Second Utrecht Scholarship of Teaching & Learning Conference

5 MARCH 2020

Utrecht University

Centre for Academic Teaching

This booklet contains all the abstracts as presented during the Second Utrecht Scholarship of Teaching and Learning Conference on Thursday the 5th of March 2020 at the Utrecht University Hall.

Welcome!

Welcome to Utrecht's University Hall and to the Second Utrecht Scholarship of Teaching and Learning Conference. The large number of participants and the great variety of abstracts that have been submitted last year, stimulated us to organise this conference a second time! Thank you for attending (again), we hope we can stimulate you to contribute to scholarly approaches towards teaching and learning.

For today, we hope you will enjoy the workshops and posters that this conference offers. One workshop introduces participants with SoTL at Utrecht University. The other two workshops have a more experienced target group, and offer in depth knowledge about SoTL, mainly about possible research methods that might be used in SoTL projects. Academic teachers present their scholarly work on education in posters on a wide range of topics. During the poster session you have the opportunity to meet them and reflect and debate on their research.

We especially welcome dr. Rie Troelsen from the University of Southern Denmark. We hope she will inspire novel ideas and share her knowledge on SoTL with us.

We wish you an interesting, interactive, and inspiring conference.

On behalf of the
Centre for Academic Teaching,

Femke Kirschner,
Educational Consultant
Irma Meijerman,
Senior Fellow
Veronique Schutjens,
Senior Fellow
Maarten van der Smagt,
Senior Fellow
Rik Vangangelt,
coordinator

Please do not hesitate to contact us if you have any comments about the conference or suggestions for future meetings on cat@uu.nl or see www.uu.nl/cat.

Educational Scholarship? Why, what and how?

This is the Second Utrecht Scholarship of Teaching and Learning Conference. The success of the conference relies on the participants and the contributions of all those teachers who are engaged with educational scholarship. Utrecht University tries to support this educational scholarship, to stimulate a research-informed teaching and learning practice. In research-informed education, disciplinary knowledge, practical knowledge and scientific knowledge are combined to enhance student learning. The aim of educational scholarship is to enlarge the knowledge-base on academic teaching. Both Scholarship of Teaching and Learning (SoTL) and Discipline-Based Education Research (DBER) are research-informed approaches to teaching. When the aim of conducting research on your education is primarily to inform your own teaching practice, we speak about SoTL. When the aim is towards contributing to the knowledge base of teaching within your discipline, we speak about DBER. There is no strict division between these approaches, rather they form a continuum of decreasing context-specificity, see figure 1.

What is Scholarship of Teaching and Learning?

The main aim of the systematic approach of SoTL is to improve the teaching and learning of students. To do so, teachers are invited to examine their own classroom practice, record their successes and failures, and ultimately share their experiences so that others may reflect on their findings and build upon teaching and learning processes.[1] The principles of SoTL are that, based on a problem or question that teachers have about their own teaching, a research question is formulated, literature research (related to teaching in the discipline) is performed, data is collected about the effectiveness of teaching on the learning of the students, and the data is shared, either locally or wider at a conference or through a peer-reviewed publication.[2] In SoTL the emphasis is therefore not on general educational theory creation, but on the application of (disciplinary) educational knowledge for one's own teaching.

A typical example of the title of a SoTL-publication is: Evidence for teaching practice: The impact of clickers in a large first-year biology classroom environment.

What is Discipline-Based Educational Research?

The main aim of DBER is to contribute to the general knowledge about teaching within the discipline (and sometimes even generalizable outside your discipline). DBER thus emerges from the discipline and is grounded in the discipline's priorities, worldview, knowledge and practices. It investigates teaching and learning within a discipline and is informed by, and complementary to, general research on learning.[3] As is the case between SoTL and DBER, again there is no strict division between DBER and general education research, but a continuum with increasing generalizability. DBER is often relevant for the whole disciplinary field, and sometimes even outside the field, and in contrast to SoTL the emphasis is on the generation of educational knowledge and theories in education for discipline specific academic teaching and learning.

A typical example of the title of a DBER-publication is: The Script Concordance test: a new tool to assess the reflective clinician.

Supporting Educational Scholarship

The Centre for Academic Teaching supports SoTL and DBER by showcasing good

examples and by bringing lecturers in contact with each other. This conference aims to provide a platform for sharing results. Educational scholarship is part of the mission of the centre, therefore we offer programmes, funds and information for teachers who would like to become involved in either SoTL and/or DBER.

Utrecht University developed its own model to specify the systematic process of educational scholarship: The Utrecht Roadmap for Teaching Innovation and Scholarship. The roadmap is unique in that it combines a commonly used research cycle often described in SoTL-literature (i.e, identify the problem, formulate a research question, designing a study, collecting data, analyse, report) with an instructional design model, the so-called 'CIMO' logic method.[4] This CIMO method uses a specific context (C) to explore an intervention (I) which is thought of being implemented, by figuring out which (learning) mechanisms (M) will be activated in the learner due to the intervention, so that certain desired (learning) outcomes (O) will be reached. Explicitly thinking about these concepts in connection to each other and thereby using what is known about the mechanisms of teaching and learning in the literature will ensure that: each project is research-informed, focusses on student learning and stimulates teachers to think about the 'why' of starting to innovate or improve their teaching.

Two experts focus on educational scholarship. Dr. Femke Kirschner (Educational Consultancy & Professional Development) supports teachers in conducting a scholarship project. Dr. Irma Meijerman runs a Senior Fellow project at the Centre for Academic Teaching, focussing on supporting teachers to do SoTL projects.

The Special Interest Group SoTL is an informal community of teachers that are interested in research-informed teaching in their own classroom, to provide evidence of or get insight in the learning of their own students. The SIG is the place where you can share your experiences and ideas with other teachers from all disciplines. The SIG meets approximately four times a year.

SoTL Grants have been established to stimulate the SoTL approach within UU. Teachers can submit proposals with a maximum budget of €5.000. For 2020, a total amount of €100.000 is reserved for the SoTL grants.

Lecturers can develop their knowledge and experience with educational scholarship within a professional development programme. The CAT offers the Educational Research Training Programme. The UMCU offers the Teaching Scholars Programme aimed at experienced teachers in health professions education. This programme is aimed at senior teachers who want to gain more in-depth knowledge of education and get engaged in DBER.

An e-module 'Your teaching under a magnifying glass' is currently under construction. This module provides guidance for teachers who want to get involved in SoTL. The e-module will be translated in English at a later stage.

If you have questions about SoTL or DBER or want more information about opportunities for support, you can always contact CAT: cat@uu.nl.

Literature references

[1] Hutchings, P., & Shulman, L. E. (1999). The scholarship of teaching: New elaborations, new developments. Change, 31(5), 10–15.

[2] Williams, K.M. (2015) Doing research to improve teaching and Learning. A guide for college and university faculty. 1th Ed.; Routledge: Oxon, UK

[3] National Research Council (2012) Discipline-based Education Research. Understanding and improving learning in undergraduate science and engineering. 1th Ed.; National Academies Press: Washington, USA

[4] Denyer, D., Tranfield, D., & Van Aken, J. E. (2008). Developing design propositions through research synthesis. Organization studies, 29, 393-413.

Programme

08.45 — 09.00
Walk-in, coffee
@1636

09:00 — 10:00
Welcome & plenary kick-off
@Senaatszaal

A masterclass will be delivered by dr. Rie Troelsen during which she will guide the audience with integrating SoTL into the daily teaching practice.

Troelsen (1972) is the head of the Centre for Teaching and Learning at the University of Southern Denmark, associate professor in Educational Development in Higher Education and vice-president of the International Society for Scholarship of Teaching and Learning.

10.00 — 10.30
Coffee/tea break

10.30 — 12.00
Workshop A, **B** and **C**
(See right)

12.00 — 13.00
Posters of SoTL projects
@Belle van Zuylenzaal

The poster presentations take place during the lunch of the Onderwijsparade; UU's annual Education day that takes place in the afternoon. This year's theme is *Academic Education: What is the purpose?*

You are very welcome to join the afternoon programme as well. Dr. Rie Troelsen will deliver a workshop on SoTL from 15.00 — 16.30

Workshop A:
How to SoTL?
dr. Femke Kirschner
@Maskeradezaal

Dr. Kirschner will share how SoTL is supported at Utrecht University. She will present the Utrecht Roadmap for Teaching Innovation and Scholarship; an instrument that will guide you through the first steps of research-informed teaching by proving information, tips, tricks, and pitfalls.

Additionally, three teachers will pitch their SoTL projects to share their insights and to inspire others.

Workshop B:
Qualitative research methods to support SoTL
dr. Thea van Lankveld
@Kanunnikenzaal

This workshop will guide participants into qualitative research methods with a focus on interviews and focus groups. What kind of research question is answered best with the help of these methods; and how to use them?

Workshop C:
Quantitative research methods to support SoTL
dr. Andries Koster
@Johanna Westerdijkzaal

This workshop will guide participants into quantitative research methods, with a focus on (validated) questionnaires and assessment of learning outcomes. What kind of research question are answered best with help of these methods; and how to use them?

Submitted abstracts

On the following pages you can find the abstracts of posters as shown during the conference.

Lab or lecture? Effects of teaching approach on knowledge of students

01

Carlijn van den Boomen

Utrecht University
Faculty of Social and Behavioural Sciences
Psychology

Key word(s)
– Teaching & Learning approaches

▶ INTRODUCTION

The goal of the course *Registreren 2* is to teach students about physiological research experiments, such as electro-encephalography (EEG), in humans. The main goal is to teach the possibilities of and things to consider while conducting such experiments. In the past years, this was taught via a theoretical lecture and lab session in which students conducted short physiological experiments themselves. However, learning about these experiments in a lab setting might not be the optimal approach. Both the literature (e.g. Olson et al., 2011) and reports by teachers and students suggest that flipping the classroom for a demonstration lecture might be a better choice. This might be beneficial for students when there is a lot of new and difficult information to learn. Moreover, this might reduce the organisational requirements for teachers and supporting staff.

▶ AIM & RESEARCH QUESTION

This project investigates whether replacing the lab sessions with flipping the classroom, via videos ('kennisclips'), a demonstration lecture, and peer-feedback solves the current problems and does not lead to a worse understanding of students regarding things to consider during physiological research experiments in humans.

▶ SET-UP & METHOD

This study has a non-randomized between subject design. Participants are two groups of students who completed the course *Registreren 2* as part of their study in Psychology I) in 2018-2019 or II) in 2019-2020. The first group learned about physiological research through a theoretical lecture and practical lab session. The second group viewed videos, then applied the knowledge during active participation in a demonstration lecture, and by providing peer-feedback. Both groups handed in an assignment based on the experiments. To investigate whether the teaching approach affected students' understanding, we compared the grades on the assignment using non-parametric t-tests and Bayesian statistics. To investigate which factors are additionally affected by this change, we provide descriptive reports on the time investment by teachers and supporting staff.

▶ RESULT

The scores on two questions were compared between groups, both related to the understanding of things to consider during research. Question A tests things to consider during the overall research design, such as the need for inclusion of multiple measurements. This score was not significantly affected by teaching approach (median I = 7.5; median II = 7.5; $Z = -1.95$; $p = .052$; $BF_{01} = .72$ with more support for no difference). Question B tests things to consider during the research in one participant, such as placement of equipment. This score was also not strongly

affected by teaching approach (median I = 10; median II = 8.9; Z = -1.87; p = .062; BF_{01} = 1.99 with more support for a difference). Furthermore, teachers and support staff reported reduced time investment: teachers spend 98 hours for group I and 44 hours for group II, support staff reported much less hours spend and reduced burden on lab availability.

▶ CONCLUSION

The change from lab sessions to flipping the classroom in a demonstration lecture did not significantly affect student understanding of things to consider during physiological experiments in humans. It should be noted that a trend or suggestion towards slightly less, but still high, understanding in the second approach is visible. Teachers spend less than half the hours in the second approach. The results of this study are relevant for all courses that teach understanding of research methods through lab sessions or a demonstration. Moreover, they are relevant for courses applying 'flipping the classroom'.

Literature references

- Olson, J.C., Cooper, S. & Lougheed, T. (2011). Influences of teaching approaches and class size on undergraduate mathematical learning. *Problems, resources, and issues in mathematics undergraduate studies, 21*(8), 732-751.

Blended Learning in Legal Education

02

Emanuel van Dongen[I], **Femke Kirschner**[II]

Utrecht University
Faculty of Law, Economics and Governance[I], Faculty of Social and Behavioral Sciences[II]
Law[I], *Educational Consultancy & Professional Development*[II]

Key word(s)
– Teaching & Learning approaches

▶ INTRODUCTION

Blended learning has the potential to improve study behaviour of students. It may improve their preparation level, and as a result, face-to-face education will be more efficient and more impressive, lifting the learning process to a higher level. Moreover, the interaction between students and teachers may be improved by using ICT. In a First-Year Course Introduction to Private Law, we recently introduced a Scalable Learning environment which allowed the acquiring and testing of factual knowledge at individual pace, in a modern and appealing way.

▶ AIM & RESEARCH QUESTION

The purpose of this study is to measure the learning effect of a blended course design, which focusses on acquiring basic knowledge and keeping the learning continuum of students, and of teaching approaches during face-to-face meetings, on the preparation, learning approaches and learning outcomes of first-year law students. The research questions were as follows: What are the effects of the new (blended) course design on the preparation, the learning approaches and the learning outcomes of first-year law students? What effect does the teachers' approach have on students' learning?

▶ SET-UP & METHOD

Concerning the learning approaches pre- and post-tests based on an adapted version of the Study Process Questionnaire (R-SPQ-2F) were collected. The teachers approach to teaching was measured by the Approaches to Teaching Inventory, in order to gain insight into the activities and the role individual teachers take on. In order to measure the learning outcomes, the results of the final exam were collected, as well as the results of one individual question. The latter question tested a higher level of learning (Bloom) with regard to the subject discussed in the Scalable Learning in the week of which data from Scalable Learning were collected (Learning Analytics). The results were analysed in SPSS.

▶ RESULT

The use of Scalable Learning led to an efficient allocation of teachers' time. On the individual teachers' level, remarkable differences in the development of their students' approaches took place. Therefore, face-to-face teaching seems to make a remarkable difference. The desired effects of the Scalable Learning on the development of students' learning can be acquired by some additional measures.

▶ CONCLUSION

Three issues remain important: 1) In order to help a deep approach, feedback is needed in a digital environment (course design) as well as creative and meta-

cognitive activities; 2) Pay attention to the connection between online- and offline activities and the teaching approaches of teachers; 3) Alignment between exam and learning activities, and inclusion of deeper outcomes in the exams.

Literature references

- Biggs, J., Kember D., & Leung, D.Y. (2001). The Revised Two-Factor Study Process Questionnaire: R-SPQ-2F. *Br. J. of Educ. Psych.*, 71, 133–149; Postareff, L., Parpala, A. & Lindblom-Ylänne, S. (2015). Factors Contributing to Changes in a Deep Approach to Learning in Different Learning Environments, *Learning Environ. Res.*, 18(3), 315–333; E.G.D. van Dongen & F. Kirschner (2020). Blended Learning in Legal Education: Theoretical-Educational and Empirical Perspectives, *Law and Method* 2020 (to appear).

How a 4-year-old boy connects healthcare, biomedical research, and undergraduate education

03

Rijkent H. Drost, Wim J.A.G. Dictus, Berent J. Prakken, and Niels Bovenschen

Utrecht University
Faculty of Medicine
Pathology

Key word(s)
– Teaching & Learning approaches
– Academic Skills

▶ INTRODUCTION

Academic skills and deep-learning of many students develop better in a didactic framework of constructivism and inquiry-based learning. This paradigm is a research-minded, student-centred approach, based on learning by preferably addressing societal relevant questions and (interdisciplinary) complex authentic tasks. The required synergy between education, research, and healthcare in translational medicine is often limited in undergraduate (bio)medical programs.

▶ AIM & RESEARCH QUESTION

To create synergy between undergraduate education, research, and healthcare in translational medicine.

▶ SET-UP & METHOD

We showcase that a patient with unknown disease can serve as an undergraduate research-based educational tool in (bio) medical sciences. We have invited medical specialists (pediatrician, neurologist, pathologist, clinical geneticist) in a third-year undergraduate course of the Biomedical Sciences curriculum of Utrecht University to pose a patient with unknown disease, i.e., a 4-year-old boy with muscle weakness and inadequate muscle reflexes, with signs of the floppy infant syndrome. Whole exome sequencing revealed a previously unrecognized single nucleotide change in the patient's genomic DNA that leads to an amino acid change in protocadherin gamma B3. While this protein family has been associated with the functional neuro-muscular axis in mouse models, its role in human disease and whether the patient's amino acid change is causative for his disease remain unknown. Undergraduate biomedical students (n = 96) were assigned in 16 groups to design and write an empiric research proposal to potentially uncover the cause of the patient's disease. Following several rounds of peer-review by fellow students and faculty staff, the group with the best and most achievable experiment was selected to perform the research in a well-equipped biomedical research laboratory of the University Medical Center Utrecht.

▶ RESULT

Students have experienced this teaching format inspiring and motivating (n = 86, average ± SD, 4.5 ± 0.7, on a 1-5 scale) and it has stimulated their academic skills (n = 86, average ± SD, 4.3 ± 0.7, on a 1-5 scale).

▶ CONCLUSION

We have created a strong synergy between healthcare, research, and education, with the end goal to help a patient.activities, and inclusion of deeper outcomes in the exams.

The Importance of Risk-taking and Curiosity: A Quantitative and Qualitative Assessment of Students' Development in One Interdisciplinary Course

04

Merel van Goch

Utrecht University
Faculty of Humanities
Liberal Arts and Sciences

Key word(s)
– Teaching & Learning approaches
– Competences

▶ INTRODUCTION

Students require many different competences to innovatively tackle society's complex problems. How can higher education institutions foster these competences?

▶ AIM & RESEARCH QUESTION

The aim of this project was to assess students' development within one course, specifically regarding the intended learning outcomes of the course and regarding six themes that are important in (liberal) higher education, according to AAC&U. The study asked 1) how students assess their own risk-taking, openness to alternative perspectives, initiative-taking, innovate-thinking, connective-thinking and curiosity, 2) how important they find these topics, and 3) what factors they attribute to fostering their development regarding these topics.

▶ SET-UP & METHOD

Participants were 150 undergraduate Liberal Arts and Sciences students enrolled in a course on the interdisciplinary research process. Students were assessed qualitatively and quantitatively in the first and in the last lecture of the 10-week course, regarding the intended learning outcomes of the course and six education-related themes: risk-taking, openness to alternative perspectives, innovative-thinking, initiative-taking, connective-thinking, and curiosity. Students were asked 1) how they assessed themselves regarding these topics, 2) how important they found the topics for their own development, and 3) how important they found the topics for higher education. After the course, a focus group took place to contextualize the results and to delve deeper into how higher education institutions can foster risk-taking, openness to alternative perspectives and curiosity.

▶ RESULT

- The main results of the quantitative measures were that 1) for most themes, but not all, self-assessment correlated significantly to perceived importance for students' own development, but not to perceived importance for higher education in general, 2) self-assessment improved significantly for the themes risk-taking and initiative-taking, and improved for the intended learning outcomes on philosophy of science and on reflection: students assessed themselves higher at the end than at the beginning of the course, 3) the perceived importance for higher education of being able to collaborate on a research project was significantly lower after the course. This may be related to struggles students often face in team work. (Future research is investigating this topic in more depth.)

- The qualitative data showed first and foremost that—even though students varied in their interpretations of

the themes—students are capable of reflecting thoroughly on their development regarding these topics and the role of these topics in higher education. Summarizing the insights gained from the qualitative measures here would not do them justice. On a meta level, the qualitative data showed that students differ in how they approach certain themes, like curiosity: some students think curiosity is innate, and that you either are curious or are not; others think that curiosity is something that should be learned or stimulated.

- Recommendations from the focus group, on how higher education institutions can foster risk-taking and curiosity of students, included having one "open" assignment per course, or if this is not possible, incorporating an "open" criterium in an assignment's rubric. Regarding openness to alternative perspectives, students recommended that every undergraduate program incorporates one disciplinary-reflective course into the curriculum.

▶ CONCLUSION

This study showed that even within one course, students develop considerably regarding these topics, as evidenced by their quantitative and qualitative responses. The study identified concrete program and course characteristics that foster students' development. On a meta level, the study showed to be very insightful both practically at the course and curriculum level, as well as theoretically.

Be Prepared! How pre-lab modules affect students' understanding before, during and after lab activity

05

Marjolein Haagsman, dr. Karin Scager, dr. Margot Koster, prof. dr. Johannes Boonstra

Utrecht University
Faculty of Science
Biology

Key word(s)
– Teaching & Learning approaches

▶ INTRODUCTION

Laboratory work forms a distinctive type of activity within science education and is widely accepted to be essential for learning science. In this study we specifically aim to improve the understanding of the experimental procedure, theory and obtained data of lab activities with the aid of an online pre-lab module. The pre-lab module includes videos, text, images and questions on the theoretical background, experimental procedure, and interpretation of hypothetical data.

▶ AIM & RESEARCH QUESTION

Do pre-lab modules increase students' understanding of the purpose and approach of an experiment before, during and after the laboratory activity?

▶ SET-UP & METHOD

- *Participants*: The participants in this study were students participating in the course Molecular Genetic Research Techniques. Only the experimental group was required to fulfill the pre-lab module before the start of a lab activity on gene mapping.
- *Pre-lab test:* Students were asked to fill in a theoretical test on gene mapping at the onset of the lab activity.
- *Student questions:* The lab supervisors were asked to clip a voice recorder on their coat to record students' questions during the lab activity. Students' questions were annotated to eight categories: general organization, theoretical low order, theoretical high order, experimental low order, experimental high order, interpretation low order, interpretation high order or other.
- *Lab reports:* Students were required to write digital lab reports on each experiment together with one fellow student. The reports of both the control and experimental group were given random numbers and blindly assessed by two examiners with the aid of a simple rubric.

▶ RESULT

- *Pre-lab test scores before the lab:* The students that did the pre-lab module before the start of the experiment scored significantly higher on the pre-lab test (M = 6.5) than the control group (M = 5.2), (FE = 35.74, p <0.001).
- *Questions within the lab:* The recordings show that 111 out of 179 student questions in the control group are factual questions on the experimental procedure. Remarkably, students in the experimental group only asked 64 of such experimental low order questions during the experiment. High order questions that testify comprehension of either the theory, experimental procedure and data were asked only

seven to nine times within both the control and experimental group.

- *Lab report scores after the lab:* Students that did the pre-lab module received significantly higher scores for their introduction, results, discussion and conclusion. Only the method section was scored similarly for both the control and experimental group.

▶ CONCLUSION

This study proposes that students' understanding of an experiment can be simply improved by introducing a pre-lab module that connects the theory with the upcoming laboratory activity. The lab reports prove that students were better in connecting the experiment to the theory, presenting the results needed to answer the research question, interpreting the results correctly and proposing future experiments. Besides, we suppose that less supervision is needed within the lab when using pre-lab modules since students ask less factual experimental questions during the lab activity.

The effect of pop-up questions within educational videos on students' learning

06

Marjolein Haagsman, dr. Margot Koster, dr. Karin Scager, prof. dr. Johannes Boonstra

Utrecht University
Faculty of Science
Biology

Key word(s)
– Teaching & Learning approaches

▶ INTRODUCTION

One promising tool to increase the effectivity of educational videos is the introduction of questions that pop-up within educational videos (Szpunar et al. 2013, 2014; Cummins et al. 2016; Lavigne and Risko 2018). The aim of this paper is to learn if and how these pop-up questions enhance students' learning outside class prior within a flipped course in molecular biology.

▶ AIM & RESEARCH QUESTION

How do pop-up questions within educational videos affect learning outside class?

▶ SET-UP & METHOD

- *Students' perception:* Students' general perception of (interactive) videos was explored using a survey.
- *Measuring understanding of specific concepts:* Students were randomly divided into two groups. Each of these groups watched the same videos, but 14 extra pop-up questions were inserted for alternating groups. Corresponding test questions were designed for each of those questions.
- *Measuring overall test performance:* In this experiment only the experimental group received pop-up questions whereas the control group received no pop-up questions at all. Students' general conceptual understanding of this video was tested with a corresponding test.
- *Measuring students' viewing behavior:* Students were asked to describe their actions when questions appeared within the video. The number of rewinds per student were determined along the course of a video either with or without pop-up questions.

▶ RESULT

- *Students' perception:* 91% of the students (totally) agreed that pop-up questions, specifically, helped them in studying. 79% of the students (totally) disagreed with decreasing the number of questions within the video.
- *Understanding of specific concepts:* Surprisingly, the percentage of correctly answered test questions was not significantly different between students that did (72%) or did not (69%) receive corresponding pop-up questions ($x^2(1, n = 2901) = 2.52, p = 0.11$).
- *Overall test performance:* However, students who watched videos with pop-up questions scored significantly better on the test ($M_{adj} = 79\%$, SE = 1.17) than students who watched the same video without pop-up questions ($M_{adj} = 75\%$, SE = 1.11); $F(1,218) = 7.68$, $p = 0.006$.
- *Viewing behavior:* 37% of the students indicated rewinding the video first when not knowing the answer to the question. Students rewind relatively more often

within the 30 seconds after pop-up questions occur as compared to the same time points in the control video without questions. However, students in the experimental group rewind and fast-forward significantly less often throughout the video clip as a whole.

▶ CONCLUSION

This study demonstrates that popup questions improve students' test performance on the overall video content. Accordingly, students agreed that pop-up questions within educational videos helped them to study at home. However, pop-up questions on a particular concept within the video did not improve test performance on that specific concept. Thus, merely the presence but not the content of pop-up questions appears to affect students' test performance. A possible mechanism of this indirect testing effect might be that students have a higher focus of attention when questions are present, which might also explain why students rewind and fast-forward less over the course of a video when pop-up questions are there.

Literature references

- Cummins, S., Beresford, A. R., Rice, A. (2016). Investigating engagement with in-video quiz questions in a programming course. *IEEE Transactions on Learning Technologies*, 9(1), 57–66.
- Lavigne, E., Risko, E. F. (2018). Optimizing the use of interpolated tests: The influence of interpolated test lag. *Scholarship of Teaching and Learning in Psychology*, 4(4), 211–221. https://doi.org/10.1037/stl0000118
- Szpunar, K. K., Khan, N. Y., Schacter, D. L. (2013). Interpolated memory tests reduce mind wandering and improve learning of online lectures. *Proceedings of the National Academy of Sciences*, 110(16), 6313–6317. https://doi.org/10.1073/pnas.1221764110

Medical and communication students develop knowledge clips with patients

07

M. Kalee [I], M.C.L. Eijkelboom [II], E.H.M. Christenhuis [I], J.J. van Wijngaarden [I], W.D. Schot [III], Y.F.M. Linders [IV], J. Frenkel [II]

– School of Medical Sciences, University Medical Center Utrecht [I]
– Department of Pediatrics, University Medical Center Utrecht [II]
– Educational Consultancy & Professional Development, Utrecht University [III]
– Department of Languages, Literature and Communication, Utrecht University [IV]

Utrecht University
Faculty of Medicine
Center for Research and Development of Education

Key word(s)
– Teaching & Learning approaches
– Assessment
– Academic Skills
– Interdisciplinary

▶ INTRODUCTION

It is important for students to have the skills to inform and connect with their target audience, in a way that suits the continually evolving society. In health care, for example, patients become increasingly more involved in their own healthcare process. To do this effectively patients require reliable and understandable information in- and outside the doctor's office. Therefore, medical students need to learn to communicate with their patients. Additionally, students need to be equipped to work with other professionals, such as communication experts, to design effective products to communicate with their patients.

▶ AIM & RESEARCH QUESTION

To prepare students for a society in which digital communication and interprofessional cooperation become increasingly more important, we developed a new educational course called CLIKCS: Co-creating onLine Information Knowledge Clips for Society. During the course medical students design, in pairs, an online knowledge clip in cooperation with a student Communication and Information Sciences (CIS) and a patient. For medical students the aim of this project is to learn how to design audio-visual information and to collaborate with patients and other professionals. This study explores which aspects of the course contribute to the development of the communication skills of medical students.

▶ SET-UP & METHOD

Twelve sixth-year medical students, six patients and three third-year CIS students participated in this pilot. If and how medical students improved their communication skills was evaluated by analysing the storyboards, assessing the knowledge clips with the suitability assessment of materials (SAM) (Doak, Doak, & Root, 1996) and conducting interviews with the medical students.

▶ RESULT

The analysis of the storyboards showed that for each group the second draft of the storyboard was overall superior to the first. The factors that were overall most often improved were match with the target audience, content, and vocabulary.

Additionally, all knowledge clips received passing grades from the teachers and were rated as superior with the SAM. Finally, the medical students reported during the interviews that the conversations with the patients gave them more insight into the experiences and the perspective of the patients, and they became more aware of the real information needs of the patients. The feedback of both the patient and CIS student helped the medical students to better convey the message in the knowledge clip, and the non-medical view of the CIS students helped several students to better translate the information need of the patients to the product.

▶ CONCLUSION

Cooperation with patients and CIS students helped the medical students to understand the information needs and perspectives of the patients and learned them to convey medical knowledge into understandable lay language. In 6 weeks, medical students were able to create digital audio-visual patient information suitable for publishing on the patient organisation's website.

Literature references

- Doak, C. C., Doak, L. G., & Root, J. H. (1996). Teaching patients with low literacy skills. Philadelphia, PA: JB Lippincott

Writing a project assignment for a partner in the field: A quasi-experimental study with first year pedagogical sciences students

08

H. Mulder, L. Vreeke, B. Hibbel, J. van der Ham, I. Dielwart, S. Branje & J. Huijding

Utrecht University
Faculty of Social and Behavioural Sciences
Pedagogical and Educational Sciences

Key word(s)
– Teaching & Learning approaches

▶ INTRODUCTION

Students in the Pedagogical Sciences programme are trained to become scientist-practioners. Yet, across the Netherlands, the NSE shows that students in Pedagogical Sciences programmes feel poorly prepared for their prospective professional field. According to the problem-based learning approach, letting students work collaboratively on real questions to which the answers are unknown to teachers, enhances learning and motivation (Barrin et al., 2008; Savery & Duffy, 2001). In addition, being in contact with professionals in the field may enhance student feelings of being prepared to work in that field.

▶ AIM & RESEARCH QUESTION

We implemented a new module in the first year of the Pedagogical Sciences programme in which students answered a pedagogical-themed question for a project partner from a professional organization, based on scientific literature. We hypothesized that enrolment in the module would enhance student motivation, feelings of being challenged and being able to link science to practice, and that students would feel more prepared for the professional field in general. In addition, we tested the influence of the level of involvement of the project partner in teaching.

▶ SET-UP & METHOD

A quasi-experimental design with three groups was used. In the first year that we implemented this module (cohort 2017-2018), we first pilot-tested it with a small group of students (n = 22, group 1a; two meetings with partner: beginning and end of year) The other students in this cohort were given a pedagogical-themed question by UU teaching staff (cohort 2017-2018, n = 70, group 1b), and thus experienced no contact with a professional organization. In a second cohort, all students received a pedagogical-themed question by a project partner from a professional organization (cohort 2018-2019, n = 91, group 2; three meetings with partner: beginning, mid and end of year). At the end of the academic year, students in both cohorts filled in selected NSE questions concerning their sense of feeling prepared for working as a professional in the field, as well as questions on their level of motivation to work on the assignment, level of challenge they experienced, and having learned about bridging the gap between science and practice. A MANOVA with group as factor (1a, 1b, 2) was run to test between-group differences.

▶ RESULT

There was a significant main effect of group (p <.001). Significant group effects on level of challenge experienced, bridging the gap between science and practice, and NSE scores were found. In addition, significant differences were found between having a project partner who was actively involved

in the teaching process and having no project partner at all (2 versus 1b) and having a project partner who was not actively involved in the teaching process (2 versus 1a), with higher scores occurring in the former group. There was no effect of group on motivation.

▶ CONCLUSION

This study shows that enrolment in this new module indeed enhanced student feelings of being challenged and being able to link science to practice. In addition, students felt more prepared for the professional field in general. When the partner played a more active role in the teaching process, students' reported higher scores on these variables. The study underscores the importance of piloting educational developments, taking multiple years to fine-tune such developments in an increasingly experienced teaching team, and actively involving project partners in the teaching process.

Literature references

- Barrin, B., & Darling-Hammond, L. (2008). Teaching for meaningful learning: A review of research on inquiry-based and cooperative learning. Edutopia: the George Lucas Educational Foundation.
- Savery, J., & Duffy, T. M. (2001). Problem-based learning: An instructional model and its constructivist framework. CRLT Technical Report No. 16-01. Indiana University.

Encounters in the field: Using the DAE-approach to train intercultural competences of students doing fieldwork in the Global South

09

Dr. Gery Nijenhuis [I], Dr. Veronique Schutjens [I] & Dr. Gemma Corbalan [II]

Utrecht University
Faculty of Geosciences[I], Faculty of Social and Behavioural Sciences[II]
Human Geography & Spatial Planning[I], Educational Consultancy & Professional Development[II]

Key word(s)
– Teaching & Learning approaches
– Academic Skills

▶ INTRODUCTION

Students in the MA-programme International Development Studies leave their international classroom to do fieldwork on a wide range of development challenges in Africa, Asia or Latin America. Well-developed intercultural competences are essential to successfully carry out such fieldwork. However, immersion in a different cultural setting does not itself ensure intercultural learning: an active learning environment is needed to achieve this (Deardorff 2006; Huber & Reynolds 2014). Using the Describe-Analyse-Evaluate (DAE) approach for reflection, our intervention—in the context of a Comenius Senior project—aims at training students' intercultural competences through the use of cases that illustrate authentic fieldwork situations. The development of assignments that relate to these cases are used to guide students' reflection and discussion in the international classroom, before going abroad.

▶ AIM & RESEARCH QUESTION

The aim of the poster is to provide insight into 1) the background and approach of the intervention; and 2) the relevance and value of the DAE-approach for reflection and developing intercultural competences. Our research question is: what are the results, in terms of level and quality of reflection, of using the DAE approach for reflection on intercultural encounters in fieldwork situations?

▶ SET-UP & METHOD

We used a qualitative approach and analysed students' answers to two assignments, each prepared by 68 students. One assignment aimed to train the reflection skills of students and to make them familiar with the DAE-approach. In the second assignment students used the DAE-approach to analyse encounters in the field experienced by previous cohorts of students. The authors independently coded and analyzed the reflections of the students in a qualitative way, focusing on the themes addressed and the depth of reflection.

▶ RESULT

The findings indicate that there are remarkable differences between the results of both assignments, and among the students, in terms of level and quality of reflectivity. Students quickly become acquainted with the DAE-approach, although some of them experienced problems with the distinction between Analyse and Evaluate. In the second assignment the majority of the students referred to several intercultural competences, though the level and quality of the reflections using the DAE-approach varied substantially.

▶ CONCLUSION

The DAE-approach is a simple and effective approach to foster better reflection on intercultural competences, as it helps students to structure their thoughts. However, specific questions that target intercultural competences are needed to better focus on awareness of, and critical reflection on, their own positionality while doing fieldwork in a different cultural context.

Literature references

- Deardorff, D.K (2006), Identification and assessment of intercultural competence as a student outcome of internationalization. Journal of Studies in Higher Education, 10, 241–266.
- Huber, J. & C. Reynolds (2014), Developing intercultural competence through education. Pestalozzi Series 3, Council of Europe.

Online study-aids to stimulate effective learning

10

Astrid Poorthuis & Anouk van Dijk

Utrecht University
Faculty of Social and Behavioural Sciences
Psychology

Key word(s)
– Teaching & Learning approaches
– Assessment

▶ INTRODUCTION

Many courses in psychology use lectures to guide students' learning, as did our course, the advanced bachelor course Psychological assessment in Youth. However, we were faced with budget cuts and low attendance rates (i.e., less than 50%). Hence, we decided to replace the lectures with online study-aids—a learning activity that stimulates students to absorb the required knowledge and to develop insight into the course readings through autonomous study. We based the design of these study-aids on two effective learning strategies: distributed practice (spreading study activities over the semester) and frequently testing knowledge (and gaps) using practice tests (Dunlosky, et al., 2013).

▶ AIM & RESEARCH QUESTION

The aim of this study was to evaluate whether online study-aids stimulate effective learning by assessing student participation, student satisfaction and performance.

▶ SET-UP & METHOD

We developed online study-aids using the digital online assessment tool Remindo. Each study aid covered the week's course readings and consisted of 10 to 15 questions presented in several stimulating closed formats. These questions highlighted the most important concepts and helped students integrate different parts of the texts. To stimulate distributed practice, each study-aid was online for one week only. To stimulate practice-testing, students received immediate automated feedback after finishing each study-aid. Participation was voluntary and promoted using an incentive system. Effects of the study-aids were evaluated in two cohorts of students (2018 n = 90; 2019 n = 81). We looked at participation rates, student satisfaction (using several statements added to the standard student evaluation), and tested whether midterm and end-term exam performance increased upon introducing the study-aids in 2018.

▶ RESULT

Participation rates were good: the study-aids were completed by 78.5% of the students (range 69.0-84.5%). Satisfaction with the study-aids was also good: most students indicated that the study-aids provided good support during studying (89%). A minority indicated preferring lectures over study-aids (18%). Performance on the exams improved upon introduction of the study-aids, although more so for the midterm exam (from 5.7 in 2017 to 7.1 in 2018/2019) than for the end-term exam (from 5.4 in 2017 to 5.9 in 2018/2019). Possibly, students strategically chose to focus on the end-term exams of other courses because they already were likely to pass this course after performing well on the midterm exam.

CONCLUSION

Online study-aids can stimulate effective learning by helping students spread their study activities over the semester and assess their knowledge level while learning. It is important to realize, however, that it is not the tool (i.e., digital online assessment) that makes these study-aids effective. Careful development of questions that clarify the learning goal, address the core content, provide clear structure, and stimulate deep learning are key.

Literature references

- Dunlosky, J., Rawson, K.A., Marsh, E.J., & Nathan, M.J. (2013). Improving Students' Learning With Effective Learning Techniques: Promising Directions From Cognitive and Educational Psychology. *Psychological Science in the Public Interest*, 14, 4–58.

Integrated assessment in the medical curriculum: Experience with pharmacokinetics

11

Rahul Pandit [I], Mirjam Gerrits [I], Eugène Custers [II]

Utrecht University
Faculty of Medicine
Translational Neuroscience (Learning trajectory Farmacology and –therapy)[I], Center for Research and Development of Education[II]

Key word(s)
– Assessment
– Medical Education

▶ INTRODUCTION

The last two decades have witnessed a shift in medical education from a traditional subject-based to an integrated curriculum. In the subject-based curriculum preclinical subjects such as anatomy, physiology and pharmacology are taught as individual topics with independent examinations. The integrated curriculum however combines preclinical and clinical subjects in thematic blocks to promote learning in a clinical context, where application of preclinical knowledge occurs[1]. In the latter form student knowledge is usually tested as a part of a final integrated examination encompassing various subjects. Although an integrated curriculum improves understanding of interrelationships between the individual disciplines, a possibility exists that students avoid difficult topics and still pass an examination. Pharmacokinetics is a branch of pharmacology studying the fate of the drug in the body. The concepts of pharmacokinetics are often difficult for students to grasp, perhaps due to the abstract and mathematical nature of pharmacokinetics. As pharmacokinetics is taught and examined as a part of an integrated medical curriculum alongside other topics, it can lead to selective avoidance of pharmacokinetics, especially since it constitutes only a minor fraction of the medical curriculum.[2]

▶ AIM & RESEARCH QUESTION

The goal of the study was to investigate whether poor knowledge in pharmacokinetics can be compensated by performing better in other topics when pharmacokinetics is tested as an integrated exam. A secondary goal was to evaluate whether differences in student performance exist between questions of mathematical (quantitative pharmacokinetics) or reasoning and conceptual (qualitative pharmacokinetics) nature.

▶ SET-UP & METHOD

Questions of pharmacokinetics were pooled across three blocks and analysed either separately (Pharmacokinetics only) or together with questions from other subject areas (All blocks combined). Results of two consecutive academic years were analysed. The percentage of students passing the examinations was calculated by applying cut-off grade of 55% corrected for guessing. Group differences in mean scores were analysed using Wilcoxon signed rank test and differences in number of students failing the examination were analysed with Mc Nemar test.

▶ RESULT

The percentage of students failing in pharmacokinetics only was higher across both academic years (Pharmacokinetics only vs All blocks combined; **2016-2017**:

23.8% vs 12.4%, p <0.01; **2017-2018**: 21% vs 12.9%, p <0.01). Mean scores ± standard deviation in pharmacokinetics compared to All blocks combined were lower in the academic year **2016-2017** (70.9 ±14.2 vs 73.7 ± 8.0, p <0.001) and higher for academic year **2017-2018** (73.6 ± 8.4; p <0.001). Across both academic years, students scored lower in conceptual questions compared to questions involving calculations (**2016-2017**: 68.8 ± 16.3 vs 77.0 ± 18.0, p <0.001; **2017-2018**: 74.5 ± 16.2 vs 85.8 ± 21.1, p <0.001).

▶ CONCLUSION

Interpreting these results from the perspective of Miller's Pyramid[3], our results show that one fifth of medical students do not possess the required knowledge (knows, knows how) in pharmacokinetics, which would make application of this knowledge during clerkships (shows) or beyond (shows how) challenging. Lower scores in conceptual questions imply difficulty in grasping the subject. In an integrated medical curriculum often overall scores are decisive instead of subject-specific scores, the downside of this being poor knowledge of subjects considered difficult. Reporting subject-specific scores or implementing learning analytics could increase student awareness in their own capabilities and deficiencies. Similarly and incorporating formal feedback moments could help in improving student knowledge in pharmacokinetics. Although these findings focus on pharmacokinetics similar patterns might be observed in other disciplines with an integrated curriculum.

Literature references

[1] Brauer, D. G. & Ferguson, K. J. The integrated curriculum in medical education: AMEE Guide No. 96. *Med. Teach.* 37, 312–322 (2015).

[2] Keijsers, C. J. P. W. *et al.* A comparison of medical and pharmacy students' knowledge and skills of pharmacology and pharmacotherapy. *Br. J. Clin. Pharmacol.* 78, 781–788 (2014).

[3] Miller, G. E. The assessment of clinical skills/competency/performance. *Acad. Med.* 65, S63-67. (1990).

Using simulation in teaching communication skills influences motivation

12

M.J. van der Smagt, M.H. Hulsbergen

Utrecht University
Faculty of Social and Behavioural Sciences
Psychology

Key word(s)
– Teaching & Learning approaches
– Academic Skills
– IT

▶ INTRODUCTION

The use of simulation applications may improve teaching communication (dialogue) skills[e.g. 1,2]. To this end virtual simulator called *Communicate!* has been developed by Utrecht University[3]. In Communicate!, students play a scenario and hold a consultation with a virtual character. Teachers can build scenarios and apply specific scenarios to be used as practice for students or even as assessment method.

▶ AIM & RESEARCH QUESTION

We wondered if the use of *Communicate!* can aid acquiring communication skills in several operationalisations of learning outcomes. For this abstract we focus on the usability aspects of Communicate! and how using it influences motivational and emotional aspects with respect to the task at hand (in this case conducting a 'bad-news dialogue').

▶ SET-UP & METHOD

In two experiments (n = 128 and 133, part of a course on communication-skills) using Communicate! was compared to literature study and attending a lecture. Students were divided in four groups, two of which both read an article about conducting a bad-news dialogue and played a bad-news-dialogue-scenario (but in different order), while the third group only played the scenario. The final group only read the article (expt 1) or read the article and attended a lecture on the topic (expt 2).

▶ RESULT

In both experiments playing the scenario increased the students' rating of immersion and usability, compared to reading the article. Students also felt more motivated to learn about the subject after playing the scenario. On the other hand, the scenario decreased the sense of self-efficacy relative to reading the article, which might indicate the transition from Unconscious Incompetence to Conscious Incompetence. The scores on other motivational constructs and different emotions was less consistent across experiments.

▶ CONCLUSION

Simulations and literature studies induce different motivations towards learning communication skills.

Literature references

[1] Aldrich, C. (2004). *Simulations and the future of learning*: An innovative (and perhaps revolutionary) approach to learning. San Francisco: Pfeiffer Books.

[2] Aldrich, C. (2009). *The complete guide to simulations and serious games: How the most valuable content will be created in the age beyond Gutenberg to Google*. San Fransisco, CA: John Wiley & Sons.

[3] Jeuring, J., Grosfeld, F., Heeren, B., Hulsbergen, M., Ijntema, R., Jonker, V., Mastenbrioek, N., van der Smagt, M., Wijmans, F., Wolters, M. & van Zeijts, H. (2015). Communicate! – a serious game for communication skills. In Conole, G., Klobucar, T., Rensing, C., Konert, J., Lavoué, E. (eds.). *Design for Teaching and Learning in a Networked World. 10th European Conference on Technology Enhanced Learning, EC-TEL 2015* (pp. 513-517). Switserland: Springer International Publishing.

Helping students assess their knowledge and understanding

13

Inge The

Utrecht University
Faculty of Science
Biology

Key word(s)
– Teaching & Learning approaches
– Assessment

▶ INTRODUCTION

The course "Developmental biology" is a second level course and consists of lectures, lecture review session, practicals and computer assisted learning assignments. There are three summative exams in the course and review sessions were offered two days before each exam. The lecture review sessions were meant as an opportunity for students to ask questions about the lectures and after every two hours of lectures there was a one hour review session. In the academic year 2018-2019, they were reduced to two hours for eight to ten hours of lectures. This was a measure to reduce the amount of contact hours and lecturing.
The second exam was always perceived as the most difficult exam in evaluations. To prevent that students will be disadvantaged for the second exam and the grades will drop, an intervention was applied where students can measure their knowledge before the exam. Before the second exam, voluntary formative in class quizzes were offered instead of the lecture review sessions to support learning for the exam. The students could identify problems and misconceptions about the theory and know which parts they need to study better.

▶ AIM & RESEARCH QUESTION

The aim is to use formative in class quizzes to allow students to identify difficulties and misconceptions in preparation of the exam. Will the use of quizzes help students to be better prepared for the exam?

▶ SET-UP & METHOD

The quizzes were given after nine hours of lectures, two days before the second test of the course. They were given with a digital tool, Mentimeter, and the students can answer questions on their mobile device. There were six to eight multiple choice questions for each lecture hour. The correct answer was shown immediately after the voting for a question was closed. The subjects of the questions that were answered incorrectly by a majority of the students, were then explained again by the lecturer. The quizzes were offered before the second exam, while before the first and third exam lecture review sessions without quizzes could be attended. The results of the second exams between the cohort where only review sessions were held (in 2018) were compared with the cohort where the in class voting took place (in 2019). As a control, the first exams of both cohorts were analysed as well. The quizzes were also evaluated by the students at the end of the session.

▶ RESULT

The first exam of both cohorts did not have quizzes and there was hardly a difference in average grade between the two cohorts, in 2018 an average of 7,43 and in 2019 an average of 7,47. The average grade for the second exam was slightly higher in 2019 (6,75) than in 2018 (6,65).

However, in the cohort where the quizzes were offered, the percentage of students that had higher grades for the second exam was increased. In 2018, 22% had a grade of 7,5 or higher, while in 2019 it was 38%. In 2018, 13% had a grade of 8,0 or higher, while in 2019 it was 23%.

▶ CONCLUSION

The quizzes did not seem to influence the average grade, but the percentage of students that received higher grades was increased. A possibility is that the more motivated students participated in the voluntary quizzes and this helped them to increase their grade. Investigating which students participated and connecting them with the grades could give an insight if this is the case. The evaluation showed that the participating students were positive about the quizzes.

Literature references

- Knight, J.K., and Wood, W.B. (2005). Teaching More by Lecturing Less. Cell Biol. Educ. *4*, 298–310.

Students' assessment criteria in inquiry based and online learning

14

K.R. Vrijsen

Utrecht University
Faculty of Medicine
Center for Research and Development of Education

Key word(s)
– Teaching & Learning approaches
– Assessment
– Inquiry based and online

▶ INTRODUCTION

In the course Research Design and Analysis (bachelor Biomedical Sciences, 3rd year) most learning objectives are aimed at the development of academic research skills. Students are given an authentic research assignment based on a case study. With limited information students design their own research and are expected to translate this into detailed experiments. Although students do not execute their own experiments, they proceed to the following phases of the research cycle when they are given real (and unpublished) research data which match their own experimental design. Eventually, this should result in a scientific article which is to be assessed, together with other skills such as presentation, and collaboration skills. Throughout the course, students mainly interact via an online learning environment. In this learning environment we provide different assignments to improve their academic research skills, to provide each other with feedback and to reflect on their own learning. The students are given a lot of autonomy and we have even extended this in their assessment because we asked them to collaboratively set their own assessment criteria as we expected this would improve their ability to assess themselves and others and providing meaningful and rich feedback.

▶ AIM & RESEARCH QUESTION

How do students learn if they have the opportunity to set their own assessment criteria? How does it affect their ability to assess themselves and provide effective feedback to others?

▶ SET-UP & METHOD

In a 10-week inquiry based and online course we regularly asked the students (n = 5) to identify the most important elements of good academic writing, presentation, and collaboration and to formulate assessment criteria to assess this. Afterwards we asked the students to reflect on their own development and to assess others using these criteria. We assessed the quality of the reflection and the peer feedback. In addition, we asked the students via midterm and final questionnaires (open questions and likert scale) a) if they believed if setting their own assessment criteria was useful and instructive and b) if providing peer feedback helped them to identify their own strength and weaknesses and c) whether they felt more comfortable to critically appraise the work of others.

▶ RESULT

Although the student believed that setting their own assessment criteria were valuable to formulate/write their own research question *('I kind of knew what made a good research question before but having it written out and having to think about it helped a lot'),* proposal (3.7) and manuscript it (3,6), we believed

that the assessment criteria were often not specific enough. As a result, we introduced additional assessment criteria which were also used for providing peer feedback. Students believed it was useful to provide peer feedback (3,6), and they felt comfortable doing so (3,4) but it was clear that too much peer feedback was not motivating. While we believed that the peer feedback was seldomly constructive or specific and hardly contained any tips or tops to the authors, the students themselves were happy with the peer feedback they received (content [3,3], general writing skills [3,7]). In our view the reflection of students remained very general and focussed on competencies rather than their own learning curve and experiences.

▶ CONCLUSION

In conclusion we think that it is motivating to ask students to formulate assessment criteria. It does however require more guidance and instruction (than we have offered) to set criteria which can be used and will result in rich peer feedback and effective reflections.

Using screencasts to provide feedback on writing assignments

15

Jet van der Zijden, Judith Scheerens and Lindy Wijsman

Utrecht University
Faculty of Science
Pharmaceutical Sciences

Key word(s)
– Teaching & Learning approaches
– Assessment
– Academic Skills
– ICT in education, feedback

▶ INTRODUCTION

Feedback plays an important role in students' learning process. Effective feedback is timely, and goal directed.[1] Screencasts are existing tools which allow recording of the computer screen while adding audio and can be used to provide feedback on written assignments. Screencast feedback is a promising alternative to written feedback because it's more specific, detailed and personal and has the potential to engage the student in ongoing learning.[2,3,4]

▶ AIM & RESEARCH QUESTION

1. To explore the experience of students and teachers with screencast feedback on written reports.
2. To examine student's understanding of screencast feedback on written reports.

▶ SET-UP & METHOD

- *Research groups:* All 143 students in the course "Academic skills" of the first year Bachelor Pharmacy were invited to request screencast feedback as part of the summative assessment of their writing assignment. Students that passed the assignment and requested screencast in advance (SP group; *n* = 11) and students that failed the assignment (SF group; *n* = 9) received screencast feedback on 3-5 criteria of the rubric in addition to the filled rubric. All other students received brief written feedback comments provided underneath the filled rubric (WP group; *n* = 123).

- *Interviews:* Semi-structured individual interviews were conducted with 9 students (*n* = 5 from SP; *n* = 2 from SF and n = 2 from WP). In the interviews, students were questioned about their experience with and understanding of the written or screencast feedback. A semi-structured focus-group was conducted with 4 teachers, in which they were questioned about their experience with providing screencast feedback.

- *Data analysis:* Experience of students and teachers was analysed from the interview data by identifying units of relevant meaning within each interview and these were then clustered to identify themes. Interview data on student's understanding of the feedback were analysed by scoring the level of understanding on 3-5 feedback items. Scores 1 (incorrect), 2 (partly correct) or 3 (correct) were given on three elements: explaining the feedback in one's own words, translation of the feedback to an adaptation in the report, and translation of the feedback to future assignments.

▶ RESULT

- *Student's and teacher's experience:* All interviewed students that received screencast feedback were generally positive about the feedback, specifically because it was multimodal, personal and specific. Teachers were in general not positive about screencast feedback. They specifically mentioned the extra workload, that recording required a quiet environment and that recording felt uncomfortable.

- *Student's understanding:* The relative frequency (% of total scores given) of score 3 given in all three research groups is shown in the table below. The relative frequencies of score 3 for understanding were higher in the screencast groups than in the written feedback group on all three elements.

Relative frequency of score 3 (%)			
	SP (*n* = 5)	**SF** (*n* = 2)	**WP** (*n* = 2)
Own words	65	65	65
Adaptation report	71	71	71
Translation future	42	42	42

▶ CONCLUSION

Screencast feedback is well understood and valued by students because it is specific, multimodal and personal. Teachers however, experienced it as time-consuming and uncomfortable when compared to written comments.

Literature references

[1] Hattie, J., Timperley, H. (2007). The power of feedback. *Review of Educational Research*, 77(1), 81-112.

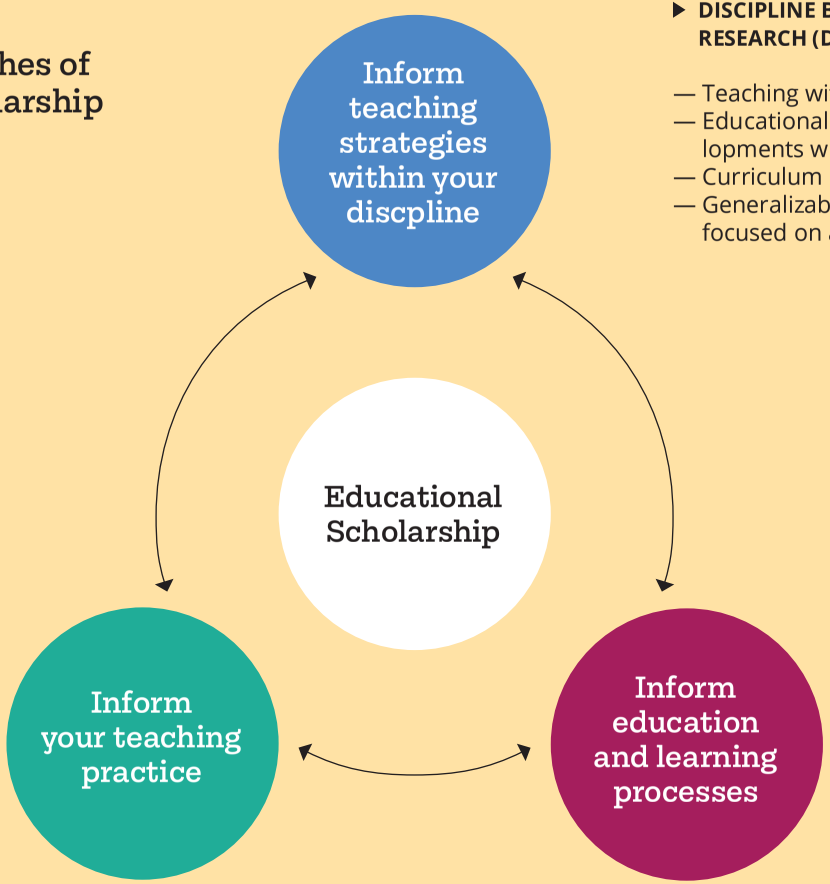
[2] Jones, N., Georghiades, P., &Gunson, J. (2012). Student feedback via screen capture digital video: stimulating student's modified action. *Higher Education*, 64, 593-607

[3] Ali, A.D. (2016). Effectiveness of using screencast feedback on EFL student's writing and perception. *English Language Teaching*, 9(8), 106-121.

[4] Mahoney P., Macfarlane S. & Ajjawi R. (2019). A qualitative synthesis of video feedback in higher education, *Teaching in Higher Education*, 24:2, 157-179.

Figure 1

Different approaches of Educational Scholarship



▶ DISCIPLINE BASED EDUCATION RESEARCH (DBER)

— Teaching within the discipline
— Educational changes and developments within a discipline
— Curriculum level
— Generalizable findings focused on a discipline

▶ SCHOLARSHIP OF TEACHING AND LEARNING (SoTL)

— Teaching and learning in the classroom
— Improve student-learning
— Research-informed teaching
— Provide evidence of the learning of your students
— Reflective teaching
— Share your results

▶ EDUCATIONAL SCIENCE AS A DISCIPLINE

— Draws on different research and theoretical paradigms
— Examines education and learning processes (in Higher Education)


uu.nl/cat
Evaluating the effect of a virtual simulator on teaching communication skills
Clinical Reasoning – The Game