Teaching philosophy and reflections on quality of evaluations

From my former positions as research manager/consortium director/associate professor at Learning Lab Denmark/The Danish University of Education, I have gained close experience with various pedagogical-psychological conceptions of learning. I am critical towards many of them (e.g., situated learning, pedagogical use of Howards Gardner's theory of multiple intelligences, learning-styles (ad modum Dunn & Dunn), constructivist learning) because they seldom are evidence-based. Indeed, there has been little tradition for evidence-based educational R & D in Denmark (cf. the fact that the Danish Clearinghouse for educational research was first established in 2006). The same seems to be the case at the university level[1]. This is regrettable given the obvious importance of both didactics and teaching/learning quality assessment.

I believe that I have made modest contributions towards more evidence-based approaches to learning/education in Denmark/Europe by trying to couple cognitive neuroscience and learning sciences[2-5]: Not because pedagogical approaches based on knowledge gained in cognitive neuroscience are necessarily evidence-based, but because many 'intuitive' conceptions of what works and what does not can be grounded in findings from cognitive psychology/cognitive neuroscience (e.g., that emotions can augment learning; that lack of sleep interferes with consolidation of information in long-term memory). My interest in advancing this field also led me to a position as associate editor for the first journal devoted to coupling educational research and cognitive neuroscience (Trends in Neuroscience and Education: years 2012 – 2016). On the other hand, I have also used quite a lot of energy on criticising approaches to learning which are based on misconceptions of neuroscientific knowledge (e.g., that men/boys and women/girls learn in different ways because their brains are different[2]). This I have done in close collaboration with OECD's Centre for Educational Research and Innovation[3].

I was member (2010-2015) and chair (2013-2015) of the study board at the Department of Psychology, University of Southern Denmark, an organ responsible for securing that the quality of the educational program is satisfactory. In my experience, however, the quality of the educational program mostly depends structural factors (teaching resources/number of students etc.) that the study board has no influence on. In this position, I also took part in the continuous evaluation of the teaching quality. This is mainly achieved by means of SET (Student Evaluation of Teaching), which is the procedure of quality control that the faculty has chosen to implement (as has most other universities in Denmark). For several reasons this is quite unfortunate: (i) There is no evidence in support of the assumption that SET increases the quality of teaching, (ii) the internal validity of SET is at best controversial (we do not know whether the method measures what we think it measures), and (iii) there is no reliable correlation between SET measures and academic achievement (lack of criterion validity)[6-7]. To this it must be added that student participation in SET is rather low which of course also compromises the method's external validity.

Considering these serious deficiencies, it is surprising why SET is used at all. The only reason that I can come up with – which can also account for why I am obliged to have a public teaching portfolio – is that it sends the signal that the institution cares for educational quality. This is not insignificant because quality is important. It is sad, though, that we measure high and low with so little interest in what we are measuring and whether it really makes a difference quality wise. The only thing we know for sure is that it takes a lot of time.

Formal pedagogical training

I have no certified courses in pedagogical training, but from my work in general (see above), and from my participation as mentor in the "Teaching and Learning in Higher Education Programme" (Universitetspædagogikum) at the University of Southern Denmark, I do believe that I have the qualifications that such programmes intend to provide.

Reflections on my own pedagogical activities

Despite my reservations regarding the usefulness of self-reflections[1], as they are not evidence-based in a scientific sense, I will note the following which applies to the main course that I am teaching: Cognitive Psychology.

In the courses on cognitive psychology/cognitive neuroscience that I have developed and organized over the last nine years, we have had special emphasis on methodological aspects. Hence, we have integrated the teaching of methods/statistics and the cognitive psychology curriculum by means of combining lectures with hands-on experimental experience in classes (students running computerized experiments, analysing data and writing research reports) in intensive modules (the module in cognitive psychology that I teach yearly spans three months). It is my impression that this is an entertaining and fruitful way for students to learn about experimental methods and statistics – topics they often find troublesome – because they can use their gained knowledge right away. This also means that there is a very tight connection between what the students are taught at the class level, and what I cover in the lectures.

The tight coordination between classes (24 hours) and lectures (59 hours) combined with a relatively short course duration requires a high degree of organization. Hence, at least one month prior to course start the students can access a Study Guide which describes all aspects of the course: The teachers, the forms of examination, dates for examination, a brief description (5-10 lines) of each lecture and its relevant literature, the learning objectives, and an overall plan for the classes. This Study Guide is supplemented with a detailed description of what will be covered in each class at each date (the experiments to be performed and their relevant literature, which research reports are to be delivered when, the formal requirements for writing a research report etc.).

We urge the students to follow the plan for the module because this: (i) will divide the work load over the course, and (ii) give them opportunity to receive individual feedback on research reports early on in the course where such feedback is most valuable. My general impression is that the students consider the course to be dense and demanding. Hence, the

learning curve is rather steep, and in the beginning of the course the students are often frustrated about the work load (each week there will be 3 hours of class, three 3-4 hours lectures, and one research report to be delivered). After a few weeks they get accustomed to the rhythm, and the frustration wears of. This happens every year (and we inform the students of this situation at the beginning of the course), and somehow all students (approximately 95%) make it and pass the graded exams which are based on both extensive MCQ (100 questions) and evaluation of a research report.

Teaching experience

Courses/lectures:
I have taught topics in cognitive neuroscience at nearly all levels and numerous times. Hence, the list below is selective and intended to document the breadth:
•PhD-level: Course entitled “Research methods in cognitive science”. Department of Psychology, University of Copenhagen. Year: 2011. 2 hours on the topic “Functional brain imaging of cognitive processes”. Language: English.
•Post.Graduate-level: Course approved by the Danish Psychology Association for the specialist-programme in neuropsychology entitled “Visuospatial and visuoperceptual impairments”. Hammel Neurocenter. Year: 2017. 7 hours. Language: Danish.
•Master-level (MA): Lecture entitled “Medical image diagnostics: Perception.” Course for radiologists. University of Southern Denmark. Year: 2017. I taught 6 hours. Language: Danish.
•Bachelor-level (BA): I am responsible for all aspects (organizing, teaching and examination) of cognitive psychology/cognitive neuroscience at the psychology study programme at the University of Southern Denmark. Years: since 2010.
•University-college: Talk entitled: “Gender is not what it used to be: A note on brain development and gender differences”. University College Carlsberg. Year 2016. Language: Danish.
•Non-psychologist-level: “Introduction to brain science”. Organizer: G-LE (Upper secondary school teachers' training program). Year: 2009. I taught 6 hours. Language: Danish.
•Lay-people-level: Talk entitled: “Why do we care about gender?”. Copenhagen. TalkTown (http://www.cecilienorgaard.com/paneldebatten-offentlige-rum-medskaber-boerns-koen/). Year: 2017.
Teaching volume (yearly):
•140 hours (confrontation) at BA-level.
•Supervision of master theses: 70 Hours. (2015-2018).
•2 hours (confrontation) at PhD-level.
•25 hours (confrontation) for psychologists and non-psychologists (medial doctors, professionals in the educational sector, laymen etc.).
Supervision of students/theses:
•8 PhD-students: Currently 2 active for whom I am principal supervisor.
•A total of approximately 30 Master-theses.
•A total of approximately 50 Written exam-papers at MA-level. (2005 – 2010).
•A total of approximately 70 Research-reports BA-level.
Examination of students/theses:
•Opponent on 4 doctoral theses.
•Censorship on approximately 40 MA-theses (with and without oral defence).
•Censorship in relation to examination on courses at MA-level in neuropsychology: over 60 students.
•Censorship in relation to examination on courses at BA-level in cognitive psychology/cognitive neuroscience: over 300 students (I guess).

Development of teaching materials

Written material:
•The chapter *Neuropsychological impairments*[8] is used at post-graduate courses for the medical speciality of Neurology. Role: co-author.
•The book *Clinical neuropsychology*[9-13] is used at graduate courses at the Department of Psychology, University of Copenhagen, Department of Psychology, University of Southern Denmark, and the Department of Psychology, Aarhus University. Role: Editor, author and co-author. Approximately 4000 copies of the book have been sold. A second edition will come next year.
•The chapter *Brain and learning in adolescence*[3], has been/is used at graduate courses at the Danish School of Education, Aarhus University. Role: Co-author.
•The chapter: *Den menneskelige ontogeneses betydning for læring: Hjernens udvikling* in T. Schilhab & B. Steffesen (red) Nervepirrende pædagogik: En introduktion til pædagogisk neurovidenskab[5], has been/is used at graduate courses at the Danish School of Education, Aarhus University. Role: Author (the book has been translates to both Norwegian and Swedish).
•The chapter: *Hjernen og psyken* in B. Karpatschof & B. Katzenelson (red) Klassisk og moderne psykologisk teori[15], is used at graduate courses at the Danish School of Education, Aarhus University and University of Southern Denmark. Role: Co-author.
•The paper: Gender differences, *Brain and Cognition*[2] is used at graduate courses at University College Carlsberg and the Danish school of Education, Aarhus University. Role: Author.
Software:
I have developed several computerized psychological experiments that are used as course material in cognitive psychology/cognitive neuroscience at the University of Southern Denmark.

Other:

Partaker in the development of online teaching material at “EMU – Denmark’s Teaching Portal”. Topic: “Myths and facts regarding gender and brain”.

Administration/management of education & development

•Member of the “leader-team” at the Department of Psychology, University of Southern Denmark (2016->2018) chaired by the head of the department. This is not a formal organ but a group established by the head of department for advice and discussions regarding departmental issues, including the study programme.
•Member of the Danish Psychologist Association’s committee for Education and Research (2015 -> 2018).•Co-chair of the Departmental Council (Institutråd). (2012->).
•Developer and responsible organizer of BA-courses in cognitive psychology/cognitive neuroscience (2010 ->).
•Member (2010-2015) and chair (2013-2015) of the study board at the Department of Psychology, University of Southern Denmark. As the study program in psychology first opened in 2010, this position has given me a unique possibility to partake in the establishment and development/implementation of a whole new study program in Denmark. Accordingly, I spend a lot of time on this assignment and have gained extensive experience with most aspects of management of study programs.
•I have taken part in the development of “Kvote-2-optag” in psychology at the University of Southern Denmark. The University of Southern Denmark selects students (via “kvote-2”) by means of extensive testing and interviews.
•Member of the board for the “Forskeruddannelsesprogram” (PhD-programme) in neuroscience, at The University of Southern Denmark (Years 2010-2014).
•Mentor (medvejleder) for an associate professor as part of his “Teaching and Learning in Higher Education Programme” (Universitetspædagogikum).

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