether the findings are discipline specific or cross-disciplinary. Further, longitudinal studies could shed light on

the (in)stability of the patterns found.

Evaluating Fairness of an Entrance Test in Economics in a German Large-Scale-Assessment

Keywords: Assessment, Higher Education, research ethics, Student learning

Presenting Author:Judith Jitomirski, Humboldt-University Berlin, Germany; **Co-Author:**Olga Zlatkin-Troitschanskaia, Johannes Gutenberg-Universität, Germany; **Co-Author:**Carla Kühling-Thees, Johannes Gutenberg-Universität Mainz, Germany; **Co-Author:**Dimitri Molerov, Humboldt-University Berlin, Germany; **Co-Author:**Jasmin Schlabach, Johannes Gutenberg University of Mainz, Germany; **Co-Author:**Roland Happ, Johannes Gutenberg University Mainz, Germany; **Co-Author:**Sebastian Brueckner, Chair of business education, Germany; **Co-Author:**Manuel Förster, Johannes Gutenberg University Mainz, Germany; **Co-Author:**Hans Anand Pant, Humboldt-University Berlin, Germany

Business and economics courses in higher education in Germany have seen a rapidly growing number of students, internationalization, migration, and a diversification of entry conditions thanks to improved access for students with diverse educational paths. This trend has led to the establishment of a more heterogeneous student body with highly varying study preconditions. Assessments of students' study preconditions and in particular of study-related prior knowledge at the beginning of studies are sensitive instruments as they have also been found to predict the development of domain-specific knowledge over the course of studies and provide diagnostic and prognostic insights for teaching and learning (Zlatkin-Troitschanskaia et al., 2017). While a literature review illustrates that much research focuses on validity as one of the most important criteria in educational measurement, there have only been a few publications on test fairness even though it is a crucial part of the *Standards for Educational and Psychological Testing* (AERA et al., 2014). Analyses of test fairness are extremely important because the lack of fairness and consequently biased test results can negatively impact teaching and learning in higher education (economics) (Crocker, 2003). We measured students' previous economic knowledge in a large-scale entrance assessment, and examined the fairness of the entrance test. The assessment was based on the adapted and validated Test of Understanding in College Economics (TUCE, Walstad, et al., 2007) and the U.S. Test of Economic Literacy (TEL IV; Walstad et al., 2013). To determine intelligence, we used items from the Berlin test for assessing crystalline and fluid intelligence (BEFKI 11+) (Schipolowski et al., 2016). The assessment included a study from 2016 that observed 7,635 first-semester students of business and economics from 54 German universities. A confirmatory factor analysis confirmed a 2-factor structure, based on economic knowledge and intelligence (RMSEA=.018, CFI=.912, SRMR=.02). The findings show that pre-university education is related to economic knowledge to a varying but always significant extent, with medium-sized effects (e.g., commercial vocational training attended $t(6560)=9.75, p=.00, d=.401$). Additionally the aspect of gender ($\beta=.23, R^2=.1684$) and migration background ($\beta=-.26, R^2=.1833$) accounted for a large part of the variance in the economic test, even if other variables (e.g., intelligence) were being assessed. We performed further analyses of measurement invariance and differential item functioning (DIF) to determine whether test takers showed unusually high or low performance results on single items which could not be explained by their own growing abilities. In particular, we analyzed test and item performance according to the native language and gender of the students. At the item level, the DIF analyses show gender or native language effects for some individual items, which indicate problems with test fairness. In the presentation, DIF and item quality according to these results will be critically discussed. Practical implications discussed will include a closer evaluation of test components systematically disadvantaging groups of test takers and a redrafting of test interpretation guidelines. The heterogeneous student body in economics needs fair teaching tailored to students' prior knowledge.

Influencing Factors On Students' Economic Knowledge in the Master's Degree Course

Keywords: Academic Development, Assessment, Higher Education, Student learning

Presenting Author:Andreas Kraitzek, Otto-Friedrich-University of Bamberg, Germany; **Presenting Author:**Manuel Förster, Johannes Gutenberg University Mainz, Germany; **Co-Author:**Manuel Förster, Otto-Friedrich-University of Bamberg, Germany; **Co-Author:**Andreas Kraitzek, Otto-Friedrich-University of Bamberg, Germany; **Co-Author:**Roland Happ, Johannes Gutenberg University Mainz, Germany; **Co-Author:**Olga Zlatkin-Troitschanskaia, Johannes Gutenberg University of Mainz, Germany

Theoretical BackgroundThe continuous popularity of economics and business administration study programs along with the general tendency towards higher academic degrees result in a growing heterogeneity of the student body at Higher Education Institutes (HEIs) (BMBF 2015, 46ff.; Stat. Bundesamt 2017, 14ff. & 37ff.). Against this background, previous research was able to identify certain individual and sociodemographic factors, such as gender, migration, cognitive preconditions or prior education, that have a significant effect on the acquisition of students' economic knowledge (Happ, Schmidt, Zlatkin-Troitschanskaia & Förster 2017, 60ff.). However, as these investigations mainly focus on the state of students' economic knowledge either at the end of their secondary education or at the beginning of their bachelor's study, very little is known to date about the state of knowledge during their master's term. **Research Objectives and Leading Questions**With focus on the area of microeconomics, the aim of the current contribution is to find out about the status quo of students' economic knowledge at the beginning of a master's degree study and its possible main influencing factors. **Design of Study & Data Collection**The current analysis was realized as a cross-sectional study in summer 2015. Along with general sociodemographic characteristics, knowledge in the fields of microeconomics of $n=1.492$ master's degree students has been assessed at 40 HEIs in Germany by using an adapted and validated German version of the American *Test of Understanding College Economics (TUCE)*. **Analyses & Results**Conduction of a Hierarchical Level Analysis (HLA) reveals among others a significant gender-related effect on students' microeconomic knowledge even on a master-level after

finishing a bachelor's program. Furthermore, significant effects of prior microeconomic education could be documented, thus partly confirming results of previous research. In this case, we found that the completion of one or more courses in microeconomics as well as the grades received in those courses significantly influence the acquisition of knowledge. However, compared to earlier findings, a significant effect of students' migrant background on knowledge could not be reported any longer while controlling for learning opportunities and grades in the bachelor program. After controlling the final bachelor grade and other relevant learning opportunities, the final high school grade did not have a significant impact on the test score anymore. In addition, we also could report differences in economic knowledge depending on whether students attend a University or a University of Applied Science. Implications & Outlook Results indicate that the completion of an economic bachelor's study might possibly help to overcome certain unfavorable preconditions at least in the field of microeconomics to some extent. Knowledge acquired during previous courses of study seems to gain in importance, whereas preconditions such as high school graduation grades became more and more irrelevant. But whilst disparities in students' microeconomic knowledge due to migrant background seem to be balanced through prior economic education, a significant gender effect remains.

Papers 1

29 August 2018 16:00 - 17:30

Seminar room 1 (AUB4)

Single Paper

Higher Education

Teaching Assessment - Feedback - Study Profiles in Law

Keywords: Academic Development, approaches to learning, Assessment, discipline-sensitive pedagogy, feedback, Higher Education, Self-regulation

Interest group: SIG 04 - Higher Education

Chairperson: Tine Nielsen, University of Copenhagen, Denmark

Assessment of teaching qualifications in academic hiring: competence vs. experience

Keywords: Academic Development, Assessment, discipline-sensitive pedagogy, Higher Education

Presenting Author: Camilla Østerberg Rump, University of Copenhagen, Denmark; **Co-Author:** Sofie Kobayashi, University of Copenhagen, Denmark; **Co-Author:** Frederik V. Christiansen, University of Copenhagen, Department of Science Education, Denmark; **Co-Author:** Nana Quistgaard, ASTRA - Centre for Learning in Science, Technology and Health, Denmark

Teaching portfolios are increasingly used in promotion and hiring in universities (Christiansen, Damlund, & Jacobsen, 2014). However, there are few studies of how these portfolios are assessed and used in the hiring process (Meizlish & Kaplan, 2008; Tigelaar, Dolmans, Wolfhagen, & van der Vleuten, 2005). The purpose of this study is to identify assessment practices at a research-intensive university in Northern Europe. We investigate how the applicants' teaching portfolio is used in the in the assessment and what criteria are used by the assessors. The study is based on interviews with nine chairs of assessment committees across all faculties at the university. The concepts of 'teaching and learning regimes' (Trowler & Cooper, 2002) and 'boundary objects' (Star & Griesemer, 1989) form the theoretical basis of the study. The results indicate that the assessment of teaching qualifications is norm based rather than criterion based, but that the norms are not that different across disciplines. In addition, the respondents feel confident in their own ability to assess teaching *experience*, but much less so when assessing teaching *competence*, i.e. the applicant's ability to teach effectively. This indicates that there is a potential issue with both validity (competence is not sufficiently assessed) and reliability (variation in norms) of the assessments. The respondents experience a trend of development, which points to increased focus on teaching qualifications, both by the management, the applicants and the assessors. In some cases, the assessors experience that the management focus exclusively on research merits and potential for attracting external funding. In order to remedy the issues of validity and reliability, we have offered a number of 4-hour workshops in which the participants assess a case sample of a teaching portfolio. A professional standard for teaching, called the 'Competence Profile', has been developed and provides a set of criteria for assessment of teaching competence. The workshop participants report that they find the Competence Profile very helpful for the assessment. In the paper, we will discuss the issues of validity and reliability in light of the use of the competence profile and an analysis of the assessments done by the participants.

What matters for productive feedback? Disciplinary practices and their relational dynamics

Keywords: Assessment, discipline-sensitive pedagogy, feedback, Higher Education

Presenting Author: Rachel Esterhazy, University of Oslo, Norway

Previous empirical studies on feedback to students in higher education have paid little attention to the role of disciplines and the relational dynamics that characterise different disciplinary course environments (Evans 2013). Taking a sociocultural learning perspective (Säljö 2010; Wertsch 1998), this article addresses this limitation by offering a conceptualisation of feedback as a relational process that emerges through feedback encounters shaped by the educational and professional practices of the discipline. Using observation and interview data from a qualitative case study of an undergraduate software engineering course unit, it explores the relational dynamics between different elements of the course and how these dynamics matter for the emergence of productive feedback encounters. The findings show that a

wide range of productive feedback encounters occurred between students and both human and material sources throughout the course. Feedback encounters were productive when students had the opportunity to navigate the tools and conventions necessary to participate in the educational practices of the course and, by extension, the discipline's professional practices. Different learning activities were characterised by distinctive relational dynamics that provided various opportunities and constraints for productive feedback encounters to emerge. The findings demonstrate the importance of accounting for disciplinary practices and their relational aspects when designing for learning activities that aim to enable students to productively seek out and engage with feedback.

Evans, Carol. 2013. 'Making Sense of Assessment Feedback in Higher Education'. *Review of Educational Research* 83 (1):70–120. <https://doi.org/10.3102/0034654312474350>. Säljö, Roger. 2010. 'Learning in a Sociocultural Perspective'. In *International Encyclopedia of Education*, 3rd ed., edited by Penelope Peterson, Eva Baker, and Barry McGaw, 498–502. Oxford: Elsevier. <https://doi.org/10.1016/B978-0-08-044894-7.00471-1>. Wertsch, James V. 1998. *Mind as Action*. New York: Oxford University Press.

Study profiles and regulation of learning among Master students: A case of law methodology course

Keywords: approaches to learning, discipline-sensitive pedagogy, Higher Education, Self-regulation

Presenting Author: Anne Haarala-Muhonen, University of Helsinki, Finland; **Co-Author:** Heidi Hyytinen, University of Helsinki, Finland

The presented study focus on a new course (ECTS 3) in which different aspects of legal methodology are taught explicitly to deepen master's students' understanding of legal methodology and reasoning. The methodology of law has been described difficult and pluralistic, for example there are several definitions and conceptions of what is meant by legal methodology within the domain of law (Hirvonen 2011). Therefore, student might have difficulties to understand the meaning and usefulness of this subject. The course combines both content-focused mass lectures and students' independent learning with demanding course material. This combination connected with the challenging subject requires good study practices and self-regulation skills from students. This study examines students' study profiles according to their approaches to learning and self-regulation of learning in the context of methodology course. The nature of 103 master law students' study processes was investigated by using the Approaches to Learning and Studying Inventory (HowULearn, Parpala et al. 2010). In addition, self-regulation was measured using four regulation scales (i.e. self-regulation of process, self-regulation of content, lack of regulation and external regulation) from the Inventory of Learning Styles (ILS, Vermunt 1994). Statistical analyses (e.g. correlational analyses, ANOVA) were used to explore the interrelations between the observed variables. The students were classified into four study profiles according to their approaches to learning (i.e. Organised students, Students applying a deep approach, Students applying a surface approach, and Unorganised students applying a deep approach). There were no significant differences between the study profiles and external regulation, lack of regulation or self-regulation of content. The only significant relationship was found on self-regulation of process scale where *Students applying a deep approach* scored statistically significantly higher than *Students applying a surface approach*. Students in all three profiles scored relatively highly on the external regulation (M=3.01 on a scale of 1 to 5) and average on lack of regulation (M=2.57) and low on self-regulation of content (M=1.93), indicating problems in regulation of learning. These results suggest that students in a new course with unfamiliar subject have difficulties to recognise the relevant content and objectives of the course and therefore need more support from teachers and a clearly aligned curriculum.

Papers 2

29 August 2018 16:00 - 17:30

Seminar room 2 (AUB5)

Single Paper

Higher Education, Instructional Design

Questioning - Personal Learning Environment - Bachelor Thesis

Keywords: Academic achievement, Higher Education, mentoring, self-regulation, Self-regulation, student learning outcome, student learning process

Interest group: SIG 04 - Higher Education

Chairperson: Alessa Hillbrink, University of Münster, Germany

Questioning as a learning strategy: Is question-answering or question-writing more effective?

Keywords: Academic achievement, self-regulation, student learning outcome, student learning process

Presenting Author: Natalie Enders, Universität Hildesheim, Germany; **Co-Author:** Sandra Rothenbusch, Institut für Psychologie (ehemals Pädagogische Psychologie), Germany

External learning regulation is less likely to be promoted in higher education than in other learning environments (Bembenutty, 2011). Students do not receive much supervision or feedback during semester and are required to practice autonomously. Hence, self-regulated learning is of great importance for academic success. Learning strategies form core elements in psychological models of self-regulated learning (Boekaerts, 1999; Weinstein, Acee, & Jung, 2011; Zimmermann, 2000). They are defined as "behaviors and thoughts that a learner engages in during learning and that are

intended to influence the learner's encoding process" (Weinstein & Mayer, 1986, p. 315). In lectures, final examinations are often comprised of multiple-choice-questions. Next to offering students question catalogs specially designed for study purposes, a promising approach to exam preparation is self-questioning, particularly instructing students to generate multiple-choice-questions (Denny, Hamer, Luxton-Reilly, & Purchase, 2008; King, 1992). Whereas answering questions is mainly based on recognition, self-questioning is considered an elaboration strategy and should foster a deeper understanding of the subject matter (Neber, 2006). Thus, the purpose of the study is to compare the effectiveness of question-answering vs. question-writing for students' academic success. The research questions are: 1. Is question-writing more beneficial than question-answering? 2. Does question-writing promote the use of deep-level cognitive learning strategies more strongly than question-answering? 3. Do question-answering/writing activities improve students' self-efficacy and perceived value of the lecture content in general? In winter semester 2017/18, a learning-strategy intervention was integrated into two parallel lectures on General Psychology. At the beginning of the semester, bachelor students were lectured about learning strategies. The instructional design promoted answering and writing single-choice-questions as promising exam-preparation strategies. On the whole, $N=196$ students gave their informed consent to participate in the intervention. We assessed students' previous knowledge (6 single-choice-questions), cognitive learning strategies (LIST; Wild & Schiefele, 1994), self-efficacy and perceived value of the content of the lecture (adapted from Faber, Drexler, Stappert & Eichhorn, 2016) before students started to engage in question-answering/writing activities. The intervention took part in the middle of the semester and lasted six weeks (two topics à 3 weeks). Students were randomly split into two groups. During week 1–3, 50% of the students were asked to write three single-choice-questions. The rest of the students (50%) were asked to answer three single-choice-questions at the end of week 3. These tasks were switched for week 4–6: those who previously wrote questions now answered questions and vice versa. Learning strategies, self-efficacy, and perceived value were assessed in between the clusters and again at the end of the semester. Additionally, students' grade points for each topic provided an additional indicator of academic success. Final results are expected in spring 2018. The benefit of the intervention for students' self-regulated learning will be discussed as well as practical implications for higher education professionals, for instance, whether and how the implementation of similar interventions in university curricula can be beneficial.

Modeling student's personal learning environment : empirical driven instances and meta model

Keywords: Higher Education, Self-regulation, student learning outcome, student learning process

Presenting Author: Joris Felder, University of Fribourg, Switzerland

In all learning situations emerges, for each student, a personal learning environment (PLE) (Henri, 2014 ; Charlier, 2014 ; Fluckiger, 2014, Buchem & al, 2011). As such, the PLE is conceived as a subjective reality (Väljataga, ...) composed of systems of instruments used by the student in a learning activity (Felder, in press, Roland and Talbot, 2014). The concept of PLE represents an opportunity to renew the comprehension of today's learning. Moreover, the capacity of students to construct and regulate his PLE and that of teachers to become aware of the diversity of these PLE can be a key to understand the effectiveness of a learning process. Consequently, it is necessary to understand how the PLE is built and how it is regulated, from the point of view of the student. However, to understand the construction (Rabardel, 1995) and regulation process (Zimmermann 2008), of the PLE raises methodological questions. In a current research, we set up a method of analysis of student's representations based on the modeling of their PLE. We carry out explicitation interviews (Vermersch, 1990) from which we realize a category analysis (L'Ecuyer, 1990) in order to model PLE's instances. These models are used as intermediate objects (Vinck, 2009) in a retrodictive qualitative modeling approach (Dörnyei, 2014) with students aiming to retrace and then to analyze the construction and regulation process of the PLE. For this purpose, the models must be comprehensible for the students. Moreover, they must express subjacent theoretical concepts in order to enable a scientific analysis, their comprehension by the scientific community and the capitalization of research. We thus develop a meta-model of PLE modeling. In this communication, we present the meta-model (ontology) which we develop in an iterative approach by analyzing 60 interviews of 15 students attending the same university course and of modeling PLE instances of these students at different times of the six-months period. We finally propose to discuss the quality criteria of this approach.

What do we expect from bachelor students in their final thesis?

Keywords: Academic achievement, Higher Education, student learning outcome, mentoring

Presenting Author: Ingrid Stock, Norwegian University of Science and Technology (NTNU), Norway

What do we expect from bachelor students in their final thesis?

The bachelor thesis has become an important piece of writing. For the institution of higher education, the bachelor thesis reveals the degree to which the students have met the expectations and goals in higher education; for the students it may be a gateway to further studies or to future work life. However, it is problematic when neither the purposes of the bachelor thesis nor the genre(s) are well defined or recognizable. This presentation contributes to the discussion about aims in higher education. It is grounded in the analysis of 15 bachelor theses from different disciplines from the Faculty of Humanities at a Norwegian University. The findings revealed considerable differences, ranging from texts that resembled ordinary assignments to texts that resembled a research article in which a research project was presented, using the typical structure and elements of that genre. These great differences led to the need to investigate the institutional texts, for example course descriptions, that might influence the bachelor thesis. Course descriptions describe organizational frames, intended learning outcomes and learning activities, and thus lay the ground for the conditions for teaching and learning, and

for how the bachelor thesis is understood and worked with. In addition to the analysis of course descriptions, a focus group interview with teachers from three different disciplines was conducted to get insight in the teachers' understanding and thoughts regarding the bachelor thesis. Both the focus group interview and the analysis of course descriptions from 24 courses revealed considerable differences in terms of institutional conditions such as for example the number of credit points, the point in time, and the support offered in the writing process. The investigation of the course descriptions and the focus group interview helped to understand the differences revealed in the analysis of the bachelor theses, showing how institutional and organizational conditions lay the ground for students' writing and learning outcomes. The study revealed tensions and even conflicts on different levels and showed the need for a collective effort to clarify aims of teaching and learning in higher education and to align institutional aims and resources with teachers' and students' goals and efforts. Collaboration on different levels is necessary, addressing crucial questions such as for example: What kinds of expertise, skills, and competence should the students achieve in the course of their bachelor studies? To what degree are institutional aims in accordance with the goals of the teachers and the students? How can we use the potential of the bachelor thesis to strengthen the bachelor degree and to prepare the students in the best possible way to future studies or future work life?

Papers 3

29 August 2018 16:00 - 17:30

Seminar room 3 (AUB3)

Single Paper

Higher Education

Design-Based Research - Research-Based Learning - Teaching Competence

Keywords: Academic Development, approaches to learning, educational trajectories, Higher Education, research training, student learning process, Teaching, vocational education

Interest group: SIG 04 - Higher Education

Chairperson: Robert Kordts-Freudinger, Paderborn University, Germany

Implementing design based research in higher education; clarifying experiences with innovation

Keywords: educational trajectories, Higher Education, research training, vocational education

Presenting Author: Jacqueline Rietveld, Stenden University of applied sciences, Netherlands; **Co-Author:** Jan Waalkens, Stenden hogeschool, Netherlands

Keywords: Innovation, Scrum, Design Based Research, Narrative analyses, Educational practice

In reaction to the broad societal call for innovative skills, students of a Dutch School of Business learned to apply the principles of Design Based Research (Van Aken & Andriessen, 2011) and Scrum Project Management (Pries, & Quigley, 2010) in their research project last year. At the SIG conference, we would like to present and discuss implications of this innovation project for students, clients and teachers. Is it helpful? What are the impediments? Our data consists of self-reports of students and evaluations by clients that are qualitatively analysed into themes. The educational setting is a third year semester in which small groups of HRM students work with divergent real life organisational issues like starting a block chain network for temporary work, recruit volunteers or explore the needs of professionals in a merger. As the students are expected not to copy an existing creation but to advice out of the box, they immerse in the daily practice of 'their' organisation in order to collect relevant and meaningful user stories in which the ideals and wishes of the clients are stated, which – along with peer reviewed literature- serve as a point of reference for further narrative research (Basten, 2017) and designing. The idea of reversed engineering (Messler, 2013) -from back to front- and closely monitoring changes in demands of clients serve to build social and organisational prototypes, which are subsequently tested and adjusted to real life working conditions. As the research project focusses primary on solutions and how to get an organisation there, research methods are compliant.

Research-based learning programs for first year students in Germany – Means and Objectives

Keywords: approaches to learning, Higher Education, research training, student learning process

Presenting Author: Eileen Lübcke, Hamburger Zentrum für Universitäres Lehren und Lernen (HUL), Germany; **Presenting Author:** Anna Heudorfer, Hamburg Centre for University Teaching and Learning, Germany

Research-based learning is the fundamental self-conception of German universities, which see themselves in the tradition of Humboldt's idea of *Bildung* as the unity of research and teaching (Humboldt 1809/1810). Still, they experience heavy pressure through the Bologna process with its principles of modularization and standardization which seem to contradict Humboldt's principle. In 2012, the German Federal Government announced a national initiative to improve the quality of higher education teaching (*Quality Pact for Teaching*) and funded projects for the improvement of teaching in more than 180 higher education institutions. Some of them focused on the (re-)introduction and promotion of research-based learning for undergraduate students in their first year of studying. It remains open whether the programs manage to achieve the aim to re-innovate higher education towards a stronger link between teaching and learning. The evaluation of such complex questions connected to the implementation of new programs can only be effective by "making explicit the underlying assumptions about how programs are expected to work—the program theory—and then using this theory to guide the evaluation" (Rogers at al. 2000, 5). In order to approach this principle we conducted interviews with coordinators of 13 *Quality Pact for Teaching* projects which all focused on the introductory phase of higher education and covered a broad

range of disciplines (teacher training, social sciences and humanities, engineering sciences). The interviewees were asked about the structure and procedure of the project, reasons for initiating the project and its temporal development as well as observed learning outcomes and effects on the students. We inductively developed first assumptions about the objectives pursued by the project coordinators from these interviews:

- Research competencies and/or subject specific knowledge are considered as important learning outcomes from research-based learning settings.
- Failings during the research-based learning process are not necessarily considered as a problem, but as opportunities for learning and personal development.
- Increasing students' motivation through research-based learning settings is considered as an effective way to reduce student dropout-rates.
- Research-based learning is considered as a possibility to promote talented students and stimulate early (academic) career decisions.

In our paper, we will present these assumptions in detail and make references to the underlying theories of learning or education. Program theory is used as a tool to guide the structuring of the identified objectives. In contrast to traditional evaluation practice our aim is not merely to improve single programs and their measures but to gain a meta-perspective over several programs. Our paper can contribute to a better understanding of the objectives connected to research-based learning in general. These results help to ask clearer questions about how to pursue these objectives and thus to explore the design and the impact of research-based learning.

Determining Pedagogical, Methodical-Didactical Competences of Academic Teachers through Videography

Keywords: Academic Development, Higher Education, research training, Teaching

Presenting Author:Caroline Kurtz, Institute for Educational Sciences, Technical University Braunschweig, Germany; **Co-Author:**Kirsten Aust, Institute for Educational Sciences, Technical University Braunschweig, Germany; **Co-Author:**Lara Gottfried, Institute for Educational Sciences, Technical University Braunschweig, Germany; **Co-Author:**Stefanie Hartz, Institute for Educational Sciences, Technical University Braunschweig, Germany; **Co-Author:**Johanna Pauer, Institute for Educational Sciences, Technical University Braunschweig, Germany; **Co-Author:**Sabine Marx, The Center of Excellence in Lower Saxon Higher Education (CELSHE), Technical University Braunschweig, Germany

Co-Authors: Kirsten Aust, Lara Gottfried, Stefanie Hartz, Sabine Marx & Johanna Pauer

Further educational programmes on teaching and learning in Higher Education aim at the continuing development of pedagogical and methodical-didactical competences. These go beyond purely theoretical knowledge and imply the ability to practical application in different situations: the proficiency (WEINERT 2001, BAUMERT & KUNTER 2006, 2011). The project *Competence Development and Transfer of Learning in Academic Teaching* (01PB14014) which is funded by the Federal Ministry of Education and Research in Germany examines further educational programmes on academic teaching, focussing on the extent of the teachers' actual broadening of knowledge and proficiency. For this measurement of change valid instruments are needed. At present, there are no such structured instruments especially designed for the field of Higher Education. To begin with, this contribution focusses on the development of a competence model of academic teaching which is required as a theoretical groundwork for a measuring instrument. Building on that, it presents the measuring instrument itself that makes the determining of the teachers' pedagogical and methodical-didactical *proficiency* possible. Based on this instrument, it provides an insight into the evaluation of several videographed teaching-learning interactions. To develop a detailed and systematic competence model for academic teaching, several prevalent competence models and competence collections from different fields of teaching (e.g. Baumert & Kunter 2006, 2011, Paetz et al. 2011, Trautwein & Merkt 2013, Marx et al. 2014) were analysed and merged. The emphasis of the developed model lies in the practical teaching-learning situation and addresses those competence facets that claim an educationally and interdisciplinarily comprising validity (MARX ET AL. 2014). The analysis of relevant and primarily empiric-oriented beliefs on the interrelation of including models was complemented by four expert interviews with Higher Educational researchers and practitioners. Thus, the theoretical beliefs could be empirically corroborated. We want focus on the presentation of the instrument for the video-analysis of teaching-learning interaction in academic teaching that was developed based on the competence model. To apply the competence model for the video-analyses, especially those competence facets were systematically explored and specified for the means of academic teaching that claim an educationally and interdisciplinarily comprising validity. Each of the relevant sub-facets were defined by their own and operationalised by the development of close-to-behaviour discretionary indicators. The respective dimensions were rated on a 6-point Likert Scale with descriptions at the poles by determining the extent of the shown behaviour related to the respective dimension (Seidel et al. 2003, Hugener, Pauli & Reusser 2006, Kocher & Wyss 2008, Lotz et al. 2013, Praetorius 2014). The instrument was evaluated in the scope of the project. At a primary measuring point, 105 academic courses were video-recorded and analysed according to the instrument. In addition, each recording was rated by at least two persons, followed by the determination of intercoder reliability values. With some exceptions, these were determined mostly in an acceptable till good range. The presentation ends with drawing a conclusion on the measuring instrument from a research based perspective and evaluating it with respect to its practicability.

Papers 4

29 August 2018 16:00 - 17:30

Lecture Hall (AUB1)

Single Paper

Higher Education, Learning and Social Interaction

Undergraduate Research - Psychological Flexibility - Tutors

Keywords: cultural diversity, educational trajectories, Emotion, engagement, Higher Education, student learning process, student perceptions

Interest group: SIG 04 - Higher Education

Chairperson: Yusuke Sakurai, University of Tokyo, Japan

Students' perspectives on undergraduate research and inquiry

Keywords: educational trajectories, engagement, student learning process, student perceptions

Presenting Author: Ines Langemeyer, Karlsruhe Institute of Technology, Institute for the Philosophy of Education, Germany; **Co-Author:** Sabrina Schmid, Karlsruhe Institute of Technology, Germany; **Co-Author:** Nadja Schindwein, Karlsruhe Institute of Technology, Germany

How does the challenge of undergraduate research and inquiry construct or influence students' experience? And how do students interpret the opportunities of conducting undergraduate research and inquiry and how do they act as learners? These questions were scrutinized by quantitative and qualitative research at the Karlsruhe Institute of Technology (KIT). Surveys completed by students and teachers at the KIT in 2016 were used as a basis for exploring different modes, attitudes, expectations and motives of learning. For example, a differentiation of the modes of "learning through research content" and of "learning through research processes" (cf. Healey and Jenkins, 2005) could be confirmed with factor analyses with both, the data of students and of teachers. Regression analyses then underscored the assumption that students with a metacognitive orientation clearly appreciate opportunities of "learning through research processes" while students who expected to get guidance by teachers did not share this appreciation. The samples of the quantitative survey consist of 1482 students and 550 teachers. Referring to the qualitative study, results of three selected interviews are discussed. This interview data provides the ground for in-depth comparisons of learning experiences through inquiry. Thus, the role of metacognition for students' learning experience was further scrutinized. Theoretically, this was inspired by Deanna Kuhn (1996) who defines two poles of knowing, describing a scope of cognitive skills for research and inquiry: "At one pole, knowing prevails because the knower never has considered otherwise; at the other pole, knowing is an ongoing *process* of evaluation, which the ever-present possibility of new evidence and new arguments leaves always uncompleted." Based on the interviews, trajectories of students challenged to critically reflect on existing knowledge and their own ideas were reconstructed. There was evidence that the three students faced a challenge to reflect not only issues "about good thinking," but to engage "them[selves] in the practice of thinking" (ibid.). However, reasons why the students did not accept and meet this second challenge entirely became obvious. One major reason was found in the subjective interpretation of the learning tasks. The interpretative horizon regarding the tasks' meaning was limited by output- rather than process-orientation. The students believed that they were evaluated by their learning product rather than by getting involved with inquiry and the practice of thinking. Due to this, they felt stress which can be seen as an effect of the students' lack of metacognitive orientations: Given that someone is un-experienced with reflecting one's own thinking, the opportunity of engaging oneself in the practice of thinking and inquiry does not appear as meaningful as the alternative to orientate towards learning results. Thus, the feeling emerges of being under pressure to complete the task rather than to go deeper into it. Vice versa, the effect can be observed that learners are distracted from reflecting deeper because of the inhibition of the feeling of pressure. Against this backdrop, also limits of this research and of combining the methodological approaches are discussed.

Fostering psychological flexibility – an intervention of a study course for university students

Keywords: Emotion, engagement, Higher Education, student learning process

Presenting Author: Telle Hailikari, University of Helsinki, Finland; **Co-Author:** Nina Katajavuori, University of Helsinki, Finland; **Co-Author:** Henna Asikainen, University of Helsinki, Finland

Introduction Students in universities are feeling worse and have more mental problems than before (Hunt & Eisenberg, 2010; Storrie, Ahern, & Tuckett, 2010). These problems lead easily to drop-outs and delays in study times. It has been shown that psychological flexibility may improve performance and wellbeing at work (Flaxman, Bond, Livheim, & Hayes, 2013). However, importance of psychological flexibility has not been fully explored in the university context. There is some evidence that psychological flexibility has positive effects for engagement and progression in university studies (Asikainen et al, 2017). Aim The aim of this study was to examine the impact and students experiences of a 5-week course developed to promote the development of psychological flexibility. Method An optional study course (2 credits) was organized for pharmacy students in autumn 2017 in university of Helsinki. Altogether 47 students participated to the course and 33 of them gave their approval to take part to this research. The course included individual practices in internet platform and reflective journals. Students' well-being, experiences of stress, psychological flexibility were measured with questionnaires in

the beginning and end of the course. Students will be asked to answer to these same questionnaires after 6 months. Students experiences of the course were also measured at the end of the course. Students experiences of the course and its affect to studying were analysed from the reflective journals. ResultsThe preliminary results showed that students psychological flexibility, well-being and time management skills increased and feelings of stress decreased during the course In their reflective journals students described that their ability to manage their stress in studies, understand and work with their thoughts and feelings, focus on the things that are most important to them, manage their time in studying and their well-being has improved. DiscussionThis study showed that it is possible to improve students' psychological flexibility during a study module and that practicing psychological flexibility may foster students' well-being and study skills as well as help them cope with stress better. More research is needed to find out the long-lasting effects of these kind of interventions. Improving students' ability to study by focusing on their well-being comprising abilities to cope with stress and with their thoughts and emotions should be taken into account in addition to focusing on students' study skills and process.

Asikainen, H., Hailikari, T., Mattsson, M. (2017). The interplay between academic emotions, psychological flexibility and self-regulation as predictors of academic achievement. *Journal of Further and Higher Education*
<http://dx.doi.org/10.1080/0309877X.2017.1281889>

Flaxman, P., Bond, F., Livheim, F., & Hayes, S. (Eds.). (2013). *The mindful and effective employee: An acceptance and commitment therapy training manual for improving well-being and performance*. Oakland: New Harbinger Publishers.

Hunt, J., & Eisenberg, D. (2010). Mental health problems and help-seeking behavior among college students. *Journal of Adolescent Health, 46*(1), 3-10.
 doi:<http://dx.doi.org/10.1016/j.jadohealth.2009.08.008>

Storrie, K., Ahern, K., & Tuckett, A. (2010). A systematic review: Students with mental health problems—A growing problem. *International Journal of Nursing Practice, 16*(1), 1-6.
 doi:10.1111/j.1440-172X.2009.01813.x

German students' perception of the general and intercultural competence of their PBL tutors

Keywords: cultural diversity, engagement, Higher Education, student perceptions

Presenting Author:Klaes Eringa, Stenden University of applied sciences, Netherlands; **Co-Author:**Laura Velten, Stenden University of applied sciences, Netherlands

German students' perception of the general and intercultural competence of their PBL tutors Problem-based learning (PBL) has a history of more than 30 years (Neville, 1999). It is a constructivist approach, which aims to prepare students for their future professional life (Van Berkel & Dolmans, 2006). The key is student-centred learning based on industry related topics. These topics or problems are discussed in small groups of 8 to 12 students followed by self-study and collaboration (Zwaal & Otting, 2010). One main factor influencing the learning environment of PBL is the tutor (Kassab, Abu-Hijleh, Al-Shboul & Hamdy, 2005; Van Berkel & Dolmans, 2006; Walsh, 2005).

In the past decades higher education (HE) has become more international. Worldwide, there are more than 4.5 million international students enrolled at universities leading to the fact that campuses became spaces of cultural interaction between peers and tutors from various countries (OECD, 2014). It means that in PBL tutors are facing more and more culturally diverse PBL groups. The intercultural competence of PBL tutors is becoming more and more important. Nonetheless, prior research regarding this issue is scarce. Many studies focus on relationships in international PBL groups (Mittelmeier et al., 2018) or the intercultural competence of teachers, but research regarding the intercultural competence of PBL tutors is fragmentary (Krajewski, 2011; Leask, 2010; Odağ, Wallin & Kedzior, 2016). Eringa & Huei-Ling (2009) studied the intercultural competence of PBL tutors as perceived by Chinese students at a Dutch institute for HE. However, according to NOS (2017), the majority (nearly 20%) of foreign students who study in the Netherlands are German. The aim of this research is to evaluate the perception of German student on the general and intercultural competence of their PBL tutors. The study focuses on German International Hospitality Management (IHM) students at Stenden University of Applied Sciences in Leeuwarden, the Netherlands. Stenden has used PBL since 1987 at their campus sites in the Netherlands and at campus sites abroad and therefore is very familiar with this concept. In addition, almost 10% of all the students studying at Stenden are German, which makes the institute applicable for this research. The data for the research are collected with the help of in-depth interviews. Interviewees are selected based on their experiences with PBL, the background of the PBL tutor and the students' learning styles. Overall, this study should benefis universities and PBL tutors to understand the background of German students better as well as their expectations of PBL and the PBL tutor. In addition, this research helps universities to recruit and train their PBL tutors more efficiently regarding their general and intercultural competencies.

Papers and Posters 1

30 August 2018 09:00 - 10:30

Seminar room 3 (AUB3)

Guided Poster

Assessment and Evaluation, Higher Education, Motivational, Social and Affective Processes, Teaching and Teacher Education

Session 3

Keywords: Academic achievement, Assessment, Doctoral studies, educational trajectories, Emotion, engagement, Higher Education, Motivation, research training, self-regulation, Self-regulation, Student learning, student learning outcome, student learning process, student perceptions

Interest group: SIG 04 - Higher Education, SIG 11 - Teaching and Teacher Education

Chairperson: Tracy Zou, The University of Hong Kong, Hong Kong

Incorporating e-Portfolio in Internships Assessment of Science Students

Keywords: Assessment, Higher Education, Student learning, student learning outcome

Presenting Author: Alice S. T. Wong, The University of Hong Kong, Hong Kong; **Co-Author:** Tracy Zou, The University of Hong Kong, Hong Kong; **Co-Author:** Maggie Tang, The University of Hong Kong, Hong Kong

Internship is an important feature of Capstone learning. However, the diverse forms of internships have raised challenges in assessment design. Current assessment of internship is often constrained by relying on single types of assessors (e.g., field supervisors or tutors), which could not reflect students' performance holistically. Good assessment of internship programmes should support learning and individual development in their different experiences (Clements & Cord, 2013). Here, we proposed an integrated and multi-angle assessment strategy based on student e-Portfolios, reports and presentations, and feedback from field supervisors. Utilising both summative and formative assessment strategies, this approach aims to develop students' ownership of their learning and encourage them to reflect on their experiences (Rhodes, 2010). It will also provide multiple-angle analysis of students' learning and help students identify their strengths and weaknesses. In our pilot run during June to August 2016, we found through a questionnaire survey that the e-Portfolio enabled students to better record, present and share their work, and allowed easy tracking and access of their learning process. In addition, feedback from field supervisors obtained through phone call interviews provided assessment data from another angle. Our findings show that the use of e-portfolio as an assessment item together with reports, presentations and feedback from field supervisors not only provides a better understanding of students' performance in their internship training but also enables them to develop ownership of their learning by providing them with a tool to record, share and keep track of their progress. Moreover, this project could also serve as reference for further development on internship assessment. Such benefit is not limited to internship program in the Science stream, but experiential learning or capstone programmes in other disciplines. (This study was supported by HKU TDG grant 101000605)

Graduates' evaluations of generic competences in relation to thesis grade and study pace

Keywords: Academic achievement, Higher Education, student learning outcome, student perceptions

Presenting Author: Tarja Tuononen, University of Helsinki, Finland; **Co-Author:** Anna Parpala, University of Helsinki, Finland

University graduates are expected to develop generic competences during their studies and these competences are also needed in workplace (Barrie 2006; Kirby et al. 2003). However, there has been a global concern that students are not able to develop enough competences for working life during their studies (Stasz 2001; Badcock, Pattison, and Harris 2010; Tynjälä et al. 2006). In many studies development of generic competences are seen as learning outcomes (Kamphorst et al. 2013; Lizzio, Wilson, and Simons 2002). Evidence shows that generic competences are important actors in learning and study processes (Lizzio, Wilson, and Simons 2002), and thus, instead of acting as learning outcomes, they might have an impact on study success. The positive relation between self-reported generic competences and grades (Gulikers et al. 2006) as well as earned study credits (Kamphorst et al. 2013) have found. Furthermore, lack of competences such as handling information and time-management was related to the difficulties in progressing in studies (Paul et al. 2009). However, research regarding these relations is still scarce. The present study aims to explore graduates' evaluations of the generic competences and the relation between the generic competences, thesis grade and study pace. A total of 1023 Finnish graduates filled in an electronic HowULearn-questionnaire (Parpala and Lindblom-Ylänne 2012). A majority of participants represented non-professional fields such as humanities and social sciences. Most of the participants 77% (n = 786) were female. Graduates were asked to evaluate how their university studies had developed different generic competences such as critical thinking, applying knowledge, developing new ideas and collaboration and communication skills. Study pace was operationalised as the average number of study credits earned per academic year. First, means and standard deviations of generic competences were calculated. Then, the relation between generic competences, thesis grade and study pace was explored using Pearson's correlations and linear regression analysis (forward method). The results showed that graduates evaluated that university studies had developed the most Critical thinking and Seeing different perspectives and least Collaboration and communication skills and Developing new ideas. The results revealed that Analysing and structuring of information, Seeing different perspectives, Critical thinking and Making arguments and looking for solutions were positively and statistically significantly related to thesis grade. The regression analysis showed that only variable that was related to the thesis grade was Analysing and structuring information ($\beta = .18$), ($F(1,892) = 29.9$; $p < .0001$), however, the association was weak (multiple $R = .03$). None of the competences were related to study pace. The present study showed that different indicators of measuring study success had different relation to generic competences. It showed that generic competences were important in terms of thesis grade but not in study pace. All of these generic competences that were related to thesis grade can be seen important and essential when writing thesis (Feldt, Höst and Lüders 2009). The result supports the finding that generic competences are closely related to deep-level learning which is also required when writing a thesis (Liu, Ye and Yeung 2015; Kreber 2003; Richardson and Price 2003). Thus, the development of diverse competences during studies is also important for study success.

A methodology for generating richer data on academic achievement emotions among university students

Keywords: Academic achievement, Emotion, Higher Education, student learning outcome

Presenting Author:Nicholas Munro, University of KwaZulu-Natal, South Africa

In contrast to anxiety and test anxiety, other academic achievement emotions such as joy, pride, shame, and hopelessness have received considerably less attention in the domain of higher education learning research. The aim of this paper is to compare the textual data on academic achievement emotions that were generated through two related research studies on the enabling and constraining processes of high academic achievement among undergraduate students from a South African university. Study A used a “traditional” data collection method (i.e., focus group discussions and interviews), while Study B employed a “visual” methodology (i.e., photo-elicitation interviews) to generate data. Grounded in a three-dimensional taxonomy of achievement emotions and a prototype approach to classifying and analysing emotions, this paper explores the textual data generated through the two studies, and specifically compares the relative “richness” of data on academic achievement emotions that each study generated. Although the two studies were conducted by different researchers with different sets of high achieving students, the analyses of the two data sets demonstrate how a visual methodology, prefaced on facilitating greater student engagement and empowerment in the data production process, can yield a richer set of data on academic achievement emotions. Richer data on academic achievement emotions can translate more meaningfully into practice, providing lecturers and students with more nuanced emotional strategies to enhance instruction and learning outcomes. Moreover, higher education learning researchers who are interested in generating rich academic achievement emotion data could consider integrating visual methods into their repertoire of qualitative methodologies.

Education for Giving Empathy

Keywords: Assessment, educational trajectories, Emotion, self-regulation

Presenting Author:Ruth Wolf, Bar Ilan university, Israel

Positive psychology speaks of the merits of giving, and this paper is on giving to others in order to give yourself happiness. Contributing within the framework of CSR, means giving to society. This giving is not always through money, and it is often through time, knowledge, through actions for the other. For example organizing seminars on various topics. I will present here people that have given, generous people big hearts. Sometimes these gifts can be in the framework of the workplace. In the framework of CSR- Corporate Social Responsibility, organizations and firms contribute to the public in three ways; community, environment and economy. Many companies today set community assistance as a goal based on the premise that an organization or company cannot function without the support of the public. A company will give back part either of the “payment” it receives from the public or with another form of aid.

Positive psychology speaks of the merits of giving, and this paper is on giving to others in order to give yourself happiness. Contributing within the framework of CSR, means giving to society. This giving is not always through money, and it is often through time, knowledge, through actions for the other.

Disciplinary differences in doctoral students’ perception of generic skills learning

Keywords: Doctoral studies, Higher Education, research training, student learning outcome

Presenting Author:Yusuke Sakurai, University of Tokyo, Japan; **Co-Author:**Kirsi Pyhältö, University of Oulu / University of Helsinki, Finland

The literature has shown that universities have disciplinary differences in outcomes, practices, and values of professional activities (Ylijoki, 2000), conceptions of teaching (Norton, Richardson, Hartley, Newstead, & Mayes, 2005), doctoral students’ attrition rates, and years required for completion (Bair & Haworth, 2005). Researchers have uncovered these disciplinary differences including doctoral students’ learning experiences, but we do not know much about the disciplinary differences of their generic skill learning. The experiences of any university members, including students, are affected by the qualities of the surrounding disciplinary communities, such as in cultural, behavioural, value judgmental, and academic practices (Austin, 2002). Hence, doctoral students’ development largely depends on the demands and stimulus of their academic settings which encourage them to engage in certain activities related to their development (Thompson, 2003). Better understanding of their learning encourages students to enhance their awareness of their skill development to prepare for the current unclear job market, and help their advisors provide efficient guidance for students’ development (Durette et al., 2014). To assess disciplinary differences of doctoral students’ generic skill learning, a total of 1184 doctoral students of 11 faculties at a Finnish university participated in this survey study (response rate 28%). It used 21 Likert-scale items to measure their perceptions of generic skill learning during their doctoral studies. An exploratory factor analysis (EFA) formed the scales from the survey items. A subsequent analysis using analysis of variance (ANOVA) examined whether the students in different faculties differed in their levels of learning of generic skills. Effect sizes (η^2) were calculated to strengthen the statistical analyses. Post hoc comparisons identified significantly different pairs between the average scores of the generic skill scales. The EFA results suggested a four-factor solution of generic skill learning: *communication*, *project management*, *commercialisation*, and *scientific ethics*. The relationships between students’ faculties and generic skill learning of *communication* ($F(10,1087)=2.818$), *commercialisation* ($F(10,1086)=3.229$), and *scientific ethics* ($F(10,1099)=13.240$) were statistically significant ($p < 5\%$). However, effect sizes (η^2) on the variables of *communication* and *commercialisation* remained low: 0.025 and 0.029 respectively, suggesting that the disciplinary differences were greater than the criteria of small size (0.01) but far below that of medium size (0.06). The effect size of the disciplinary difference on *scientific ethics* was 0.11 implying that the size of the difference is between the medium and large breakpoint values (0.06-0.14). No significant relationship was found between students’ faculties and the scale of *work*

management ($F(10,1094)=1.637$). Post-hoc tests suggested that Medicine students' *communication* value was significantly greater than those of Law and Social Sciences. The *commercialisation* variable of the Faculty of Agriculture/Environmental Sciences was higher than those of the Faculties of Theology and Social Sciences. Disciplinary differences of the *scientific ethics* variable appeared complicated; generally, students in the faculties pertaining to social sciences and humanities engaged in learning of *scientific ethics* more than those in the faculties of science-related fields such as Biology, Pharmacy and Medicine. These results indicated general disciplinary differences between science-based and social science/humanities disciplines.

The effect of distributed practice as a learning strategy in university statistics courses

Keywords: Higher Education, Student learning, student learning outcome, student learning process

Presenting Author:Katharina Barzagar Nazari, University of Kassel, Germany; **Co-Author:**Mirjam Ebersbach, University of Kassel, Germany

Distributed practice is considered to be one of several desirable difficulties in learning that aim at improving long-term retention by making the learning process itself harder (Bjork, 1994). With distributed practice, a fixed amount of time devoted to learning is distributed over two or more sessions. With massed learning, on the other hand, the same amount of time is spent on learning in a single session. Distributed practice is a widely investigated learning strategy and has shown reliable and strong positive effects, especially on long-term performance (Carpenter et al., 2012). However, the effect of this strategy was rarely investigated in applied settings, and in the context of mathematical learning in particular (for exceptions see Rohrer & Taylor, 2006, 2007; Schutte et al., 2015). In two experimental online studies, conducted in the frame of statistics courses at a university, it was investigated if students practicing statistics exercises distributed over three different sessions perform better in later tests than students practicing with the same exercises, but massed in a single session. For both studies, the same group of about 300 students of a statistics course was invited to register. In the first study, taking place in a basic statistics course mainly for sociology and political science students, participation was voluntary but the students were told that they would practice material relevant for their course test. The registered students were assigned to one of two practice conditions. The distributed practice group worked three sets of exercises on three different days over the course of one week (Wednesday – Friday – Wednesday). On the last practice day of the distributed practice group, the students of the massed practice condition worked the same exercises in one session. The intermediate and long-term performance was tested two and eight weeks after the last practice session. In the following semester, a second study was conducted in the same cohort of students, now attending the advanced statistics course. This time, participation was mandatory and served as course achievement. The experimental design was the same as in Study 1. However, this time, the test was conducted only five weeks after the last practice day. The effect of distributed practice on statistics learning in the frame of a university course will be discussed by taking into account advantages and disadvantages of the application of this strategy in real learning contexts. This includes, for instance, questions relevant for self-regulated learning concerning which practice condition motivated students more to work the exercises and whether the students perceived distributed learning in fact as a (desirable) difficulty.

Action orientation in pre-service teachers – prerequisite for successful teacher education

Keywords: Academic achievement, Higher Education, Self-regulation, student learning outcome

Presenting Author:Sandra Dietrich, University of Leipzig, Germany; **Co-Author:**Brigitte Latzko, University of Leipzig, Germany

Action orientation (Kuhl, 1994) is a psychological construct that can account for achievement as well as for psychological well-being. In defining action orientation as an instance of self-regulation it can be integrated in teacher competency models (Baumert & Kunter, 2013) that try to explain how successful teachers differ from those who are neither effective nor happy in their job. The present project tries to assess action orientation in pre-service teachers as a prerequisite of a successful academic teacher training.

Based on questionnaire data we identified four clusters of students with diverging abilities to overcome failure and transfer plans into actions. Correlational data on motivation, learning strategies and teacher personality emphasises the validity of the clusters. Based on this classification different needs for support can be inferred and implications for educational interventions can be drawn. In a second study the clusters were replicated and connected to academic achievement and academic progress. Those data were collected as part of a long term study, for which we found a unique way to connect self-report questionnaire data with objective data on academic achievement and study progress provided by the university administration. Preliminary data, after one year of training, show that individuals with higher action orientation scores receive better grades and show higher gain in accumulated course credits. We found high correlations between action orientation and self-regulation measures, adding evidence to our assumption that action orientation, as an instance of self-regulation, can be integrated in teacher competency models. The implications for Higher Education that might be drawn from our results are: 1) There is diversity in the fit students show to demands in Higher Education. 2) Higher Education institutions have to adapt to this diversity, e.g. by offering training, flexibility in curricula or counselling. 3) Teachers in Higher Education have to be prepared for diversity in students and need to acknowledge in the multitude of factors contributing to academic success.

The role of supportive environments for life scientists' career aspirations

Keywords: Academic achievement, engagement, Motivation, research training

Presenting Author:Julia Sabine Germershausen, LMU Munich, Germany; **Co-Author:**Julia Eberle, Ruhr-Universität

Bochum, Germany; **Co-Author:**Pamela Flores, LMU Munich, Germany; **Co-Author:**Birgit J. Neuhaus, LMU Munich, Germany

The role of supportive environments for life scientists' career aspirations

Many doctoral graduates leave academia after pursuing their doctoral degree (BuWiN, 2013, p.19). Among others, career decisions are determined by psychological and individual factors (Briedis et al., 2014). Surprisingly, only few studies have quantitatively analyzed the role of motivational aspects over time. The Self-determination theory containing three basic psychological needs could be used for explaining work related motivation (Baard, Deci, & Ryan, 2004). Motivational aspects influence in turn career decisions (e.g. Paixão & Gamboa, 2017).

In this study, we will investigate the relations between motivation, supporting the satisfaction of the three basic psychological needs, career aspirations and career decisions in early career researchers: 1) To what extent does the support for satisfaction of basic psychological needs at the workplace influence early career researchers' motivation over time? 2) To what extent does motivation influence early career researchers' career aspirations and career decisions over time?

In the context of a BMBF-funded project called "E-Prom" (*Influencing factors on academic careers of graduates in the life sciences*) a subset of the data of a multi-cohort panel study will be analyzed. We will focus on the cohort of doctoral graduates at the departments of biology and medicine of 14 representative German universities who finished their doctoral training in 2013 or 2014. Participants have answered three survey-waves: in 2014, 2016 and 2017. The last survey is still running at the moment. Currently, 216 life scientists have answered all three questionnaires. In all three questionnaires, we measured support for *competence* satisfaction ($\alpha = .836$ at wave 1), *autonomy* satisfaction ($\alpha = .628$ at wave 1), satisfaction with *relatedness in the work group* ($\alpha = .760$ at wave 1) and satisfaction with *relatedness in the scientific community* ($\alpha = .936$ at wave 1). Additionally, *intrinsic motivation* ($\alpha = .923$ at wave 1) was measured. All instruments had a 5-point-Likert answer scale. Finally, *academic career aspiration* was measured using a one-item question asking if the person aspired to work in academic fields or not, and we asked for the current occupation to capture *career drop-out*. For statistical evaluation the comparison of different structural equation models is planned. At the conference, we will present the structural equation model for the relationship of *supporting basic needs satisfaction, intrinsic motivation, career aspirations* and *career drop-out*.

References: Baard, P. P., Deci, E. L., & Ryan, R. M. (2004). Intrinsic Need Satisfaction: A Motivational Basis of Performance and Well-Being in Two Work Settings. *Journal of Applied Social Psychology, 34*(10), 2045–2068. Briedis, K., Jaksztat, S., Preßler, N., Schürmann, R., & Schwarzer, A. (2014). *Forum Hochschule: Berufswunsch Wissenschaft?* (Vol. 8). Konsortium Bundesbericht wissenschaftlicher Nachwuchs. (2013). *Bundesbericht wissenschaftlicher Nachwuchs 2013: Statistische Daten und Forschungsbefunde zu Promovierenden und Promovierten in Deutschland*. Bielefeld: Bertelsmann. Retrieved from http://content-select.com/index.php?id=bib_view&doi=10.3278/6004283w Paixão, O., & Gamboa, V. (2017). Motivational Profiles and Career Decision Making of High School Students. *The Career Development Quarterly, 65*(3), 207–221. <https://doi.org/10.1002/cdq.12093>

Papers and Posters 2

30 August 2018 09:00 - 10:30

Seminar room 2 (AUB5)

Single Paper

Teaching and Teacher Education

Study Choosing - Vlogs - Teaching Portfolios

Keywords: Academic Development, educational trajectories, engagement, Higher Education, identity, Motivation, scholarship of teaching and learning, Self-regulation, transition to from university

Interest group: SIG 04 - Higher Education

Chairperson: Liisa Postareff, University of Turku, Finland

Choosing a study for higher education: Validation of the Shortened Study Choice Task Inventory.

Keywords: Academic Development, educational trajectories, Higher Education, transition to from university

Presenting Author: Jonas Willems, University of Antwerp, Belgium; **Presenting Author:** Lien Demulder, KU LEUVEN, Belgium; **Co-Author:** Vincent Donche, University of Antwerp, Belgium; **Co-Author:** Marlies Lacante, Faculty Psychology and Educational Sciences, Belgium; **Co-Author:** Karine Verschueren, KU Leuven, Belgium

Choosing a study for higher education: Validation of the Shortened Study Choice Task Inventory. Acknowledging the importance of the quality of the educational career decision-making process (Gati & Asher, 2001), Germeijs and Verschueren (2006) developed the Study Choice Task Inventory (SCTI). These authors identified six decisional tasks that are central aspects of high school students' career decision-making process: Orientation to Choice, Self-Exploration, Broad Exploration, In-depth Exploration, Decisional Status and Commitment. The SCTI, a self-report questionnaire that consists of 57 items, measures to what extent students cope with these decisional tasks. The SCTI is a well-used and validated questionnaire in research and practice. For instance, research has shown that students' coping with career decisional tasks at the end of Grade 12 significantly contributed to several aspects of early choice implementation in higher education, such as first year academic adjustment and commitment to the chosen study (Germeijs & Verschueren, 2007). Although the SCTI has shown adequate psychometric properties, some deficits regarding reliability and construct validity were noted

when used in large representative sample of 2482 students leaving secondary education. Therefore, we designed an adapted and shortened version of the SCTI and tested its reliability and validity. A new wave of students during school year 2016-2017 ($N=11559$; Grade 11 (6.1%) / Grade 12 (93.9%)) filled out the questionnaire. Using the guidelines of Cudeck and Browne (1983) and Kline (2016), an extensive set of reliability analyses and exploratory and confirmatory (CFA) factor analyses were performed on several subsets of the total sample (i.e., one overall calibration subsample, one overall validation subsample, and several subsamples differentiating between gender and different educational tracks: general, technical and vocational). Furthermore, we will use multiple group analyses to evaluate measurement invariance of the scales under study across gender and educational track. Results suggest that the resulting Shortened SCTI, containing 31 items, has good psychometric properties. After several adaptations to the different scales under study, CFA's showed that the hypothesized 5-factor model had an excellent to adequate fit with the data in all subsamples.

References
 Cudeck, R., & Browne, M. W. (1983). Cross-validation of covariance structures. *Multivariate Behavioral Research*, 18(2), 147-167.
 Gati, I., & Asher, I. (2001). The PIC model for career decision making: prescreening, in-depth exploration, and choice. In T. L. Leong, & A. Barak (Eds.), *Contemporary models in vocational psychology: A volume in honor of Samuel H. Osipow* (pp. 7-54). Mahwah, NJ: Lawrence Erlbaum Associates.
 Germeijs, V., & Verschueren, K. (2006). High School Students' Career Decision-Making Process: Development and Validation of the Study Choice Task Inventory. *Journal of Career Assessment*, 14(4), 449-471, doi: 10.1177/1069072706286510
 Germeijs, V., & Verschueren, K. (2007). High school students' career decision-making process: Consequences for choice implementation in higher education. *Journal of Vocational Behavior*, 70(2), 223-241. doi:10.1016/j.jvb.2006.10.004
 Kline, R. B. (2016). *Principles and practice of structural equation modelling*. New York: Guilford Press.

Using vlogs to investigate students' understanding of independent learning

Keywords: Academic Development, engagement, Motivation, Self-regulation

Presenting Author: Loretta Anthony-Okeke, University of Manchester, United Kingdom

Using vlogs to investigate students' understanding of independent learning Independent learning and the development of independent learning skills expected of international students are at present significant topics in education. Higher education institutions within the United Kingdom, in particular, are increasingly concerned with the ensuring that that its graduates have higher levels of independent learning skills. A number of undergraduate students are reported to face challenges in becoming and being independent learners. Reasons for such challenges, as contained in current literature suggests that the majority of students experience these challenges because of differences across cultures and subject disciplines, differences in conceptualisations of independent learning, and previous learning and teaching experiences (HEA, 2014). Limited literature suggests that students' challenges with independent learning might be located within the discourse of students' understanding of independent learning in further education institutions delivering higher education or functioning as key providers of students to higher education. This paper reports on a doctoral research examining independent learning in the FE sector as one of the skills expected of learners preparing for higher education. The focus of the study is 17-year-old international students' interpretations of and encounters with independent learning at several FE independent colleges using student-generated vlogs with a view to explore additional issues that need conceptualising when researching independent learning. Mobile and desk-based devices are progressively changing the way learning is made accessible to young people, and how they are engaging autonomously in the learning process. Self-authored informational and discussion websites available on the internet such as video logs (vlogs) are increasingly used for many learning and teaching situations in Further Education (FE) and HE. The ease of access to current vlogging systems and the reflexivity associated with vlog authoring make it favourable for researching independent learning with young people and FE is a crucial sector for researching this. Through my exploration, new insights on independent learning were illuminated. Preliminary findings show: (i) Differences in the nature and scope of student' participation and engagement with vlogs; (ii) Differences in students' enactment of independence in terms of using their vlog posts to describe their understanding of independent learning; (iii) Evidence of on-line and off-line independent learner 'personas'; (iv) descriptions of students' understanding of independent learning as a concept and/or as an experience The study provided valuable data about understanding independent learning from the perspectives of young people in college who are preparing for university. The findings lead to a broader discussion about how vlogs, as a digital participatory research methodology, might present promising opportunities and challenges for researching independent learning within HE, in ways which can potentially engage and empower students and enrich educational research.

Reflection in portfolios – Involving faculty in the research of teaching in their discipline

Keywords: Academic Development, Higher Education, identity, scholarship of teaching and learning

Presenting Author: Mònica Feixas, Zurich University of Teacher Education, Switzerland; **Co-Author:** Franziska Zellweger, Zurich University of Teacher Education, Switzerland; **Co-Author:** Dagmar Engfer, Zurich University of Teacher Education, Switzerland; **Co-Author:** Heinz Bachmann, University of Teacher Education Zurich, Switzerland; **Co-Author:** Zippora Bühler, Zurich University of Teacher Education, Switzerland; **Co-Author:** Tobias Zimmermann, Zurich University of Teacher Education, Switzerland

"Good teaching" in higher education is a complex task. It builds on solid knowledge in the respective discipline. Moreover faculty need to understand concepts on teaching and learning in higher education. In recent years, the ability to reflect has been considered a key competency that teachers should acquire during training and implement in teaching throughout their professional lives (e.g., Hatton & Smith, 1995). The concept of reflective practice is at the core of different faculty

development programmes (Szczyrba, B., 2012). For over 10 years, as part of the 10 ECTS programme delivered by Zürich University of Teacher Education to teachers of universities of applied sciences, participants have developed a reflective portfolio. In the portfolio they demonstrate a sound philosophy of teaching and learning as well as evidence competent teaching by compiling “artefacts” and reflections (Seldin, 1993; Bachmann, 2015). The main goal is to support a reflective approach to their own teaching and support a systematic way to examine the transfer of acquired competences to the teaching practice. This project aims at assessing the quality of reflection in the portfolios of the participants in a systematic way to see whether the programme goals are met. On this basis we aim to further develop effective interventions to foster a reflective attitude. For this, in the project we developed a classification aimed at describing different levels of critical reflection (adapted from Fund, Court and Kramarski, 2002) which are categorized into description, explanation and argumentation. The first category a “thick” description is an important basis for reflection, however if it only refers to the specific topics taught or immediate teaching situations and if there is no coordination between different “idea units” reflection is not well developed. In contrast higher-level reflections extend beyond the immediate situation and coordination between the topic taught, the previous knowledge and personal experience *and* relevant professional literature is visible. Our paper will give insights in the results of the content analysis of portfolios as well as discuss the quality of the rubric and give first evidence on how to further develop the programme to foster reflexivity. A critical reflection involves making judgments about professional activity or personal action, and locating it within wider socio-historical, and politico-cultural contexts (Van Manen, 1997). We look forward to an enthusiastic discussion with the participants. *References:* Bachmann, H. (2015). *Hochschuldidaktik mit Wirkung: Evidenzbasierte Hochschuldidaktik - eine Evaluationsstudie*. Bielefeld: UVW. Fund, Z. Court, D. & Kramarski, B. (2002). Construction and application of an evaluative tool to assess reflection in teacher-training courses. *Assessment and evaluation in higher education*, 27(6), 485-499. Hatton, N., & Smith, D. (1995). Reflection in teacher education: Towards definition and implementation. *Teaching and teacher education*, 11(1), 33-49. - Seldin, P. (1993). *Successful Use of Teaching Portfolios* Bolton: Anker Publishing. - Szczyrba, B. (Hrsg.). (2012). *Das Lehrportfolio: Entwicklung, Dokumentation und Nachweis von Lehrkompetenz an Hochschulen*. LIT Verlag Münster.

Papers and Posters 3

30 August 2018 09:00 - 10:30

Lecture Hall (AUB1)

Guided Poster

Cognitive Science, Higher Education, Instructional Design, Learning and Social Interaction

Session 1

Keywords: approaches to learning, educational trajectories, engagement, Higher Education, learning patterns, Motivation, online education, self-regulation, student assistants, Student learning, student learning process, student perceptions, Teaching

Interest group: SIG 04 - Higher Education

Chairperson: Edith Braun, Justus-Liebig-Universitaet Giessen, Germany

Self-Efficacy Expectations and Digital Media Use among University Students

Keywords: Higher Education, online education, self-regulation, student perceptions

Presenting Author: Marina Pumptow, University of Tübingen, Germany; **Co-Author:** Taiga Brahm, University of Tübingen, Germany

Despite its spreading nature in everyday life and in Higher Education, the impact of digital media in teaching and learning is not yet satisfactorily explored. Previous work is predominantly based on empirical studies that describe different types of media usage derived from students' self-assessment (e. g. Grosch & Gidion, 2011; Zawacki-Richter, 2015). Factors other than the given media environment, such as underlying motivations, emotions or self-evaluations are not considered. In this context, the project 'You(r) Study' (supported by the German Federal Ministry of Education and Research (BMBF)) aims at exploring university students' media behaviour. Focus of the present proposal is to describe a recently developed quantitative survey instrument to capture self-efficacy expectations, attitudes and media use. The aim of this study is on the one hand to explore students' media behaviour and attitudes among university students by examining individual, contextual as well as social background factors. On the other hand, the survey allows for a validation of a newly constructed instrument to measure digital media self-efficacy and therefore paves the way for further development and future survey construction. The instruments used for this purpose are mainly approved scales in published research (Jerusalem & Hopf, 2002; Schwarzer & Jerusalem, 2010; Leichsenring, 2011; Grosch & Gidion, 2011; Lang & Hillmert, 2014; Brahm & Jenert, 2015; Zawacki-Richter, 2015). On this basis, a standardised online-questionnaire has been developed. The survey is performed at three Higher Education institutions in Switzerland and Germany in the end of 2017. In total, 2000 students of different subjects were addressed. A response of at least 100 cases is expected. Based on a theoretical framework among others provided by Bandura (e. g. 1991) and on empirical results in current research (for instance Zawacki Richter, 2015), a link between students' self-efficacy expectations, motivation and behaviour is assumed. In particular, results are expected in terms of the relationship of students' academic and media self-efficacy and media usage as well as their attitudes towards digital media. Results of the study shall be presented at the conference. Bandura, A. (1991): Social cognitive

theory of self-regulation. *Organizational Behavior and Human Decision Processes*, volume 50(2):pp. 248–287. Brahm, T., Jenert, T. (2015): On the assessment of attitudes towards studying – development and validation of a questionnaire. *Learning and Individual Differences*, volume 43(October 2015):pp. 233–242. Grosch, M., Gidion, G. (2011): *Mediennutzungsgewohnheiten im Wandel: Ergebnisse einer Befragung zur studiumsbezogenen Mediennutzung*. KIT Scientific Publishing. Jerusalem, M., Hopf, D. (eds.) (2002): *Selbstwirksamkeit und Motivationsprozesse in Bildungsinstitutionen*. Beltz (Zeitschrift für Pädagogik, 33. Beiheft), Weinheim. Lang, V., Hillmert, S. (2014): Campuspanel user handbook v1. 1: Documentation for the student panel of the sciencecampus tuebingen (wave 'a'tübingen: Institut für soziologie). URL http://www.campuspanel.ifsoz.uni-tuebingen.de/files/campuspanel_userhandbook_v1_1.pdf (Accessed 10. December 2017). Leichsenring, H. (2011): Che-quest ein fragebogen zum adationsprozess zwischen studierenden und hochschuleentwicklung und test des fragebogens. URL <https://d-nb.info/101390978X/34> (Accessed 10. December 2017). Schwarzer, R., Jerusalem, M. (2010): The general self-efficacy scale (gse). *Anxiety, Stress, and Coping*, volume 12:pp. 329–345. Zawacki-Richter, O. (2015): Zur mediennutzung im studium – unter besonderer berücksichtigung heterogener studierender. *Zeitschrift für Erziehungswissenschaft*, volume 18(3):pp. 527–549.

Student engagement in higher education

Keywords: engagement, Higher Education, Motivation, student perceptions

Presenting Author: Aida Montenegro, Institute of Sociology, Germany

Within a university system, students obtain instructional input through lectures, then apply this knowledge to activities in subsequent sessions, seminars or tutorials. Students attending large lectures might be categorized as “passive participants”. But what makes students attend lectures and experience engagement for learning? To measure student engagement, I have considered a four-dimensional structure of the construct, which includes agentic engagement in addition to the three conventional dimensions of emotional, behavioral and cognitive engagements. Analysing student engagement for learning includes both internal and external forms of engagement, as well as the behavioural norms and expectations that may characterise the specific learning context to be investigated. My study proposes a mixture of qualitative and quantitative data collection in order to investigate student engagement for learning during lectures. Thus, by using observational data and paper-based surveys, my project aims to answer the following research question: What correlations emerge among student engagement, goals for learning and perceived autonomy support in five lecture-based courses of Social Sciences in Germany? This presentation includes research challenges regarding translation and ratings, as well as the measure of agentic engagement in large learning scenarios such as lectures. This presentation also invites the participants to develop collaborative projects on student engagement and teaching methods in higher education.

Building Social Skills in Master Programmes

Keywords: educational trajectories, Higher Education, Motivation, student assistants

Presenting Author: Caroline Buts, Vrije Universiteit Brussel (VUB), Belgium; **Co-Author:** Mariane Frenay, Université catholique de Louvain (UCL), Belgium

Building Social Skills in Master Programmes

EARLI SIG 4 Conference 2018

Submission for a guided poster presentation

Extant studies^[1] and a recent alumni survey^[2] emphasise the insufficient focus on the development of social skills in university education in general as well as for our university's economics programmes more specifically. Following a broad stakeholder consultation, we introduced a new elective course, 'student-assistant', during the first semester of academic year 2017-2018. Master students who choose the course, assist course holders and teaching assistants in first year bachelor courses with a low study yield. Because of the additional support by master students, the participating courses were able to introduce three new activities.

This poster presentation presents and evaluates our new student-assistant project. The evaluation consists of two main parts, i.e. 1) an evaluation from the perspective of the participating master students and 2) an evaluation from the perspective of the affected bachelor students.

First, we study whether the project meets its goals and contributes to the development of social skills for master students. The analysis is based on multiple interviews conducted during the first semester, an intermediary evaluation, a reflection report and feedback from the participating course holders.

Second, we evaluate the project from the perspective of the bachelor students. By means of a questionnaire to 390 students, we analyse to what extent they appreciate the project as well as the reasons for their levels of participation and appreciation. Next, we study whether they feel better prepared for the exam following participation to these activities.

Finally, we estimate the effect of participation to the activities on exam results by means of a probit analysis (examining success versus failure) as well as OLS and tobit regressions (explaining the final score).^[3] We include the usual set of control variables and correct for time on task.

[1] See among others: Deming D., 2017, The Growing Importance of Social Skills in the Labor Market, *The Quarterly Journal of Economics*, vol. 132 (4), p. 1593-1640. [2] Vrije Universiteit Brussel, Cel Kwaliteitszorg, 2017, Report on the Alumni Survey for Applied Economics and Business Engineers 2016. [3] The choice for these models is inspired by econometrics textbooks as well as extant literature explaining student achievement. For the former, see among others,

Gujarati D., 2009, *Basic Econometrics*, Boston, McGraw-Hill. For the latter, we refer to Aksoy T. and Link C., 2000, A panel analysis of student mathematics achievement in the US in the 1990s, *Economics of Education Review*, vol. 19, p. 261-277.

Multiprofessional learning – the impact on metacognitive skills, epistemic beliefs and appraisals

Keywords: Higher Education, self-regulation, Student learning, student perceptions

Presenting Author:Erika Österholm, University of Turku, Finland; **Co-Author:**Mari Murtonen, University of Turku, Finland;

Co-Author:Tuike Iiskala, University of Turku, Finland; **Co-Author:**Outi Kortekangas-Savolainen, University of Turku, Finland

*Summary*Medical education in Finland is facing new challenges with a national legislation uniting social and health services. To enhance students' multiprofessional knowledge and skills, a new multidisciplinary study module (3-5 ECTS) was created jointly by two universities and one university of applied sciences in the city of Turku, Finland. The aim of this study is to investigate the development of students' individual metacognitive skills, epistemic beliefs and valuation of group assignment in a collaborative learning environment that fosters multiprofessional learning. The data was gathered in fall 2016 during the study module. Students (N=52) represented six different social and healthcare disciplines. Three measurement instruments were used and collected all as pre- and post-tests: 1. contextualised version of General-SAGA (Volet 2001), 2. Parts of Inventory of Learning Styles (Vermunt 1994), 3. Epistemic beliefs (Ponsiluoma & Murtonen, 2016). The subscales of the inventories reached acceptable Cronbach Alphas, ranging from .62 to .90. Measurements between pre and post-test were run through paired samples t-tests. According to preliminary results a significant difference in subscale score of ILS concerning students' critical processing skills was found (pre-test: $M= 2.14$, post-test: $M= 3.14$; $t(39) -12.02$, $p = 0.00$). Also measurement of epistemic beliefs showed that students' trust in authorities grew (pre-test $M= 2.38$, post-test: $M= 2.48$; $t(39) -2.07$, $p = 0.05$), which may be due to the used items in the questionnaire. This will be discussed in the presentation. In three SAGA subscales significant difference was found (scales: Management, Group assessment and Interpersonal). Management (pre-test: $M= 2.79$, post-test: $M= 2.94$; $t(42) -2.29$, $p = 0.027$). Group assessment (pre-test: $M= 3.27$, post-test: $M= 3.45$; $t(42) -2.50$, $p = 0.017$) and scale of Interpersonal (pre-test: $M= 2.62$, post-test: $M= 2.96$; $t(42) -6.21$, $p = 0.000$). These results mean that students felt afterwards more positive about working together. Further, the appraisals of the four-week online group assignment and interpersonal relations were also seen more positively. The preliminary results show that the multiprofessional study module was able to enhance students' skills in critical thinking and effected positively to their thoughts of group work. *References*Ponsiluoma, H., & Murtonen, M. (2016). Three models of university students' academic thinking - combining epistemological beliefs and conceptions of research and theory. A poster presented at the American Educational Research Association (AERA) Conference, April 27 – May 1, Washington, USA.(Vermunt 1994). Tilburg, The Netherlands: Tilburg University, Department of Educational Psychology. Volet (2001). Volet, S.E. (2001). Significance of cultural and motivational variables on students' appraisals of group work. In F. Salili, C.Y. Chiu, & Y.Y. Hong (Eds). *Student Motivation: The Culture and Context of Learning* (ch15) (pp. 309-334). New York: Plenum.

Testing instructional flipping across multiple university courses

Keywords: Motivation, student learning process, student perceptions, Teaching

Presenting Author:Luke K. Fryer, The University of Hong Kong, Hong Kong; **Co-Author:**H. Nick Bovee, Kyushu Sangyo University, LERC, Japan

Testing instructional flipping across multiple university courses Background: Instruction can get in the way of student learning. In many skills-based university learning contexts this can be a serious issue. While flipping content is all the rage (DeLozier & Rhodes, 2016) in secondary and higher education, flipping instruction is less often discussed. The concept of instructional flipping is old, and one that has been tried and tested in laboratories since the dawn of science as a domain of study at university. Students receive a set of instructions for class procedures prior to coming and the necessary materials to learn by engaging together as a group. The instructor only steps in to support or assess. The present study tried to bring the lessons learned from science laboratory-based education to university compulsory language classes conducted within a coordinated program. Aims: Test a flipped instructional approach to teaching and learning within compulsory university language classes. Methods:A quasi-experimental design was utilised to compare flipped vs. regular instructional course experiences and learning outcomes. 16 classes (eight flipped and eight not flipped) of second-year students ($n= 743$) from six faculties participated. All students were studying in a compulsory, coordinated (texts, assessment and e-learning in common) English language year-long course. Students' achievement (vocabulary and listening/reading comprehension), self-efficacy, and interest were measured pre-post each of two academic semesters. Students' experiences of instructional quality (i.e., autonomy-support, structure and external-control) were measured three times each semester. During semester one (pilot no intervention) and two (quasi-experiment) all participating students reported their motivations-beliefs and instructional experiences across the semesters. These results were analysed utilising t-tests and latent structural equation modelling to assess change across time and the interplay between perceptions of instruction and students' beliefs-motivations under these two very different approaches to instruction. Preliminary Results: The data set is not yet complete, as the control and achievement results have not yet been added. Analysis of the experimental group indicates that all scales present acceptable reliability, construct validity (convergent and divergent) and invariance (metric and scalar) across the pilot and intervention. t-tests indicate moderate gains in self-efficacy and small gains in interest for the intervention. Latent structural modelling suggest robust interaction between students' perceptions teaching and students' interest and academic self-efficacy. Further analyses will be undertaken with the complete data set, followed by comparisons between

the control and intervention groups (semester two). Finally, in a second round of analyses, the same groups during semester one will be compared both with each other and the second semester results. Preliminary conclusions: Based on analyses of the currently organised data set, the measurement of the constructs is acceptable. Preliminary modelling results are consistent with past research employing these constructs. The proposed poster will present the results of the analyses of the finalised data set and comparison of the semester one and two data. This poster will thereby present evidence of the efficacy of a flipped instructional approach to teaching and learning at university.

“Educational Theories are far From Reality and Totally Useless”: Results of an Mixed-Methods Study

Keywords: Higher Education, Motivation, student learning process, student perceptions

Presenting Author:Stefan Siegel, University of Augsburg, Germany; **Co-Author:**Martin Daumiller, University of Augsburg, Germany

Dealing with educational theories is a constitutive element of educational studies and teacher training (Kauder, 2002; Merk et al., 2017). In this crucial phase of socialization in higher education, educational theories play an important role in the individual professionalization of aspiring educators since they do not only act unprofessional but also forego a variety of learning and development opportunities without thorough theoretical knowledge (Herbart, 1964; Vogel, 1999). Although the foundations for pedagogical professionalism are laid at university, the professionalization of prospective pedagogues, in contrast to those already working, e.g., as teachers, is barely explored (Männle, 2013; Scheidig, 2016). Regarding the findings of the research on the nature of science (Kremer & Mayer, 2013), it can be assumed that in particular theory-related attitudes and beliefs are relevant (but not yet systematically researched) prerequisites for individual professionalization (Nittel, 2006), as they may systematically be associated with different theory-related modes of reception and learning and thus promote or hamper individual professionalization processes (Richardson, 1996; Scheidig, 2016). Therefore, the aim of this study was to empirically explore students' attitudes (Eagly & Chaiken, 1993) and epistemological beliefs (Hofer & Pintrich, 1997; Mason et al. 2013) on educational theories and their relationships with fundamental processes of individual professionalization. As key research questions, we investigated from an educational-psychological perspective (1) what attitudes and beliefs students of educational science and teaching regarding educational theories have, and (2) how they are related to specific aspects of professionalization (learning motivation, theory-related modes of reception). To answer these research questions, a qualitative, explorative interview study was conducted with a sample of 16 Educational Science students, and 16 teacher trainees. They were asked about their attitudes and beliefs regarding educational theories as well as aspects of individual professionalization. The interviews lasted an average of 32 minutes and were analyzed with a qualitative content analysis (Mayring, 2014). Additionally, participants completed a questionnaire on learning motivation and theory-related modes of reception. Educational theories were perceived as something very abstract, and although respondents' attitudes and perceptions differed in their degree of sophistication, they were often pervaded by vague and sometimes prescientific understandings (e.g. "theory and practice are something completely different"). The results reinforced that student's attitudes and beliefs on educational theories can, as assumed, be distinguished from each other, while both the theory-related attitudes and the beliefs of the respondents differed considerably. In addition, the results indicated that the importance of educational theories for individual professionalization processes is perceived and evaluated divergently. Also, depending on the articulated attitudes and perceptions, *t*-tests indicated differences in motivation as well as the adaptiveness of professionalization strategies and processes. In summary, the present findings provide first insights into a, to this point, neglected field of research, and point to the importance of exploring the attitudes and beliefs of aspiring educators on educational theories and their association with processes of individual professionalization. Further empirical knowledge can be used to describe, explain and promote the development of professional abilities, attitudes and beliefs of prospective educators.

A hybrid strategic cognitive processing model: Developmental and environmental

Keywords: approaches to learning, Student learning, student learning process, student perceptions

Presenting Author:Daniel Dinsmore, University of North Florida, United States; **Co-Author:**Luke K. Fryer, The University of Hong Kong, Hong Kong

Background: Two models of strategic cognitive processing are salient within the educational literature in Europe-Pacific Asia (SAL, Student Approaches to Learning; Marton & Säljö, 1984) and North America (MDL, Model of Domain Learning; Alexander, 2003). One model is focused on exogenous factors relating to strategic cognitive processing: i.e., the interaction between perceptions of the learning environment and students' intention/cognitive processing (SAL). The second model focuses on endogenous factors relating to strategic cognitive processing: i.e., it addresses the development of an individual's cognitive processing and interest within a specific domain of study (the MDL). Based on the nature of these two models and their use within the empirical research literature two issues are self-evident. The first is that strategic cognitive processing is related to both a domain-specific developmental process that interacts significantly with individuals' motivations and beliefs. The second is the fact that individuals' strategic cognitive processing varies in both quantity and quality based on individuals' perceptions of the learning environment. Clearly, if we are to continue to expand our understanding of learning processes, our models need to address both aspects of strategic cognitive processing. The present theoretical study presents the case for the necessity of a new model. The hybrid model integrates early

components of SAL and MDL into a comprehensive model that addresses both endogenous and exogenous determinants of strategic cognitive processing (see Moshman, 1982 for a description of a dialectical model). Aims: This poster will present a hybrid strategic cognitive processing model which will account for both domain specific development and interplay with individuals' perceptions of the learning environment. Methods: The study will begin with a review of the relevant theoretical and empirical literature from the two models proposed for integration. The review will focus on their respective strengths and weakness as well as their points of convergence and divergence. Recent reviews suggesting research dead-ends (e.g., developmental questions within the SAL framework; Asikainen & Gijbels, 2017), comprehensive reviews of the state of strategic cognitive processing generally (e.g., Authors, 2017) and the models built upon (e.g., Authors, 2018). The endogenous and exogenous nature of the two models will then be discussed, focusing on the means by which SAL and MDL might be fit together into a more complete model of student learning. Proposed Outcomes: This poster will present a hybrid model of strategic cognitive processing, its hypothesised implications for student learning and opportunities for future research across the gap presented by our currently endogenous and exogenous models. The presenters look forward to lively discussion with researchers working from within both sides of this traditional divide and refining our proposed hybrid based on robust academic critique. References: Alexander, P. A. (2003). The development of expertise: The journey from acclimation to proficiency. *Educational Researcher*, 32(8), 10-14. Marton, F., & Säljö, R. (1984). Approaches to learning. In F. Marton, D. J. Hounsell, & N. Entwistle (Eds.), *The Experience of Learning* (pp. 36-55). Edinburgh, UK: Scottish Academic Press. Moshman, D. (1982). Exogenous, endogenous, and dialectical constructivism. *Developmental Review*, 2, 371-384.

Collaborative learning in higher education : an empirical investigation

Keywords: Higher Education, learning patterns, Student learning, student learning process

Presenting Author: Marjahan Begum, Copenhagen Business School, Denmark

In higher education we are encouraged to incorporate group work across all disciplines. There are multiple perspectives on the benefits of group work. From the higher education policy and accreditation bodies, there is an assumption that universities should prepare students for contributing effectively in the workplace. These skills include being a team player, conflict management, listening and negotiating among others. Research has shown that working in groups give students higher levels of achievement and higher intrinsic motivation among other benefits (Johnson & Johnson, 1994). This project is designed to investigate how students learn in collaborative learning environments. A framework for investigating collaborative learning was developed within engineering education (Begum et al., 2012). The purpose of this research is now to apply the framework by investigating how students learn through group work. Initially the research will involve interviews and focus groups. These qualitative data will then be used to develop a questionnaire to understand collaborative learning along the three dimensions: collaborative construction of knowledge, collaborative cognitive processes/strategies in problem solving situation and group interactions and communications (Begum et al., 2012). The context of the research will be of courses where there are explicit requirements for students to deliver a product (usually for assessment) in groups. This with the assumption that delivery of the product will have some problem-solving elements (open or closed ended). Collaborators for this project will be invited to assist in the design and data collection for research. In higher education we are encouraged to incorporate group work across all disciplines. There are multiple perspectives on the benefits of group work. From the higher education policy and accreditation bodies, there is an assumption that universities should prepare students for contributing effectively in the workplace. These skills include being a team player, conflict management, listening and negotiating among others. Research has shown that working in groups give students higher levels of achievement and higher intrinsic motivation among other benefits (Johnson & Johnson, 1994). This project is designed to investigate how students learn in collaborative learning environments. A framework for investigating collaborative learning was developed within engineering education (Begum et al., 2012). The purpose of this research is now to apply the framework by investigating how students learn through group work. Initially the research will involve interviews and focus groups. These qualitative data will then be used to develop a questionnaire to understand collaborative learning along the three dimensions: collaborative construction of knowledge, collaborative cognitive processes/strategies in problem solving situation and group interactions and communications (Begum et al., 2012). The context of the research will be of courses where there are explicit requirements for students to deliver a product (usually for assessment) in groups. This with the assumption that delivery of the product will have some problem-solving elements (open or closed ended). Collaborators for this project will be invited to assist in the design and data collection for research.

Papers and Posters 4

30 August 2018 09:00 - 10:30

Seminar room 1 (AUB4)

Single Paper

Higher Education

Learning Organizations - Doctoral Students - University Teachers in Hungary

Keywords: Academic Development, Doctoral studies, Higher Education, learning patterns, teachers learning communities

Interest group: SIG 04 - Higher Education

Chairperson: Immanuel Ulrich, Goethe University Frankfurt, Germany

Higher Education Institutions as Learning Organizations - a Systematic Literature Review

Keywords: Academic Development, Higher Education, learning patterns, teachers learning communities

Presenting Author: Laszlo Horvath, ELTE Eötvös Loránd University Institute of Education, Hungary

Examining Fortune 500 companies that have longer than average (30-40 years) lifetime, de Geus found the ability to learn as an important factor. Among those institutions which are established before the XVI. century, only 85 working currently with same structure and functions: the Catholic Church, the English Parliament, and circa 70 Higher Education Institutions (HEIs) (Kerr, 2001). This proposes a question whether HEIs are so resistant to change or very adaptable (Evans & Henrichsen, 2008; Halasz, 2010)? Senge (2000) suggests that HEIs should change in order to adapt to the needs of the knowledge economy and develop into learning organizations. But does the learning organization idea even relevant to HEIs? This is the same question proposed by Örtenblad and Koris (2014) in the literature review of the concept of learning organization applied to HEIs. From 1988 to 2012, they examined 73 papers, although their approach was not based on systematic literature review protocol. In this paper I extend and continue the work of Örtenblad and Koris, reviewing besides the original 73 papers 50 more using the original framework with some extension: unit of analysis, country, base of learning organization definition, citation of previous learning organization literature on HEIs, conclusions, understanding of learning organization (learning at work, organizational learning, culture for learning, learning structures), value focus (organizational effectiveness, employer well being, societal effectiveness) and in addition research design, used measurement tools, scales and reliability of the measurement tools, outcome measures and correlations, description of the sample. Regarding the results, it is clear that the seminal work of Senge (1990) is the most prominent source for the definition of the learning organization, although only a few studies cite Senge (2000) paper on higher education. Most of the papers are focusing on organizational effectiveness (92%), while employee well being is the most underrepresented theme in the literature (26%). The majority of authors considers organizational learning (77%) and culture for learning (79%) as main aspects of the learning organization idea in the context of HEIs, while the aspect of learning at work is underrepresented (47%). It is clear that the research evidence is neither conclusive nor integrative, the justification for advising learning organizational behavior for HEIs is often missing. With the suggestions of Örtenblad and Koris (2014) and the extended and systematic literature review, this paper will contribute to the special understanding of the learning organization concept in higher education. **Keywords:** learning organization, organizational learning, systematic literature review, higher education institutions

Doctoral students' conversations about teaching and learning

Keywords: Academic Development, Doctoral studies, Higher Education, teachers learning communities

Presenting Author: Mari Karm, University of Tartu, Estonia

Background Private conversations among colleagues in "significant networks" provide a basis for conceptual development and learning, quite different from the formal debate about teaching. Individual teachers seem to have more significant conversations and larger networks at these universities where the local culture is perceived to be supportive of such conversations (Roxå, & Mårtensson, 2009). Many PhD students are struggling with stress, feelings of isolation and depression. The feeling of isolation among doctoral students is a major factor that contributes to the high drop-out rate of doctoral programs (Leijen, Lepp, & Remmik, 2016). Pedagogical courses, which main goal is to develop teaching skills, can be regarded as communities to enable interaction between doctoral students. These courses provide opportunities for doctoral students to discuss their teaching with colleagues and help to reduce academic isolation. Co-operation and communication between doctoral students arising during pedagogical courses could be an effective method of building a community. Research design The study applies a qualitative approach to the research question: What is the meaning of conversations about teaching and learning for doctoral students? The sample consists of 15 doctoral students who participated in a pedagogical course. Doctoral students are from various fields (humanities, medicine, natural sciences, social sciences). The research data is collected in two parts. I. In the beginning of the pedagogical course two open-ended questions were asked: (1) with whom do you have meaningful conversations on teaching and learning? and (2) what do you talk about teaching and learning with them? II. 15 semi-structured interviews with doctoral students were carried out 6 months after the course. Duration of these interviews was about 30–60 minutes. Interviews were transcribed and analyzed using thematic analysis. Two researchers independently coded and analyzed the transcriptions and then conducted a collaborative interpretation and discussion. Preliminary findings revealed that significant conversational partners for doctoral students in the beginning of pedagogical course were identified following: other doctoral students, colleagues; family members and friends. After participating the pedagogical course, also experts and doctoral students from pedagogical course were mentioned. Private relations did have a connection to pedagogical issues, if parents or friends worked or studied at the same university. The conversations with different parties varied in nature, content and the level of confidentiality. Conversations ranged from deliberating practical organization of teaching, sharing critical incidents, exchanging experiences, discussing new ideas and constructing understandings of teaching and learning. Barrett, M.S., Ballantyne, J., Harrison, S., & Temmerman, N. (2009). On building a community of practice: Reflective narratives of academic learning and growth. *Reflective Practice*, 10(4), 403–416. Leijen, Å., Lepp, L., & Remmik, M. (2016). Why did I dropout? Former students' recollections about their study process and factors related to leaving the doctoral studies. *Studies in Continuing Education*, 38(2), 129-144. Pyörälä, E., Hirsto, L., Toom, A., Myrsky, L. & Lindblom-Ylänne, S. (2015). Significant networks and meaningful conversations observed in the first-round applicants for the Teachers' Academy at a research-intensive university, *International Journal for Academic Development*, 20(2), 150-162, Roxå, T. & Mårtensson, K.

(2009). Significant conversations and significant networks – exploring the backstage of the teaching arena, *Studies in Higher Education*, 34(5), 547-559.

University teachers' beliefs and experiences about professional development in Hungary

Keywords: Academic Development, Higher Education, learning patterns, teachers learning communities

Presenting Author: Orsolya Kálmán, University of Eötvös Loránd, Hungary; **Co-Author:** Laszlo Horvath, ELTE Eötvös Loránd University Institute of Education, Hungary

The expectations for enhancing the quality of teaching and learning in higher education have been growing in all over Europe (OECD 2012). In European policy a common understanding has emerged on quality indicators as student-centred learning, learning outcome based program design and flexible learning routes for students (ENQA 2015). In enhancing and renewing teaching for learning, university teachers play a crucial role, therefore much attention has been paid to their learning and professional development, the role and effect of pedagogical trainings (Postareff et al 2007, Stes and Van Petegem 2011) and academics' communities of practices (Arthur 2016, Jones 2010). In Hungary university teachers are not required to have a teaching qualification or to attend compulsorily pedagogical courses. However, the growing expectations, changes in learning environments and new tasks in teaching have contributed to the increasing supply of pedagogical trainings. Meanwhile the Hungarian academics' learning experiences and the effect of the pedagogical trainings are still not researched in depth. Following Boud and Brew (2013) we take a broader view on professional learning and development which consists of various ways of learning activities, especially learning in the workplace. Our aim is to explore the Hungarian university teachers' experiences and beliefs on professional development and learning, and to identify specific characteristics of professional development in Hungarian higher education. Three studies have been conducted with different scopes on professional development of university teachers. (1) 474 academics from two Hungarian universities were asked about their perceived pedagogical competences as well as their ways of and expectations about professional development. The questionnaire was partly adopted from Pitkänen et al (2014). (2) 50 academics were participating in 4 pedagogical trainings and filled in a pre- and post-questionnaire about their beliefs on teaching, learning and university teachers' competences. Their artefacts were also included in the analysis. (3) Narrative and thematic interviews were conducted with 12 university teachers from different career phases about their career and professional development. The findings show that university teachers' most regular ways of professional development are learning from students' feedback, discussing their teaching with colleagues, and experimenting in teaching. Different patterns of professional development were identified according to the university teachers' perceived competences. Teachers with perceived excellent competences were involved in various and more constructive ways of professional development. Academics with perceived good teaching competences found important those ways of learning that are connected to the knowledge component of learning such as reading pedagogical literature, using online sources, attending conferences. Teachers with perceived low competences are the least open to be involved in professional development activities. Although these university teachers were more open to web-based database of teaching methods and group mentoring. The results of the case study and narrative interviews highlighted that one of the biggest challenges for academics is to work and learn collaboratively for enhancing teaching within their communities of practice. The emerging patterns of professional development of Hungarian university teachers can contribute for our better and evidence based understanding of the context bounded nature of professional learning.

Collaborative Space 1

30 August 2018 11:00 - 12:30

Seminar room 1 (AUB4)

Collaborative Space

Higher Education

Students' Learning Processes

Keywords: Higher Education, Motivation, Student learning, student learning process

Interest group: SIG 04 - Higher Education

Chairperson: Ines Langemeyer, Germany

The role of self-reports and new measurement techniques in research on students' learning processes

Keywords: Higher Education, Motivation, Student learning, student learning process

Presenting Author: Anna Parpala, University of Helsinki, Finland; **Presenting Author:** Liisa Postareff, University of Turku, Finland

Nowadays there is an increasing interest to move on from the use of self-report measures (such as questionnaires and interviews) to the use of new measurement techniques to explore higher education students' learning processes. In the collaborative space the idea is to share concrete experiences of using new methodologies (e.g. authentic tasks, video observation, eye tracking, body metrics...) and especially highlight the added value of these methodologies. Also, the challenges related to using these methodologies is highlighted.

In the collaborative space discussion about the use of self-report measures in research on student learning is promoted. What is their role in examining students' learning processes? How could they further enhance our current understanding? How can triangulation of self-report measures and new measurement techniques advance the research field?

We encourage the participants of the collaborative space to be prepared to shortly introduce (max 5 min) their ongoing research on this area: What are your research questions? What methodologies do you use and why? How do the new measurement techniques advance your research? What kind of challenges have you faced?

The aim is to share experiences of using new measurement techniques and deepen our understanding of the added value and challenges of these methods. This also provides an arena to bring together researchers interested in using similar methodologies and to promote research collaboration among SIG4 participants.

The scientific network 'Learning strategies in social and informal learning contexts' invites SIG4 conference participants interested in the topic to participate in the collaborative space.

Collaborative Space 2

30 August 2018 11:00 - 12:30

Seminar room 2 (AUB5)

Collaborative Space

Higher Education

Students' Voices in Research

Keywords: online education, self-regulation, Student learning, student learning process

Interest group: SIG 04 - Higher Education

Chairperson: Camilla Østerberg Rump, University of Copenhagen, Denmark

Students' voices in Higher Education research – Exploring for methods to make them count

Keywords: online education, self-regulation, Student learning, student learning process

Presenting Author:Antonia Weber, Universität zu Köln/ University of Cologne, Germany; **Co-Author:**Taiga Brahm, University of Tübingen, Germany; **Co-Author:**Sabrina Pensel, Universität zu Köln/ University of Cologne, Germany; **Co-Author:**Tim Ripplinger, University of Kaiserslautern, Germany; **Co-Author:**Yannic Steffens, Ruhr-University Bochum, Germany; **Co-Author:**Sarah C Cornelius, University of Aberdeen, United Kingdom; **Co-Author:**Karl-Heinz Gerholz, University of Bamberg, Germany; **Co-Author:**Dominic Orr, Forschungsinstitut für Bildungs- und Sozialökonomie, Germany; **Co-Author:**Rachel K. Shanks, University of Aberdeen, United Kingdom

In Higher Education research, the student voice is often represented via evaluation, questionnaires and agents like the educational researcher. In the same vein, the student's individual perspective is often overlooked in research on learning with media and (educational) technologies (e.g. Brooks, 2016, Zawacki-Richter, 2015). The students are instead replaced by their role in the organization or an (implicit) expectation how they should learn with digital media and technologies (Persike & Friedrich, 2016). This collaboration space aims to explore ideas for research which is able to include the students' experience on learning with media and technologies and their subjective sense making of it (without agency of the research team). The collaboration space is based upon a comprehensive research project about the obstinacy of studying with media and technologies. The research design of the project contains both established quantitative and qualitative methods. In total, six German universities will be involved in the research: Online-based questionnaires will be used to explore students' self-efficacy when studying with digital media (Pumptow & Brahm, in prep.). Furthermore, a logfile-analysis of different learning-management-systems will shed light on the patterns of learning within these systems (Schulz & Breiter, 2013). The subjective sense making of studying with media will be reconstructed via the qualitative approach of the documentary method (Bohnsack, 2000) including e.g. group discussions. The overall goal of the research project is to integrate the students' voices, experiences and their own research to make it productive for higher education research (Dickinson & Fox, 2016). We seek to collaborate with researchers on the field of student voice, media education and higher education to discuss the following research questions: 1) Which qualitative methods would be suitable to explore the students' voice in higher education? 2) Which experiences with the student voice in higher education research are available (e. g. action research or others)? 3) Which value can the integration of the student voice have for higher educational research? Reference list Bohnsack, R. (2000). *Rekonstruktive Sozialforschung: Einführung in Methodologie und Praxis qualitativer Forschung*. Opladen: Leske + Budrich. Brooks, C. D. (2016). *ECAR Study of Undergraduate Students and Information Technology, 2016. Research report*. Louisville, CO: ECAR. Dickinson, L. & Fox, A. (2016). Who owns the student voice? A study of students' perceptions of student voice in higher education. *Journal of Educational Innovation, Partnership and Change*, 2(1). Retrieved from <https://journals.gre.ac.uk/index.php/studentchangeagents/article/view/233> (2017-12-07). Persike, M. & Friedrich, J. (2016). *Lernen mit digitalen Medien aus Studierendenperspektive*. Arbeitspapier Nr. 17. Berlin. Pumptow, M. & Brahm, T. (in prep.). Student's self-efficacy when using digital media. Paper in preparation. Schulz, A. H.; Breiter, A. (2013): *Monitoring User Patterns in School Information Systems Using Logfile Analysis*. In: Passey, Don; Breiter, Andreas; Visscher, Adrie (Hrsg.): Next generation of Information technology in Educational Management. 10th IFIP WG 3.7 Conference, ITEM 2012. Bremen, Germany, August 2012. Revised Selected Papers. S. 94–103. Heidelberg: Springer. Retrieved from https://link.springer.com/chapter/10.1007%2F978-3-642-38411-0_9 (2017-12-04). Zawacki-Richter, O. (2015). Zur Mediennutzung im Studium – unter besonderer Berücksichtigung heterogener Studierender. *Zeitschrift für Erziehungswissenschaft*, 18(3), 527–549.

Collaborative Space 3

30 August 2018 11:00 - 12:30

Seminar room 3 (AUB3)

Collaborative Space

Higher Education

International Collaborative Teaching

Keywords: internationalisation, online education, student learning outcome, Teaching

Interest group: SIG 04 - Higher Education

Chairperson: Immanuel Ulrich, Goethe University Frankfurt, Germany

PICT (project in international collaborative teaching): igniting curricular innovation?

Keywords: internationalisation, online education, student learning outcome, Teaching

Presenting Author: David Parkinson, University of Saskatchewan, Canada; **Co-Author:** Payel Chattopadhyay Mukherjee, Ahmedabad University, India; **Co-Author:** Kara Loy, University of Saskatchewan, Canada; **Co-Author:** Brianna Groot, University of Saskatchewan, Canada; **Co-Author:** Sheheryar Sheikh, University of Saskatchewan (PICT Team), Pakistan

PICT, *project in international collaborative teaching* is a nascent cross-cultural teaching and learning model that offers a practical, accessible form of internationalization for students, instructors, and researchers. The premise of the model is the collaboration of two instructors from different institutions and cultures who link their courses and thus their students for one or more modules. Students learn from both of the instructors as well as from each other, as they engage critically with a complex question or issue that has shared importance in both contexts. At the same time, students and instructors increase their awareness of the intersecting and varying ways in which research and scholarship are conducted across regional, national, and other boundaries. We see PICT working for advanced, specialized seminars or where the intercultural component is not deemed a significant feature. However we believe that PICT comes into its own in the first-year class, where this component can be foundational. In the Collaborative Space, we propose to offer various brief illustrations of our forms of engagement with instructors and students. We hope to elicit responses and advice from conference participants visiting the Space. At this early stage in the development of the model, we have been focusing on text-based and especially literary materials. Here, questions about interculturality-based interpretation can come directly to the fore. In paired courses on comparative literary studies, for example, PICT may already be making transformations possible across borders: of students' sense of self, place, and scholarship; and teachers' awareness of the potential of pedagogical collaboration for curricular internationalization. It makes sense to test these perceptions in relation to our own scholarly and pedagogical practices while keeping in mind Kuh's "high-impact practices," Fung's "connected curriculum," and Healey, Flint and Harrington's "students as partners." For instance, we see value in analyzing student writing on an especially challenging intersection of culturally contrastive literary readings. In the paired courses offered in 2018, two especially challenging readings were Mahasweta Devi, "Behind the Bodice," and Barbara Gowdy, "We So Seldom Look on Love." In their convergence, the exaggerated, threatening forms of otherness represented in these two short stories paradoxically engaged some students' intense interest and elicited some of their most searching, substantial writing. This development may offer early evidence of PICT's potential to change the topography of higher education. Working collaboratively is bringing a further objective into view: to test PICT's wider disciplinary value for international undergraduate research.

Devi, Mahasweta. *Breast Stories*. Ed. and trans. Gayatri Chakravorty Spivak. Seagull Books, 1997. Fung, Dilly. *A Connected Curriculum for Higher Education*. UCL Press, 2017; <http://discovery.ucl.ac.uk/1558776/1/A-Connected-Curriculum-for-Higher-Education.pdf>. Gowdy, Barbara. *We So Seldom Look on Love*. HarperCollins, 1993. Healey, Mick, Abbi Flint and Kathy Harrington. "Students as Partners: Reflections on a Conceptual Model." *Teaching & Learning Inquiry*, 4(2), 2016, 1-13. <http://tlijournal.com/tli/index.php/TLI/issue/archive>. Kuh, George D. *High-Impact Practices: What They Are, Who Has Access to Them, and Why They Matter*, Association of American Colleges and Universities, 2008; <http://provost.tufts.edu/celt/files/High-Impact-Ed-Practices1.pdf>.

Collaborative Space 4

30 August 2018 11:00 - 12:30

Lecture Hall (AUB1)

Collaborative Space

Higher Education

Innovative Teaching

Keywords: Higher Education, student learning outcome, student perceptions, Teaching

Interest group: SIG 04 - Higher Education

Chairperson: Saara Repo, University of Helsinki, Finland

Innovative teaching: practical knowledge, reflection competences and job orientation in students

Keywords: Higher Education, student learning outcome, student perceptions, Teaching

Presenting Author: Anne-Sophie Waag, University of Mannheim, Germany

In times where universities are increasingly faced with the call for more practical approaches and expected to address societal issues, the implementation of new teaching formats is a main challenge in higher education. Innovative, experience-based university teaching formats, such as the Service-Learning concept, are supposed to foster the personal, social and academic skills of students (Baltes, Hofer & Sliwka, 2007). Whereas in the American literature empirical evidence is shown (e.g. Celio et al., 2011; Yorio & Ye, 2012), for the German education context compelling evidence is still lacking (Reinders, 2016). Hence, further research about the conditions of successful innovative teaching, as well as the development of evaluation instruments is needed. Following up on first German empirical effectiveness studies (Reinders, 2016) the present work will focus on three main indicators of successful innovative teaching, namely *practical knowledge* (PK), *reflection competences* (RC) and *job orientation* (JO).

First study series: development of evaluation instruments.

After a pre-study (N = 219), where self-reporting items for the three indicators PK, RC and JO were developed and piloted, study 1 (N = 126) tested a revised version, distinguishing between the facet *course evaluation* (CE) and *increase of competence* (IC) within the indicator variables. A CFA was used to examine the postulated six-factorial data structure (CFI = .858; RMSEA = .063). Drawing upon the results of confirmatory and reliability analyses, items were reduced, so that each facet questionnaire, CE and IC, remained with 15 items, five per indicator variable. Study 2 (N = 131) constituted a first validation by including substantively similar scales (see Linninger, 2016; Kunter et al., 2016; Reinders et al., 2015) into the survey. Further analyses are to be conducted.

Second study series: implementation of instruments.

The validated instruments will be implemented (02/2018 – 06/2018) for the evaluation of three different innovative university courses within the disciplines of psychology, history and business administration. Each innovative course will be paired with a classical course addressing a similar content. The IC facet questionnaire will be implemented as pre- and posttest whereas the CE facet questionnaire will be only implemented as a posttest. The aim is to compare the subjective competence increase of students on PK, RC and JO between innovative and classical teaching formats as well as to evaluate the course content respective the interested indicator variables. Results are analyzed together with the responsible lecturers to, where necessary, adapt the course content and structure. A re-evaluation is planned for the semester thereafter to examine possible improvements, modifications or consistencies.

The outlined project is meant to explore new ways of teaching and learning. On one hand, universities must answer the need of educating students with adaptive skills to cope in faster changing contexts. On the other hand, innovative concepts provide an opportunity for universities to keep in touch with society and their environment.

Keynote Prof. Sari Lindblom 1

30 August 2018 14:00 - 15:00

Lecture Hall (AUB1)

SIG 04 Keynote Session

Prof. Sari Lindblom

Keywords: Higher Education, Motivation, Self-regulation, Student learning

Interest group: SIG 04 - Higher Education

Chairperson: Robert Kordts-Freudinger, Paderborn University, Germany

Factors explaining study progress and success in Bachelor and Master programmes

Keywords: Higher Education, Motivation, Self-regulation, Student learning

Presenting Author: Sari Lindblom, University of Helsinki, Finland

In my keynote address I will concentrate on examining factors explaining study progress and study success from entry to university until Master graduation. As an example, I will use data from an extensive mixed-method follow-up study concerning humanities students. Our follow-up study has concentrated on two extreme groups: those whose studies have proceeded very slowly and those whose study pace has been faster than anticipated. We have examined both individual factors, such as interest and motivation to studying, self-efficacy beliefs, cognitive-attributional strategies, academic emotions and skills in self-regulation and time-management, and contextual factors, such as the nature of study programme, working-life relevance of studies, teaching methods, supervising and counselling as well as peer support. In addition, I will explain how university leadership can apply evidence from discipline-specific research to enhance the quality of teaching and learning in different study programmes and to make important decisions concerning the future directions of university education.

Symposia and Papers 1

30 August 2018 15:30 - 17:30

Seminar room 3 (AUB3)

Single Paper

Higher Education

Study Processes - Mechanics Learning - Refugee Integration

Keywords: approaches to learning, Assessment, cultural diversity, feedback, Higher Education, online education, student learning process

Interest group: SIG 04 - Higher Education

Chairperson: Nitza Davidovitch, Israel

Raising students' awareness of their study processes using HowULearn - a digital tool

Keywords: approaches to learning, feedback, Higher Education, online education

Presenting Author: Anna Parpala, University of Helsinki, Finland; **Co-Author:** Mirja Ruohoniemi, University of Helsinki, Finland

To succeed in higher education, students need to have good organising skills (Haarala-Muhonen et al. 2017). However, these skills are very difficult to develop, even if the study programme tries to provide support for developing them (Parpala et al. 2017). In order to be able to develop such skills students need good reflection skills to become aware of the level of their organising skills and how these skills can be developed. Good reflection skills also seem to have an effect on student employability in the long run (Tuononen et al, submitted). The University of Helsinki has developed a digital, self-reflection tool HowULearn to provide support for student learning and for increasing their ability for self-reflection. The system has been used systematically across the University. For example, as a part of the students' Bachelor's degree portfolio course it has been obligatory for the first- and third-year veterinary students to respond to the HowULearn -questionnaire. Based on their answers, students have automatically, through the digital HowULearn -system, received personal feedback on their approaches to learning as well as guidance to enhance their learning skills (Parpala & Lindblom-Ylänne, 2012). In the present study we focused on how the students themselves experienced this automatically given feedback. All together 67 first year veterinary students were asked to read through the automatic feedback and write a brief description of their experience. They were asked how in line the feedback was with their own opinion about their learning processes, was the feedback useful for them and do they have ideas for developing the feedback further. The students were asked to give their consent to use the assignment for research purposes and everyone did. The data was analysed anonymously and the response rate was 100%. The results showed that the majority of students regarded feedback as useful and in line with their own views. Students felt, for example, that the feedback opened their eyes. Only 3 students felt that their feedback was unnecessary. Interestingly, although we asked the students to briefly describe their experience, some students had written a lot, going through the whole feedback in detail and elaborating their own learning. The study indicates that providing feedback for students on their learning processes automatically, using digital study counselling tool, seems to be an effective way to support student learning, especially if going through the feedback is compulsory for students.

A digital pre-study and introductory phase supporting individual learning processes in mechanics

Keywords: Assessment, Higher Education, online education, student learning process

Presenting Author: Marcel Pelz, University of Duisburg-Essen, Germany; **Co-Author:** Martin Lang, University of Duisburg-Essen, Germany; **Co-Author:** Felix Walker, Technical University of Kaiserslautern, Germany; **Co-Author:** Jörg Schröder, University of Duisburg-Essen, Germany; **Co-Author:** Ralf Müller, Technical University of Kaiserslautern, Germany

A recent study by the DZHW (German Center for Higher Education Research and Science Studies) comes to the conclusion that around one third of all first-year students of engineering disciplines prematurely drop out of university without graduation - in the field of civil engineering, even 48% of new students are exmatriculated (Heublein et al., 2017). The main factors that lead students to the decision to drop-out of university are performance problems (38%) and a lack of study motivation (17%) (ibid.). A potential cause of the performance problems is a decrease in expertise and mathematical knowledge among first-year students (Henn & Polaczek, 2007; Heublein & In der Smitten, 2013). These knowledge gaps are problematic to close during the introductory phase (Willige, Woisch, Grützmacher & Naumann, 2014). On the other hand, a lack of study motivation is well-founded in false expectations towards the studies (Heublein et al., 2017), which can be characterized as misconception of subject matter and misjudgement of their own capabilities (ibid.). The factors mentioned are of high importance already in the introductory phase in engineering courses, which is why the introductory phase should be considered decisive for the further success of the students during their studies. This problem is addressed by the collaborative research project "Förderung des individuellen Lernerfolgs mittels digitaler Medien im Bauingenieurstudium" (FUNDAMENT) - University of Duisburg-Essen (UDE) and TU Kaiserslautern (TU KI). Based on the reference model for quality assurance at faculties of engineering sciences in dependence on Heublein & In der Smitten (2013) a support strategy was developed for the improvement of individual learning processes in civil engineering (with a focus on Technical Mechanics (TM)). The objective of the collaborative research project is to improve the students success with the help of preventative support measures at different times in the course of the studies. In addition to an online-self-assessment (osa), an online prep course (opc) is used before the start of the studies, whereas in the introductory phase interactive online modules (iom) are used. The three online elements (osa, opc and iom) were developed on the basis of the theoretical approach and their efficacy is reviewed in a longitudinal study. The osa consists of two subareas: In the first, the determinants of the PPIK model according to Ackerman (1996) (vocational interest, intellectual engagement, crystalline and fluid intelligence) are tested using appropriate instruments. The second subarea deals with the previous knowledge of prospective students. In addition to the mathematical basics, the subject area of scientific basics is also requested. To close the in the osa uncovered knowledge gaps, prospective students have the opportunity to repeat or learn various topics in

the opc. Finally, during the introductory phase, the TM 1 and 2 courses will be supplemented by iom - educational videos, exercises and online communication. The status quo of the development of the digital elements will be presented, as well as first experiences with the use of the digital elements.

An Empirical Analysis on Opportunities for Integration of Refugees in Higher Education

Keywords: Assessment, cultural diversity, Higher Education, online education

Presenting Author: Franziska Reinhardt, Johannes Gutenberg-Universität Mainz, Germany; **Presenting Author:** Olga Zlatkin-Troitschanskaia, Johannes Gutenberg-Universität, Germany; **Co-Author:** Tobias Deribo, Johannes Gutenberg-Universität Mainz, Germany; **Co-Author:** Roland Happ, Johannes Gutenberg University Mainz, Germany; **Co-Author:** Sarah Nell-Müller, Johannes Gutenberg-Universität Mainz, Germany

Studies about the integration and academic success of refugees in higher education are scarce but the challenges arising from this issue are apparent (Crea, 2016). Enabling refugees direct and unbureaucratic access to higher education and supporting and promoting their study success are the main objectives of the German research project "SUCCESS" (Study Success and Study Opportunities of Refugees) by the Federal Ministry of Education and Research. To overcome barriers often faced by refugees, e.g. language barriers or missing documents, refugees can start studying by participating in an online study program based on Massive Open Online Courses. Kiron Open Higher Education (KIRON) promotes digital solutions to enable refugees' access to free higher education (<https://kiron.ngo/>). SUCCESS examined the effectiveness of KIRON using multiple objective indicators and valid assessments of the development of students' knowledge and skills while studying at KIRON. On top of their level of education, language skills are an important requirement to achieve a successful integration into regular higher education (Thondhlana & Madziva, 2017). This paper focuses on the self-reported study-entry requirements of refugees during the onboarding process at KIRON and presents the descriptive results of the educational-social background questionnaire, and a language tests in English (C-test; Conelly, 1997). Furthermore possible relations between the country of origin, the education level and the language skills will be presented. The results showed an extreme heterogeneity in the assessed variables. The SUCCESS-cohort lies at 1,380 refugees originating from 54 countries. The largest group with 37% ($n=510$) is Syrian refugees, followed by Somalia with 8% ($n=105$) and Afghanistan with 6% ($n=84$). Large differences also become apparent in terms of self-reported education levels. 730 students reported to have started tertiary education and 71% of them reported to have graduated. 29% of the students had to terminate their studies at various time points. The reported average length of studying was 3.5 semesters ($SD=2.3$) despite a Bachelor degree typically lasting 6 semesters. Although the test persons had reported English to be the second most common language of study, the results of the language test showed major weaknesses in their language proficiency. Only 2% of the students in the SUCCESS sample had a C1 or higher language proficiency level, 18% had B2, 58% had B1, and 22% had A2 or below (CEFR-Level; Little, 2007). Remarkably, we found no statistically significant effects of the country of origin, of upper secondary education or of completed tertiary education on language proficiency at the p

Symposia and Papers 2

30 August 2018 15:30 - 17:30

Seminar room 1 (AUB4)

Symposium

Higher Education

Reconsidering the value of social and academic integration in higher education

Keywords: Academic achievement, educational trajectories, Higher Education, transition to from university

Interest group: SIG 04 - Higher Education

Chairperson: Vincent Donche, University of Antwerp, Belgium

Chairperson: Jasperina Brouwer, University of Groningen, Netherlands

Discussant: Elke Bosse, University of Hamburg, Germany

Over the years, the population of students making a transition to higher education has substantially increased. Especially in countries where open access is granted and no rigorous selection procedures are used to enter the first year, this has widened the participation in higher education in considerable ways (van der Wende, 2003). The preparatory study tracks of students have become more diverse and also more students entering higher education are not regular students, and have already been working in the labour market for years. The increase of the population of students and the diversity of backgrounds and study paths bring about important challenges for higher education, as many students experience a 'transition shock' when encountering new learning environments and demands to adjust one's self (Christie, Tett, Cree, Hounsell, & McCune, 2008). This symposium aims to deepen the current understanding on how students experience social and academic integration processes and to what extent this has an impact on academic achievement. While previous theories emphasise the role of social and academic integration in first year higher education (Baker, 2004; Tinto, 1993; Wilcox, Winn, & Fyvie-Gauld, 2005, McEwan, 2013), far less is known about the actual 'processes' and 'growth' which takes place during first year higher education. By focusing both on qualitative research and person-oriented quantitative research, we aim to put forward again the importance of taking the individual learner perspective into account to further understand the value of social and academic integration processes in relationship with academic achievement (Noyens, Donche, Coertjens, & Van Petegem, 2017). This research perspective provides a complementary perspective to the

traditional research perspective aiming to understand why students succeed or not in first year higher education. By examining the complex and dynamic interactions between the individual, the context, the time, and processes of social and academic integration, a comprehensive and ecologically more valid view can be provided regarding the value of social and academic integration in the early months in higher education. The symposium consists of four empirical studies from three EU-countries (Finland, The Netherlands, and Belgium), which deal with one or both of the two overarching research questions central in this symposium: (1) how do students experience social and academic integration processes during the first months of higher education and (2) how are social and academic integration processes related to academic achievement. In all contributions, attention is given to the individual learner perspective, by using qualitative and/or person-oriented quantitative research. At the start of the symposium, the focus and core questions will be introduced and theoretically situated by the organisers, while a critical discussion by Elke Bosse (University of Hamburg, Germany) at the end, will focus on the state of the art of the presented findings as well as point at directions for future research. References Noyens, D., Donche, V., Coertjens, L., Van Petegem, P. (2017). Transition to higher education: moving beyond quantity. In E. Kyndt, et al., Higher Education Transitions: theory and research (p.3-12). New York: Routledge.

Exploration of social and academic integration and belongingness in student-centered learning

Presenting Author:Jasperina Brouwer, University of Groningen, Netherlands; **Co-Author:**Ellen Jansen, University of Groningen, Netherlands; **Co-Author:**Sabine Severiens, Erasmus University Rotterdam, Netherlands; **Co-Author:**Marieke Meeuwisse, Erasmus University Rotterdam, Netherlands

Introduction Higher education institutions adopt increasingly student-centered learning as an approach to prepare students for their future career (OECD, 2012). They learn in small groups for example to collaborate in teams and how to solve problems (Osmani, Weerakkody, & Hindi, 2017). This increasing implementation of various forms of student-centered learning environments, in which students actively learn in small groups, gives rise to questions about the extent and how different forms of small group learning environments contribute to academic performance. So far, little is known about the contribution of different forms of student-centered learning environments on social and academic integration, belongingness, and academic performance. This study investigates a problem-based learning (PBL) and learning communities (LC) context at two different universities in the Netherlands. PBL is an instructional approach and encourages students to construct knowledge by solving open-ended problems according to the 'seven jump method' (see Wijnia et al., 2011), while LCs encourage contact between students and teachers (Shapiro & Levine, 1999) and may create a safe and supportive learning environment. Method The sample consists of 425 first-year university social sciences' students in two institutions, enrolled in either an LC (N = 333; 88 men and 245 women) or PBL (N = 92; 5 men and 87 women) context. At the end of the academic year in 2013-2014, participants filled out a survey about study-related social integration (e.g., peer interaction), academic integration (i.e., teacher interaction) and belongingness. The scales were internally consistent in both learning environments (Cronbach's alphas vary between .71 to .87). Results and conclusions Path analysis, conducted in MPlus, tested two conceptual models in each of the learning environments with either an indirect effect for belongingness or indirect effects for study-related social and academic integration on academic performance. In LCs, belongingness contributes to study-related social integration, but study-related social integration does not contribute to academic success. In PBL, belongingness does not relate to academic performance, but study-related social integration does relate to academic performance. This implies that study-related social integration and belongingness have different roles in the learning environments, which seems to reflect the dominant focus in each of the learning environment. Counterintuitively, we found a negative relationship between academic integration and academic performance in both contexts. This study shows that different learning environments contribute in different ways to academic performance. Further research is necessary to investigate how to improve academic performance while also enhancing belongingness in a safe supportive environment. References OECD. (2012). *Better skills, better jobs, better lives: A strategic approach to skills policies*. OECD Publishing. doi: 10.1787/9789264177338-en Osmani, M., Weerakkody, V. & Hindi, N. (2017). Graduate attributes in higher education: Examining academics' perception in the Middle East. *Journal of Education for Business*, 92(2), 53-64, doi: 10.1080/08832323.2016.1274713 Shapiro, N. S., & Levine, J. H. (1999). *Creating learning communities: A practical guide to winning support, organizing for change, and implementing programs*. San Francisco, CA: Jossey-Bass. Wijnia, L., Loyens, S.M.M., DeRous, E. (2011). Investigating effects of problem-based learning versus lecture-based learning environments on student motivation. *Contemporary Educational Psychology*, 36, 101-113.

Perceived similarity in achievement and integration process among first year at the university

Presenting Author:Mikaël De Clercq, Université catholique de Louvain (UCL), Belgium; **Co-Author:**Nathalie Roland, Université catholique de Louvain (UCL), Belgium

The first year at the university is a challenging transition accompanied by major changes in students' educational environment. One of these changes lied in the building of a new social network. Some educational theories used social integration as a cornerstone to understand student's adjustment process (Tinto, 1997). In this context, social psychology emphasized the importance for social comparison and similarities within a social group (Suls & Wheeler, 2012). Grounded in educational (Tinto, 1997) and motivational model (Eccles & Wigfield, 2002) of academic adjustment, this study focused on the effect of perceived similarity in social integration and achievement process. Social network analyses were carried out on 140 freshmen. The regression analyses mainly highlighted that, in accordance with the similarities hypothesis, students socialized with peers who are perceived as similar in expectancy, course-value and engagement. The perceived similarity in engagement was in turn predictive of student's actual engagement and achievement. Such findings showed that

student's tend to build a homogeneous social network which will entail their perceptions, attitudes and behaviors regarding to the academic context. When integrated in an adaptive network, social integration would therefore provide important resources for student's adjustment process (McEwan, 2013). Conversely, when integrated in poor social group student's integration could have the opposite effect. The limitations and implications of these results are discussed in the presentation.

References Eccles, J. S., & Wigfield, A. (2002). Motivational beliefs, values, and goals. *Annual Review of Psychology*, 53, 109-132. McEwan, B. (2013). Retention and resources: An exploration of how social network resources related to university commitment. *Journal of College Student Retention: Research, Theory & Practice* 15(1), 113-128. Suls, J., & Wheeler, L. (2012). Social comparison theory. *Handbook of theories of social psychology*, 1, 460-482. Tinto, V. (1997). Classrooms as communities. Exploring the educational character of student persistence. *Journal of higher education*, 68(6), 599-623.

Different academic backgrounds and academic achievement in university during first three years

Presenting Author:Katri Kleemola, University of Helsinki, Finland; **Co-Author:**Heidi Hyytinen, University of Helsinki, Finland

In Finland, the university admissions are based on high-stakes entrance exams, which test knowledge in discipline-relevant content. There's little emphasis on past academic achievement like matriculation examination, which includes final tests in secondary school subjects like Finnish, Mathematics, languages and other subjects. Currently there are national plans to increase the weight of the matriculation examination in university admissions. So far, the research on admissions in Finland has been scarce. As admissions are being reformed, additional research on this issue is vital. Reforming admissions is a complex issue, and academic achievement is an important aspect to consider, having further far-reaching implications. Firstly, it is important to ensure that first-year students adjust and integrate to academic community in order to be successful. Academic achievement has found to be a behavioral indicator of study engagement and engaged students have a feeling of a good fit in their academic environment (Ketonen et al., 2017). Secondly, relations between academic achievement in secondary school and university are of interest in the Finnish reform. Previous research indicates that academic achievement in secondary school is related to university GPA (Richardson, Abraham, & Bond, 2012). Students with low achievement in secondary school have more difficulties in adjusting to university (Baik, Naylor, Arkoudis, & Dabrowski, 2017). In Finland, studies show that matriculation examination grades predict study success, but not study pace (Lindblom-Ylänne, Lonka, & Leskinen, 1996). In our paper, we explore students' adjustment and integration to academic community by analyzing their academic achievement. We focus on different academic backgrounds in relation to students' academic achievement during their first three years in university (N=768). More precisely, we examine students' matriculation examination scores, entrance exam scores and academic achievement in terms of gained credits and GPA both in variable- and in person-oriented ways. Our goal is to find out if students, who obtain an assigned target for credits with high grades, were high achievers in matriculation examination, as previous research would suggest. We also compare the matriculation examination scores and entrance exam scores in relation to students' university achievement. Our paper will provide evidence for the planned admissions reform in Finland, and also add to the research on predictors of academic achievement in higher education in a selective admissions system.

References Baik, C., Naylor, R., Arkoudis, S., & Dabrowski, A. (2017). Examining the experiences of first-year students with low tertiary admission scores in Australian universities. *Studies in Higher Education*, 1-13. Ketonen, E. E., Haarala-Muhonen, A., Hirsto, L., Hänninen, J. J., Wähälä, K., & Lonka, K. (2016). Am I in the right place? Academic engagement and study success during the first years at university. *Learning and Individual Differences*, 51, 141-148. Lindblom-Ylänne, S., Lonka, K., & Leskinen, E. (1996). Selecting students for medical school: What predicts success during basic science studies? A cognitive approach. *Higher Education*, 31(4), 507-527 Richardson, M., Abraham, C., & Bond, R. (2012). Psychological correlates of university students' academic performance: a systematic review and meta-analysis. *Psychological bulletin*, 138(2), 353.

Taking the hurdle: explanatory value of social and academic integration on academic achievement

Presenting Author:Jonas Willems, University of Antwerp, Belgium; **Co-Author:**Liesje Coertjens, Université catholique de Louvain (UCL), Belgium; **Co-Author:**Vincent Donche, University of Antwerp, Belgium

Worldwide the first year of higher education (FYHE) remains a major hurdle for students. For example, in Belgium 51.4% of freshmen fail to complete their required coursework in FYHE (Declercq & Verboven, 2014). A better understanding of the freshmen's transition process seems imperative in order to facilitate a smooth transition from secondary school to higher education. In this context, the present summary describes the findings of the first step in a large research project carried out in a Belgian university college, that aims to examine the explanatory value of several social and academic *integration factors* on students' academic achievement in FYHE. Based upon previous research (e.g. Richardson et al., 2012; Tinto, 1993; Torenbeek et al., 2010), a set of eight integration factors was selected (*Perceived Preparation, Academic Adjustment, Social Adjustment, Adjustment to Staff, Adjustment to Following Class, Self-efficacy, Self-concept and Lack of Regulation*) in the pursuit of creating a self-report questionnaire that maps out students' perceived quality of 'fit' with their new learning environment. This instrument was administered to 469 freshman in one university college in the academic year 2016-2017 and construct validity and reliability were checked. Next, the predictive power of the eight aforementioned variables on three academic achievement measures (GPA, Study progress, Dropout) was considered by carrying out (logistic) regression analyses. Finally, this pilot study investigated if 'student-FIT-profiles' could be discerned in the data using Latent Profile Analysis; and if these profiles were related to the three abovementioned academic outcome measures. Results show

that several integration factors were significantly related to academic achievement (see Table 1 for a summary). Next, Latent Profile Analysis showed that three FIT-profiles could be identified: (A) Highly adapted; (B) Moderately adapted; (C) Little adapted. Furthermore, these profiles were related to the three outcome measures; for instance, the highly adapted student group had significantly better academic GPA and study progress and less students dropping out than the little adapted student profile. Table 1. *Significant relationships between integration factors and academic achievement measures.*

GPA Study progress Dropout Perceived preparation + + Academic adjustment + + - Social adjustment - Self-concept + +
In the first semester of academic year 2017-2018 an adapted questionnaire (building on the results of this pilot study) was administered to all students of the university college ($N=3371$). Using a mixed method design, students' perceptions of social and academic integration will be further investigated in relationship with academic achievement. References
Declercq, K., & Verboven, F. (2014). *Enrollment and degree completion in higher education without ex ante admission standards*. Leuven: Faculty of Economics And Business. Richardson, M., Abraham, C., & Bond, R. (2012). Psychological correlates of university students' academic performance: a systematic review and meta-analysis. *Psychological Bulletin*, 138(2), 353–387. Tinto, V. (1993). *Leaving college: rethinking the causes and cures of student attrition (2nd ed.)* Chicago: The University of Chicago Press. Torenbeek, M., Jansen, E., & Hofman, A. (2010). The effect of the fit between secondary and university education on first-year student achievement. *Studies in Higher Education*, 35(6), 659-675.

Symposia and Papers 3

30 August 2018 15:30 - 17:30

Lecture Hall (AUB1)

Symposium

Higher Education

Enhancing higher education teachers' professional development: exploring critical factors

Keywords: Academic Development, feedback, Higher Education, research training, teachers learning communities, Teaching

Interest group: SIG 04 - Higher Education

Chairperson: Liisa Postareff, University of Turku, Finland

Chairperson: Gert Vanthournout, Artesis Plantijn University College, Belgium

Discussant: Robert Kordts-Freudinger, Paderborn University, Germany

The contemporary aims of higher education challenge teachers to regularly innovate and develop their learning environments and teaching approaches (e.g. devoting more attention to 21st century skills, making connections with the field of work or the research-teaching nexus). Teachers may therefore feel the need for professional development to meet these new challenges. Traditionally, a significant part of professional development takes places via formal, structured, group-based training courses or workshops. These formats have both merits and limitations (Stes, 2008). The latter include, amongst others, being decontextualized or teachers experiencing problems with 'transfer of training' (Grossman & Salas, 2011).

Therefore, increasing (research-)attention is focused on exploring the added value of 'alternative' approaches to professional development such as informal learning (Lohman, 2006), the use of teachers' social networks (Van Waes et al., 2016), self-reflection, professional learning communities (Boud & Middleton, 2003) or teacher design teams (Handelszalts, 2009). Compared to research on formal professional development activities, research on the latter topics is still in its infancy (Tynjälä, 2008).

However, available research already points out that these types of professional development too have their hurdles and critical conditions. The current symposium therefore tries to deepen our understanding of alternative approaches to professional development by exploring impeding and enhancing factors. The results presented in the constituting papers may not only advance our insights, but may also provide new possibilities for enhancing teachers' professional development. The symposium consists of three presentations and one critical reflection from a discussant.

The first contribution by Postareff and colleagues investigates different ways by which university teachers connect research and learning in their work (the so-called research-teaching nexus). Based on this exploration these authors are planning to design a questionnaire that can also act as a self-reflection tool for teachers on the research-teaching nexus in their current learning environment.

The second contribution by McCune, focusses on the professional development of experienced university teachers. The study investigates how these teachers' develop through informal learning during practice and in interaction with colleagues. The third contribution by Lochten and colleagues, explores if, how and when professional bachelor teacher educators, participating in so-called teacher design teams, use student-data as an information source in their design process and how this use affects their professional development. Finally, discussant Vincent Donche, will attempt to integrate results from all contributions and provide some critical reflections on each of the papers.

Developing an instrument to measure the research-teaching nexus among university teachers

Presenting Author: Liisa Postareff, University of Turku, Finland; **Co-Author:** Auli Toom, University of Helsinki, Finland; **Co-Author:** Yanling Cao, University of Helsinki, Unknown; **Co-Author:** Anna Parpala, University of Helsinki, Finland

Limitedness of pedagogical awareness often impedes the development of conceptions and practices of teaching among university teachers (e.g. Postareff & Lindblom-Ylänne, 2008). The development of conceptions and practices related to teaching and learning is a slow process, and universities are facing challenges to provide systematic and consistent support for their teachers. To enhance the development of the conceptions of teaching and teaching practices, more information on research-teaching nexus, a crucial part of university teaching, is required. The present research aims to develop an instrument to measure research-teaching nexus from various aspects. The use of the instrument will in the long run help the study programmes to support teachers in combining research and teaching in their work.

We developed items and scales measuring how teachers combine research and teaching in their work. As its best, research enriches teaching and teaching enriches research in multiple different ways, and linking them is mutually beneficial to both teachers and students (Brennan et al., 2017). However, in practice a divide between teaching and research persists (Geschwind & Broström 2015), and their integration to support student learning is relatively scarce. The multi-faceted understanding of academic work with an integration of teaching and research should be encouraged (Lubbe, 2015; Toom et al., 2010; Cao et al., under preparation).

To develop these scales, university teachers and researchers (N=101), representing departments of teacher education in Finnish research intensive universities responded to an open-ended question asking how they combine research with their teaching. They were also asked to give examples. Qualitative content analysis was used in the data analysis. In addition, they were asked to respond to an item 'How much do you think your research is related to your teaching?' on a Likert scale from 1 (no link between them) to 5 (totally related).

Nearly 50% considered themselves more as teachers than researchers, while 20% considered themselves more as researchers than teachers. The remaining 30% considered themselves equally as teachers and researchers. Seven categories describing how teachers' combine research and teaching in their work were identified: 1) Content of teaching is based on research, 2) Teaching methods are based on research (evidence), 3) Applying inquiry-oriented methods in teaching, 4) Doing research on one's own teaching, 5) Integrating students to one's own research projects, 6) Developing as a researcher through teaching and 7) Research supports teaching. These categories will be used to create the scales measuring the research-teaching nexus.

Even though a great majority of the participants reported that their research and teaching are related in their work, the analysis of the open-ended question revealed qualitative differences in how teaching and research are combined. Therefore, it is important to address these qualitative differences in developing the scales measuring the research-teaching nexus. In the conference, the questionnaire will be introduced as whole, the development of which will be based on large interview and video-observation data to gain a deep understanding of what are currently the most important elements and challenges of university teaching.

Experienced academics' development as teachers in research-intensive contexts

Presenting Author:Velda McCune, University of Edinburgh, United Kingdom

This presentation will focus on how experienced academics in the UK develop as teachers. As is common in many countries internationally, academics in the UK are experiencing workload intensification and the pressure to demonstrate ever increasing performance against a range of externally driven indicators. While some of the performance metrics relate to teaching, research performance is still generally the main driver of academic promotions, particularly in the research-intensive universities. Against this background, it is of great interest to understand how some experienced academics nonetheless develop as effective teachers and maintain deep engagement with their teaching and their students' learning. This paper presents findings from the analysis of semi-structured interviews with twelve experienced academics in a research-intensive university in the UK. As is common in such contexts, these experienced academics had generally not participated in formal professional development for teaching. Rather they had developed as teachers over time through experience and informal interactions. As much of the research into teachers' development to date has concentrated on newer academics and formal professional development experiences, the findings presented here make an important contribution. The analysis explored what supported these academics' development as teachers and what allowed them to be deeply engaged with learning and teaching in a context where this was not always seen as the highest priority. The findings suggest that participants' informal interactions with diverse others were central to their development as teachers and that their developmental opportunities spanned diverse communities rather than being situated within one local context. These academics interactions with digital technologies were also significant for their growth as teachers. Certain aspects of the academics' identities – such as the narratives they developed about being teachers – were central to their ongoing care for their students' learning. The implications presented for future research and development work emphasise creating institutional contexts which value informal learning alongside formal professional development and which support academic identities which can underpin deep engagement with teaching.

Whether and how teacher educators use student-data for redesigning their course-module

Presenting Author:Gert Vanthournout, Artesis Plantijn University College, Belgium; **Co-Author:**Lieke Lochten, Artesis Plantijn University College, Belgium; **Co-Author:**Stephen Hargreaves, Artesis Plantijn University College, Belgium; **Co-Author:**Magda Mommaerts, Artesis Plantijn University College, Belgium; **Co-Author:**Eva Maertens, Artesis Plantijn University College, Belgium

To remain adapted to contemporary educational goals in higher education, it seems crucial for teachers to keep innovating their learning environment. Teachers, however sometimes lack information on the didactic quality of their existing learning

environment. Using student-data as a source of information seems to be a promising way to improve didactic quality and contribute to teachers' professional development (Marsh, McCombs, & Martorell, 2010; Tack & Vanderlinde, 2016). However, other researchers found mixed effects or point to potential barriers (Poortman & Schildkamp, 2016). Previous research refers to, amongst others, a negative attitude towards data (Jimerson, 2014) or a lack of competencies in using data (Marsh, 2012; Schildkamp & Poortman, 2015).

The current study tries to gain an in-depth understanding of these obstacles and possible ways to overcome these. The goals of this research are (1) to investigate if, when and how teacher educators use student-data when redesigning a learning environment and (2) to explore evolutions in teachers' attitudes, knowledge and skills about data-use when participating in a collaborative design team supported by a coach.

Twenty four teachers from a teacher education department and six coaches have been clustered in six domain-oriented Teacher Design Teams (TDT; Handelszalts, 2009). These TDT were provided with student-data on: students' background variables, learning strategy use, motivational drives, perceptions of the learning environment and (perceived) learning outcomes. Teachers used these data as a source of information to redesign their learning environment.

A qualitative research design with a multi-method approach was set up to gather data. First, teacher trainers complete individual written reflections and oral group reflections at the end of their monthly TDT-meetings. Second, Teachers (N=8) participating in the TDT were interviewed individually. Finally TDT-coaches (N=67) participated in a focus-group interview. Reflections and interviews are transcribed, coded and analyzed, using Nvivo.

Analyses are still ongoing, but will be finished when the conference takes place. Initial findings confirm teachers' mixed feelings about using student-data. On the one hand, Teachers stated that student-data, although at times confronting, raised awareness and provided guidelines for innovation. On the other hand, some teachers perceived the data to be too general to be useful. Other objections stated that the data were too analytical and did not coincide with intuitive feelings about students or their own learning environments. Coaches reported that teachers largely lack competencies to use research-data independently. Implications for further research and educational policy will be discussed during our presentation.

Symposia and Papers 4

30 August 2018 15:30 - 17:30

Seminar room 2 (AUB5)

Symposium

Teaching and Teacher Education

GOL-Symposium Professionalization in teacher education – From the decision to being a teacher

Keywords: approaches to learning, educational trajectories, Higher Education, online education, returns to higher education, scholarship of teaching and learning, student perceptions, Teaching, transition to from university

Interest group: SIG 04 - Higher Education

Chairperson: Ilka Benner, Justus-Liebig-University, Germany

Discussant: Mari Murtonen, University of Turku, Finland

EARLI SIG 04, 29-31 August, 2018 in Giessen GOL-Symposium *Professionalization in teacher education – From the decision to being a teacher* The Giessen Teacher Training Initiative (GOL) of the Justus Liebig University is funded within the scope of the joint Quality Initiative for Teacher Training by the German federal government and federal states from the funds of the Federal Ministry of Education and Research (BMBF). In GOL multifaceted projects are implemented in the different stages of teacher education: *Recruiting* – reaching suitable applicants for the teacher profession – *Stabilization* – guiding students during orientation phase – *Professionalization* – developing reflective practitioners – *Training* – fostering networking and life-long-learning of teachers in their profession. In the symposium four projects will be presented.

The connection between motives and pedagogical experience on the decision to become a teacher

Presenting Author: Ann Wolf, Justus Liebig University Giessen, Germany

The current contribution is on the relationship between general and specific teaching-related career exploration aspects and the decision to become a teacher. It is part of a larger project to develop an online-self-assessment (OSA) for prospective students aiding them to reflect on their teaching career decision. We administered a questionnaire to teacher students (N=260). The questionnaire included scales on exploration and decision self-efficacy-brief decision (CDSE-BD), mastery experiences (ME), positive (PE) and negative emotions (NE) and social support, taken from the social cognitive model of career self-management. (Lent, Ireland, Penn, Morris, & Sappington, 2017; Turner, Alliman-Brissett, Lapan, Udipi, & Ergun, 2003). The specific aspect included a scale on motives for choosing teaching and items on (non-)scholastic pedagogical experiences. The dependent variables were amongst others were career choice satisfaction and intention to change career. Preliminary results showed that CDSE-BD, ME, and PE were both positively related to career choice satisfaction [$r=.43$, p

Evaluation of a vocational orientation provision to inform schoolchildren about universities

Presenting Author: Amina Fraij, Justus Liebig University Giessen, Germany; **Presenting Author:** Sylvia Esser, Justus-Liebig-University, Germany

The goal of vocational orientation programs for secondary schools is to support the individual competencies of students in

exploring career pathways. External institutions such as the universities play an important part in supporting the individual student to succeed in finding the right studies and the right profession (Esser, 2016). An important aspect of such programs is to aid students to reflect upon their vocational future (see for vocational self-concept Super, 1990; see for self-determination theory Deci & Ryan, 2002). The project GOL@School was developed with the aim to provide such an intervention. A variety of activities were designed such that they gave students in secondary school the opportunity to gain insight into what it is like to be a teacher. The activities were designed to facilitate individual reflection upon the teacher training and the teacher profession. Ninety of the participating students filled out a survey in which they indicated amongst others if the program helped them to reflect and if they could imagine becoming a teacher. They were asked to rate the latter

question to the extent to which they imagined wanting to be a teacher before the start of the program retrospectively and at the end of the program. The results revealed that 15.6 percent of the individuals became more positive towards becoming a teacher. An analysis of variance demonstrated that these students reflected more on their vocational orientation than those, who did not experience such an increased interest in the teaching profession.

Theory-based reflection on videotaped roleplaying in academic settings

Presenting Author:Dagmar Festner, University of Giessen, Germany

The ability to make connections between theories learnt at university and future teaching practice is a challenging task for many pre-service teachers. Therefore, researchers suggest to strengthen the theory-practice connection in pre-service teacher education (Feiman-Nemser, 2001; Blomberg et al., 2013). Video-based feedback a powerful tool to enhance perception of theory-practice-connections and induce reflective thinking processes (Kleinknecht & Gröschner, 2016). The aims of the study were (1) to design an authentic learning environment in which pre-service teachers can learn to cope with classroom disturbances in combination with theory-based reflection, and (2) to evaluate possible effects of the intervention on readiness for reflection.

The workshop classroom disturbances consists of short theoretical inputs and four scenarios, in which one student slips into the role of the teacher and the others take over the role of pupils. In three workshops N=36 pre-service teachers filled in a questionnaire at the start and end of the workshops and provided qualitative feedback.

As pre-service teachers estimated their readiness for reflection (11 items, $\alpha=.84$) at the beginning on a 5-point Likert-scale quite high ($M=4.09$, $SD=.50$) the fractional increase to $M=4.15$ ($SD=.56$) is not significant ($t(29)=-1.30$, $p=n.s.$). However, the evaluation did show that the workshop was received very positively: The pre-service teachers learned to consider multiple perspectives ($M=4.18$, $SD=.95$), Became more aware of theory-practice-connections ($M=4.48$, $SD=.80$) and recognized the relevance of reflective thinking for their future professional life ($M=4.27$, $SD=.84$). Qualitative feedback showed that participants attach great importance to reflection on the specific action during role-playing.

Professionalization of teachers through action research

Presenting Author:Katharina Hombach, Justus-Liebig-Universität Gießen, Germany

Teachers develop teaching skills not only during their studies, but continue to develop during their teaching practice. The program "teaching staff research school and teaching" offers training and further education to teachers. It aims at the professionalism of teachers as "reflective practitioners" (Schön, 1983) through reflective- and research- oriented practice.

Within the program, teachers carry out an action research project, under the supervision of scientists, on evidence-based school and teaching development. The research is conducted in an applied manner with the aim of using the results directly for the improvement and further development of their own teaching and school practice. In doing so, the teachers adhere to the typical scientific stages of a research project, in which phases of action and reflection alternate.

The current contribution will present and discuss the concept and implementation of the program and initial evaluation results with regard to teacher's attitude towards research.

Papers and Collaborative Space 1

31 August 2018 09:00 - 10:30

Seminar room 2 (AUB5)

Single Paper

Higher Education, Teaching and Teacher Education

Dropout Intentions - Research Participation - Teacher Education

Keywords: Academic achievement, educational trajectories, engagement, Higher Education, mentoring, Motivation, transition to from university

Interest group: SIG 04 - Higher Education

Chairperson: Edith Braun, Justus-Liebig-Universitaet Giessen, Germany

Predictors of dropout intentions in teacher education programs and other study programs

Keywords: Academic achievement, engagement, Higher Education, transition to from university

Presenting Author:Carla Bohndick, Universität Hamburg, Germany

Nearly a third of higher education students leave their study without graduation (OECD, 2012). A considerable body of evidence and theory suggests that predictors of the intent to leave are an inadequate academic and social integration (Bean, 1982; Spady, 1970; Tinto, 1975). Regarding teacher education students, it often is implicitly claimed that the mechanisms of dropout are different. This becomes apparent with studies specifically dealing with the dropout of teacher education students (e.g., Herfter et al., 2015; Wikan & Bugge, 2014). However, other frequently assumed differences between teacher education students and other students, such as differences in the cognitive abilities or personality traits, cannot be confirmed empirically (Roloff Henoch et al., 2015). Rather, the studied subject, especially the affiliation to STEM subjects, proved to be important (Roloff Henoch et al., 2015). Therefore, the goal of the study was the analyses of differences between teacher education students and other students controlling for possible confounding variables. In order to investigate this question, data from the study quality monitor 2014 (Willige, 2015) were analyzed. Only those students were included in the analyses, who studied a subject that can be studied both in teacher education programs and in other study programs. A total of $n = 3337$ students (50% female, in their $M = 5.97$ [$SD = 3.94$] semester) were included in the analysis. Reliability of the scales dropout intention, social integration, and academic integration was acceptable to good (.57

Participating in Academic Research: A Necessity in Higher Education

Keywords: engagement, Higher Education, Motivation, mentoring

Presenting Author:Henna Qureshi, Friedrich-Schiller-University Jena Germany & NUST Pakistan, Germany

Abstract: Higher Education is focused on research, yet not many Postdoctoral researchers participate in academic research regarding their experiences during mentoring. This lack of participation is creating a gap in research on mentoring. For Postdoctoral researchers, on one hand, sharing experiences with an interviewer not only works as cathartic instrument but also provides them with new perspective on their mentoring experience. On the other hand, participating in research about their experiences in mentoring adds valuable information for mentoring programs, mentors and mentees. Despite Postdoctoral researchers' scientific background lack of interest in participating in academic research is of serious concern as it affects the efforts of mentoring programs and their effectiveness. The present paper is an effort to bring to light the difficulties and issues faced while conducting research with Postdoctoral researchers and Professors. Based on inductive approach, the study was conducted using Grounded Theory as a tool. The data was collected in 25 semi-structured in-depth interviews with Professors and Postdoctoral researchers participating in mentoring programs across Germany. The paper aims to propose initiating a dialogue for participating in academic research in Higher Education especially at Postdoctoral researchers level to increase awareness. **Keywords:** Higher Education, Postdoctoral Researchers, Mentoring, Mentees, Mentors, Grounded theory, Academic research

Teacher education in Germany: Who stays, who moves, who leaves?

Keywords: Academic achievement, educational trajectories, Higher Education, Motivation

Presenting Author:Sebastian Franz, Leibniz Institute for Educational Trajectories (LifBi), Germany; **Presenting**

Author:Hildegard Schaeper, DZHW - German Centre for Higher Education Research and Science Studies, Germany; **Co-**

Author:Andreas Ortenburger, DZHW - German Centre for Higher Education Research and Science Studies, Germany; **Co-**

Author:Thorsten Euler, DZHW - German Centre for Higher Education Research and Science Studies, Germany

While the issue of dropout in German higher education has been widely researched, little is known about the withdrawal of teacher education students in particular. Existing studies either focus on the differences between dropouts who attended a teacher programme and those who were enrolled in other study programmes, or are confined to specific fields of study or regions in Germany. In addition, previous research often does not distinguish between leaving higher education altogether (dropout in a narrow sense) and leaving the study programme while staying in higher education and studying for a different degree ("moves out"). Furthermore, moves within teacher education, e.g. changing the teacher training track, have been rarely examined. Likewise, little research has been done on the issue of changing the study programme in favour of the teacher education ("moves in"). In short, a systematic analysis of different educational trajectories of teacher education students is lacking. In an attempt to reduce this research gap, we distinguish between different types of teacher candidates: stayers, movers within teacher education, movers into teacher education (from a non-teaching study programme), movers out of teacher education (into a non-teaching study programme), and dropouts. Additionally, we examine how the different educational trajectories are affected by socio-structural, contextual and psychological-individual factors. Theoretically, the study draws on Tinto's model of student departure and therefore pays special attention to the role of social and academic integration. We combined this approach with the expectancy-value theory proposed by Eccles, Wigfield and colleagues and, therefore, consider expectancy for success and different value components. Socio-structural, contextual and psychological-individual characteristics are assumed to have an indirect impact via integration, subjective values, and expectations. We use data from the National Educational Panel Study (NEPS): Starting Cohort First-Year Students (doi:10.5157/NEPS: SC5: 9.0.0). This sub-study longitudinally observes a state-wide random sample of new entrants to German higher education institutions in the winter semester 2010/2011. The sub-sample used for analysis consists of about 4,840 students who are aiming or aimed for a degree in teaching and stayed in the study until the 2015 survey. 82

percent of these have not revised their initial decision. Another five percent continue to pursue a degree in teaching but changed the teaching track. About eight percent moved from teacher education to a non-teaching degree programme. Three percent were identified as permanent dropouts. Another three percent moved from a non-teaching programme to a teacher training course. To assess the impact of the above-mentioned factors, we estimate multinomial logit models and path models. The empirical analyses are not yet completed. Preliminary results indicate that educational trajectories correlate with certain individual and social characteristics. For example, female students tend to revise their decision to train as a teacher less often than males. Men more frequently move to a non-teaching degree course or drop out from higher education. Dropouts, in addition, have lower high school grades than persisters and, thus, more unfavourable study prerequisites.

Papers and Collaborative Space 2

31 August 2018 09:00 - 10:30

Seminar room 3 (AUB3)

Single Paper

Higher Education

Teachers' Emotions - Teaching Support - Large Groups

Keywords: Academic Development, Emotion, Higher Education, online education, teachers learning communities, Teaching

Interest group: SIG 04 - Higher Education

Chairperson: Liisa Postareff, University of Turku, Finland

How happy are University Teachers? Positive Emotions and Subjective Appraisals Among Work Domains

Keywords: Academic Development, Emotion, Higher Education, Teaching

Presenting Author: Katharina Thies, Ostwestfalen-Lippe University of Applied Sciences, Germany; **Co-Author:** Robert Kordts-Freudinger, Paderborn University, Germany

How intensely do university teachers feel positive emotions their work? Which emotions do they experience more intensely in different work domains? And to what extent are the emotions predicted by appraisals about the current work activity? The paper investigates university teachers' positive emotions (enjoyment, contentment, pride, relief) with respect to typical work domains (teaching, research, administration) and subjective appraisals (value, control) as antecedents of the emotions. Applying the experience sampling method, $N = 50$ university teachers reported their current emotions and appraisals for five times per workday for two weeks (total of $N = 1691$ assessments). Descriptive results show that university teachers felt enjoyment and contentment more intensely than pride and relief. Repeated-measures ANOVAs indicate that the university teachers experience enjoyment more intensely during teaching and research activities in comparison to administration tasks. Further results showed that control and value appraisals are related to the emotions: value is positively related to all four emotions in the teaching domain, but less so in the research and administration domain, whereas control is positively related to enjoyment and contentment, but not to pride and relief. Multiple regression models on the micro-level indicates that both appraisal dimensions predict positive emotions more strongly in the teaching domain, whereas control appraisals predict them more strongly in the domains of research and administration. Bearing limitations in mind (i.e. small sample, single-items and German cultural background) the paper provides empirical evidence for a differentiated and a real-time investigation of emotions. Overall, the paper implies expanding content for university teachers' academic development, e.g. knowledge about emotion functions or trainings on emotion regulation in order to benefit from multifaceted effects of positive emotions.

Innovative ways of supporting and developing teaching and learning in Hungarian higher education

Keywords: Academic Development, Higher Education, teachers learning communities, Teaching

Presenting Author: Laszlo Horvath, ELTE Eötvös Loránd University Institute of Education, Hungary; **Co-Author:** Orsolya Kálmán, University of Eötvös Loránd, Hungary

The notion of quality, although stems from the business and industrial field (Sorcinelli and Austin 2010), is not a new term for higher education either. The establishment of the European Higher Education Area (EHEA) embeds the discourse on quality through the Bologna Process, incorporating it into national higher education reforms. The European Association for Quality Assurance in Higher Education developed the Standards and Guidelines for Quality Assurance, putting student-centered learning into focus, considering all stakeholders from the point of view of quality in teaching and learning (ESG 2015). Quality teaching is becoming an important issue in higher education institutions. Analysing the practice of higher education institutions (OECD, 2010) three major ways of supporting quality teaching were identified: (1) institution-wide and quality assurance policies (2) initiatives focusing on monitoring programme design and implementation and (3) supporting teaching and learning at the individual level of teachers and students. In this paper, we are focusing on the second and third aspects and present our own, previous and ongoing research and development projects in this field. Our main research questions were posed as (1) what kinds of innovation activities can be identified in Hungarian higher education institutions (2) how these activities are supported (3) what kinds of collaboration can enhance the innovation diffusion? During an ongoing research project, focusing on the emergence and diffusion of local educational innovations (Innova) we have gathered data in an online questionnaire from 5387 educational institutions (from kindergarten to doctoral schools) which

accounts for ~30% of the population. The results showed us that the innovation activity of higher education is not as pervasive as other sectors of education, however higher education institutions, especially teacher education institutions play a key role in knowledge diffusion at the local and regional educational innovation ecosystem. In higher education, the local innovative activity mainly focuses on the application of new technology (38%) and to a much lesser extent to new ways of organizing work (22,6%). The reported innovative cases show that interdisciplinarity and internationalization are not key driving forces for innovations yet. The inner support system of innovation activity is not strong, 37% of the departments reported that they have an agent or organizational unit who is responsible for it. These results led us to focus on the unique role of teacher education within higher education and the innovation ecosystem. We examine the collaboration of university teachers in carrying out teacher education programmes, focusing on interdisciplinary and inter-institutional/departmental collaboration and boundary crossing. Identifying the patterns of collaboration within teacher education institutions hopefully can contribute to exploring the key components and supporting ways of collaboration which is the main impediment for innovation and development of teaching and learning in Hungarian higher education.

Keywords: innovation, faculty development, teaching and learning, collaboration

University pedagogy for large groups: possibilities blended and online learning

Keywords: Academic Development, Higher Education, online education, Teaching

Presenting Author:Saara Repo, University of Helsinki, Finland; **Co-Author:**Anni Rytönen, University of Helsinki, Finland;

Co-Author:Viivi Virtanen, University of Helsinki, Finland; **Co-Author:**Henna Asikainen, University of Helsinki, Finland; **Co-Author:**Nina Katajavuori, University of Helsinki, Finland

The purpose of this study was to design a mass course of university pedagogy of two different versions: blended and online, and to explore participants' experiences of the courses. The pedagogical principles in the courses were based on constructive alignment and co-operative learning, and aim was to create a learning environment that supported participants' active learning and meaningful use of online methods. Multidisciplinary peer group work had a central role: positive interdependence between group members was promoted. The courses included 137 hours work during 10 weeks. Studies consisted of beginning and ending contact sessions, three major assignments and a few smaller assignments. All assignments required to use reading materials, individual and peer group work, and online learning. The sample included 260 participants participating in online (70) or blended courses (190). Participants represented academic staff and PhD students from nine different faculties. Participants' experiences concerning the courses were collected with Learn-questionnaire (experiences in teaching-learning environment), and open-ended questions. Quantitative data was analysed by confirmatory factor analysis and Oneway ANOVA, and qualitative data by inductive content analysis.

Peer support and learning assignments were experienced most positively, while lowest satisfaction was with tutors. Participants' experiences of the course did not differ according to their previous pedagogical studies, type of position, or teaching experience. Blended learning participants experienced contact sessions, tutor support and peer support more positively than the online participants. Both courses were experienced as well-balanced combination of contact sessions, e-learning, and independent learning. The participants experienced that assignments, literature, heterogeneity in peer group members' disciplines and participants' own curiosity, and motivation enhanced learning. For some participants, taking the course online made their participation possible in the first place. Factors experienced impeding learning were tight timetables, confusingly organised course and Moodle e-learning environment, too little interaction with tutors, and problems in peer group interaction. Some participants experienced they had weak motivation, too little background knowledge or rush with other responsibilities. This study showed that it is possible to design and carry out an effective massive online course in university pedagogy. Structure of the course must give enough individual freedom and foster learning processes by meaningful learning assignments and co-operatively structured peer group work. Heterogeneous peer groups enhanced learning by expanding participants' thinking of university pedagogy in more general level. Insufficient amount or quality of interaction with tutors, dysfunction of peer groups, and difficulties to create clearly structured e-learning environment are challenges both in blended and online settings.

Papers and Collaborative Space 3

31 August 2018 09:00 - 10:30

Seminar room 1 (AUB4)

Collaborative Space

Higher Education

Diversity and Transition

Keywords: Academic achievement, Higher Education, Student learning, transition to from university

Interest group: SIG 04 - Higher Education

Chairperson: Bernadette Charlier, University of Fribourg, Switzerland

The Role of Diversity for the Transition to Higher Education

Keywords: Academic achievement, Higher Education, Student learning, transition to from university

Presenting Author:Elke Bosse, University of Hamburg, Germany; **Presenting Author:**Miriam Barnat, University of Hamburg, Germany; **Presenting Author:**Mikaël De Clercq, Université catholique de Louvain (UCL), Belgium

Increasing student numbers and diversity in European higher education (HE) have reinforced political concerns about study

success (Vossensteyn et al., 2015; Wolter, 2013) and have led to institutional attempts to better accommodate students' needs, especially in the first year of university. The growing body of research on the transition to HE (Coertjens et al., 2017; Jenert et al., 2015; Kyndt et al., 2017), however, results in difficulties to integrate the findings and to discuss practical implications. Apart from particular thematic strands, Noyens and colleagues (2017) point out differences in the focused time-span, the research design and the investigated outcomes. Furthermore, there are studies that rather focus on the micro-level of student development, the meso-level of the learning environment or the macro-level of the educational system and structures. At the same time, investigations differ in the priority assigned to individual, organisational and social diversity such as students' motivational beliefs, field of study and educational background (Bosse, 2015). While this analytic distinction may serve to map the landscape of current research, a clearer view of how to link the different levels is needed. For a fuller understanding regarding the role of diversity for the transition to HE it seems necessary to integrate the findings across single studies and to depict the interplay between diversity related factors. Through this *collaborative space*, we therefore seek to bring together different research examples and to compare our approaches, methods and findings. Furthermore, we aim at exploring the interplay of the different levels of HE, following the notion of Bronfenbrenner (1979) that individual development is shaped by multiple contexts, ranging from the immediate learning environment to the wider educational system. Finally, we intend to discuss the implications of our research for academic development, quality management and educational policy. The *collaborative space* includes eight contributions from five countries that use different perspectives and methodologies to investigate the role of diversity for the transition to HE. First, there are three studies on the micro level paying close attention to student success correlates (e.g., motivation, learning strategies, emotions, academic and social adjustment) and individual study profiles. They all provide a longitudinal perspective allowing to capture diversity in terms of individual development, while one of the studies also addresses social diversity with regard to students' international background. Second, there are four studies that expand the focus towards organisational diversity by taking the meso level of the institutional context into account, e.g. students' perception of institutional requirements, didactic quality, curriculum variables, study programmes or the overall learning environment. Adding a theoretical perspective, one contribution proposes a conceptual framework that may serve to reflect on the complementarity of the different empirical studies and research perspectives. Drawing on the included studies and comparing their methods and findings, the collaborative space offers parallel discussion rounds on how to investigate diversity related factors on the different levels of HE. Through this discussion, we intend to deepen out research collaborations and to prepare a special issue on the role of diversity for the transition to HE.

Papers and Collaborative Space 4

31 August 2018 09:00 - 10:30

Lecture Hall (AUB1)

Single Paper

Higher Education

Teachers' Interpretations - Teaching Role - Mentoring

Keywords: Doctoral studies, Higher Education, identity, mentoring, online education, Teaching

Interest group: SIG 04 - Higher Education

Chairperson: Robert Kordts-Freudinger, Paderborn University, Germany

University teachers' interpretations of teaching-learning situations – a pretest-posttest design

Keywords: Doctoral studies, Higher Education, online education, Teaching

Presenting Author:Henna Vilppu, University of Turku, Finland; **Co-Author:**Ilona Södervik, University of Turku, Finland;

Co-Author:Mari Murtonen, University of Turku, Finland

In this study we were interested in how university teachers' and doctoral students' (N = 66) interpretations about teaching-learning situations change after completing one to three online university pedagogy courses during Autumn 2017. A pretest-posttest design was utilized. Before studying the course(s), participants answered a pretest questionnaire consisting of background information questions, open-ended questions concerning their conceptions of teaching and learning at the university, seven short videos (approximately 30-60 seconds) about teaching-learning situations with open-ended interpretation questions and some Likert scale questions, such as ATI (Trigwell & Prosser, 2004). During the course(s), the participants read articles and studied self-study materials, wrote an essay and commented each other's essays in small groups via Internet. In the posttest the participants answered the same open-ended questions concerning learning and teaching, as well as wrote their interpretations about the seven teaching-learning videos again.

The data were analyzed both qualitatively and quantitatively. The pretest interpretations of three of the videos were chosen for a closer analysis. In the first video, teacher's lecture was interrupted by a question from a student. As the question was considered important by the teacher, she suggested that all the students could spent a while thinking about the question together. In the second video, the teacher let a student ask a question in the middle of the lecture, but did not answer it because according to her it was not in the focus of the theoretical lecture, although the question was relevant in terms of applying the theory in practice. In the third video a teacher first presented the goals of a course and then wanted students to discuss with a pair about what they already know about the subject and what they would like to learn. The participants were asked to interpret and explain the situations on the videos. The answers were scored according to on what the answer

was focused, for example on student's learning or teacher's actions. For example, answers to the second video were scored as follows: *Student asks a question, but it is out of the topic. Teacher stays nicely in topic.* (teacher's action) vs. *The teacher is (only) interested in teaching facts related to a certain topic. By not answering the questions, she will passivate and exclude students and they learn less.* (student's learning). The interrater-reliability of the analysis between two coders was 89.5% for the first video, 92.1% for the second video, and 82.9% for the third video. The data were analyzed with SPSS Statistics (IBM). Two sum variables were formed from ATI questionnaire: content-centered teaching ($\alpha = .72$) and student-centered teaching ($\alpha = .74$).

The analyses are still in process. Preliminary analyses concerning the video interpretations of the pretest show that focusing on student's learning correlated negatively with focusing on teacher's actions in videos ($r_s = -.81$, p

“In the first place, I'm a researcher”– activating the teacher role in young academics

Keywords: Doctoral studies, Higher Education, identity, Teaching

Presenting Author:Alessa Hillbrink, University of Münster, Germany; **Co-Author:**Regina Jucks, WWU Münster, Germany

Doctoral studies as career-entry are a critical stage for the development of a professional identity. Approximately 40 % of the German PhD students in psychology accomplish teaching duties alongside with research for their thesis (Rentzsch, Harzer & Wolter, 2017). Hence, for this group at least two work identities, the researcher and the lecturer, need to be developed as roles, alongside a corresponding set of perceptions, guidelines and behavior (Matthias & Williams, 2014). As the academic system tends to emphasize and reward research activities more strongly (Young, 2006), it is worthwhile to examine the professional identification processes of early-career academics: How much do they already identify with each of their roles (as a trait)? Is it possible to purposely activate the teacher role (as a state)? 167 doctoral students in psychology from 12 different universities in Germany completed the Doctoral Students' Professional Identity Questionnaire (Kovalcikiene & Buksnyte-Marmiene, 2012) to assess their identification with both, researcher and teacher role. Afterwards, they were randomly assigned to one of three experimental conditions: In each condition the task was to create a collage out of given pictures that fits their actual perspective best. Conditions varied in the kind of pictures presented, either being research pictures, teaching pictures, or both research and teaching pictures. To assess an impact of this experimental manipulation, participants answered open questions such as “I am working as academic staff, because...”, which were content-analyzed and quantified. Young academics identified more strongly with their researcher role ($M = 3.94$, $SD = 0.57$) than with their teacher role ($M = 3.74$, $SD = 0.59$), $t(166) = 3.53$, $p < .001$. Besides, engagement with teaching pictures activated the teacher role more strongly compared to the mixed and research condition, $H(2) = 6.65$, $p = .036$. Further analyses focus on the interplay of long-term role development and situated role activation. Results are discussed with regard to the support of professional identity development in doctoral students.

Mentors' and mentees' role concepts and conceptualization of the mentoring process in ITE

Keywords: Higher Education, identity, Teaching, mentoring

Presenting Author:Kinga Kaplar-Kodacsy, Eötvös Loránd University, Hungary; **Co-Author:**Helga Dorner, Central European University, Hungary

Mentoring in teacher education is acknowledged as the most crucial strategy through which novices learn about the teaching profession: it helps novices to survive the induction part of their career, develops teaching competences, and encourages novices to define and identify their teaching lives (Fairbanks et al., 2000). Guided reflective teaching practice is crucial for trainees to become teachers or even good teachers (Korthagen, 2004). Different mentoring programs have certain elements in common concerning conceptual frameworks, role concepts and goals. These elements are integral parts of a comprehensive theory of mentoring in ITE (Mathur et al., 2013). In this study, researchers aim to (1) map out the conceptual differences and similarities of mentors and mentees concerning their reflective practice and roles; (2) explore how mentoring intervention is interpreted from different aspects of mentors and mentees, (3) analyse how the participants realize their professional beliefs and views (Korthagen, 2004) in these incidents. In this small-scale qualitative study, we follow and monitor ten mentor teachers' ($n=10$) and their mentees' ($n=15$) work during a semester-long mentoring process. Mentors and their mentees reflect on their work and development in three phases (initial, mid-term and end-term) during the mentoring process. They record three audio diary entries on their own with the help of prompt questions sent by the researchers. The duration of the audio material was at least 90 mins per participant, which adds up to more than 36 hours of audio material. We conducted our analysis within the phenomenographic tradition (Marton & Booth, 1997) in order to discover the variation in how mentors and mentees experience and understand the mentoring process. We found a mutual agreement among mentors and mentees about the importance and meaningfulness of a mentored practicum and its potential. Nevertheless, mentors and mentees emphasized different incidents as influential in their role conceptualizations, and they interpreted and reflected on these critical incidents in distinctive manners. Their conceptualizations of 'mentoring for teaching' oscillate between distinct categories depending on the personal and professional context of the mentorship, and of integration of the notion of reflective practice (Schön, 1980). We acknowledge the limitations of this small-scale study and underline that it is an entry point into a large-scale endeavour. We will share a spectrum rather than a hierarchy of conceptualizations. References Fairbanks, C. M., Freedman, D., Kahn, C. (2000): The Role of Effective Mentors in Learning to Teach. *Journal of Teacher Education*, (51: 2), 102-112. Korthagen, F.A.J. (2004). In search of the essence of a good teacher: Towards a more holistic approach in teacher education. *Teaching and Teacher Education*, 20(1), 77 – 97. Marton, F. & Booth, S. (1997). *Learning and Awareness*. Mahwah, NJ: Lawrence Erlbaum Associates Publishers. Mathur, S. R., Gehrke, R., & Kim, S. H. (2013). Impact of a teacher mentorship program on mentors' and mentees' perceptions of

classroom practices and the mentoring experience. *Assessment for Effective Intervention*, 38(3), 154-162. Schön, D. A. (1983). *The reflective practitioner: How professionals think in action*. Basic Books, USA.

Keynote Prof. Jan Hense 1

31 August 2018 11:00 - 12:00

Lecture Hall (AUB1)

SIG 04 Keynote Session

Prof. Jan Hense

Keywords: Assessment, Higher Education, research training, student perceptions

Interest group: SIG 04 - Higher Education

Chairperson: Ludwig Stecher, Germany

Flat earth or round globe: How topographies shape our understanding of Higher Education Research

Keywords: Assessment, Higher Education, research training, student perceptions

Presenting Author: Jan Hense, JLU Gießen, Germany

In my talk, I'll use the notion of topography as a loose analogy for the different ways we as researchers conceptualize our respective research domains. A flat earth view parallels a conceptualization of processes as a linear sequence of events with fixed beginnings (causes) and ends (effects) and mostly linear cause-effect relationships. A round globe view tries to incorporate the circular and intertwined nature of cause-effect relationships usually present in educational contexts.

Additionally, a map's scale can serve as analogy how close our research zooms in or out when observing educational processes.

As opposed to everyday life, where flat earth thinking and conspiracy theories increasingly seem to influence our daily politics and need to be refuted vehemently by science, I'll argue that in scientific research the flat earth view can have its merits, even if the round globe perspective seems more desirable in general. As a specific example, I'll draw on the research on student evaluations of teaching (SETs) and their role for quality development in higher education teaching and learning. Using examples from own and other research, I aim to illustrate how both views and different scales are needed to enable evidence based systematic changes of educational practice.