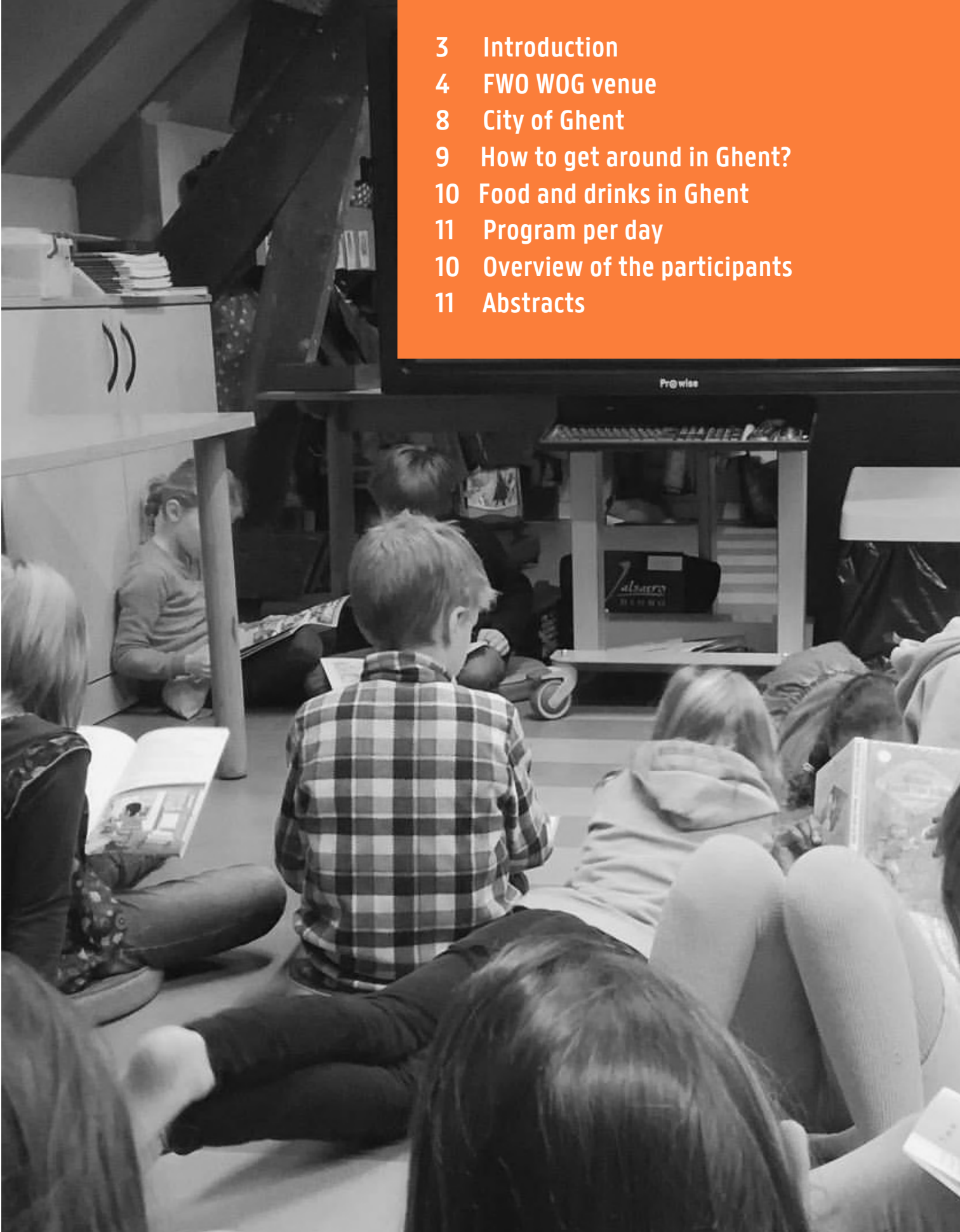


# **FWO WOG**

## **Learning strategies in social and informal learning contexts**

Abstract and program book

Ghent University, December 8 – 10, 2019



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## INTRODUCTION

We proudly welcome you to the meeting of the FWO WOG Learning strategies in social and informal learning contexts in Ghent! We are very pleased to host this meeting in our city and we hope that you will enjoy the presentations and discussions during this meeting. In this abstract book, we first provide some practical information concerning the FWO WOG venue. To help you get around in one of the most beautiful historic cities in Europe, we also provide some information on our city Ghent! Next to the practical information, you will find an overview of the program. Finally, this book offers a compilation of all contributions of the FWO WOG participants.

The organizing committee of the FWO WOG Learning strategies in social and informal learning contexts

Rielke Bogaert\*

Margot Chauillac\*\*

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Sven De Maeyer\*\*

Fien De Smedt\*

Vincent Donche\*\*

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Piet Van den Bossche\*\*

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## FWO WOG VENUE

The **address** for the venue is:

Faculty of Psychology and Educational  
Sciences  
Henri Dunantlaan 2  
9000 Ghent  
Belgium

**WIFI:** "UGentGuest"

**Username:** guestLeer

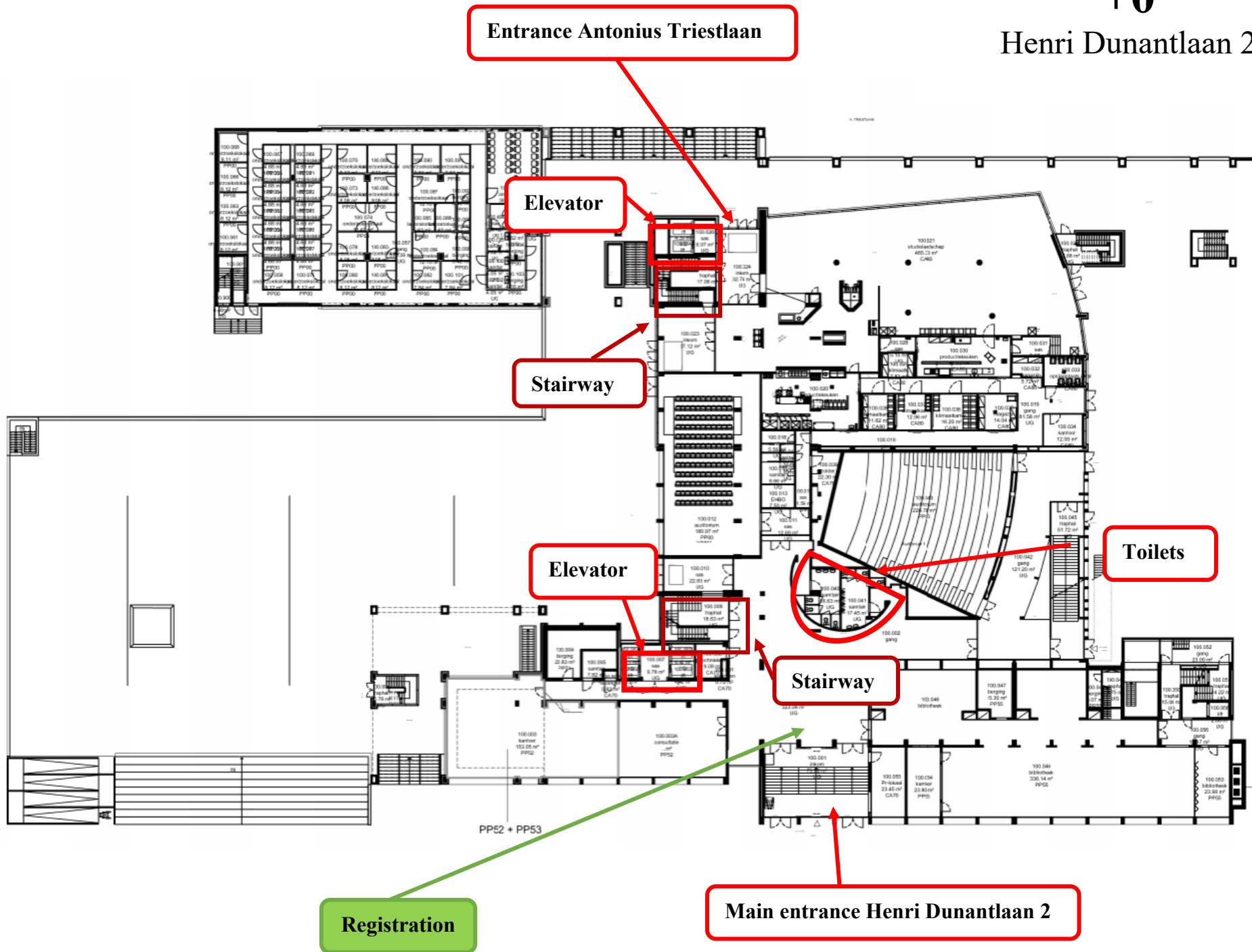
**Password:** 6PRLj2t7

If you didn't connect, you can also connect with "Eduroam".



Find your way at the venue

+0  
Henri Dunantlaan 2













## CITY OF GHENT

"Here's a secret within a secret: Ghent might just be the best European city you've never thought of visiting, in a country that continues to be criminally overlooked. Ghent hides away in the middle of Belgium's big three - Brussels, Bruges and Antwerp. Most Belgium-bound visitors rushing between these see nothing more than the stately fortifications of Ghent's St Pieter's Station. Those who do hop off the train and stroll along the Leie River to the historic center will have their eyes out on stalks. Here hides one of Europe's finest panoramas of water, spires and centuries-old grand houses. But this is no place to simply kick back: Ghent has one of Europe's most dynamic festival scenes, which vies for visitors' attention."

*Lonely Planet's "Best in Travel 2011" guide*



## HOW TO GET AROUND IN GHENT?



### On foot

The FWO WOG venue is located near the city center (walking distance: +- 20-25 minutes).



### By taxi

There are usually taxis at the Gent-Sint-Pieters Railway station and at the Korenmarkt (city center). You can also contact one of the following taxi companies:

V-Tax: +32 9 222 22 22

Taxi Gent: +32 9 333 33 33



### By tram/streetcar

From Gent Sint Pieters train station choose line nr. 2 or 4. Stop closest to Dunant: Martelaarslaan (Supermarket Delhaize), name of the stop: "Bernard Spaelaan". Then walk for 5 minutes.

Line 2: take the direction "Zwijnaarde – Melle Leeuw"

Line 4: take direction "Gent UZ – Ledeborg"

There is a tram every 5 minutes (approx.).

For more information: [Visit the "De Lijn" website.](#)



### By bus

From Gent Sint Pieters train station take bus 9 (direction Gentbrugge Groeningewijk – Mariakerke Post) to the stop: "Beneluxplein". When you get out, you are exactly at the main entrance of Dunantlaan 2.

From Gent Sint Pieters train station you can also take bus 14/15 or 65/67 to stop "Gent Ekkergem Kerk". The red building you see when you get out at "Gent Ekkergem Kerk" is Dunant 2, the main entrance is on the other side.

Bus 14: Direction Gent-Drongen-Deinze

Bus 15: direction Gent-Drongen-Nevele-Tielt

Bus 65: direction Gent Arteveldepark-Zomergem-Ursel Kerk

Bus 67: direction Gent Arteveldepark-Zomergem-Waarschoot-Eeklo PTI

For more information: [Visit the "De Lijn" website.](#)



### Tickets

For both tram and bus, make sure to buy your tickets in the train station or outside at the automats (requires coins). On the bus or tram, it will cost you about 50% extra.

For more information: [Visit the "De Lijn" website.](#)



### Citycard Ghent

CityCard Ghent is the special all-in access card to the main historical buildings, museums and top attractions in Ghent. You can also use the CityCard Ghent on the bus or tram and what's more, it also includes a boat trip.

The user guide, which comes with the CityCard Ghent, tells you where to go and how to get there. All the information you need, in one publication.

All you need to do to use this all-in package is pay 30 or 35 euros! This will allow you to explore the city for 48 or 72 hours.

Your card will be scanned every time you enter a venue. Except on the bus or tram. That is why you have to fill out the date of first use on the back of the card and show your pass to the driver.



Additional advantage: Thanks to the CityCard you can also follow the restoration of the Mystic Lamb up close. This includes the triptych itself in the Cathedral as well as the panels, which are being restored in the Museum of Fine Arts (MSK) and the exhibition in the Carmelite Friary.

You can order the CityCard Ghent online. Your order will be forwarded after receipt of your payment. Please count 14 working days before the goods ordered will be delivered.



## SOME NICE PLACES FOR FOOD AND DRINKS IN GHENT

A recurrent question during conferences is: "What are authentic places to have an evening meal?". Therefore, the local staff of the Department of Educational Studies has created a list with some of their favorite restaurants and bars.

 Restaurants	 Bars	 Coffee bar
Cafetheatre	't Floere Foefke	Bar Bidon
Aula	Damberd	Bariston
Multatuli	Trefpunt	Café Labath
Athene	Backdoor	Café Rossario
De Drie Biggetjes	Marimain	De chocoladebar
Midtowngrill	Vooruit	De Vooruit
Domestica	Trollekelder	Full circle coffee
Amadeus	Het Oeverloze Eiland	Goesting
Mosquito Coast	Mokabon	Het moment
De Groene Waaier	Dulle Griet	Huize Colette
Tuin van Eten	Het Volkshuis	OR coffee or take 5
Il Folletto	Quetzal	Quetzal
Aperto Chiuso	Pink Flamingo's	Rokkebolle
Il Cortile	Hotsy Totsy	Take 5
Jilles	't Dreupelkot	
Paul's Boutique	Manteca	
Volta	Trappistenhuis	
Belga Queen	Café De Zoo	
Patyntje	Rococo	
Frietketel	Hot Club de Gand	
Grand Café Godot	The Cobbler	
In Bocca Lupo	Café René	
Le Baan Thai	Cafetheatre	
Il Mezzogiorno		
Pantheon		
't Oud Clooster		
Pakhuis		
Café René		
Multatuli		

## PROGRAM PER DAY

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	<b>Monday 9 December 2019</b>	<b>Room</b>
09:30 – 10:00	Registration and welcome with coffee	Main entrance
10:00 – 10:30	Welcome, get to know each other and practical information	Room 3.2.
10:30 – 11:15	Paper 1 - Hans Smolders, David Gijbels, Sven De Maeyer <i>Investigating the role of students' preparation on the in-class learning behavior: an SRL perspective</i>	Room 3.2.
11:15 – 12:00	Paper 2 - Fien De Smedt <i>Unravelling interaction patterns and writing processes during peer-assisted writing in sixth grade</i>	Room 3.2.
12:00 – 13:00	Lunch	Space behind auditorium 2
13:00 – 13:45	Paper 3 - Dorothy Duchatelet <i>How participating in a role-play simulation contributes to students' self-efficacy development: A longitudinal in-depth case study</i>	Room 3.2.
13:45 – 14:30	Paper 4 - Daniel Dinsmore & Meghan Parkinson <i>Socially-shared Regulation while Learning about Robotic Coding</i>	Room 3.2.
14:30 – 15:00	Break	Space behind auditorium 2
15:00 – 15:45	Paper 5 - Liesje De Backer, Hilde Van Keer, & Martin Valcke <i>The functions of shared regulation during collaborative learning and their relation with students' performance</i>	Room 3.2.
15:45 – 16:30	Paper 6 - Marijn Wijga, Maaïke Dorine Endedijk, & Bernard Veldkamp <i>Identifying Variations in Social Regulation at the Workplace: A Social Network Approach</i>	Room 3.2.
16:30 – 18:00	Free	
18:00 – 19:30	Guided walk through the city center	
19:30 – ...	Diner	Het Pand <b>Address:</b> Onderbergen 1, 9000 Gent

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<b>Tuesday 10 December 2019</b>		<b>Room</b>
8:30 – 9:00	Morning coffee	Space behind auditorium 2
9:00 – 9:45	Paper 7 - Telle Hailikari & Anna Parpala <i>Exploring approaches to learning in the PhD context and their relation to study-related burn-out and social support</i>	Room 3.2.
9:45 – 10:30	Paper 8 - Jan Vermunt & Maria Vrikki <i>Teachers' social learning when engaging in Lesson Study</i>	Room 3.2.
10:30 – 11:00	Break	Space behind auditorium 2
11:00 – 12:00	LET session - Sanna Järvelä & Hanna Järvenoja	Room 3.2.
12:00 – 13:00	Closing session	Room 3.2.
13:00 – ...	Goodbye lunch	Space behind auditorium 2



## OVERVIEW OF THE PARTICIPANTS

<b>Last name</b>	<b>First name</b>	<b>University</b>
Barbier	Katelijne	University of Antwerp
Berisha-Gawlowski	Angelina	Paderborn University
Cuyvers	Katrien	University of Antwerp
De Backer	Liesje	Ghent University
De Smedt	Fien	Ghent University
Dinsmore	Daniel	University of North Florida
Donche	Vincent	University of Antwerp
Duchatelet	Dorothy	University of Antwerp
Endedijk	Maike	University of Twente
Gijbels	David	University of Antwerp
Hailikari	Telle	University of Helsinki
Järvelä	Sanna	University of Oulu
Järvenoja	Hanna	University of Oulu
Parkinson	Meghan	University of North Florida
Parpala	Anna	University of Helsinki
Smolderen	Hans	University of Antwerp
Van den Bossche	Piet	University of Antwerp
Van Keer	Hilde	Ghent University
Vermunt	Jan	Eindhoven University of Technology
Vrikki	Maria	University of Cyprus
Wijga	Marijn	University of Twente

## ABSTRACTS

1. Paper 1 - Hans Smolders, David Gijbels, Sven De Maeyer  
*Investigating the role of students' preparation on the in-class learning behavior: an SRL perspective*
  
2. Paper 2 - Fien De Smedt  
*Unravelling interaction patterns and writing processes during peer-assisted writing in sixth grade*
  
3. Paper 3 - Dorothy Duchatelet  
*How participating in a role-play simulation contributes to students' self-efficacy development: A longitudinal in-depth case study*
  
4. Paper 4 - Daniel Dinsmore & Meghan Parkinson  
*Socially-shared Regulation while Learning about Robotic Coding*
  
5. Paper 5 - Liesje De Backer, Hilde Van Keer, & Martin Valcke  
*The functions of shared regulation during collaborative learning and their relation with students' performance*
  
6. Paper 6 - Marijn Wijga, Maaïke Dorine Endedijk, & Bernard Veldkamp  
*Identifying Variations in Social Regulation at the Workplace: A Social Network Approach*
  
7. Paper 7 - Telle Hailikari & Anna Parpala  
*Exploring approaches to learning in the PhD context and their relation to study-related burn-out and social support*
  
8. Paper 8 - Jan Vermunt & Maria Vrieki  
*Teachers' social learning when engaging in Lesson Study*
  
9. LET session - Sanna Järvelä & Hanna Järvenoja  
*Our approach on studying social aspects of regulated learning - Emphasis on emotion regulation*

# 1. Investigating the role of students' preparation on the in-class learning behavior: an SRL perspective

HANS SMOLDERS, DAVID GIJBELS, SVEN DE MAEYER

University of Antwerp, Belgium

A key element in flipped learning (FL) environments is the necessity for students to prepare themselves thoroughly in order to be able to participate in the in-class learning activities (Lage, Platt and Treglia, 2000). Both during the preparatory phase and the actual classes, a high degree of self-regulation is required from the students (Sletten, 2017). Until now, the main focus in the flipped learning literature is on the way in which students self-regulate during the preparatory phase (e.g. Jovanovic et al., 2016), their perceptions of the FL environment and the effect on student grades (e.g. Boevé et al., 2016). Although the reason for flipping lies in the enhanced opportunities for teachers to coach the students while they perform higher level learning activities during class (Hamdan, McKnight, McKnight and Arfstrom, 2013), the research into the in-class activities is very limited. Thus the central research question: What is the relationship between the way in which students self-regulate their pre-class preparation and their in-class learning activities?

## Data collection and methodology

The data for this pilot were collected in a flipped preparatory course of statistics at the University of Antwerp in 2018.

At home learning activities were captured by means of log files and self-reported daily learning diaries. To record the in-class activities, screenrecordings, video recordings of the classroom and audio recordings of all teacher-student interaction were used. A cluster analysis is performed on the data of the preparatory phase. Next, the data of the various sources of lesson observation are manually coded as sequences of learning actions. These are analyzed based on the clustering in order to test the hypothesis that the way in which students self-regulate their learning during class relates to their choices during pre-class preparation.

## Findings and future research

The cluster analysis showed 3 distinct clusters: an all low-cluster, consisting of students with no or minimal preparation and no active learning; a strategic cluster, with moderate time investment but a high degree of activation; an all high cluster with a large time investment, use of almost all sources and high degree of active learning.

Contrary to the formulated hypothesis, no connection was found between the preparatory cluster and the in-class self-regulation. From the visual exploration of the coded data, it became however immediately clear that there were strong similarities between the regulatory activities of pairs of students. Apparently, they autonomously decided to work together although this wasn't a build-in feature of the learning environment. This of course raises different questions: Do they use some degree of socially shared regulation, which has been shown to have a positive effect on the learning outcomes (Panadero & Järvelä, 2015), or is one student taking the lead while the other starts copying instead of actively learning. This also leads to the question if there is any interaction between the preparation and the shared learning actions: does the degree of preparedness determines who takes the lead and what is the role of self-efficacy in this process?

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## 2. Unravelling interaction patterns and writing processes during peer-assisted writing in sixth grade

FIEN DE SMEDT

University of Ghent, Belgium

### Theoretical background and aim of the study

There is growing consensus on the importance of interaction between learners for the development of knowledge and understanding, as well as on the effectiveness of various forms of peer-assisted writing (Graham, McKeown, Kiuvara, & Harris, 2012). It, however, appears that we are still remarkably ignorant about the dynamics and processes of peer group interaction and how these are related to students' writing performance (Van Steendam, 2016). In the present study, we specifically opted for a process-based approach to uncover (in)effective interaction or learning processes that cannot be revealed by solely studying students' writing products (Allal, 2018). We more particularly aim at unravelling the underlying interaction patterns that determine the outcomes of peer-assisted writing in sixth grade.

### Method

The interaction of 4 dyads during 3 peer-assisted writing lessons was videotaped and coded by means of a theory-driven coding instrument. The latter integrated coding categories on cognitive writing processes (i.e., planning, text generation and transcription, reviewing and revising, and monitoring) (Flower & Hayes, 1981) and on interaction patterns (i.e., no transactivity, low transactivity, hybrid transactivity, and high transactivity) (De Backer, Van Keer, & Valcke, 2016). In total, 3362 units at the turn level (i.e., referring to individual students' contributions/verbalisations) and 2604 interactive units (i.e., referring to action-reaction exchange between two students) were segmented.

### Results

Descriptive analyses regarding the cognitive processes underlying writing and the intensity of students' interactions were performed. Results show that the 6<sup>th</sup>-grade writing dyads predominantly focus on reviewing and revising their texts during peer-assisted writing (see Table 1). Furthermore, results reveal that 41.2% of students' interactions is characterized by hybrid transactivity (i.e., dyads interacting by completing each other's statements or by articulating inconsistency in each other's statements) (see Table 2).

*Table 1. Descriptive results regarding the cognitive processes underlying writing*

	Cognitive writing processes	
	Frequency	Percentage
Planning	485	14.4%
Text generation and transcription	902	26.8%
Reviewing and revising	1378	41.0%
Monitoring	597	17.8%
Total	3362	100%

Table 2. Descriptive results regarding the intensity of students' interactions

Intensity of students' interactions		
	Frequency	Percentage
No transactivity	387	14.9%
Low transactivity	785	30.1%
Hybrid transactivity	1074	41.2%
High transactivity	358	13.7%
Total	2640	100%

## Conclusion

To identify the level of transactivity in the cognitive writing processes, more deep-level analyses will be conducted and presented in the paper. More particularly, we will combine the writing process data with the data on students' interaction patterns to analyse which writing processes are characterized as highly transactive. In this way, we will have more in-depth insights into the effectiveness of peer-assisted writing by identifying the writing processes in which deep-level and reciprocal discussions between the writing dyads is elicited. Finally, subsequent analyses will focus on the relation between the applied cognitive writing processes, the intensity of interactions, and students' individual writing performance on a descriptive writing test.

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### **3. How participating in a role-play simulation contributes to students' self-efficacy development: A longitudinal in-depth case study**

**DOROTHY DUCHATELET**

University of Antwerp, Belgium

Self-efficacy is considered a key motivation construct that improves competence and future actions. Four sources of self-efficacy have been hypothesized. Mastery experiences – past successes or failures – can be considered the most important source. Also, physiological/emotional states consistently contribute to self-efficacy development. Findings about social oriented sources - social persuasion and vicarious experiences - are less consistent and seem to vary across domains or subjects. Also, recent research findings point to complex processes in which students consider information from multiple sources when evaluating their self-efficacy beliefs. This study contributes to current self-efficacy research in two ways. First, it expands self-efficacy research to a specific context and competence by investigating how self-efficacy for negotiating develops in the learning context of role-play simulations of political decision-making. Such simulations are commonly used when teaching about the complexity of socio-political processes in political science education. Second, this study follows the need for more in-depth qualitative research by conducting a single holistic case study with a longitudinal design, investigating sources of self-efficacy and their interplay when contributing to both outcomes of self-efficacy increase and decrease over time. Data were collected during a four-day European Union-simulation. Three data sources contributed to data convergence, ensuring that more than one single source of evidence supported findings. The final sample consists of 27 meaningful events, provided by four information-rich and representative case students from an elective course in a political science curriculum. Meaningful events were selected using a set of inclusion criteria, and data were analysed by means of content analysis. Findings showed that three groups of sources could be defined: personal sources, social sources, and contextual sources, which include and enrich the four hypothesized sources of self-efficacy. Results point to personal sources predominantly contributing to self-efficacy development. Where these single-handedly contribute to self-efficacy decrease, self-efficacy increase always (at least) additionally relates to a social source. This points to the importance of the social dimension in the learning context of role-play simulations, especially for self-efficacy increase. Contextual sources play a less distinct role in developing self-efficacy as they only influence self-efficacy when combined with one or several other sources.

## 4. Socially-shared Regulation while Learning about Robotic Coding

DANIEL DINSMORE & MEGHAN PARKINSON

University of North Florida, United States

The context and environment in which learning takes place can have a distinct influence on both the outcomes of learning and the processes of learning. The affordances in the environment may help or hinder the outcomes or processes of learning depending on the individual differences of the learner (e.g., knowledge), the physical space and materials, and finally the social dimension of the learning problem or task. Because each of these influences can be distinct, it is critical that the various configurations of these influences are studied in a wide variety of contexts. The study focuses on how the social dimension of the environment influences children's learning of robotic coding (the individual difference dimension will be presented at the EARLI biennial conference in August). We frame this examination of the social context through socially shared regulation (SSRL) which Hadwin and Oshige (2011) define as, "the processes by which multiple others regulate their collective activity," (p. 253). Specifically, for this paper we will investigate how these SSRL processes influenced both the children's strategic activity as well as their robotic coding outcomes.

Participants for this study were 20 third-grade students in a diverse elementary school in the Southeastern United States. Participants were asked to use a Code-a-pillar, a coding toy which enables the user to program the robot to go straight, turn right, turn left, or play music. For the first session dyads of children attempted to program the robot to go around a block about 10 feet away and return to its starting point. In the second session children participated in an intervention to help them understand coding using narrative text (these data are not included in this paper). In the third session, dyads were again asked to program the robot, except this time they were instructed to have the robot go to two waypoints and back to the start (arranged in a triangle). In the first and third sessions children were instructed to talk aloud as they were coding the robot. These talk-alouds were transcribed and coded using an existing coding scheme for strategies and using an adapted SSRL coding scheme.

Qualitative coding of these data was completed for sessions one and three. These analyses revealed more unilateral regulation in session 1. In other words, one member of the dyad engaged in most of the regulation and strategy use, while the other contributed much less and acted more like an observer. However, in the second session – after the intervention – there was more active socially-shared regulation from both members of the dyad. This resulted in more socially constructed activity in some cases, which benefited their performance, however, in other cases led to more instances where there was a power struggle over control of the coding activities. These latter cases were less constructive in the final robotic coding outcome. These data present an opportunity to explore SSRL in a unique environment – robotic coding – with children who have not engaged in these types of activities before.

## 5. The functions of shared regulation during collaborative learning and their relation with students' performance

LIESJE DE BACKER, HILDE VAN KEER, & MARTIN VALCKE

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Socially shared metacognitive regulation (SSMR) refers to metacognitive regulation activities in which multiple students reciprocally operate on each other's regulative acts when monitoring and controlling their cognition (Iiskala et al., 2015). Although SSMR is expected to advance the outcomes of collaborative learning, empirical evidence is still minor and rather distributed (Panadero & Järvelä, 2015). Since SSMR can have different functions within collaborative learning, (i.e. confirming, activating, changing, or stopping the ongoing interaction), it seems plausible to assume that not all acts of SSMR contribute to successful collaborative learning to the same extent (Iiskala et al., 2015). The current study aims at investigating how students' engagement in SSMR with different functions (i.e. confirming, activating, changing, or stopping the course of collaborative learning) is related to both their short term and middle-long term performance. A semester-long face-to-face peer tutoring (PT) intervention was implemented within university students' course "Instructional Sciences". Sixty students weekly tutored one another in small groups of five, aimed at co-constructing domain-specific knowledge. The last session of all PT-groups was videotaped to enable systematic observation of students' SSMR. Both the occurrence and the functions of SSMR were assessed by means of literature-based coding instruments (De Backer et al., 2015; Iiskala et al., 2015). The frequency of students' involvement in SSMR (i.e. 1816 acts of SSMR), respectively in each of the functions of SSMR during the last PT-session, was calculated and related to (a) students' performance on a cued recall knowledge test (i.e. short term) and (b) students' performance on the theoretical exam 'Instructional Sciences' (i.e. middle-long term). The test was taken by individual students immediately after the last PT-session, whereas the exam was taken six weeks after.

Results of the regression analyses demonstrate that students' engagement in SSMR is a significant predictor of their short term performance ( $p < .001$ ). Regarding the functions of SSMR, Table 1 reveals that only SSMR changing the ongoing interaction ( $p = .001$ ) and SSMR activating collaborative learning ( $p = .042$ ) are significantly positively related to students' short term performance. Further, adopting SSMR appeared to be significantly related to students' middle-long term performance on the final exam ( $p < .001$ ). Taking the functions of SSMR into account, Table 1 demonstrates, however, that only SSMR directed at changing the course of collaborative learning is significantly positively related to students' middle-long term performance ( $p = .005$ ).

Table 1. Regression analyses for assessing the relation between students' involvement in SSMR (with different functions) and their performance

<b>Model 1: SSMR as predictor of short term performance</b>					
	<b>B</b>	<b>sd</b>	<b>Beta</b>	<b>t</b>	<b>p</b>
CONS	7.95	0.81		9.87	<.001
SSMR	0.04	0.01	0.61	6.00	<.001
<b>Model 2: functions of SSMR as predictor of short term performance</b>					
CONS	9.87	0.97		10.13	<.001
Confirm CL	-0.02	0.02	-0.08	-0.77	.446
Activate CL	0.10	0.05	0.31	2.08	.042
Change CL	0.05	0.01	0.50	3.43	.001
Stop CL	-0.07	0.06	-0.10	-0.93	.356
<b>Model 3: SSMR as predictor of middle-long term performance</b>					
CONS	4.91	0.46		10.63	<.001
SSMR	0.02	0.01	0.65	6.57	<.001
<b>Model 4: functions of SSMR as predictor of middle-long term performance</b>					
CONS	5.57	0.57		9.61	<.001
Confirm CL	0.02	0.01	0.13	1.13	.262
Activate CL	0.05	0.03	0.27	1.83	.072
Change CL	0.02	0.01	0.43	2.92	.005
Stop CL	-0.06	0.05	-0.15	-1.37	.177

The present study allows extending the literature on SSMR and takes effect studies on SSMR to a next level by acknowledging the potential differential impact of engaging in variations of SSMR for the students involved.

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## 6. Identifying Variations in Social Regulation at the Workplace: A Social Network Approach

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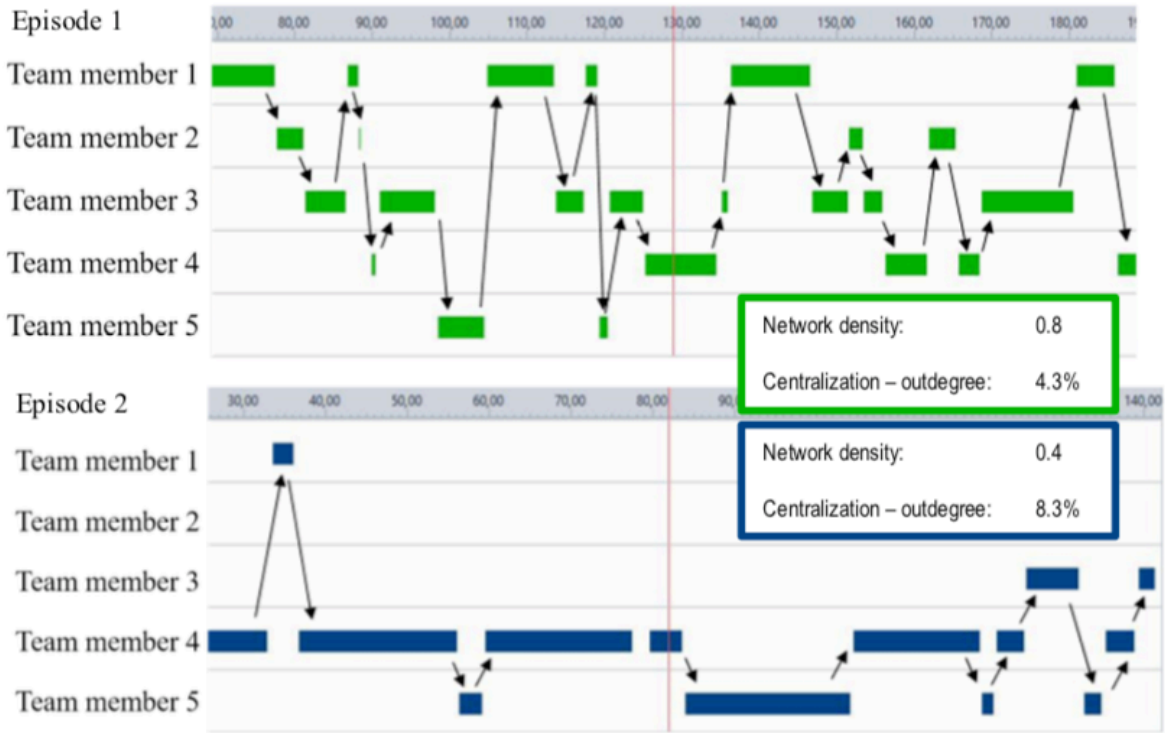
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In the field of workplace learning, there is consensus that self-regulation is a key factor in enhancing learning. However, learning at the workplace is often not an individual process, but particularly takes place in interaction. The idea that regulation during collaboration addresses more than individual self-regulation has shifted the attention to the conceptualization of social modes of regulation introducing terms such as socially shared regulation (occurring when the group as a whole engages in regulatory activities), and co-regulation (involving stimulation of regulation via interpersonal interactions). These modes of regulation have been identified by manually coding the value of the contributions of students during collaborative learning tasks. One of the challenges of studying teams in workplace settings is that social science researchers lack the expertise to judge the value of the contributions of team members of for example ICT teams. To overcome this challenge, we suggest a new approach that moves away from the golden standard of top-down coding. The aim of this paper is to explore the possibilities of using a social network approach to identify variations in social regulation taking place during teamwork in the complex setting of the workplace.

We video-taped 39 meetings of three ICT teams. The meetings were first coded on the level of a single turn ( $N = 6964$ ). Second, the data on episode level was subjected to social network analyses (SNA). SNA basically conceives a network as a set of actors (or nodes) and the relationships (or edges) between them. In adjacency matrices communication relationships between actors were defined, which are needed to assess the centrality and network density. A high centralized network is based on the information flow of a few individuals. In a decentralized network, the information flow is more equally spread among team members. Degree of centralization indicated to what extent interactions take place with only one central actor.

Preliminary findings show that social network analysis can be supportive to show variations in how regulation is distributed over the team. Figure 1 visualizes two socially shared regulation episodes. The flow of episode 1 shows that every team member is engaged and contributes equally to the discussion, while in episode 2 team members direct their utterances mostly towards the same team member who directs the conversation to the next member. The SNA measures support the difference between the episodes. The network of the first episode is twice as dense, indicating a greater degree of interaction among members. Both examples show relatively low degree of centralization, but the first episode has more symmetry compared to the other episode. We expect that these techniques can be used in the future to automatically distinguish socially shared regulation episodes indicated by highly dense networks from episodes with low dense networks. However, additional analyses are needed to find out the best thresholds to distinguish the different modes for different contexts. In the full paper, we will further elaborate on this.

Figure 1. Visualisation and analysis of a two socially shared regulation episodes.





## 7. Exploring approaches to learning in the PhD context and their relation to study-related burn-out and social support

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### Introduction

Student learning in higher education has been widely explored using the concept approaches to learning, namely, deep, surface (or unreflective approach) and organised studying. The approaches to learning have been identified at different levels of education (e.g. Biggs et al. 2001; Eklund-Myrskog & Wenestam, 1999; Entwistle & Entwistle, 2003; Kember & Gow, 1991) as well as in the working life context (Kirby, 2003). They have also shown to be related to students' well-being (Asikainen et al., 2019). However, until recently, the existence of approaches to learning in the PhD context has been largely ignored although previous small-scale study implies that there are differences in PhD students' learning processes (Vekkaila and Pyhälto, 2016) and unreflective approach might form a threat for PhD students' well-being. The aim of the present study was twofold: firstly, to examine the approaches to learning in the PhD context. Secondly, the aim is to explore the relationship between PhD students' approaches to learning, study-related burn-out and social support.

### Methods

The participants of this study were 420 PhD students from four different doctoral schools. The participants filled in a HowULearn questionnaire (Parpala & Lindblom-Ylänne, 2012) which was contextualised to the PhD context by a team of experts in university pedagogy. Confirmatory factor analysis (CFA) was conducted to explore the factor structure for both approaches to thesis work as well as study-related burn-out. Exploratory factor analysis (EFA) using Maximum Likelihood (ML) extraction with oblimin rotation was used to explore dimensions of supervisory and peer support. Correlation analysis was used to explore the relations between the different dimensions. Qualitative interviews were carried out to validate the approaches to learning.

### Results

The CFA conducted with the items measuring the contextualised approaches to learning showed that the three-factor model fitted the data well (CFI=0.913, RMSEA=0.076) (unreflective approach, deep approach and organised studying). The CFA concerning study-related burnout revealed three factor solution with three scales Exhaustion, Cynicism and Inadequacy, (cf. Salmela-Aro et al., 2009) and also fitted the data well (CFI=0.941, RMSEA=0.100). And finally, the EFA regarding social support items revealed two clear dimensions, Peer Support and Supervisory support.

The interrelations between the items were measured with Pearson correlations. The preliminary analysis revealed a strong relationship between approaches to thesis work as well as different dimensions of study-related burn-out and experiences of social support. Unreflective approach was strongly related to all dimensions of study-related burn-out and negatively related to experiences of supervisory support. The opposite pattern was true for deep approach and organised studying. The interviews provided deeper insights on the phenomenon of approaches to learning in the PhD context. Further analysis will be presented at the network meeting.

## **Conclusions**

The results provide support for the hypothesis that the approaches to learning are also identifiable in PhD context. Most importantly, unreflective approach and its relation to student well-being could be identified. The present study represents a new perspective to understand PhD students' learning processes and the difficulties they may experience during their PhD studies.

## 8. Teachers' social learning when engaging in Lesson Study

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Learning has traditionally been studied as an individual process, but more recently its social aspects have gained more attention. One context that promotes "social learning" is collaborative teacher professional development, where teachers work in groups in order to develop their practice and knowledge. Lesson Study (hereafter LS) is an example of such a model, which originated in Japan in the 1870s (Dudley, 2013). The basic LS model involves teachers forming small groups in order to plan lessons together, teach them, and then reflect on them with a view to improve subsequent lesson planning. Our research examines the social dimension of learning that takes place in LS meetings. Specifically, we examine teacher dialogues as the mechanism underlying the quality of learning produced in these meetings.

The present paper stems from a two-year research and development project, which was a collaboration between the University of Cambridge and the School Improvement Services in Camden, London. The project introduced LS in the practice of mathematics teachers in 77 primary and secondary schools in London, after the introduction of a new mathematics curriculum. Figure 1 presents the Research Lesson Study model that was used in the project. This three-cycle LS took place every term (i.e. 3 LS per year).

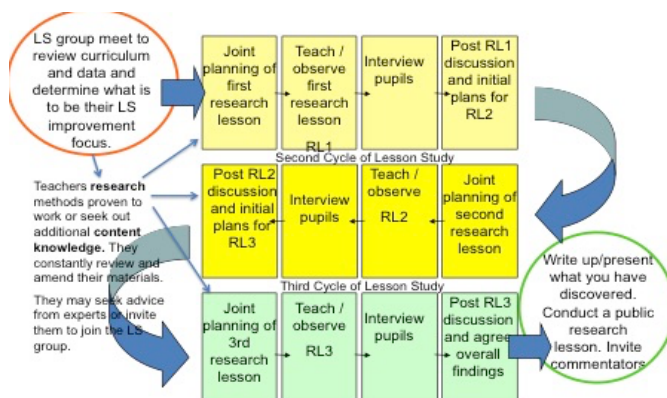


Figure 1. The Research Lesson Study model

The aim of this study, which was to examine the social dimension of teacher learning in LS meetings, was pursued with two sub-studies. In Study A, data for social learning were collected via videorecorded LS meetings. This data were considered to capture learning as it happened as a natural thinking aloud process. A coding protocol was developed with the intent to capture productive dialogue moves, content of discussion and teacher learning processes. A two-level multilevel analysis of 120 coded episodes from the videos showed that being part of a group contributed to teachers' individual learning (Vrikki et al., 2017). More specific findings will be presented and discussed.

Study B aimed to examine how teachers' learning patterns were related to: (a) personal factors, such as their professional identity, and years of teaching experience; and (b) social factors, such as the quality of dialogues they engaged with in LS meetings, and their school's support. A diagnostic instrument was developed and administered to 73 teachers. Three underlying patterns of learning could be identified: meaning-oriented learning, application-oriented learning, and problematic learning (Vermunt et al., 2019). Further analyses revealed, among other things, that meaning- and application-oriented learning were positively and highly associated with the quality of dialogue ( $r = .68$ ,  $r = .76$ , respectively), and moderately with perceived school support ( $r = .43$ ,  $r = .37$ , respectively).

The results of the two studies demonstrate that Lesson Study provides the foundation for teacher social learning to take place. The two studies also make a methodological contribution to the literature as they examine the phenomenon from two different angles. Implications for teacher professional development and future research will be derived.

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## 9. Our approach on studying social aspects of regulated learning - Emphasis on emotion regulation

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In this presentation, we frame our approach in studying the socially shared regulation of learning. In our research, we have progressed from recognizing and defining the phenomenon of socially shared regulation in learning to investigate (1) situational and contextual variations, (2) temporal manifestation and (3) cyclical adaptation of regulation processes to better understand its appearance and function in collaborative learning. In addition, we have systematically progressed in the aim of understanding (4) the role and fluctuation of motivational, emotional and cognitive targets for regulation and (5) the reciprocal connection between these different regulatory targets. Our prior results have indicated, for example, that while the co- and socially shared regulation of emotions occurs relatively rarely compared with other forms of regulation, it is still an inherent part of collaboration setting the stage for high-level cognitive processes. There is also preliminary evidence indicating that socially shared emotion regulation can be embedded in collaborative groups' cognitive regulation.

Our first findings mainly relied on a single source of process-oriented data, typically video data, which prevented a more systematic analysis of socially shared regulation in relation to the wider regulated learning cycle. This has brought us to implement multi-method approach, namely multi-channel process data and multimodal data analyses, to enable more systematic analysis of the role, function and temporal manifestation of socially shared regulation in collaborative learning. In our recent study, we implemented this approach in order to reach secondary school students' (N= 90) subjective emotional, motivational and cognitive experiences, and their physiological reactions in addition to tracking the socially shared learning processes through video tapings while studying in collaborative groups. We applied the multi-method approach via a collaborative learning model designed to study and support socially shared regulation processes in a science classroom during a seven-week study period. The model is based on a self-regulated learning framework that provides opportunities and support for self-initiated regulation among individual learners and collaborative groups. It utilizes modern technology to structure and support regulated learning in the groups. In the presentation, we will introduce the data collection design and demonstrate how multiple data channels enable engaging in complementary and temporal data analyses to explore co- and socially shared regulation in learning. We will also discuss possibilities the multi-method approach provides for data triangulation within one set of data gathered in in authentic school context.