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CENTRE FOR UNIVERSITY
TEACHING AND LEARNING

RESEARCH BRIEF

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Read the latest research news of the Centre for University Teaching and Learning (HYPE) regarding learning, well-being and teaching in higher education. The HYPE Research brief presents the latest research conducted at the Centre and published in the peer-reviewed publications. The details of the publications are shown after the highlights. More information about the studies and results can be received from the responsible researchers mentioned in the articles.

Fragmented knowledge base and unorganised studying are challenging students across the university

The study highlights that students who struggle with their studying have often fragmented knowledge base although they're using learning processes involving relating ideas and search for evidence. These students can be found from various disciplines. Moreover, students relating ideas and searching for a deeper understanding but simultaneously have difficulties in their time- and effort management may struggle in their studies. These both student groups should be recognised and they need special attention and support. They should, for example, have more support for understanding and recognising their own, inefficient learning processes and have ideas how to develop their study skills.

Parpala, A., Mattsson, M., Herrmann, K. J., Bager-Elsborg, A., & Hailikari, T. (2021). Detecting the Variability in Student Learning in Different Disciplines—A Person-Oriented Approach. *Scandinavian Journal of Educational Research*, 1-18. <https://doi.org/10.1080/00313831.2021.1958256>

University students' interest and burnout profiles and their relation to approaches to learning and achievement

The results showed that students representing the *Exhausted and inefficient* and *Burned-out not interested* profiles scored higher on surface approaches to learning than students who experienced less burnout. In addition, burnout profiles differed according to the credits earned and study success. There were also differences in the gender distribution of the profiles, as women were overrepresented in the burnout and exhausted profile.

Asikainen, H., Nieminen, J. H., Häsä, J. I. A., & Katajavuori, N. (2022). University students' interest and burnout profiles and their relation to approaches to learning and achievement. *Learning and Individual Differences*, 93, [102105]. <https://doi.org/10.1016/j.lindif.2021.102105>

Cutting edge research methodology in studying the development of expertise in life sciences

These studies introduce methodologically novel approaches to investigate learning of life sciences. The results show that learning of complex contents and skills pose challenges for university students. However, novel research methods and cutting-edge educational technology, such as augmented reality, can be beneficial in advancing teaching and learning of complex contents and hands-on skills.

Södervik, I. & Vilppu, H., 2021, Case processing in the development of expertise in life sciences - what can eye movements reveal? In: *Applying bio-measurements methodologies in science education research*. Devetak, I. & Glažar, S. A. (toim.). Springer International Publishing AG, s. 169-183.

Södervik, I., Katajavuori, N., Kapp, K., Lauren, P., Aejmelaeus, M. M. & Siven, M. (2021). Fostering Performance in Hands-on Laboratory Work with the Use of Mobile Augmented Reality (AR) Glasses, *Education Sciences*,11, 816. <https://doi.org/10.3390/educsci11120816>

Södervik, I., Nousiainen, M. & Koponen, I. (2021). First-Year Life Science Students' Understanding of the Role of Plants in the Ecosystem—A Concept Network Analysis, *Education Sciences*. 11, 369. <https://doi.org/10.3390/educsci11080369>

Activity Theory and expansive learning in health professions education

These articles introduce the key concepts of action theory and expansive learning in the context of health professions education.

Engeström, Y., & Pyörälä, E. (2021). Using Activity Theory to transform medical work and learning. *Medical Teacher*, 43(1), 7-13. <https://doi.org/10.1080/0142159X.2020.1795105>

Dornan, T., Kearney, G., & Pyörälä, E. (2021). Destabilising institutions to make healthcare more equitable: Clinicians, educators, and researchers co-producing change. *Medical Teacher*, 43(1), 4-6. <https://doi.org/10.1080/0142159X.2020.1795102>

Mobile devices in learning medicine and dentistry

The research form part of a mobile learning project in medicine and dentistry. The study identified hurdles for adopting mobile learning devices at the beginning of clinical courses in three consecutive student cohorts of medical students. Students reported negative attitudes towards mobile device use in the clinical setting and were hesitant to use them in patient contact. Teachers seldom communicated suitable quality medical applications to students.

Folger, P. D. A., Merenmies, J., Sjöberg, L., & Pyörälä, E. (2021). Hurdles for adopting mobile learning devices at the outset of clinical courses. *BMC Medical Education*, 21, [594]. <https://doi.org/10.1186/s12909-021-03008-9>

Challenges of joint biomedical courses for medical and dental students

The study looked at the perceptions of dental students about how joint biomedical courses with medical students and courses tailored for dental students supported their clinical studies. The key finding was that it was difficult for students to recognize the importance of common biomedical courses for clinical work and that the dental perspective should be more effectively integrated into biomedical content.

Mussalo, F., Karaharju-Suvanto, T., Mäntylä, P., & Pyörälä, E. (2021). Biomedical Courses Should Also Be Designed for Dental Students: The Perceptions of Dental Students. *Dentistry Journal*, 9(8), [96]. <https://doi.org/10.3390/dj9080096>

Validation of an instrument developed to assess pain attitudes and beliefs for the training of physiotherapists

In this study, the pain and disability ratio scale (HC-PAIRS-FI) of health care providers was translated and multi-culturally adapted into Finnish in order to implement it in physiotherapeutic therapy.

Ehrström, J., Pöyhkä, R., Kettunen, J., Santavirta, N., & Pyörälä, E. (2022). Psychometric properties and factor structure of the Finnish version of the Health Care Providers' Pain and Impairment Relationship Scale. *Musculoskeletal science & practice*, 57, [102471]. <https://doi.org/10.1016/j.msksp.2021.102471>

The role of academic competences and learning processes in predicting Bachelor's and Master's thesis grades

Bachelor's students already possess a considerable amount of academic competences. Writing a thesis requires competences such as analysing information. In addition, study showed that students' organising skills are important and should be supported especially in the Bachelor phase.

Tuononen, T., & Parpala, A. (2021). The role of academic competences and learning processes in predicting Bachelor's and Master's thesis grades. *Studies in Educational Evaluation*, 70, [101001]. <https://doi.org/10.1016/j.stueduc.2021.101001>

Argumentation and processing knowledge in open-ended assignment tasks: Challenges and accomplishments among pharmacy students

The results showed that there was substantial variation in how Master students analysed and processed pharmaceutical knowledge as well as how they utilized that knowledge in their argumentation. Understanding the nature of the challenges in argumentation and knowledge processing can help educators to modify their pedagogical practices to better support students' learning.

Hyytinen, H., Siven, M., Salminen, O., & Katajavuori, N. (2021). Argumentation and processing knowledge in open-ended assignment tasks: Challenges and accomplishments among pharmacy students. *Journal of University Teaching & Learning Practice*, 18(6), 37-53. <https://doi.org/10.53761/1.18.6.04>

Assessment of critical thinking is challenging

An open-ended performance task of critical thinking requires holistic use of different skills whereas the selected-response questions measure one skill at a time. Task types trigger different response and self-regulatory processes. Students have varying strengths and weaknesses within critical thinking skills.

Hyytinen, H., Ursin, J., Silvennoinen, K., Kleemola, K., & Toom, A. (2021). The Dynamic Relationship between Response Processes and Self-Regulation in Critical Thinking Assessments. *Studies in Educational Evaluation*, 71, [101090]. <https://doi.org/10.1016/j.stueduc.2021.101090>

Kleemola, K., Hyytinen, H., & Toom, A. (2021). Exploring internal structure of a performance-based critical thinking assessment for new students in higher education. *Assessment & Evaluation in Higher Education*, [130136]. <https://doi.org/10.1080/02602938.2021.1946482>

Understanding procrastination: A case of a study skills course

The results showed that students' ability to organize their time and effort has the strongest association with procrastination out of the variables included in the study. Psychological flexibility also has a strong individual role in explaining procrastination along with time and effort management skills. Surprisingly, academic self-efficacy did not have a direct association with procrastination.

Hailikari, T., Katajaviuri, N., & Asikainen, H. (2021). Understanding procrastination: A case of a study skills course. *Social Psychology of Education*, 24, 589-606. <https://doi.org/10.1007/s11218-021-09621-2>

ACT-based intervention course to promote students well-being an studying.

Wells-project has developed an intervention course for university students which aims to promote students' well-being and study skills. The course is based on practicing psychological flexibility which is the core process in Acceptance and commitment therapy (ACT). Our results have shown that the course improves student well-being and their study skills in many different ways.

Asikainen, H., & Katajaviuri, N. (2021). Development of a Web-Based Intervention Course to Promote Students' Well-Being and Studying in Universities: Protocol for an Experimental Study Design. *JMIR Research Protocols*, 10(3), [23613]. <https://doi.org/10.2196/23613>

Asikainen, H., Kaipainen, K., & Katajaviuri, N. (2019). Understanding and promoting students' well-being and performance in university studies. *Journal of University Teaching & Learning Practice*, 16(5), [2]. <https://ro.uow.edu.au/jutlp/vol16/iss5/>

Katajaviuri, N., Vehkalahti, K., & Asikainen, H. (2021). Promoting university students' well-being and studying with an acceptance and commitment therapy (ACT)-based intervention. *Current Psychology (New York)*. <https://doi.org/10.1007/s12144-021-01837-x>

Academic teacher education contributes to teachers' work

The recent studies conducted in the context of teacher education and among early career teachers emphasise the importance of academic teacher education for teacher profession. The results show that teachers face a variety of challenges when acting in the teacher's role, and early career teachers' mentoring supports them in elaborating and solving dilemmas of teacher's work.

Toom, A. & Husu, J. (2021). Analyzing practice, research, and accountability turns in Finnish academic teacher education. In D. Mayer (Ed.), *Teacher education policy and research: Global perspectives*. Singapore: Springer. https://doi.org/10.1007/978-981-16-3775-9_6

Husu, J. & Toom, A. (2021). Teachers' moral authenticity – searching for balance between role and person. In E. Kuusisto, M. Ubani, P. Nokelainen & A. Toom (Eds.), *Good teachers for tomorrow's schools: Purpose, values and talents in education*. Leiden: Brill. https://doi.org/10.1163/9789004465008_004

Toom, A. & Husu, J. (2021). Classroom interaction challenges as triggers for improving early career teachers' pedagogical understanding and competencies through mentoring dialogues. In J. Mena & A. Clarke (Eds.), *Teacher induction and mentoring* Palgrave Studies on Leadership and Learning in Teacher Education. London: Palgrave Macmillan, Cham. https://doi.org/10.1007/978-3-030-79833-8_9

Supporting student integration by implementing peer teaching into environmental studies

The results show that implementing peer teaching into university courses can affect and promote student integration in several ways.

Asikainen, H., Blomster, J., Cornér, T., & Pietikäinen, J. (2021). Supporting student integration by implementing peer teaching into environmental studies. *Journal of Further and Higher Education*, 45(2), 162-182. <https://doi.org/10.1080/0309877X.2020.1744541>

How students experienced the online teaching during Covid19 compared to "normal" teaching?

Students having a fragmented knowledge base and difficulties in managing time and effort would require special attention in online teaching situations. These students experienced the teaching-learning environment most negatively before and during the COVID-19 pandemic compared to other students. Moreover, students with less ability at managing their time and effort have experienced more exhaustion during the COVID-19 pandemic than before it.

Parpala, A., Katajavuori, N., Haarala-Muhonen, A., & Asikainen, H. (2021). How Did Students with Different Learning Profiles Experience 'Normal' and Online Teaching Situation during COVID-19 Spring?. *Social Sciences*, 10(9), 337. <https://doi.org/10.3390/socsci10090337>

Assessment plays an important role in academics' self-efficacy

The main finding was that fairness of the assessment is by far the most common element for self-efficacy among our group of awarded teachers. From the elements of teaching-learning environment, the staff-student relationship is closely associated with teachers' experiences of assessment-related self-efficacy.

Myyry, L., Karaharju-Suvanto, T., Virtala, A-M.K., Raekallio, M.R., Salminen, O., Vesalainen, M. & Nevgi, A., (2022) How self-efficacy beliefs are related to assessment practices: a study of experienced university teachers, *Assessment & Evaluation in Higher Education*, 47:1, 155-168. <https://doi.org/10.1080/02602938.2021.1887812>

Teachers' Academy at the University of Helsinki

The study examines with whom the Fellows of the Teachers' Academy of the University of Helsinki had meaningful conversations about teaching and learning, and how well the Academy's key objectives of providing teachers with an interdisciplinary community and peer support had been achieved.

Pyörälä, E., Korsberg, H., & Peltonen, L. M. (2021). How teaching academies promote interdisciplinary communities of practice: The Helsinki Case. *Cogent Education*, 8(1), [1978624]. <https://doi.org/10.1080/2331186X.2021.1978624>

Paradigmskifte inom medicinsk utbildning inom

I denna artikel presenterar vi det paradigmskifte, forskningsbaserat utvecklingsarbete och principen för konstruktivt samordnad undervisning inom medicinsk utbildning inom. Målet med undervisningen är att stödja elevernas djupinriktade lärande, att kombinera sina tidigare kunskaper och färdigheter med det nya ämnet som undervisas och att bilda meningsfulla helheter av det de har lärt sig.

Pyörälä, E., & Sjöberg, L. (2021). Pedagogiska vindar inom medicinsk utbildning. *Finska Läkaresällskapets Handlingar*, 2020/180(2), 18-25.