You are kindly invited to the public defense to obtain the degree of

DOCTOR OF PSYCHOLOGY

of Mrs Katleen Vandist

Which will take place on 25th of October 2019 at 11 am

Promotiezaal – Brussels Humanities, Sciences & Engineering Campus
Pleinlaan 2 – 1050 Brussel

SEMISUPERVISED CATEGORY LEARNING

JURY

INTERN:

Prof. dr. Eva Dierckx (Chair) (VUB)
Prof. dr. Steven Verheyen (KULeuven)

EXTERN:

Prof. dr. Michael Kalish (Syracuse University, United States)
dr. Kobe Desender (Universiteit Gent)

PROMOTORS

Prof. dr. Tim Vantilborgh (VUB)
Prof. dr. Eva Van den Bussche (KULeuven)
Prof. dr. Gert Storms (KULeuven)

You are also invited to the reception afterwards.

Please confirm your attendance at the latest on the 22nd of October via katleen.vandist@gmail.com

How to reach the VUB?

http://www.vub.ac.be/campus/brussels-humanities-sciences-engineering-campus

SUMMARY

In the human category learning literature, category learning is typically investigated in a supervised or an unsupervised way. Supervised category learning involves that participants receive feedback after each encounter of a category member, whereas unsupervised learning implies that no information about the category label is ever provided. However, both forms of category learning seem ecologically implausible. In the current dissertation, we argue that in real life information about the category is provided occasionally, implying that humans learn in a *semisupervised* way. This semisupervised category learning is explored in several ways.

In Chapter II, a semisupervised classification learning paradigm was tested using the information-integration category structure. Participants learned in a semisupervised way and their performance was compared to supervised and unsupervised learners. Almost all semisupervised learners obtained high accuracy performance, comparable to the supervised learners. Our results showed that a sufficient amount of feedback is essential for successful learning. Remarkably, early in the learning process trials that were not followed by feedback did not have an impact.

Chapter III focused on the effect of semisupervised learning late in the learning process, when automaticity develops. All participants were first trained fully supervised and only expert learners were allowed to proceed to the actual experiment. In the actual experiment participants were further trained on the task, where, depending on the condition, the number of feedback trials differed. The results showed that at the end of the experiment the semisupervised learners categorized stimuli significantly faster than the supervised learners, even when the total number of trials in the supervised and semisupervised conditions was identical. Thus, late in learning the no-feedback trials did have an impact: they accelerated the development of automaticity.

In Chapter IV semisupervised learning was investigated in the A not A category structure, early in the learning process. Again, semisupervised learning was successful (resulting in high accuracy rates), when at least 25% of the trials was followed by feedback. The no-feedback trials did not have an impact on the learning process.

Chapter V provides an overview of the obtained empirical results. Integrating the results of this dissertation, three striking conclusions could be made. First, semisupervised learning is successful. Second, the onset of the no-feedback trials in the learning process seems crucial: when implemented early in learning, these trials have no impact; when implemented late in learning, the no-feedback trials accelerate the learning process. Third, in every study, individual differences in category learning were observed. These findings are situated in the broader literature and limitations of the studies are discussed. Finally, future research ideas are suggested.

CURRICULUM VITAE

Katleen Vandist obtained the degree of Master of Psychology in 2005 at Universiteit Gent. After graduating, Katleen started as an assistant at Universiteit Gent and restarted as a joint PhD student at VUB and KULeuven in October 2016. Her research focuses on human category learning. During the past years, Katleen has presented her research results at Psychonomics (winner of the accommodation award in 2016) and has published her work twice in Attention, Perception & Psychophysics. Katleen always combined her PhD studies in Leuven and Brussels with a job in education.