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binnen rollenspel-simulaties over

politieke besluitvorming

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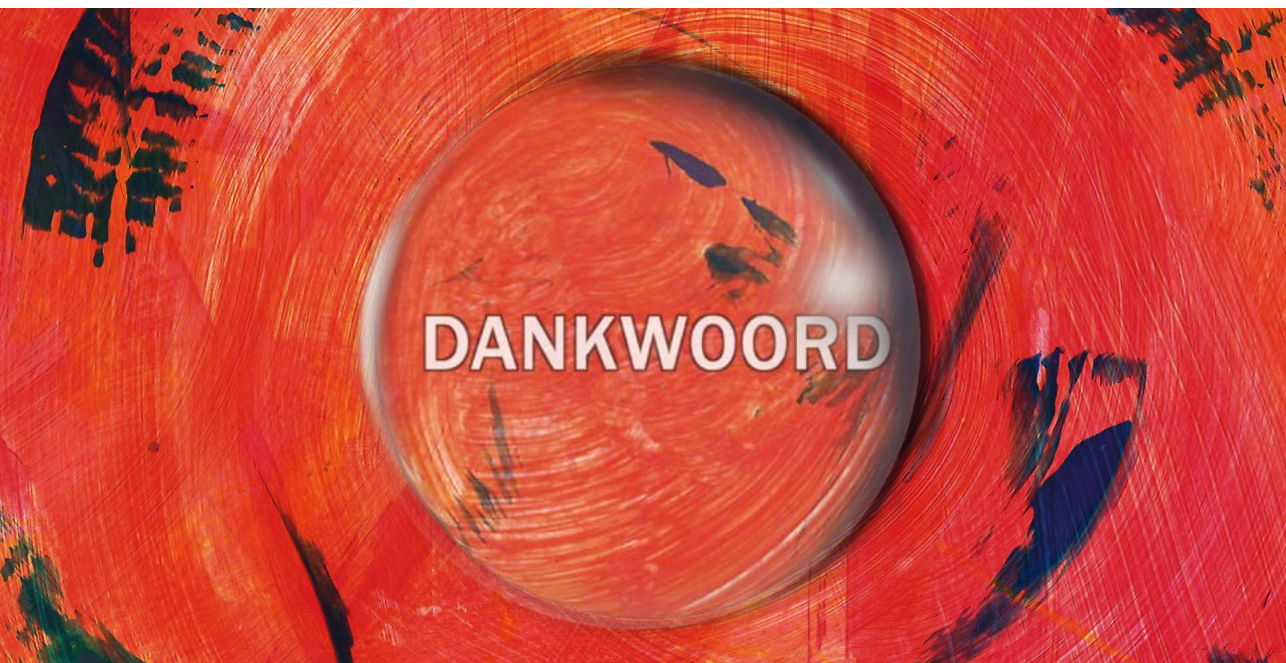Prof. Dr. Simon Usherwood, University of Surrey

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CONTENT

DANKWOORD

Alhoewel mijn naam op de voorkant van deze kaft prijkt, is het niet alleen mijn verdienste dat ik dit doctoraat tot een goed einde heb gebracht. Ik wil dan ook graag een aantal mensen bedanken.

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GENERAL INTRODUCTION

GENERAL INTRODUCTION

Over the past decades, higher education institutions have been promoting active learning techniques because these are considered to be beneficial for student learning (Entwistle, McCune, & Hounsell, 2003). A substantial amount of active learning environments are simulation-based, which are particularly valued for their authenticity (Ellington, Gordon, & Fowlie, 1998). This authenticity is reflected in a learning environment that resembles real-world complexity and limitations, including realistic conditions such as environmental distractions, stress, and time pressure (Aldrich, 2006; Beaubien & Baker, 2004; Herrington & Oliver, 2000). Role-play simulations are a specific type of simulations frequently used in higher education learning contexts. They refer to non-computer-based simulations in which participants take on the role of a specific actor in a predefined situation while following a set of rules and interacting with others (Lean, Moizer, Towler, & Abbey, 2006). Such simulations are often implemented to simulate underlying professional decision-making processes and to introduce students into their complexity. For example, they have been implemented to teach students about consultation skills in medical and nursing education, or mediation processes in law education (Rethans et al., 2012; Waters, 2016). This dissertation specifically focuses on role-play simulations of decision-making used within political science teaching.

Role-play simulations of political decision-making imitate real-life decision-making settings (e.g., the UN Security Council, or a national parliament) in which students play the role of political actors (e.g., ministers, diplomats, civil servants, or lobbyists) and try to bring a particular issue (e.g., a piece of legislation) to a conclusion (Boyer & Smith, 2015). The political science discipline stood at the cradle when role-play simulations of decision-making were being implemented within higher education learning contexts (Guetzkow, Alger, Brody, Noel, & Snyder, 1963). Since then such simulations have grown to be the most commonly used active learning method to teach about complex, dynamic political processes (Ishiyama, 2013; Smith & Boyer, 1996). They are considered valuable learning environments by students and lecturers (Giovanello, Kirk, & Kromer, 2013; Smith & Boyer, 1996; Van Dyke, DeClair, & Loedel, 2000). However, we could identify three gaps in the literature that studies effects of role-play simulations of political decision-making on student learning: (1) profound empirical insights into if and how such simulations contribute to student learning are still lacking, (2) little is known about which learning environment components define role-play simulations of political decision-

making and the extent to which these vary, and (3) research mainly focuses on learning outcomes and not on the contribution of the simulation process to student learning outcomes.

Before further elaborating on the gaps of role-play simulations of political decision-making research, we would like to draw attention to why we focus on self-efficacy for negotiating as the main learning outcome in this dissertation. Self-efficacy refers to students' individual beliefs that they are capable of learning and performing actions on designated levels (Bandura, 1997). Higher education research has repeatedly pointed to its contribution for student learning processes and learning outcomes by influencing motivation and engagement, self-regulation, persistence and study success (Bandura, 1997; Kyndt et al., 2017; Pajares, 1996; Richardson, Abraham, & Bond, 2012; Schunk & Pajares, 2005; van Dinther, Dochy, & Segers, 2011; Vermunt & Donche 2017; Zimmerman, 2000). We investigate the outcome of self-efficacy for negotiating because participants cannot engage in role-play simulations of political decision-making without their negotiating skills. Also, self-efficacy fosters resilience, which is needed when negotiations run less smoothly (Bandura, 1997; McIntosh, 2001; Obendorf & Randerson, 2013; Spector, 2006). With regard to self-efficacy research in higher education, we could identify three drawbacks: (1) generalisation of self-efficacy research findings is limited because the relationship between the hypothesized sources and self-efficacy is largely influenced by contextual factors, (2) most empirical research is of a cross-sectional nature with little attention for intra-individual differences in self-efficacy development, and (3) research only recently pointed to rather complex processes in which students consider information from multiple sources when evaluating their self-efficacy beliefs.

In short, this dissertation focuses on the learning outcome of self-efficacy for negotiating in role-play simulations of political decision-making, which is a topic that lies at the nexus of political science teaching and educational psychology research. In the following paragraphs, we first elaborate on investigating student learning outcomes in role-play simulations of political decision-making, of which we also discuss the gaps. Next, we more thoroughly underpin our choice for self-efficacy for negotiating as main learning outcome in this dissertation. Further, we discuss identified drawbacks regarding the field of self-efficacy research in higher education. Finally, we present the contributions and outline of this dissertation.

Investigating student learning outcomes in role-play simulations of political decision-making

So far, advocates of the use of role-play simulations of political decision-making make a number of claims: simulations are argued to have a positive effect on study results (Raymond & Usherwood, 2013), learning regarding the self (Druckman & Ebner, 2013), skills such as critical thinking, negotiating, presenting and public speaking (Schnurr, De Santo, & Green, 2014), affective learning in terms of empathy and appreciation for the complexity of the real world (Druckman & Ebner, 2013), motivation (Raymond & Usherwood, 2013), and different types of interest (Schnurr et al., 2014). Mariani and Glenn (2014) even argued that these simulations might generate some of the same benefits similar to participating in an internship. Above all, such simulations are very much appreciated by teachers and students exactly because of the degree of 'real-world'-experience they provide (Van Dyke et al., 2000). However, literature that **empirically** tests the impact of role-play simulations of political decision-making on student learning outcomes is scarce and rather underdeveloped. For example, many studies remain descriptive and anecdotal (e.g., Jozwiak, 2013; Elias, 2014). Researchers have been experiencing difficulties to capture simulation's effects, which shows in findings remaining inconclusive regarding simulation's benefits (e.g., Bernstein, 2008; Raymond, 2010). More specifically, studies that investigate simulation's effect on the level of student perceptions conclude that simulations are highly valued and perceived as beneficial (e.g., Andonova & Mendoza-Castro, 2008; Jozwiak, 2013). However, where research using self-report measures evaluates simulations' learning outcomes tentatively positively (e.g., Biziouras, 2013; Jozwiak, 2013; Shellman & Turan, 2006), studies about the effect of simulations on objective achievement outcomes, such as grades on quizzes and exams, remain rather sceptical (e.g., Krain & Lantis, 2006; Raymond, 2010). The emphasis on objective outcomes seems to result in current research predominantly focusing on cognitive learning outcomes (e.g., knowledge), and to a far lesser extent on affective (e.g., motivation, self-efficacy) and regulative learning outcomes (e.g., self-directive behaviour) (Pintrich, 1994; Vermunt & Vermetten, 2004).

Inconsistency of findings thus far has been approached as an issue of research design and operationalization. For example, Baranowski and Weir (2015) advocate including other than general education learning outcome measures (e.g., grades) and applying more pre- and post-measurement designs, and more quasi-experimental research designs to investigate simulations' effectiveness. Such de-

signs would indeed illuminate more thoroughly the final outcomes of simulations. However, the downside of such research designs is that only a very limited set of variables can be controlled for and a limited amount of key variables can be addressed. Moreover, alongside methodological rigour, research designs should not ignore contextual features that might play a role in inconsistencies. The influence of different components of the learning environment should not be underestimated when probing into student learning processes and outcomes (Biggs, 1993; Baker & Delacruz, 2016; Dinsmore & Alexander, 2012). For example, simulation design could vary in size and duration, the type of participating students might differ, and different preparatory activities might be included. So far, a comprehensive overview of variation in **learning environment components** that shape role-play simulations of political decision-making and how these relate to student learning outcomes is lacking.

Aiming to grasp simulations' effects, we have to take into account that – next to a certain real-world degree – simulations are characterised by human agency (e.g., actions and choices driven by participants) and dynamism (e.g., the potential simulations have to flow in unscripted and unexpected directions) (Wright-Maley, 2015). Teachers, who have been using simulations for some time, have been experiencing that each time the same simulation is conducted participants initiate different interactions and behaviour, and thus generate different processes and simulation outcomes (Usherwood, 2015). The complex and unpredictable nature of the **simulation process** implies that more attention should be given to *how* and *why* simulation participants vary in their learning process and learning outcomes.

Educational research usually distinguishes between three general learning activities and resulting learning outcomes: cognitive, affective, and regulative learning outcomes (Pintrich, 1994; Vermunt & Vermetten, 2004). Cognitive learning outcomes are results of those thinking activities that directly lead to learning in terms of knowledge, understanding, skills and so on. Affective learning outcomes are the results of feelings that arise during learning and that create an emotional state that may positively, neutrally, or negatively affect the learning process. Both cognitive and affective activities are directed by regulating activities that indirectly lead to learning results, such as the ability to monitor and, when needed, to adjust the learning process (Vermunt & Vermetten, 2004). Contrary to current research that studies role-play simulations of political decision-making – which mainly focuses on cognitive learning outcomes – this dissertation includes **affective learning outcomes** to capture student learning during the simulation process for several rea-

sons. First, within higher education research affective learning outcomes have increased in importance because they are largely associated with the learning process and both, cognitive and regulative, learning outcomes (Vermunt & Donche, 2017). Second, research shows they are strongly related to academic achievement (Donche, De Maeyer, Coertjens, Van Daal, & Van Petegem, 2013; Richardson et al., 2012; Rotgans & Schmidt, 2012). Third, affective learning outcomes refer to student's perspective on the feelings that arise during learning, such as motivation, interest or self-efficacy (Vermunt & Vermetten, 2004). Consequently, measuring affective learning outcomes allows capturing the student learning process, in which objective outcome measures fall short. Considering affective learning outcomes encompass several related but distinguishable motivational concepts, such as motivation, interest, and self-efficacy, further reducing of the learning outcome variable is needed.

Self-efficacy for negotiating as learning outcome

Self-efficacy refers to students' individual beliefs that they are capable of learning and performing actions on designated levels (Bandura, 1997). Higher education research has repeatedly pointed to its contribution for student learning processes and learning outcomes by influencing motivation and engagement, self-regulation, persistence and study success (Bandura, 1997; Kyndt et al., 2017; Pajares, 1996; Richardson et al., 2012; Schunk & Pajares, 2005; van Dinther et al., 2011; Vermunt & Donche 2017; Zimmerman, 2000). Overall, self-efficacy is considered a key motivation construct that improves competence and future actions (Murphy & Alexander, 2000; Schunk & Pajares, 2005). More specifically, students with a higher level of self-efficacy will persist longer and show more resilience when encountering difficulties (Bandura, 1997; Cassidy, 2015; Lee et al., 2013; Lent, Brown, & Larkin, 1986; Linnenbrink & Pintrich, 2003; Multon, Brown, & Lent, 1991; Pajares, 1996; Wright, Jenkins-Guarnieri, & Murdock, 2012). Less self-efficacious students, in contrary, may procrastinate and not initiate the required effort needed to achieve certain goals (Honicke & Broadbent, 2016; Komarraju & Nadler, 2013; Vogel & Human-Vogel, 2016; Wäschle, Allgaier, Lachner, Fink, & Nückles, 2014). Next to its significant contribution to self-regulation (Panadero, 2017; Zimmerman, 2000), self-efficacy relates to learning strategies students use being positively associated with deep learning; and it is supportive for creating effective environments for learning, such as finding effective study partners (Diseth, 2011; Honicke & Broadbent, 2016; Fenollar, Román, & Cuestas, 2007; Liem, Lau, & Nie, 2008; Schunk &

DiBenedetto, 2016; Vermunt & Donche, 2017). Findings repeatedly point to the strong relationship between self-efficacy, motivation, and academic achievement (Honicke & Broadbent, 2016; Kyndt et al., 2017; Richardson et al., 2012; Robbins et al., 2004). Considering that self-efficacy relates to several generic competences that are also beneficial for students' future working life career (e.g., persistence, engagement, self-regulation), higher education institutions should focus more on fostering self-efficacy development (Strijbos, Engels, & Struyven, 2015; Granziera & Perera, 2019; van Dinther et al., 2011).

Self-efficacy is a suitable learning outcome to investigate the context of the simulation process because it is a dynamic motivational construct that is susceptible to change and that fluctuates over time (Bandura, 1997; Cassidy & Eachus, 2002; Schunk & DiBenedetto, 2016; Tang, Addison, LaSure-Bryant, & Norman, 2004). In this dissertation, we focus on **self-efficacy for negotiating**. With regard to learning outcomes of role-play simulations of political decision-making, negotiating skills are often considered as key skills because these are essential for participants to engage in such simulations (McIntosh, 2001; Obendorf & Randerson, 2013). Students wouldn't be able to make their point or contribute to the simulation in general without using their negotiating skills. In political science simulation literature the following skills are implicitly connected to these negotiating skills: participants practice oral communication skills, public speaking, and also more complex negotiation skills, such as arguing and debating issues, coalition formation, and the art of diplomacy (Crossley-Frolick, 2010; Elias, 2014; Obendorf & Randerson, 2013). In general, negotiating can be defined as "a unique form of social interaction that incorporates argumentation, and information exchange into reaching agreements and working out future interdependence" (Roloff, Putnam, & Anastasiou, 2003:804). Negotiating processes can lead to positive sum outcomes but also to situations of deadlock, in which negotiators experience difficulties – as strategies have been attempted and rejected – and which could lead to no outcome at all. In such cases, resilience and the ability to bounce back from impasses become crucial (Spector, 2006). Self-efficacy contributes to persistence, resilience, and conquering difficulties (Bandura, 1997; Cassidy, 2015; Pajares, 1996), which is needed during negotiating (Spector, 2006). Therefore, self-efficacy for negotiating is a relevant outcome to focus on.

Bandura (1997) hypothesized that such beliefs derive from four primary sources: (1) students evaluating their previous experiences (successes or failures) and using these interpretations as indicators for what they believe they can or cannot do

(mastery experience); (2) students observing, evaluating and comparing other students' performances to their own capabilities (vicarious experience); (3) students receiving evaluative feedback, judgments, and appraisals about their performance from significant others (social persuasion); and (4) students interpreting their physiological arousal (e.g., heart rate) and emotional reactions (e.g., anxiety) as informative for their perceived self-efficacy (physiological/emotional state). These four sources provide information that influence self-efficacy development, in conjunction with a cognitive appraisal of that information. Overall, the importance of self-efficacy has to date not been given ample attention within the political science teaching and learning research field. Research in the field of education and in particular in medical and nursing education is more elaborated. Results have already shown that role play-simulations foster several sources of self-efficacy and enhance students' self-efficacy (Egenberg, Øian, Eggebø, Arsenovic, & Bru, 2016; Stroben et al., 2016; Watters et al., 2015). Role-play simulations used within political science teaching and learning might also include these sources and therefore foster self-efficacy.

In general, for three reasons, our understanding about which aspects influence self-efficacy development in what way can be considered as rather incipient (Usher & Pajares, 2008). First, most higher education self-efficacy research focuses on learning contexts of mathematics, science, or engineering, of which generalisation of findings is limited because the relationship between the hypothesized sources and self-efficacy is largely influenced by **contextual factors** (Bandura, 1997; Klassen & Usher, 2010; Usher & Pajares, 2008). This results in a domain- or context-sensitivity of self-efficacy development (Ahn, Bong, & Kim, 2017). Second, most empirical research on self-efficacy is of a cross-sectional nature, focusing on groups of students with **little attention for intra-individual differences** in self-efficacy development. However, self-efficacy theory describes self-efficacy from an individual perspective referring to people's own beliefs about their capabilities (Usher & Pajares, 2008). Third, recent research findings point to not just linear relationships between sources and self-efficacy development but to rather **complex processes** in which students consider information from multiple sources when evaluating their self-efficacy beliefs (Usher, Ford, Li, & Weidner, 2018).

Contributions and outline of this dissertation

The main aim of this dissertation is twofold. First, it aims to obtain a deeper understanding of which learning environment components define role-play simulations of

political decision-making. Gaining a more comprehensive understanding about simulation's learning environment components contributes to theory building on this specific learning context. Also, it facilitates more accurately designing and investigating these simulations in the future. Second, it aims to increase insights into how the interplay of self-efficacy sources shape self-efficacy for negotiating development, in the specific context of role-play simulations of political decision-making. Increasing our understanding of which sources contribute to self-efficacy development in what way is crucial for further self-efficacy theory building. Further, it is important for our understanding of the simulation dynamics, which again con-tributes to more accurately studying and designing role-play simulations of political decision-making in the future.

Two overarching research questions are central in this dissertation: 'Which learning environment components characterise role-play simulations of political decision-making?' (RQ1), and 'How do role-play simulations of political decision-making contribute to the development of self-efficacy for negotiating as learning outcome?' (RQ2). This dissertation includes four studies, of which each study contributes to answering both research questions[1]. Figure 1 presents an overview of the four studies.

*Study 2 focuses on affective learning outcomes; **study 3 & 4 focus on self-efficacy for negotiating
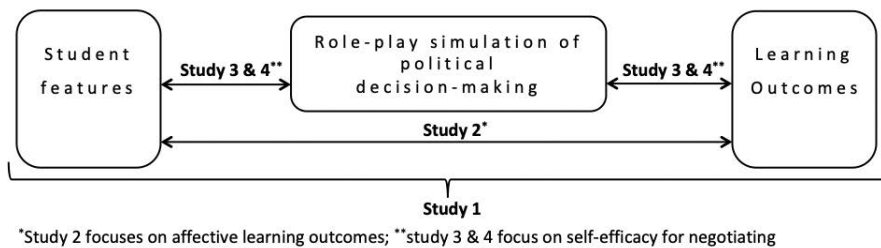
Figure 1. Schematic overview of studies

Study 1: Looking at role-play simulations of political decision-making in higher education through a contextual lens: A state-of-the-art
In the first study, we present a *systematic literature review* to map variation in learning environment components of already investigated role-play simulations of political decision-making (Figure 1). Additionally, we examine the extent to which research about the effects of such simulations on student learning outcomes al-ready has taken learning environment components into account. The main aim is to

uncover variation in learning environment components and in research practices with regard to the inclusion of learning environment components when investigating student learning outcomes.

Study 2: Student diversity in a cross-continental EU-simulation: Exploring variation in affective learning outcomes among political science students

In study 2, we measure learning outcomes in a more encompassing way by exploring student variation in the following affective learning outcomes: motivation, interest, and self-efficacy. Previously in higher education learning contexts validated questionnaires tapping motivation, interest, and self-efficacy are applied in the context of a four-day cross-continental European Union-simulation. We also explore the extent to which participants of such simulations vary on these affective learning outcomes (Figure 1). Using a *cross-sectional* design, the first aim is to explore if the concepts of motivation, interest, and self-efficacy can be measured validly as separate constructs in the context of role-play simulations of political decision-making. The second aim is to explore student variation in these affective learning outcomes.

Study 3: Explaining self-efficacy development in an authentic higher education learning context of role-play simulations of political decision-making

In study 3, we expand our research to the simulation process by focusing on how self-efficacy for negotiating develops over the time period of a four-day Model United Nations-simulation (Figure 1). Therefore, we use a *longitudinal quantitative* design. Taking into account how social sources foster self-efficacy development, this study includes the explanatory factor of perceived student cohesiveness – i.e., the extent to which students know, help, and support one another –, next to other individual characteristics. To repeatedly measure self-efficacy for negotiating, the same scale as in study 2 is used. The aim is to not only increase insights into *if* but also *how* role-play simulations of political decision-making contribute to the development of self-efficacy for negotiating.

Study 4: Unravelling sources of self-efficacy for negotiating in role-play simulations of political decision-making: A longitudinal in-depth case study

Building on the insights of study 3, study 4 focuses again on the development of self-efficacy for negotiating throughout the simulation process but this time more in-depth by applying a *longitudinal qualitative* design (Figure 1). We conduct a single holistic case study over the time period of a four-day European Union-simulation. We focus on the four hypothesized sources (Bandura, 1997), possible

additional sources, contextual sources, and their interplay. This study aims to illuminate which sources are present and how their interplay contributes to self-efficacy for negotiating development.

The four studies are described in separate chapters. The final chapter of this dissertation summarizes the main findings of the different studies and discusses this dissertation's outcomes. In addition, we discuss limitations of the chosen approach, avenues for future research, and the implications for educational practice.

Notes:

[1] This dissertation is a collection of related articles. Each chapter is written to be read on its own, and therefore overlap between chapters is inevitable.

Looking at role-play simulations of political decision-making in higher education through a contextual lens: A state-of-the-art

STUDY 1   Looking at role-play simulations of political decision-making in higher education through a contextual lens: A state-of-the-art

Abstract

Researchers have been struggling to capture the learning outcomes of role-play simulations of political decision-making, which shows in inconsistencies in findings. In this systematic review study we argue that research designs should not ignore the contextual features of these simulations. This review aims: (1) to comprehensively map variation in learning environment components, and (2) to increase insights into their relationship with learning outcomes. A systematic search in SSCI and ERIC databases yielded 36 studies that were eligible. The following learning environment components were comprehensively mapped: simulation features (structure and agency), student characteristics, the broader learning context, and learning outcomes. Findings reveal that more than half of the studies investigate learning outcomes without taking any other learning environment component into account. Learning outcomes have never been studied in relation to the simulation structure or the broader learning context. Findings are discussed with regard to avenues for future research.

Introduction

Simulation-based learning environments are valued because they are considered to be rich, authentic learning environments (Ellington et al., 1998). Their authenticity is reflected in a learning environment that resembles real-world complexity and limitations, including realistic conditions such as environmental distractions, stress, and time pressure (Aldrich, 2006; Beaubien & Baker, 2004; Herrington & Oliver, 2000). Role-play simulations are a specific type of simulation frequently used in higher education learning contexts. They refer to non-computer-based simulations in which participants take on the role of a specific actor in a predefined situation while following a set of rules and interacting with others (Lean et al., 2006). Such simulations are increasingly implemented in the specific learning context of political decision-making, in which students are assigned roles within socio-political pro-cesses and expected to act as real political actors (Boyer & Smith, 2015). Over the past decades, such role-play simulations have become the most commonly used active learning method to teach about complex, dynamic political processes (Ishiyama, 2013; Smith & Boyer, 1996). They are considered valuable learning environments and highly appreciated by students and lecturers (Giovanello et al., 2013; Smith & Boyer, 1996; Van Dyke et al., 2000) because they are known for being related to domain-specific skills, such as political efficacy (Mariani & Glenn, 2014), but also to more generic skills, such as oral communication skills (Obendorf & Randerson, 2013).

To date, researchers have been struggling to capture the learning outcomes of role-play simulations of political decision-making, as seen in research findings being inconclusive regarding simulations' benefits (Biziouras, 2013; Duchatelet, Bursens, Donche, Gijbels, & Spooren, 2018; Raymond, 2010). The difficulty in capturing learning outcomes has mostly been dealt with as an issue of research design and operationalization. For example, Baranowski and Weir (2015) conclude their review about the effects of role-play simulations of political decision-making with a call for more methodological rigour. They advocate including not simply general education learning outcome measures (e.g., grades) and applying more pre- and post-measurement designs, and more quasi-experimental research designs to investi-gate simulations' effectiveness.

Alongside methodological rigour, we argue that research designs should not ignore contextual features that might play a role in inconsistencies. The influence of dif-ferent components of the learning environment should not be underestimated when

probing into student learning processes and outcomes (Biggs, 1993; Baker & Dela-cruz, 2016; Dinsmore & Alexander, 2012). Therefore, this review focuses on the learning environment of role-play simulations of political decision-making. It wants to comprehensively map variation in learning environment components; e.g., which aspects of the simulation can be distinguished? Also, it wants to increase insights into the relationships of simulations' learning environment components with student learning outcomes; e.g., are simulations of a certain size more or less often reported with regard to certain learning outcomes? This review study applies a systematic search to probe into the learning environment of already investigated role-play simulations of political decision-making in order to answer the following research questions:

RQ1 Which learning environment components and learning outcomes of used role-play simulations of political decision-making can be defined?
RQ2 Which relationships between simulations' learning environment components and their learning outcomes can be defined?

Theoretical background

This section first clarifies what exactly characterises role-play simulations, with a focus on role-play simulations of political decision-making. We distinguish role-play simulations from related phenomena. In addition, we broaden the perspective from specific simulation features to commonly accepted learning environment components of higher education learning environments in order to be able to comprehensively map role-play simulations of political decision-making.

Simulations are generally grouped into two broad categories: (1) model-based simulations on the construction of the theoretical model of a system, mostly used in the sciences and engineering to experiment and test hypotheses (e.g., cruise control simulation), and (2) experiential simulations that offer environments that simplify reality and allow learning in a risk-free environment (e.g., fire fighting training simulations) (Landriscina, 2013; Sauvé, Renaud, & Kaufman, 2010). Role-play simulations of political decision-making belong to the second group of simulations.

The most important feature of all simulations is that they are based on the imitation of a system or situation (Landriscina, 2013; Sauvé et al., 2010). Each simulation includes a certain degree of *verisimilitude,* which implies that the simulation is a valid representation of reality in a structured but simplified way (Ellington et al.,

1998; Sauvé et al., 2010; Wright-Maley, 2015). Role-play simulations refer to a particular type of simulation characterised by participants taking on the role of a specific actor in a particular situation (Lean et al., 2006). During role-play simulations of political decision-making participants experience the process of taking decisions in the field of policy-making. They are assigned roles within these socio-political processes and are expected to act as real political actors (Boyer & Smith, 2015).

In general, each simulation needs to be featured by *dynamism* and *outcome variability* (Ellington et al., 1998; Sauvé et al., 2010), which refers to the potential simulations have to flow in unscripted and unexpected directions (Wright-Maley, 2015). For example, in the case of role-play simulations of political decision-making, teachers have experienced that the simulation process as well as its outcome varies from iteration to iteration even when the same students have participated in the same simulation more than once (Usherwood, 2015). Simulations' dynamism and outcome variability are generated by sequential decisions that determine participants' actions; and are considered to be a product of a certain degree of *human agency* combined with the *structure* provided by the simulation environment (Chin, Dukes, & Gamson, 2009; Wright-Maley, 2015). *Human agency* in a simulation-based learning environment refers to the choices that participants make within the simulation's boundaries. Structure refers to this simulation environment in which participants operate, of which some elements are stable and others can be influenced by the actions taken by participants (Chin et al., 2009). Generally, we can define two types of decisions: (1) some decisions will relate to participants' individual choices (agency), while (2) other decisions will be constrained by the various elements of the simulation environment (structure) (Chin et al., 2009; Leigh & Spindler, 2004; Wright-Maley, 2015). Within role-play simulations of political decision-making, a participant could make decisions based on the interest of the country or party he/she is representing (agency), or based on reality-based rules (e.g., voting rules) or procedures (e.g., minority block) (structure). We consider voting rules – such as qualified majority voting – to be stable environmental features, while procedural features – such as forging coalition or blocking minorities – to be flexible features because these are shaped by participants' actions.
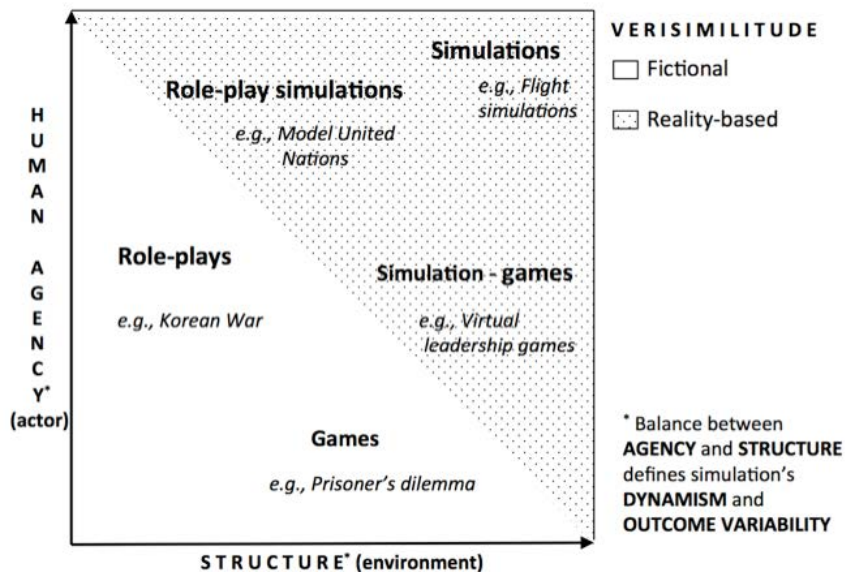
Figure 1. Distinction between Simulations, Games, and Role-plays

Figure 1 visualises how related phenomena of simulations, role-plays and games can be distinguished. As depicted, verisimilitude is an essential feature of simulations. It also shows how a given amount of structure (X-axis) and human agency (Y-axis) shape the degree of dynamism and outcome variability, which need to be included in simulation-based learning environments. When designing simulations, the greatest challenge is to find the right balance between structure and agency (Chin et al., 2009). An inaccurate balance could hinder verisimilitude. For example, when too much structure limits participants' options to choose from or when too little structure allows participants to deviate from real-world processes. Usually, more structure means less human agency. However, when real-world features come into play, the balance between structure and agency should always be interpreted in the light of less or more verisimilitude. For example, flight simulations include a highly structured environment that fosters a high degree of human agency. This results in participants having the possibility to conduct many alternative actions and to receive dynamic feedback, which resembles a full range of 'real-life' options driving participants' decision-making (Hays, Jacobs, Prince, & Salas, 1992). Compared to simulation outcomes, game outcomes are considered to be less dynamic and more quantifiable (winning – losing) as choices of participants are restricted by the games' design (Ellington et al., 1998; Wright-Maley, 2015). For

example, the prisoner's dilemma game includes far less structure and agency because, in its basic form, only one decision needs to be made: 'Am I going to rat out my partner in crime or not?' (Asal, 2005). Including dynamism in simulation-games often results in more complexly structured designs that are computer-based; e.g., computer-based leadership simulation-games that have been developed to train leadership skills such as balance power, tension, ideas, and work (Aldrich, 2003). Considering such skills are rather complex and difficult to concretise, simulation-games need to invest in a structure, often computer-based, that provides participants enough agency and sufficient options for decision-making. Role-play simulations do not put excessive demands on the simulation structure. To enable dynamism it is usually sufficient to include reality-based rules and procedures, and let the actors play their roles. Well-known and well-spread role-play simulations are Model United Nations simulations, which simulate existing UN bodies (e.g., the Security Council) and in which participants apply the rules of debating when representing a UN member or observer state (Obendorf & Randerson, 2013). Their reality-based features make them different from less structured role-plays in which participants act from prescribed roles, such as Korean War (Krebs, 2009). Such role-plays are usually characterised by less agency as participants should stick to their script and not engage dynamically in events when the role-play progresses (Wright-Maley, 2015).

To conclude, we consider it important to point out that the different phenomena are not easy to differentiate from each other. They can appear in their 'pure' form but also in many varying blended forms. The distinction between role-plays, games and simulations should therefore be considered as a continuum rather than as complete separate categories (Wright-Maley, 2015).

So far, we have defined structure and agency as essential features of a simulation in order to foster verisimilitude, and a substantial amount of dynamism and outcome variability. Probing into role-play simulations of political decision-making through a contextual lens, these features contribute to the first learning environment component: simulation features. Similar to other learning contexts in higher education, other components that contribute to the (simulation-based) learning environment are: student characteristics, the broader learning context that might embed the simulation, and the type of learning outcomes that is focused on: cognitive (e.g., knowledge, understanding, skills), affective (e.g., motivation, interest, self-efficacy, engagement), and/or regulative learning outcomes (e.g., self-

reflection, self-regulation) (Biggs, 1993; Pintrich, 1994; Richardson et al., 2012; Vermunt & Donche, 2017).

Method

Literature search

A literature search in the electronic databases Social Sciences Citation Index (SSCI) and ERIC (Ebsco) was carried out to identify relevant peer reviewed journal articles. In current research, the term 'simulation' is frequently interchanged with others such as role-play and games (Landriscina, 2013; Wright-Maley, 2015). A thesaurus search resulted in the use of the following keywords: 'simulation', 'role-playing', and 'educational games'. As role-play simulations of political decision-making are primarily used in comparative politics and international relations (Baranowski & Weir, 2015), each of the keywords was separately combined with 'international relations', 'politics', and 'political science'. Over the past decades the use of such simulations has specifically emerged within the field of European studies (Brunazzo & Settembri, 2015), which is why each of the keywords were also separately combined with 'European studies'. The searches covered the years 1970 – 2016 in both databases, since research on the quality of simulations of political decision-making gained importance in the 1970s (Greenblat, 1973). The final outcomes were as follows: SSCI 1695 references and ERIC 461 references. After removing doubles, 1722 unique references were subjected to initial review. An overview of the results of the literature search is given in Table 1.

Table 1 Overview of literature search

Search terms	SSCI	ERIC (Ebsco)
Simulation & international relations	121	70
Simulation & politics	258	88
Simulation & political science	140	126
Simulation & European studies	466	3
Role-playing & international relations	91	24
Role-playing & politics	365	38
Role-playing & political science	60	50
Role-playing & European studies	156	1
Educational games & international relations	6	15
Educational games & politics	17	28
Educational games & political science	5	17
Educational games & European studies	10	1
Total	**1695**	**461**
Overall total		***2156***

Selection

To include studies in the synthesis relevant to the review questions, a specific set of inclusion criteria was used. Table 2 visualises the selection procedure using the PRISMA flow diagram (Moher, Liberati, Tetzlaff, Altman, & Group, 2009). The first author screened all journal articles on three categories of criteria: general criteria, simulation features and simulation content. With regard to the general criteria, studies were included when (a) applied in *higher education*, (b) published in *peer-reviewed* journals, and (c) published in *English*.

As this review focuses specifically on role-play simulations, studies were included when (d) focusing on *role-play simulations*, in which participants act out their roles either as unitary actors or as teams. Studies including educational games in which students play 'themselves' were excluded (e.g., Asal, Sin, Fahrenkopf, & She, 2014). Included studies needed to (e) feature *verisimilitude* by simulating real-world contexts (setting, organisation, actor), real-world processes (policy area, decision-making process) or both. Role-plays or games that could not be considered as simulations because they include a combination of fictional countries and non-realistic processes were excluded (e.g., Dingli, Khalfey, Leston-Bandeira,

2013). Selected simulations needed to (f) include *human agency,* which for this review is defined by face-to-face contact, and only peripheral computer use (when applicable). Because of their discernible contextual features simulations that are mainly computer-based or mostly take place online were excluded (e.g., Lay & Smarick, 2006; Raymond, 2010).

Focusing on role-play simulations of political decision-making, articles were included when simulation content is (g) focusing on *decision-making processes of public or foreign policy* including permanently established political settings. Simulations including historical enactments, election processes, or negotiations not directly leading to public or foreign policy were excluded (e.g., Coffey, Miller, & Feuerstein, 2011; Gorton & Havercroft, 2012; Nance, Suder, & Hall, 2016). Finally, studies needed to (i) report on student *learning outcomes*. Studies including purely anecdotal content, vague opinions or focusing solely on perceptions about the simulation environment without reporting influences on student learning were omitted (e.g., Brunazzo & Settembri, 2015; Giovanello et al., 2013; Taylor, 1971).

The selection was conducted in several steps. In each step, all studies that clearly did not meet one of the inclusion criteria were excluded. When in doubt about a study, the reference was retained until the next step. Peer-debriefing sessions with all authors involved in this study, discussing the appropriateness with regard to the inclusion criteria, confirmed or rejected inclusion of studies. After conducting all steps, the final selection consisted of thirty-six primary studies.

Table 2 Selection procedure using the PRISMA 2009 Flow Diagram (Moher et al., 2009)

Identification	Records identified through database searching:
	SSCI (n = 1695)
	ERIC (n = 461)
	Records after duplicates removed: n = 1722
Screening	Records screened on title and abstract: n = 1722
	Records excluded: n = 1529
Eligibility	Full text articles assessed for eligibility: n = 193
	General criteria
	Simulation features
	Simulation content
	Records excluded with reasons: n = 157
Inclusion	Studies included in content analysis: *N* = 36

Procedure and analysis

Next to the previously described systematic search, this review uses a narrative approach to analyse publications in the field. Providing the opportunity to reveal in-depth information a narrative review is suitable to highlight a holistic understanding of a phenomenon (Pawson, 2002), in this case the learning environment of role-play simulations of political decision-making. Following close reading, relevant paragraphs were subject to content analysis with NVivo 11. Coding was both de-ductive and inductive. Deductive coding followed the four previously mentioned groups of simulation features, student characteristics, broader learning context, and learning outcomes. Within these codes, paragraphs were further labelled with a code in an inductive way, which allowed detailed mapping of the learning environ-ment components of role-play simulations of political decision-making. In a next step, categories were analysed beyond the individual studies in order to integrate the different findings and specifying content of the different learning environment components (RQ1). Third, various queries were conducted to detect patterns in which specific learning environment components could be connected to certain learning outcomes (RQ2). In a final step, a cross-case analysis resulted in a typolo-gy of studies.

Results

Sample descriptive

The selected studies encompass research conducted between 1974 and 2016. Most studies focus on simulations within US higher education learning contexts (81%). Three studies refer to a mixed student sample of European and US students (8%). Only four studies relate to European higher education learning contexts (11%), which weren't found prior to 2010. While twenty-six studies make use of role-play simulations of political decision-making within undergraduate level courses (72%), six studies report on a simulation with mixed level students (17%), and only one article includes a graduate course simulation (3%). Two articles do not clarify the educational level of participating students (6%). The number of publications that report on learning outcomes of simulations clearly increases over the past decades, as depicted in Table 3.

Sample characteristics show inconsistency in the operationalization of simulations' learning outcomes, an issue that has already been addressed by Baranowski and Weir (2015). All studies refer to empirical data collection using course elements,

pre-test, post-test or a combined research design. Course elements include those observations and assignments directly related to the course such as student feedback, reflection papers, and exam grades. During the 1990s the first attempt at data triangulation emerges when combining the use of course elements with a post-measurement. After that time research methods become scattered. Over the years, there is no clear trend towards one specific measurement design. Even during the last decade, over one third of the studies solely report about the analysis of course elements (observations, assignments) and does not triangulate research findings.

Table 3 Overview of articles over time (N[total] =36)

	Course-elements (C)	Post	Pre + post	C + post	C + pre + post
1970 – 1979		Bertsch & Feste (1974)			
1980 – 1989			Foster et al. (1980) Hazleton & Mahurin (1986)[**°]		
1990 – 1999				Chernotsky (1990) Lowry (1999)[□]	
2000 – 2009	Frederking (2005) Rackaway & Goertzen (2008)[°] Wallin (2005)[°°]	Ripley et al. (2009)[□] Zaino & Mulligan (2009)[°]	Bernstein (2008) Jones (2008)[**°]	Andonova & Mendoza-Castro (2008) Ciliotta-Rubery & Levy (2000) Galatas (2006)	Baranowski (2006)
2010 – 2016	Crossley-Frolick (2010) Levintova & Mueller (2015) Mathews & LaTronica-Herb (2013) Obendorf & Randerson (2013)[*] Rinfret (2012) Sands & Shelton (2010) Taylor (2011)	Baranowski & Weir (2010)	Biziouras (2013) Cowley & Stuart (2015)[*] Jones & Bursens (2015)[**°] Mariani & Glenn (2014) Rünz (2015)[*°]	DiCicco (2014) Kalaf-Hughes & Mills (2016) Osgood et al. (2012) Rinfret & Pautz (2015)	Elias (2014)[*] Jozwiak (2013) Levintova et al. (2011)

Course-elements - those observations and assignments directly related to the course (C), Post – post-test, Pre – pre-test; [*]European sample; [**]Mixed sample; [°]Mixed student level; [°°]Graduate student level; [□]No student level reported

Which learning environment components and learning outcomes of used role-play simulations of political decision-making can be defined? (RQ1)

A summarized overview of reported learning environment components is presented in Table 4. An exhaustive overview that connects these findings to each article can be found in Appendix 1. In this section, we discuss the most important findings for the following learning environment components: simulation features (structure and agency), student characteristics, broader learning context, and learning outcomes.

Table 4 Overview of learning environment components (N_{total} = 36)

Simulation features		Student characteristics	Broader learning context	Learning outcomes
Structure	Agency			
• *Simulation design* (see Table 5)	• *Preparation* Meeting (n = 29) Research (n = 27) Writing (n = 23) Presenting (n = 5)	• *Demographics* (n = 36)	• *Objectives* Knowledge and understanding (n = 33) Skills (n = 16) Confidence (n = 4) Motivation (n = 7)	• *Cognitive* Knowledge (n = 36) Skills (n = 18) Citizenship (n = 3)
• *Programme* Formal (n = 36) Informal (n = 17)	• *Role Assignment* Random (n = 5) Preferences (n = 7) Student characteristics (n = 8) Procedure (n = 2)	• *Prior experience and knowledge* (n = 4)	• *Debriefing* Oral (n = 21) Written (n = 16)	• *Affective* Motivation (n = 4) Interest (n = 6) Engagement (n = 9) Self-belief (n = 7)
• *Teacher involvement* Participation (n = 9) Semi-involvement (n = 10) Absence (n = 2)	• *Played role* More or less power (n = 3) Practitioners (n = 1)	• *Motivational aspects* (n = 5) • *Confidence* (n = 6)	• *Assessment* Pre-simulation assignments (n = 11) Performance (n = 14) Post-simulation assignments (n = 9)	• *Regulative* Self-directing behaviour (n = 2) Intentional behavioural changes (n = 1)

Simulation features: structure

With regard to simulation features, we found three aspects that contribute to simulations' *structure*: simulation design, simulation programme, and the amount of teacher involvement. These aspects are 'stable' features of simulations' structure and cannot be influenced by participants' actions. We found no aspects that referred to simulations' 'flexible' structure.

Table 5 Detailed overview of variation in simulation design (N_{total} = 36)

Context	Setting	Type	Size	Duration
International relations (n = 8)	European Union (n = 6)	Course-embedded (n = 29)	< 15 (n = 2) 15 – 35 (n = 17)	1 class (n = 5) Several classes (n = 18)
EU studies (n = 7)	United Nations (n = 7)	Extracurricular (n = 3)	35 – 70 (n = 3)	1 day (n = 4)
Comparative politics (n = 20)	US Congress (n = 12)	Mixed (n = 4)	70 – 120 (n = 1)	Several days (n = 5)
Mixed (n = 1)	National Security Council (n = 3)		> 120 (n = 6)	
	Urban politics (n = 4)			
	Other* (n = 4)			

* Other = WTO (GATT negotiations), British parliamentary (chief whips), Eastern Europe (the Warsaw treaty organisation), Mixed simulation

A detailed overview of variation found in the used *simulation designs* is presented in Table 5. Results show that designs of role-play simulations of political decision-making can vary to a great extent. Such simulations are particularly used in the context of comparative politics, followed by international relations and European studies. Most of the simulations are of the course-embedded type (credit-bearing for all participants). Simulations come in various sizes with between 12 and 300 participants. The majority of the simulations are created for small groups (15-35 students). Simulations also vary in duration from lasting one class time to taking up several days. Not all studies describe previously mentioned simulation design features. For example, eleven studies lack information about size or duration of the simulation.

With regard to the *simulation programme*, all studies mention formal simulation activities (e.g., committee meetings). However, studies differ in how they elaborate on this part of the simulation. Some simulations describe an informal programme, which is characterised by unmoderated caucuses (i.e., a format where delegates circulate around the conference room and engage in one-on-one, or small group conversations with fellow delegates; Ripley, Carter, & Grove, 2009), out-of-class meetings, or even social activities, such as city tours or dinner parties.

Concerning *teacher involvement*, most studies describe the teacher role as a mediating role, which is not to interfere but to keep the simulation on track. This is achieved by participating in the simulation or by semi-involvement. When participating in the simulation, teachers assume the role of president, conference chair, or conference secretariat. When being semi-involved, instructors are available for answering questions concerning procedures, providing feedback, or initiating reflection. Few simulations are completely student-led. In such cases teachers (when available) only interfere in situations of severe conflicts or deadlocks and are rather considered as absent.

Simulation features: agency

Three aspects that contribute to simulations' *agency* were identified: preparation, role assignment, and the played role. Regarding *simulation preparation*, most studies combine activities in several ways. Meetings are most frequently reported and often involve knowledge sharing. A pair of articles explicitly include the attendance of a 'real-life' local government meeting, which they consider as helpful for students to visualise their role for the simulation. Research activities often include reading assignments, more or less self-directed by students. Writing assignments are always related to students' roles, such as position or strategy papers, and always combined with other preparation activities. Some articles add presentations to the preparation programme, either individually or collaboratively.

A substantive amount of studies elaborates on the feature of *role assignment*. Four approaches can be distinguished on a continuum from random role assignment to an elaborated selection procedure. In between these extremes, students' preferences are sometimes taken into account, or roles are assigned based on student characteristics such as engagement, academic success, or personality.

With regard to the *played role*, a minority of studies distinguishes between power and non-power roles, also described as more or less leadership roles. Notably, one

study argues that assigning roles to practitioners might be beneficial for the simulation process.

Student characteristics

With regard to student characteristics, all studies refer to some type of student demographics, while only few articles report about other student characteristics such as prior experience or motivation.

Broader learning context

We were able to identify three aspects of the broader learning context: learning objectives, debriefing, and assessment. Most articles describe specific *simulation objectives*. However, the degree of how explicitly these are addressed varies. All studies focus on increasing students' knowledge and understanding of concepts related to the simulation setting and/or topic. Some studies also mention skills as intended learning outcomes, such as negotiation skills or oral communication skills. Few studies aim at increasing students' confidence or motivation.

Although *debriefing*, which refers to sharing of or reflecting on simulation experiences (Crookall, 2010), is considered an essential element when implementing simulations, not all studies report on the content. Most studies refer to an oral discussion and reflection, others use writing assignments. Ten studies include a combination of both.

Fewer than half of the studies report on how they *assessed student learning*. Those who did mostly used a combined assessment consisting of pre-simulation assignments, simulation performance and/or post-simulation assignments.

Learning outcomes

A range of learning outcomes has been reported, of which a detailed overview can be found in Table 6. Learning outcomes could be grouped together in the commonly accepted groups of cognitive, affective, and regulative learning outcomes (Vermunt & Donche, 2017). In general, four groups of studies can be distinguished. The first and largest group of studies only reports on cognitive learning outcomes: either solely referring to outcomes related to students' knowledge and understanding, or additionally including certain skills that are being fostered. The largest amount of articles report about outcomes that relate to decision-making processes. Most of the reported skills can be defined as generic skills such as writing, oral communication, collaborating, or problem solving. Only few studies report about domain-specific political skills. A second smaller group of studies additionally re-

ports about affective learning outcomes such as motivation, or about outcomes related to students' self-belief such as confidence or political efficacy. The third group consists of one single study that combines cognitive learning outcomes with regulative learning outcomes, reported as student's self-directing behaviour during the simulation, or students expressing intended behavioural change after the simulation when reflecting on their preparation and actual participation in the simulation. The fourth group solely includes two studies that report on all different learning outcomes: cognitive, affective, and regulative.

Table 6 Detailed overview of reported learning outcomes (N_{total} = 36)

Cognitive learning outcomes – Knowledge & understanding		
Theoretical concepts	Decision-making process	Policy field	Citizenship
Andonova & Mendoza-Castro (2008)	Andonova & Mendoza-Castro (2008)	Bertsch & Feste (1974)	Bernstein (2008)
Crossley-Frolick (2010)	Baranowski (2006)	DiCicco (2014)	Levintova et al. (2011)
Foster et al. (1980)	Baranowski & Weir (2010)	Elias (2014)	Rünz (2015)
Frederking (2005)	Bertsch & Feste (1974)	Foster et al. (1980)	
Kalaf-Hughes & Mills (2016)	Biziouras (2013)	Levintova & Mueller (2015)	
Levintova & Mueller (2015)	Chernotsky (1990)	Levintova et al. (2011)	
Lowry (1999)	Ciliotta-Rubery & Levy (2000)		
Osgood et al. (2012)	Cowley & Stuart (2015)		
Taylor (2011)	Crossley-Frolick (2010)		
	DiCicco (2014)		
	Elias (2014)		
	Foster et al. (1980)		
	Galatas (2006)		
	Hazleton & Mahurin (1986)		
	Jones (2008)		
	Jones & Bursens (2015)		
	Jozwiak (2013)		
	Kalaf-Hughes & Mills (2016)		
	Mariani & Glenn (2014)		
	Mathews & Latronica-Herb (2013)		

Obendorf & Randerson (2013)
Osgood et al. (2012)
Rackaway & Goertzen (2008)
Rinfret (2012)
Rinfret & Pautz (2015)
Ripley et al. (2009)
Sands & Shelton (2010)
Taylor (2011)
Wallin (2005)
Zaino & Mulligan (2009)

Cognitive learning outcomes – Skills

Writing	Research	Collaborating	Oral communication	Negotiating	Analytical-critical thinking	Problem solving	Political skills
Frederking (2005)	DiCicco (2014) Elias (2014)	Bernstein (2008) DiCicco (2014) Elias (2014) Jones & Bursens (2015) Jozwiak (2013) Mariani & Glenn (2014) Wallin (2005)	Crossley-Frolick (2010) DiCicco (2014) Frederking (2005) Jozwiak (2013) Ripley et al. (2009)	Andonova & Mendoza-Castro (2008) Ciliotta-Rubery & Levy (2000) DiCicco (2014) Jones & Bursens (2015) Jozwiak (2013) Levintova et al. (2011) Wallin (2005)	Kalaf-Hughes & Mills (2016) Rackaway & Goertzen (2008)	Bertsch & Feste (1974)	Bernstein (2008) Mariani & Glenn (2014) Obendorf & Randerson (2013)

Affective learning outcomes

Motivation	Interest	Engagement	Confidence	Political efficacy
Bertsch & Feste (1974)	Andonova & Mendoza-Castro (2008)	Andonova & Mendoza-Castro (2008)	DiCicco (2014)	Bernstein (2008)
Lowry (1999)	Bertsch & Feste (1974)	Crossley-Frolick (2010)	Jones (2008)	Levintova et al. (2011)
Taylor (2011)	Frederking (2005)	DiCicco (2014)	Jones & Bursens (2015)	Mariani & Glenn (2014)
Wallin (2005)	Jozwiak (2013)	Jozwiak (2013)		Rünz (2015)
	Mariani & Glenn (2014)	Levintova et al. (2011)		
	Osgood et al. (2012)	Mariani & Glenn (2014)		
		Mathews & Latronica-Herb (2013)		
		Obendorf & Randerson (2013)		
		Wallin (2005)		

Regulative learning outcomes

Self-directing behaviour during simulation	Intended behavioural changes after simulation
Crossley-Frolick (2010)	Jones (2008)
Galatas (2006)	

Which relationships between simulations' learning environment components and their learning outcomes can be defined? (RQ 2)

In this section we first elaborate on patterns of relationships between reported learning environment components and their learning outcomes, after which a typology of studies is presented.

Looking for meaningful patterns, we discuss the most notable findings for each learning environment component. With regard to *simulation structure*, we found three aspects worth mentioning. (1) Related to simulation design, results showed that studies that address regulative learning outcomes all include simulations that are spread over time into several classes or several days (e.g., Crossley-Frolick, 2010). (2) Studies that include simulations with informal programmes report substantially more on different learning outcomes (e.g., Mariani & Glenn, 2014). (3) Concerning teacher involvement, only studies in which teacher involvement is absent structurally report on more than only cognitive learning outcomes (e.g., Jones & Bursens, 2015). With regard to *simulations' agency*, we detected three notable findings. (1) Concerning preparation, studies including one single preparatory activity show less variation in learning outcomes (e.g., Sands & Shelton, 2010) than studies applying a combination of preparatory activities (e.g., Jozwiak, 2013). (2) Notably, studies that report on knowledge and understanding learning outcomes almost always include meetings in their preparation (e.g., Levintova & Mueller, 2015). (3) All studies that report about power and non-power roles solely report about outcomes of knowledge and understanding (e.g., Chernotsky, 1990). Regarding *student characteristics*, studies that report on affective student characteristics, such as motivational aspects, remarkably do not necessarily report on affective learning outcomes (e.g., Kalaf-Hughes & Mills, 2016). Concerning the *broader learning context*, we found one striking result that relates to reported learning objectives. One third of the studies that report certain simulations' learning outcomes do not mention these as previously set learning objectives (e.g., Jones, 2008), or they did define learning objectives but failed to evaluate them (e.g., Hazleton & Mahurin, 1986).

This leaves us with the question to what extent current research has already taken learning environment characteristics into account when investigating the impact of role-play simulations of political decision-making on student learning outcomes. Table 7 depicts a typology that distinguishes three groups of studies.

Table 7 Typology of studies

Typology of studies

OUTCOME-GROUP: Learning outcomes as main and only issue

Andonova & Mendoza-Castro (2008)	Mathews & LaTronica-Herb (2013)
Bertsch & Feste (1974)	Obendorf & Randerson (2013)
Ciliotta-Rubery & Levy (2000)	Rackaway & Goertzen (2008)
Cowley & Stuart (2015)	Rinfret (2012)
Crossley-Frolick (2010)	Rinfret & Pautz (2015)
DiCicco (2014)	Ripley et al. (2009)
Elias (2014)	Sands & Shelton (2010)
Galatas (2006)	Taylor (2011)
Jozwiak (2013)	Wallin (2005)
Lowry (1999)	Zaino & Mulligan (2009)

SINGLE-GROUP: Considering one component in relation to learning outcomes

Student characteristics

Bernstein (2008)	Demographics	Race, gender
Foster et al. (1980)	Demographics	Major
Jones (2008)	Demographics	EU/US, student level
Jones & Bursens (2015)	Demographics	Student level
Levintova et al. (2011)	Demographics	Gender
Mariani & Glenn (2014)	Prior experience	Political internship or job experience
Osgood et al. (2012)	Demographics	Major

Simulation in general

Frederking (2005)	YES/NO simulation group	YES/NO simulation group

Simulation features: agency

Biziouras (2013)	Preparation	Reading content
Hazleton & Mahurin (1986)	Preparation	Preparation time
Baranowski & Weir (2010)	Played role	Low vs. high power, Minority vs. majority party
Chernotsky (1990)	Played role	Primary vs. secondary actors

MULTIPLE-GROUP: Considering multiple components in relation to learning outcomes

Student characteristics + simulation in general

Rünz (2015)	Demographics	Gender, age, nationality, major
	Prior experience	Mobility, prior knowledge
	Motivational aspects	Interest in EU
	Beliefs	Political efficacy, European identity, national pride
	YES/NO simulation group	YES/NO simulation group

Student characteristics + agency

Levintova & Mueller (2015)	Demographics	Gender
	Preparation	YES/NO lecture
Kalaf-Hughes & Mills (2016)	Prior experience	Prior knowledge (GPA)
	Motivational aspects	Political interest
	Played role	Legislative vs. executive role

Student characteristics + agency + simulation in general

Baranowski (2006)	Prior experience	Previous exposure to material on the legislative process, prior knowledge (exam score)
	Preparation	Lecture, reading
	Motivational aspects	Interest in politics
	YES/NO simulation group	YES/NO simulation group

The first and largest group is the *outcome-group*, of which articles investigate learning outcomes without taking any other learning environment component into account. The second group is the *single-group*, of which articles investigate learning outcomes when considering one other learning environment component: either student characteristics (mostly demographics), the simulation in general, or aspects related to the simulation feature of agency (preparation or played role). The third *multiple-group* includes articles that consider more than one learning environment component when investigating learning outcomes: a mixture of student characteristics, the simulation in general, and/or simulation agency. While studies from the single and multiple group attempt to take learning environment components into account, our review results show few consistencies in which aspects are being considered.

Discussion and conclusion

Role-play simulations of political decision-making are the most commonly used active learning method in political science education to teach about complex, dynamic political processes (Ishiyama, 2013; Smith & Boyer, 1996). They are considered valuable learning environments and highly appreciated by students and lecturers (Van Dyke et al., 2000). To date, the community has been struggling to capture learning outcomes, as seen in research findings being inconclusive regarding simulations' benefits (Biziouras, 2013; Duchatelet et al., 2018; Raymond, 2010). In this review study, we advocate that, alongside recommended methodological rigour (Baranowski & Weir, 2015), research designs should not ignore contextual features, which have been proven to contribute to student learning (Biggs, 1993; Baker & Delacruz, 2016; Dinsmore & Alexander, 2012). To this aim, this review first comprehensively mapped variation in learning environment components of investigated role-play simulations of political decision-making. Second, it probed into the relationship of different learning environment components with their reported learning outcomes, which resulted in a typology of studies.

With regard to learning environment components, the following components could be defined: simulation features (structure and agency), student characteristics, broader learning context, and learning outcomes. However, studies substantially differ in the extent to which they report about them. Findings identified specific features of simulation structure and agency, such as simulation design (e.g., Osgood, Stangl, & Bernotsky, 2012) or played role (e.g., Cowley & Stuart, 2015). Focusing on learning outcomes, results show that half of the selected studies, which are almost all course-embedded, mention no other learning outcomes than knowledge and skills (e.g., Elias, 2014). Articles thus report about affective and regulative learning outcomes to a far lesser extent (e.g., Jones, 2008). Looking for patterns between learning environment components and their learning outcomes, only few were found. Notably, although we found some patterns that relate features of simulation structure (e.g., duration) to reported learning outcomes (e.g., Crossley-Frolick, 2010), simulation structure has not yet been included when investigating learning outcomes of role-play simulations of political decision-making. Aspects of the broader learning context also have not yet been considered. Our findings strikingly point out that most studies solely focus on learning outcomes (e.g., Jozwiak, 2013).

Although a clear set of inclusion criteria contributes to the focus of a review study, those criteria create limitations too. First, this review focuses on a specific type of role-play simulations of political decision-making. The comprehensive overview of different learning environment components thus should not be considered as exhaustive. For example, features of other distinguishable but related contexts are not touched upon; e.g., online role-play simulations of political decision-making (Lay & Smarick, 2006). Second, our sample might be characterised by publication bias and, as such, not be representative for simulation practices. For example, 81% of our sample relates to research in US higher education learning contexts. Third, the scope of this review was limited to focusing on contextual features of role-play simulations of political decision-making. As such, inclusion criteria did not question how concepts, such as motivation or engagement, were defined and measured. However, to avoid ambiguity and inconsistency in results across studies, a coherent research agenda based on conceptual clarity of included variables is important (Dinsmore & Alexander, 2012). Nevertheless, this review study contributes to the field being a stepping-stone for future research and practice.

Advancing the field that investigates role-play simulations of political decision-making initiates a focus shift of not only looking for *what* students learn but also *how* they learn, and *how* the simulation exactly contributes to student learning. This gives rise to the challenge of illuminating which simulation configuration contributes to what kind of student learning and for which types of students. Following our typology of studies, we advice future research to move away from the outcome group (e.g., Elias, 2014) and move toward the multiple group (e.g., Rünz, 2015). Moving away from the outcome group could result in at least consistently investigating learning outcomes in relation to some student characteristics, such as age, gender, prior knowledge, or personality (Richardson et al., 2012), or to even move beyond this and abundantly highlight contextual features. This review study extensively contributes to the field by discussing the features of role-play simulations of political decision-making that relate to simulations' structure and agency. The interplay of both features still remains a black box, which offers another issue to unravel: the tangle of simulation dynamics. For example, how does the amount of guidance that is given to restrict participants' actions influence students' agency and simulation dynamics? With regard to simulation structure, this means that both 'stable' aspects (e.g., simulation design) and aspects that can be influenced by participants' actions (e.g., minority block) are of interest for future research. This also relates to the issue of verisimilitude (i.e., to what extent do participants per-
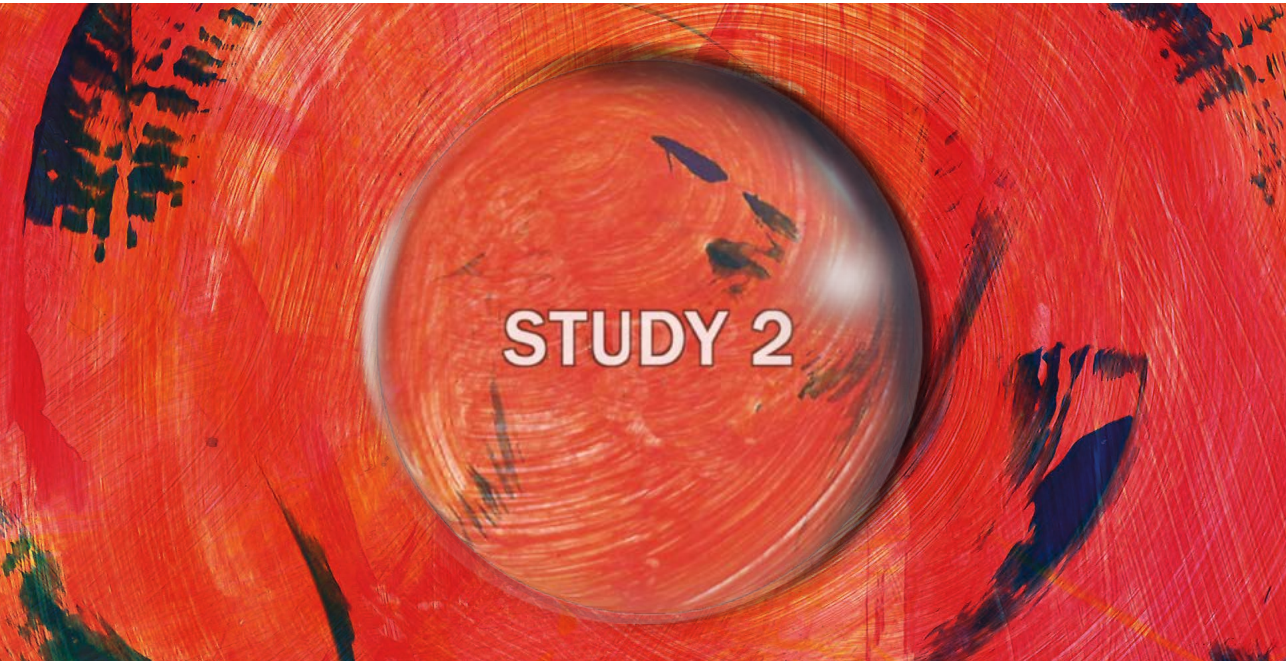
ceive these simulations as authentic; and how does this relate to the simulation process and students' learning outcomes?). Further, future research could consider the variety of learning strategies students apply when learning in a simulation-based learning environment. For example, by focusing on how students regulate their actions during the simulation (Vermunt & Donche, 2017). As already suggested by Baranowski (2006), future research could also draw attention to the transfer of learning in order to elucidate the long-term effects of role-play simulations of political decision-making.

Each learning environment component interacts with other components, which results in a change in one component affecting change in another component (Biggs, 1993). This issue complicates investigating the 'objective' contribution of the simulation to student learning. For example, most studies that report about knowledge related outcomes have a risk of biased results when meetings, which involve knowledge sharing, are part of their preparatory activities (e.g., Baranowski, 2006). Future research could report in a more systematic way about which aspects characterise the simulation-based learning environment and which aspects will be the focus of and included as variables in the research. This would lead to better comparable research findings. Considering the complex interplay of different learning environment components and the variety of learning outcomes reported, we believe research designs should not be limited to the by Baranowski and Weir (2015) suggested pre- and post-measurement designs, and quasi-experimental research designs when investigating simulations' effectiveness. For example, learning outcomes such as analytical-critical thinking skills are not that easily measured using quantitative pre- and post-measurement designs. Also, unravelling simulation dynamics will need more in-depth research of a qualitative nature, which allows for capturing processes and focusing on how students learn.

Finally, this review contributes substantially to simulation practice in that it offers a comprehensive overview of what is relevant to consider when designing or implementing role-play simulations of political decision-making. Results point to inconsistency in how researchers report about the simulation-based learning environment and, therefore, call for more systematically reporting when sharing simulation practices. Considering the variation in reported learning outcomes that not always relate to reported learning objectives (e.g., Jones, 2008), practice could benefit from taking constructive alignment more often into account (Biggs, 1996). This has already been addressed by some scholars within the field of role-play simulations of political decision-making, who emphasize the importance of defining learning goals

in advance and to align these with assessment methods, which should reflect the learning outcomes (Asal & Blake, 2006; Raymond & Usherwood, 2013; Smith & Boyer, 1996).

Student diversity in a cross-continental EU-simulation:

Exploring variation in affective learning outcomes

among political science students

STUDY 2   Student diversity in a cross-continental EU-simulation: Exploring variation in affective learning outcomes among political science students

Abstract

Current research struggles to illuminate significant learning outcomes of role play-simulations of political decision-making, such as Model European Union (MEU) and Model United Nations (MUN). In this study, we introduce a model for measuring simulation effects, distinguishing between cognitive, affective, and regulative learning outcomes. More in particular, we introduce the MISS-model (Motivation, Interest, and Self-efficacy in Simulations), which enables measuring affective learning outcomes more in depth and connects these with other learning outcomes. To increase insights into how students vary with respect to affective learning outcomes, we apply the MISS-model in a cross-continental simulation context. Study participants included 133 students. Students' differences were explored using independent t-tests, one-way ANOVA-, and ANCOVA-analyses. Results show student variation for all affective learning outcomes and thus support for applying the MISS-model to measure affective learning outcomes of simulations more in depth. Findings are discussed with regard to simulation practice and future research on simulation effects.

Introduction

Teachers of political science have been using simulations as a teaching method for quite some time. Over the past decades, the use of simulations has gradually expanded from local politics and international relations to European Union (EU) politics (e.g., Davison, 1975; Elias, 2014; Mandel, 1987). While research literature has simultaneously increased its attention for simulations studying their design, effects and assessment (e.g., Elias, 2014; Raymond, 2010; Usherwood, 2013), a definition of simulations has seldom been given. However, research would benefit from a clear distinction between simulations and related constructs, such as role-plays and games. We define simulations within political science, in line with Wright-Maley (2015) as characterised by verisimilitude, dynamism and variability, and active human agency. Verisimilitude is an important characteristic of simulations: they should always represent a real situation of some sort, and thus be based on the imitation of a system or a situation (Landriscina, 2013; Sauvé, Renaud, Kaufman, & Marquis, 2007). In political science curricula, simulations are very much appreciated by teachers and students because of the degree of 'real world'-experience they provide (Smith & Boyer, 1996; Van Dyke et al., 2000). Also, simulations have to be able to flow in unexpected directions based upon the participants' autonomously made decisions within the simulation's boundaries (Leigh & Spindler, 2004; Wright-Maley, 2015). Finally, simulations should incorporate participants in active roles through which phenomena are revealed (Wright-Maley, 2015). These features distinguish simulations from games, such as Diplomacy, of which outcomes are more defined and quantifiable by winning or loosing; and from role-plays, such as French Revolution, in which students act out prescribed roles but can not deviate from the scripted activity (Wright-Maley, 2015). All these characteristics are present in 'well-known' simulation environments such as model European Union (MEU) simulations and one to several hour in-class simulations of, for example, the European Council. Because students incorporate the role of a specific actor in a predefined situation, we define such simulations as role-play simulations (cf. Wright-Maley, 2015). Each time we mention 'simulations' in this study, we refer to these 'role-play simulations'.

Despite the increase of such simulations in political science curricula, research on their effects has only recently received substantive attention. The literature that empirically tests the impact of simulations is still scarce and rather underdeveloped. Many studies remain descriptive and anecdotal (e.g., Jozwiak (2013) describ-

ing an EU-simulation of the European Parliament (EP) using the chocolate directive, or Elias (2014) depicting a simulation of the Council). Trying to capture the effect of simulations, current research often uses ad hoc self-composed questionnaires, often failing to match pre- and post-test results (e.g., Andonova & Mendoza-Castro, 2008; Biziouras, 2013; Jones & Bursens, 2014). These studies show that - on the level of student perception - simulations are highly valued and perceived as beneficial (e.g., Andonova & Mendoza-Castro, 2008; Jozwiak, 2013). However, where research using self-report measures evaluates simulations' learning outcomes tentatively positively (e.g., Biziouras, 2013; Jozwiak, 2013; Shellman & Turan, 2006), studies about the effect of simulations on objective achievement outcomes, such as grades on quizzes and exams, remain rather sceptical (e.g., Krain & Lantis, 2006; Raymond, 2010). As such, research results are inconclusive regarding simulations' benefits. In addition, measuring outcomes in various ways hinders comparability. In short, current research struggles to illuminate significant learning outcomes and to measure these in a methodologically sound way.

We argue that the increased popularity of simulations in political science curricula demands more systematic knowledge about the effects of simulations on students' learning outcomes. Moreover, we would argue that simulation effects should be measured in a more encompassing way. However, as previous research results substantially demonstrate the complexity of measuring simulations' effects, what could be an appropriate way to initiate improvement in simulations' effects research? As an answer, relying on the neighbouring discipline of education sciences and more in particular on its extensive research on higher education, we introduce the innovative MISS-model (**M**otivation, **I**nterest and **S**elf-efficacy in **S**imulations). This framework is innovative in several ways. First, it enables capturing affective learning outcomes more in depth by combining motivation, interest, and self-efficacy as related but distinguishable affective learning outcomes. Second, it enables connecting them to other learning outcomes. Overall, the model highlights affective learning outcomes, which have increased in importance within the educational sciences research field, as they are largely associated with the learning process and both, cognitive and regulative, learning outcomes (Vermunt & Vermetten, 2004). Also, research shows they are strongly related to academic achievement (Donche et al., 2013; Richardson et al., 2012; Rotgans & Schmidt, 2012).

Overall, this study aims to add value to current research by introducing the MISS-model, investigating its suitability for measuring affective learning outcomes more in depth, and applying the MISS-model to demonstrate how students vary in their

affective learning outcomes. The MISS-model framework in combination with more knowledge about student variation in affective learning outcomes facilitates more accurate research design on simulation effects in the future. After defining different learning outcomes, introducing the theoretical framework of the MISS-model, and formulating hypotheses related to student variation, we apply the MISS-model to a simulation-context for the first time.

Theoretical background

Educational research usually distinguishes between three general learning activities and resulting learning outcomes: cognitive, affective and regulative (Pintrich, 1994; Vermunt & Vermetten, 2004). These outcomes have indeed been implicitly acknowledged in political science studies that focus on teaching and learning, including in the literature on simulations, but they have so far rarely been addressed as such.

Cognitive learning outcomes are results of those thinking activities that directly lead to learning in terms of knowledge, understanding, skills and so on (Vermunt & Vermetten, 2004). Within the research field of political science teaching and learning such learning outcomes are mostly specified as better understanding of theoretical concepts and/or theories (e.g., Andonova & Mendoza-Castro, 2008; Bridge & Radford, 2014; Elias, 2014), increased knowledge (e.g., Obendorf & Randerson, 2013; Zaino & Mulligan, 2009) and developed skills such as communicating (e.g., DiCicco, 2014; Elias, 2014). More in general, Usherwood (2013) defines substantive knowledge and skills development as possible learning outcomes of simulations, hence considering these as part of the previously described cognitive learning outcomes.

Affective learning outcomes are the results of feelings that arise during learning and that create an emotional state that may positively, neutrally, or negatively affect the learning process (Vermunt & Vermetten, 2004). Research on the use of active learning within political science mostly defines these outcomes as interest (e.g., Bridge & Radford, 2014; Zaino & Mulligan, 2009) or motivation (e.g., DiCicco, 2014; Jones & Bursens, 2015). Both cognitive and affective activities are directed by regulating activities that indirectly lead to learning results, such as the ability to monitor and, when needed, to adjust the learning process (Vermunt & Vermetten, 2004). This process of learning has thus far not directly been studied in the field of political science teaching and learning. However, studies on simulations often report about the importance of reflective assignments and debriefing sessions

(e.g., Elias, 2014; Jozwiak, 2013; Usherwood, 2013). These can be seen as activities that stimulate students to use their reflective skills and therefore foster regulative learning outcomes (Vermunt & Vermetten, 2004). An example of a regulative learning outcome is that – following a debriefing session – students realise that they should be more diplomatic in their negotiating behaviour. This insight might lead them to attend more simulations, and to watch more live negotiations on television or the Internet. Inherently, they thus engage in regulating their own learning process by adjusting their learning activities to achieve their predetermined goals.

Within teaching political science literature, Usherwood (2013) suggests an additional learning outcome of simulations, which he defines as group socialisation. This outcome refers to the opportunities simulations provide for the development of a group identity and for introductions to problem-solving techniques. The latter could also be included in the previously defined learning outcomes, as collaborating with peers promotes problem solving skills (cognitive), identifying with a group motivates to attend and participate in the simulation (affective), and receiving feedback stimulates to monitor the own learning process (regulative). This illustrates how one contextual element may foster different learning outcomes.

Overall, defining learning outcomes in terms of being cognitive, affective, or regulative results in a comprehensive model, which enables measuring simulation learning outcomes more thoroughly. Therefore, research that focuses on the effects of simulations should aim to elucidate these accordingly. In an effort to verify this comprehensive model of learning outcomes within simulations it is important to take into account that all defined learning outcomes are interrelated. For example, higher self-regulation is strongly related to a higher quality of motivation and higher academic achievement (Rotgans & Schmidt, 2012). Also, current research repeatedly confirms the importance of affective learning outcomes as these are similarly known to be positively associated with cognitive and regulative learning outcomes (Donche et al., 2013; Richardson et al., 2012). Taking all this into account, we introduce the MISS-model, which connects affective learning outcomes with other learning outcomes and which enables measuring affective learning outcomes more in depth.

MISS-model: a theoretical framework

Within the MISS-model three aspects can be distinguished (Figure 1). First, student diversity is taken into account by means of a set of student characteristics such as gender and previous simulation experience. These student features influence differ-

ent motivational aspects. More specifically, we introduce **M**otivation, **I**nterest and **S**elf-efficacy as affective learning outcomes of **S**imulations (MISS). Finally, these motivational outcomes are associated with other simulation outcomes, both cognitive and regulative, which can be related to previously set course objectives.
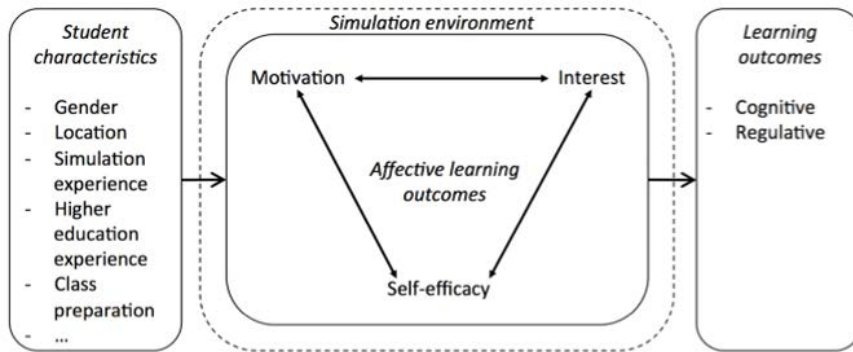
Figure 1. MISS-model: **M**otivation, **I**nterest and **S**elf-efficacy in **S**imulations.

Motivation

Overall, in an educational context, motivation refers to what drives students for learning. The distinction between intrinsic and extrinsic motivation is well known. Intrinsic motivation refers to 'doing something because it is inherently interesting or enjoyable' while extrinsic motivation refers to 'doing something because it leads to a separable outcome' (Ryan & Deci, 2000:55). Studies on motivation in political science teaching and learning usually approach motivation as a one-dimensional construct, i.e. in terms of how much motivation students have. When studying effects of simulations, students are often asked how their motivation developed, using either quantitative or qualitative measures (e.g., DiCicco, 2014; Jones & Bursens, 2014). However, one of the leading theories about motivation in education – the self-determination theory (SDT) (Deci & Ryan, 2000) – defines motivation as a multidimensional construct. This approach puts intrinsic and extrinsic motivation on a continuum, which results in a distinction between autonomous motivation, controlled motivation, and amotivation.

Autonomous motivation is characterised by a sense of choice and psychological freedom (Deci & Ryan, 2000). Autonomously motivated students freely direct their learning process and learning behaviour themselves. For example, it could be that

the simulation itself is inherently satisfying and that students like attending simulations and enjoy them. It could also be that students realise the importance of the simulation for their professional development, for example when they realise it is important to actively participate in the simulation if they want to become good at negotiating. Controlled motivation refers to students experiencing being pressured or coerced (Deci & Ryan, 2000). For example, students could feel pressured by themselves when they force themselves to attend as much simulations as possible because it boosts their CV. They could also feel forced by their environment, for example when they attend the simulation only because it's part of the mandatory curriculum. Finally, students could also be amotivated when they lack any intention to learn (Ryan & Deci, 2000). For example, they do not attend a simulation, even when it's mandatory, just because they don't feel like it.

Of all three types of motivation, autonomous motivation is positively associated with academic achievement and has a strong relationship with the development of adequate regulative learning outcomes (Donche et al., 2013; Kusurkar, Ten Cate, Vos, Westers, & Croiset, 2013). Besides, previous studies reveal that female students report higher levels of autonomous motivation than male students (Vallerand, Fortier, & Guay, 1997; Vecchione, Alessandri, & Marsicano, 2014). Also, autonomous motivation is strongly related to the learning environment. Focusing on students' interests and personal goals, and guiding their learning process in an autonomy supportive way, fosters autonomous motivation (Black & Deci, 2000; Hall & Webb, 2014). As simulations are rich learning environments that are often autonomously driven by students, they probably include some autonomy supportive elements. Furthermore, cultural context seems to be an aspect that also shapes motivation (Guay, 2016). With regard to autonomous motivation, this results in the following hypotheses:

H1a: Female students report higher autonomous motivation than male students.
H1b: Influenced by cultural contexts, EU-students and US-students differ in their amount of autonomous motivation.

Interest
Interest is related to motivation because it also drives student learning. However, an important difference is that interest is the result of an interaction between the student and a particular content (Hidi & Renninger, 2006). This implies that interest is, even more than motivation, related to the simulation context, topic, and content. Within political science teaching and learning, to prove effects, students are

usually asked how the simulation influenced their interest – in general or in the course subject – using either quantitative or qualitative measures (Bridge & Radford, 2014; Zaino & Mulligan, 2009). However, similar to motivation, interest is not a unitary concept. It can be divided in individual interest, which is enduring and context-general, and situational interest, which is spontaneous and context-specific (Hidi & Renninger, 2006; Rotgans, 2015). Individual interest is a more or less stable type of interest that slowly develops over time (Hidi & Renninger, 2006; Rotgans, 2015). Political science students can for example have a deep-seated, individual interest in international politics, or the European Union, or migration issues etc. This type of interest facilitates the engagement and re-engagement with particular content over time (Hidi & Renninger, 2006; Rotgans, 2015). Hence, a strong individual interest for international politics may lead to students frequently attending Model United Nations (MUN)-simulations all over the world. Or, if the student has an individual interest for migration policy, this may lead to only attending simulations that put migration-related issues on the agenda.

On the contrary, situational interest is a fleeting type of interest that is triggered by environmental aspects (Hidi & Renninger, 2006; Rotgans, 2015). The use of games in the classroom (e.g., Prisoner's Dilemma game) may increase students' situational interest by presenting them a puzzling problem. However, this type of interest varies according to situational conditions, and students' interest often decreases once knowledge increases (Rotgans & Schmidt, 2014). Within simulations, situational interest probably (it has not yet been empirically proven) fluctuates depending on situational circumstances; e.g., on how well negotiations go for your country, whether you can get your point across, or you feel confident speaking in public, etc.

Similar to autonomous motivation, interest is also positively associated with academic achievement and regulative learning outcomes (Rotgans & Schmidt, 2011; Schiefele, Wild, & Krapp, 1995). As students' individual interest for a topic makes them continuously re-engage in activities, the variation in individual interest can be reflected in the amount of experiences (Renninger & Hidi, 2016). Students with more individual interest should seek for and re-engage more often in activities that are related to their individual interest. Gender differences in individual interest for a specific domain have also been identified; e.g., in natural sciences (Hoffmann, 2002) and mathematics (Bong, Lee, & Woo, 2015). Furthermore, students may differ in developing individual interest depending on their access to knowledge and instructional support. For example, research in high school contexts shows that

connections between content and the individual student are essential for interest development (Renninger & Hidi, 2016; Riconscente, 2014). This might imply that class preparation of a simulation, where content knowledge is introduced, might be affecting students' interest development. Previous research findings result in the following hypotheses about interest:

H2a: Students with more simulation experience report higher individual interest for the EU than students who attend the simulation for the first time.

H2b: EU-students have more individual interest for the EU than US-students, as they are closer related to the EU-content.

H2c: Students who had class preparation report higher individual interest than students who had not.

Self-efficacy

A third closely to motivation and interest related concept is that of self-efficacy. Students' self-efficacy is mostly related to confidence, it refers to students' individual belief that they are capable to learn and perform actions on designated levels (Bandura, 1997). Overall, it contributes significantly to human attainments (Bandura, 1997). Within simulations it can, for example, easily be connected to the amount of belief students have in their negotiating skills. A strong belief in one-self generates a feeling of competence that is motivating for engagement (Zepke, Leach, & Butler, 2010). Moreover, it promotes further skill development and helps to engage and to persist in tasks, especially when encountering difficulties (Bandura, 1997). Therefore, simulation-attending students who are more convinced of their negotiating skills should feel more competent and probably should be more resilient to overcome difficult times during the negotiations.

Overall, within higher education, self-efficacy plays a predicting and mediating role in relation to academic success, also by positively influencing students' regulative learning outcomes (Bandura, 1997; Richardson et al., 2012; Zimmerman, 2000). Trying to identify factors that influence students' self-efficacy, previous research reveals that the amount of experiences is related to students' self-efficacy (Niemivirta & Tapola, 2007; Tang et al., 2004). This results in more experienced students reporting more self-efficacy. In general, female students perform as capable as or even better than male students in various academic domains. However, they may report lower self-efficacy, especially at higher academic levels (Schunk & Pajares, 2008; Van Soom & Donche, 2014). Also, self-efficacy is shaped by the cultural context (Guay, 2016). With regard to self-efficacy, hypotheses are as follows:

H3a: Students with more simulation-experience report higher self-efficacy than students who attend the simulation for the first time.

H3b: Female students report lower self-efficacy than male students.

H3c: Influenced by cultural contexts, EU-students and US-students differ in their amount of self-efficacy.

Interplay between motivation, interest and self-efficacy

Motivation, interest and self-efficacy are all affective learning outcomes. Inherently, they are interrelated. Students who have stronger beliefs in their capabilities and thus more self-efficacy tend to be more driven by the activity or subject itself, which makes them more autonomously motivated (Pajares, 2003). Also, autonomous motivation refers to doing something because it is inherently interesting (Ryan & Deci, 2000), which makes the concept closely related to interest. However, interest is known to be more subject- or context-specific (Hidi & Renninger, 2006). Also, interest and self-efficacy have a reciprocal relationship (Renninger and Hidi, 2016). Finally, autonomous motivation, self-efficacy and interest are considered dynamic motivational constructs that fluctuate over time (Kyndt et al., 2015; Niemivirta & Tapola, 2007; Renninger & Hidi, 2016). Also, they vary across contexts (Pintrich, 2003), and are thus worth investigating within role play-simulation contexts. In the empirical part of this study, we present a first exploration of the MISS-model.

Method

EuroSim as research context

EuroSim is a four-day cross-continental simulation, which simulates around 200 actors contributing to the EU decision-making process, such as members of the European Parliament, the European Commission, the Council of Ministers, the European Council, interest groups, other concerned parties, and even the press. It brings together students from twenty American and European universities, coming from different fields of study, and with different simulation experience. This research was conducted during the 2016 edition of EuroSim, hosted by the University of Antwerp (Belgium) and dealing with the topic of EU asylum policies. Data were collected after a plenary lecture on the second day of the simulation. Out of the 180 attending students, 139 students completed the questionnaire. This is a response rate of seventy-seven per cent. Incomplete data were received from two students (N=137; *M* age = 21.65; *SD* = 2.72). Additionally, based on the standard

deviation of 'Age' four outliers were detected. As these six cases involved less than ten per cent of the total sample, a listwise deletion (Byrne, 2010) was used (total N=133). Descriptive statistics for all student characteristics are presented in Table 1. 'Number of Years in Higher Education' was divided into two groups with a cut point on three years, based on the median (*Median* = 3). Sixty per cent of the students had a class preparation, and most of the students, seventy-two per cent, attended the simulation for the first time.

Table 1 Descriptive statistics for all student characteristics included in this study (N_{total} = 133)

Variable	*Mean*	*SD*	*N*	*%*
Age	21.40	2.32	133	100
Gender				
Male			60	45.11
Female			73	54.89
Location of the university				
EU			71	53.38
US			62	46.62
Class Preparation				
Yes			80	60.15
No			53	39.85
Number of Years in higher education				
≤ 3 years	2.06	.79	79	59.40
≥ 4 years	4.85	1.04	54	40.60
Number of Years attending EuroSim				
1 year			96	72.18
> 1 year	2.30	.62	37	27.82

Measuring motivation, interest and self-efficacy

In order to measure the constructs motivation, self-efficacy, and interest, previously validated questionnaires in higher education contexts were used: autonomous motivation (SRQ-A; Vansteenkiste, Sierens, Soenens, Luyckx, & Lens, 2009), individual interest (IIQ; Rotgans, 2015), situational interest (SIQ; Rotgans & Schmidt, 2011, 2014) and self-efficacy (ILS-SV; Donche, Coertjens, Vanthournout, & Van Petegem, 2012). The items of the different scales were tuned to a specific relevant topic (Appendix 2).

With regard to motivation, we measured 'autonomous motivation', which was to be answered in relation to students' field of study (8 items). For 'individual interest' all items were related to students' general interest for the European Union (7 items). 'Situational interest' was measured with regard to negotiating, decision-making, or refugee and asylum policy (6 items). Students were asked to choose one topic in relation to which their situational interest was reported. Finally, 'self-efficacy' was measured for negotiating because this was the core skill needed during the simulation (4 items).

In order to investigate the construct validity of the used scales in a new context of simulations a confirmatory factor analysis (CFA) was conducted for all separate scales. We used CFA because it is theory-driven and allows to test an a priori specified theoretical model (Schumacker & Lomax, 2010), in this case several motivational constructs. All models show a good fit to the data (Hu & Bentler, 1999) (Table 2). For the scale 'autonomous motivation' the χ^2 test of exact fit is statistically significant at the .05-level, whereas the objective is to achieve a non-significant p value. However, Hatcher (1994) indicates that a statistically significant χ^2 does not make a confirmatory analysis model inadequate. Moreover, Schumacker and Lomax (2010) advice to report more than one model-fit index and note that the theoretical model is supported by the data when a majority of the fit indices indicates an acceptable model.

Overall, the results of the various validity and reliability tests are very satisfying (Table 2). All target loadings are large (between .472 and .898) and statistically significant ($p <. 001$). Also, the scale composite reliability values of the various factors are higher than .80 (Bagozzi & Yi, 1988), and the extracted variances show that each factor explains at least forty-two per cent of the variance in the posited items. These findings support the internal consistency and the factor structure of each scale.

Table 2 CFA results for all separate scales

Scale	Factor loadings	χ^2	df	p	CFI	RMSEA	SRMR	ρ_c[*]	Variance extracted
Autonomous motivation	|.472| - |.823|	26.64	16	.05	.97	.07	.04	.85	.42
Individual interest	|.527| - |.843|	15.92	11	.14	.99	.06	.04	.85	.46
Situational interest[**]	|.507| - |.896|	6.22	5	.29	1.00	.04	.03	.82	.49
Self-efficacy	|.802| - |.898|	.27	2	.87	1.00	.00	.00	.91	.71

[*] Cronbach's alpha results were similar with a range from .80-.91; [**] Based on previously conducted CFA-analysis (Factor loading SI5 = |.384|; χ^2 =27.75, df=9, p=.00; CFI=.93; RMSEA=.13; SRMR=.07), item SI5 was excluded from this and further analyses.

Plan of analysis

To explore student variation one-way ANOVA-analyses[1] and several independent t-tests were conducted. We compared means for each subscale in the following conditions: gender, location of the university (EU/US), class preparation, number of years attending EuroSim, and number of years in higher education. Variation among students was explored for each of the motivational constructs separately: autonomous motivation, self-efficacy, and interest. Also, to extract more accurate relationships, additional ANCOVA-analyses were conducted.

Results

First, to test whether the MISS-model is suitable for a simulation context, we evaluate correlations and descriptive statistics for all dependent variables (Table 3). Students score, on average, the highest on autonomous motivation for their field of study and the lowest on individual interest for EU politics. Standard deviations show the largest spread for self-efficacy, which means that students vary the most in how much they believe in their negotiating skills. Students vary the least on their situational interest.

Correlations reveal that all measured constructs are interrelated, which confirms their relatedness as affective learning outcomes. However, all of the correlations are low enough ($r < .80$; Cohen, Manion, & Morrison, 2011) to consider them as

separate constructs tapping different affective learning outcomes. The variation in student scores and the sufficient, but not too strong, relatedness of the affective learning outcomes allow combining them in the MISS-model.

Table 3 Descriptive statistics and Pearson correlations

Scale°	Mean	SD	1	2	3
1. Autonomous motivation	4.23	.58			
2. Individual interest	3.22	.77	.350***		
3. Situational interest	3.42	.45	.320***	.382***	
4. Self-efficacy	3.46	.84	.287***	.170*	.226**

° Scaled score is the mean of item-scores; *$p \leq .05$, **$p \leq .01$, ***$p \leq .001$.

Second, student variation in affective learning outcomes was investigated conducting independent t-tests, of which the results are presented in Table 4.

Regarding autonomous motivation for students' field of study, results show that US-students score significantly higher than EU-students. Also, students who attended EuroSim for at least the second time show to have more autonomous motivation for their field of study than students who attended for the first time. This means that US-students and students who have attended EuroSim more than once experience their field of study as more inherently satisfying. However, when conducting an ANCOVA, results only reveal a significant relationship between location (EU/US) and autonomous motivation (F (1,130) = 8.68; $p < .01$; $\eta^2_p = .06$)[2].

Table 4 Results of independent t-tests for all dependent variables

	Autonomous motivation for field of study						
	Mean	*SD*	*N*	*df*	*t*	*p*	*Cohen's d*
Location			133	131	-3.51	.001	.61
EU	4.07	.57					
US	4.41	.54					
	Median	-	*N*	*U*	*z*	*p*	*r*
EuroSim[*]			133	1366	-2.07	.04	-.18
1 year	4.19						
> 1 year	4.63						
	Situational interest[**]						
	Mean	*SD*	*N*	*df*	*t*	*p*	*Cohen's d*
Gender			133	131	2.94	.004	.51
Male	3.30	.44					
Female	3.52	.43					
	Individual interest for the EU						
	Mean	*SD*	*N*	*df*	*t*	*p*	*Cohen's d*
Location			133	131	3.71	.000	.64
EU	3.44	.70					
US	2.97	.77					
Class preparation			133	131	-3.34	.001	.59
Yes	3.39	.72					
No	2.95	.77					
Higher educa-tion[***]			133	131	-2.18	.031	.38
≤ 3 years	3.10	.77					
≥ 4 years	3.39	.74					
	Self-efficacy for negotiating						
	Mean	*SD*	*N*	*df*	*t*	*p*	*Cohen's d*
Gender°			133	130.99	-3.49	.001	.60
Male	3.73	.71					
Female	3.25	.87					
Location			133	131	-2.29	.024	.40
EU	3.31	.79					
US	3.64	.85					
EuroSim°			133	84	-3.66	.000	.67
1 year	3.32	.85					
> 1 year	3.83	.66					

[*] Number of years attending EuroSim, reported results are only confirmed in a Mann-Whitney U test; [**] Measured with regard to negotiating, decision-making, or refugee and asylum policy; [***] Number of years in higher education; ° Equal variances not assumed.

With regard to situational interest, the only difference was found for female students, who score significantly higher than male students. Regarding individual interest for the EU, EU-students score significantly higher than US-students. Also, students who had a preparation class score significantly higher than students who didn't have class preparation. Similarly, students who already attended higher education for four or more years score significantly higher than students who attended just three years or less. A multiple model confirms the significant relationship between individual interest and location (F (1,129) = 8.86; $p < .01$; $\eta^2_p = .06$). Also, the relationship with class preparation remains significant (F (1,129) = 5.67; $p < .05$; $\eta^2_p = .04$). However, there's no longer a significant relationship for number of years in higher education (F (1,129) = 1.90; $p = .171$; $\eta^2_p = .01$). The individual interest of US-students who had class preparation (*Mean* = 3.16) approaches, but is still lower than, the individual interest of EU-students with no class preparation (*Mean* = 3.22; Figure 2).
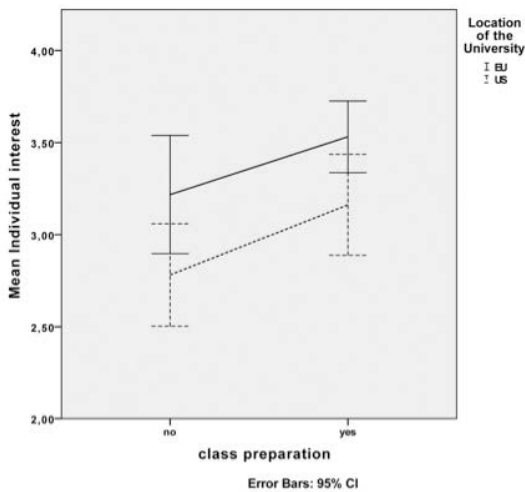
Figure 2. Differences in individual interest for class preparation and location

Regarding self-efficacy for negotiating, male students score significantly higher than female students. Also, US-students score significantly higher than EU-students. Students, who attended the simulation more than once, also report more self-efficacy for negotiating, than students who attended for the first time. A multiple model still shows a significant relationship between self-efficacy and number of

years attending EuroSim (F (1,129) = 4.44; p < .05; η^2_p = .03), and self-efficacy and gender (F (1,129) = 11.22; p = .001; η^2_p = .08), while the relationship with location disappears (F (1,129) = 1.02; p = .314; η^2_p = .01).

Figure 3 shows a clear trend towards more confidence in one's negotiating skills when attending EuroSim more than once. The difference between male and female students is most explicit when attending for the first time. Gender differences decrease with each simulation experience. However, results for year three and four should be interpreted carefully as the sample size of students attending the simulation for the third or fourth time was low (five and three students).
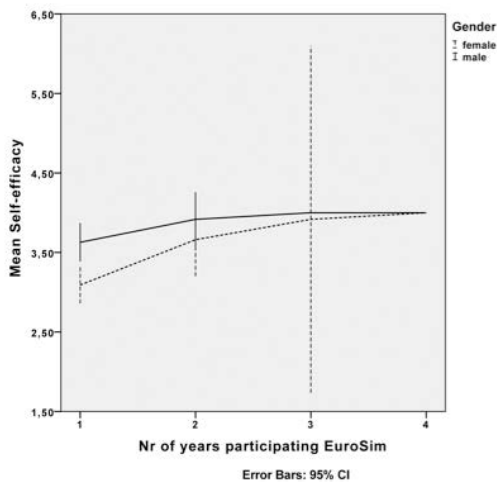
Figure 3. Differences in self-efficacy for gender and number of years attending EuroSim

Finally, an overview of the results implemented in the MISS-model is presented in Figure 4. Overall, results show statistically significant relationships between several student characteristics and the presented affective learning outcomes of simulations. In general, findings support the use of MISS-model to measure affective learning outcomes of simulations more in depth.
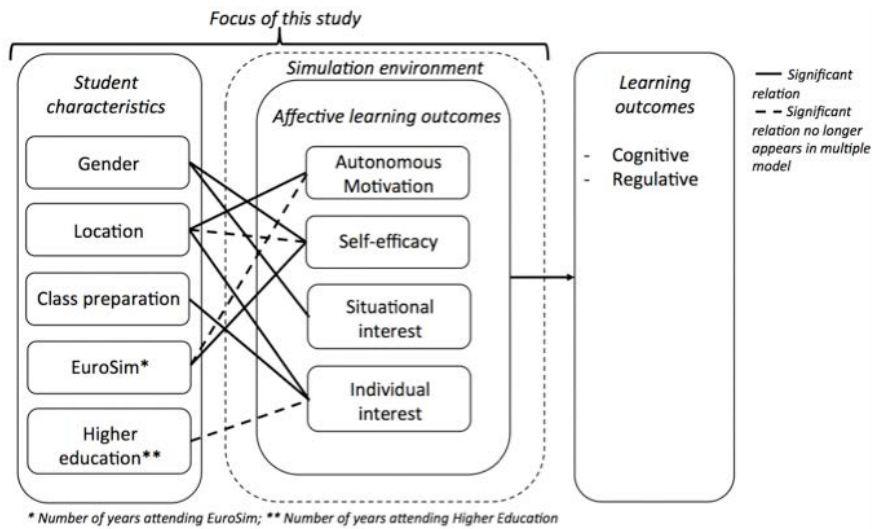
Figure 4. Applying MISS-model for mapping student variation in affective learning outcomes

Discussion and conclusion

Following an increased use of role play-simulations within political science teaching and learning, research on their effects has started to expand. However, previous studies often suffered from being anecdotal, or methodologically poor, which hinders interpretation and comparability of research outcomes. Moreover, current research remains inconclusive regarding simulations' benefits. Therefore, simulation effects should be measured in a more encompassing way. As such, this study introduced the MISS-model (**M**otivation, **I**nterest and **S**elf-efficacy in **S**imulations), which highlights affective learning outcomes and relates them to other learning outcomes. Also, following a trend within educational sciences research, as findings have shown affective learning outcomes have substantially increased in importance predicting academic success.

Investigating suitability of the MISS-model, results are definitely positive. Motivation, interest, and self-efficacy clearly are related but also distinguishable concepts. Probing into student variation, most of our hypotheses could be confirmed. With regard to autonomous motivation, results reveal no statistically significant differences for autonomous motivation between male and female students (H1a). However, results show a statistically significant difference for autonomous motivation,

depending on students' location (H1b), which could be related because motivation seems to be shaped by cultural context (Guay, 2016). Although we could expect that students with a higher individual interest for the EU would be more likely to attend EuroSim more often, students with more simulation-experience report less individual interest for the EU (H2a). Further, EU-students report higher individual interest for the EU (H2b), which could be explained by the fact that individual interest is a more deep-seated type of interest (Hidi & Renninger, 2006; Rotgans, 2015). As it develops slowly over time, the everyday environment influences interest development and, therefore, living in the EU most certainly triggers students' interest for EU politics. The positive relation of class preparation with individual interest (H2c) confirms connections between content and the individual student seem to be essential for interest development (Renninger & Hidi, 2016; Riconscente, 2014). With regard to self-efficacy, the amount of simulation-experience is positively related to students' self-efficacy for negotiating (H3a), and female students report significant lower self-efficacy than their male colleague students (H3b) (Niemivirta & Tapola, 2007; Schunk & Pajares, 2008; Tang et al., 2004). We could not formulate any specific hypotheses for situational interest and number of years in higher education. Explorative results show that variation in situational interest solely relates to gender, and that the number of years students already attend higher education has little to no influence on all motivational outcomes.

Overall, results indicate students vary in their motivation, interest and self-efficacy. As these affective learning outcomes are largely related to performance outcomes, students will vary in what they take away from the simulation. Moreover, students will also vary in their simulation performance, and hereby influence the simulation process and its outcome. For example, motivated students would probably work harder, and maybe even foster simulation's verisimilitude. Therefore, it would be interesting to measure motivation related to the simulation itself, and include all types of motivation to distillate student variation in motivation and related student behaviour. Similarly, interest influences student behaviour. Highly interested students would probably prepare better, and also value simulation's verisimilitude. Self-efficacy could explain why students are more or less verbal and dominant during negotiations. However, female students reporting lower self-efficacy does not necessarily mean they perform less, as research shows that female students, especially at higher academic levels, may report less self-efficacy while in general they perform as good as or even better than male students (Schunk & Pajares, 2008; Van Soom & Donche, 2014).

Results suggest the broader learning environment matters. For example, preparing students for the simulation is positively related to students' individual interest for the EU. Preparing US-students brings them almost to the same level as unprepared EU-students in this cross-continental EuroSim-simulation. Although class preparation has a positive influence on students' individual interest for the EU, students do not vary for self-efficacy for negotiating, when taking class preparation into account. This lacking relationship raises questions about how exactly students are being prepared for simulations, for example whether negotiating exercises are included or not. Also, results indicate that students who have more simulation experience seem to benefit more from a simulation in terms of how capable they feel themselves in negotiating. Overall, findings point into the direction of the usefulness of providing repeated well-prepared simulations in political science curricula to increase affective learning outcomes.

Although a first application of the MISS-model delivered some promising results, we need to be cautious when drawing conclusions. The cross-sectional nature of the present study could be seen as a limitation, which hinders causal interpretation and generalisation of the results. Baranowski and Weir (2015) emphasise quality of future research on simulation effects has to improve, suggesting the use of control groups, and pre- and post-test designs. Additionally, we argue research should focus more on affective learning outcomes, because of their association with student behaviour, and other learning outcomes. More specifically, future research would benefit from a more longitudinal design, in which several dimensions are measured over a longer period of time. For example, as self-efficacy and situational interest fluctuate over time (Niemivirta & Tapola, 2007; Renninger & Hidi, 2016) and contexts (Pintrich, 2003), their role might become clearer when using several measurements over time as well and within specific simulation contexts. In general, more measurements over time and larger samples would facilitate using more advanced statistical techniques, which would be beneficial for generalisation of the results. Also, more in-depth research would increase insights into the simulation process and its dynamics.

To conclude, the MISS-model presents a framework, which enables investigating different relations between crucial learning outcomes, also allowing taking various student and simulation characteristics into account. The combination of motivation, interest, and self-efficacy clearly enriches present findings, as they all relate to affective learning outcomes and are also complementary by expressing students' drive for learning, interest for the subject, and feeling of competence. Future re-

search is needed to investigate the application of the MISS-model in other role play-simulation contexts and also to look into the relation between affective learning outcomes and other learning outcomes. This will enable political science as well as educational sciences to capture the full richness and effects of role play-simulations as learning environments.

Notes

[1] Shapiro-Wilk tests and Levene's tests were used for checking the underlying assumptions of normal distribution and homogeneity. When one of these assumptions was violated, respectively a Mann-Whitney U test or ANOVA Welch's test was conducted. These tests revealed, in most cases, similar results. Otherwise, differences are reported in the result section.

[2] Equal variances not assumed.
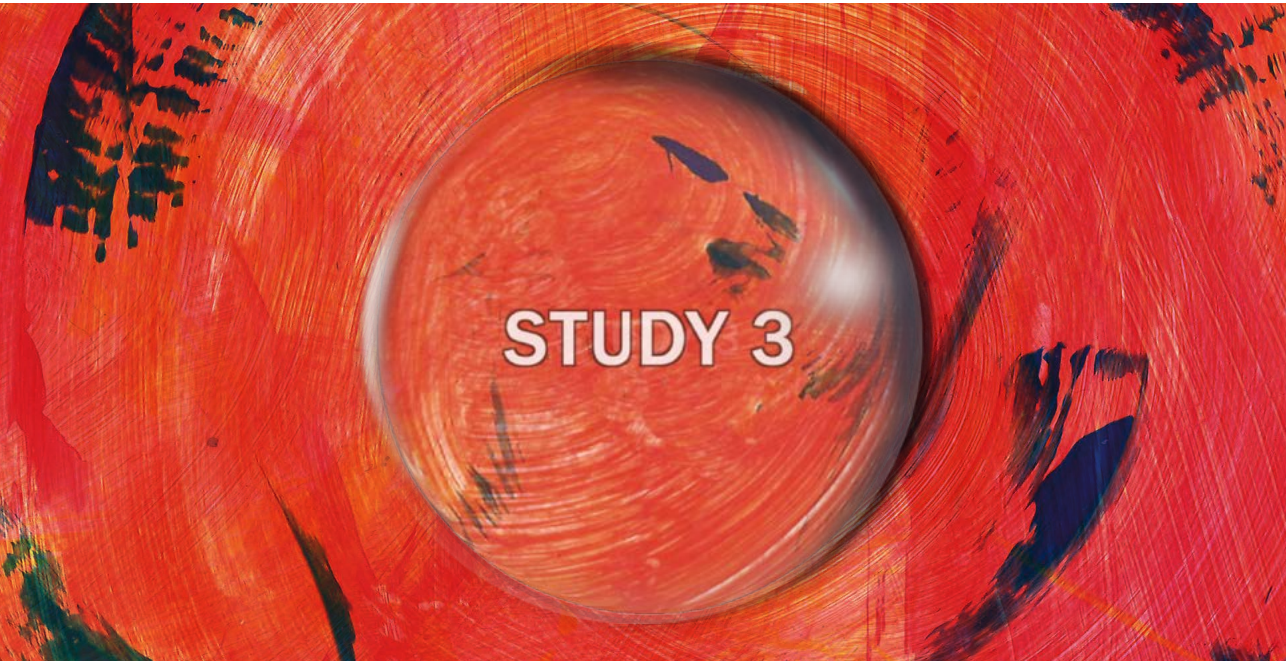
STUDY 3

Explaining self-efficacy development in an authentic higher education learning context of role-play simulations of political decision-making

STUDY 3   Explaining self-efficacy development in an authentic higher education learning context of role-play simulations of political decision-making

Abstract

Role-play simulations of political decision-making are authentic learning environments in which students act out roles of real political actors. In political science education, such simulations have become the most commonly used active learning method to teach about complex, dynamic political processes. Research findings tentatively show that these simulations foster several learning outcomes. However, to date, insights into how the simulation process contributes to variation in student learning is lacking. To investigate the simulation process, this study focuses on how self-efficacy for negotiating develops over the time period of one simulation and to what extent this can be explained by students' individual characteristics. More specifically, this study extensively contributes to the field by including students' perceived student cohesiveness to measure the social aspect of the simulation. Data from 84 undergraduate and graduate participants were collected during a four-day Model United Nations-simulation. Self-efficacy for negotiating was measured using 12 measurement times and data were analysed by means of multilevel growth modelling. Results point to a statistically significant linear increase of self-efficacy for negotiating over the time period of the simulation. Compared to the factor time, individual characteristics explain variation in self-efficacy development to a larger extent, of which perceived student cohesiveness contributes the most in explaining variation.

Introduction

Simulation-based learning environments are valued because they are considered to be rich, authentic learning environments (Ellington et al., 1998). Their authenticity is reflected in a learning environment that resembles real-world complexity and limitations, including realistic conditions such as environmental distractions, stress, and time pressure (Aldrich, 2006; Beaubien & Baker, 2004; Herrington & Oliver, 2000). Role-play simulations are a specific type of simulation frequently used in higher education learning contexts. They refer to non-computer-based simulations in which participants take on the role of a specific actor in a predefined situation while following a set of rules and interacting with others (Lean et al., 2006). In political science education, such simulations are increasingly implemented in the specific learning context of political decision-making, in which students are assigned roles within socio-political processes and expected to act as real political actors (Boyer & Smith, 2015). Over the past decades, such role-play simulations have become the most commonly used active learning method to teach about complex, dynamic political processes (Ishiyama, 2013; Smith & Boyer, 1996). They are being highly appreciated by students and lecturers because research findings seem to suggest that they enhance student learning (Baranowski & Weir, 2015; Giovanello et al., 2013; Smith & Boyer, 1996; Van Dyke et al., 2000). For example, findings on Model United Nations-simulations (MUN), which simulate existing UN bodies such as the Security Council, show that these are beneficial in terms of increasing knowledge and improving skills (Crossley-Frolick, 2010; Obendorf & Randerson, 2013). However, an analysis of current research on simulations also shows that the field of political science teaching is still struggling to capture simulation effects and to measure them in a methodologically sound way (Baranowski & Weir, 2015; Duchatelet, Gijbels, Bursens, Donche, & Spooren, 2019). Baranowski and Weir (2015) argue for more pre- and post-test designed studies, preferably including a control group. Such designs would indeed illuminate more thoroughly the final outcomes of simulations. However, the downside of such research designs is that only a very limited set of variables can be controlled for and a limited amount of key variables can be addressed. If we aim to grasp simulations' effects, we have to take into account that, next to a certain real-world degree, simulations are characterized by human agency and dynamism (Duchatelet et al., 2019; Wright-Maley, 2015). This complicates investigating student learning as teachers, who have been using simulations for some time, have been experiencing that each

time the same simulation is conducted participants initiate different interactions and behaviour, and thus generate different processes and simulation outcomes (Usherwood, 2015). To date, knowledge about how to explain student variation in the simulation process falls short (Duchatelet et al., 2019). This study aims to contribute to disentangling simulation dynamics by investigating how variation in student learning during the simulation's process can be explained.

To this aim, this study focuses on the learning outcome of self-efficacy for negotiating. Self-efficacy is known to be a dynamic motivational construct that is susceptible to change and that fluctuates over time (Cassidy & Eachus, 2002; Schunk & DiBenedetto, 2016; Tang et al., 2004), which makes it a suitable learning outcome for exploring the simulation process. Within role-play simulations of political decision-making, negotiating skills are often seen as key skills, as these are essential for participants engaging in simulations (McIntosh, 2001; Obendorf & Randerson, 2013). Negotiating processes can lead to positive sum outcomes but also to situations of deadlock, in which negotiators experience difficulties – as strategies have been attempted and rejected – and which could lead to no outcome at all. In such cases, resilience and the ability to bounce back from impasses become crucial (Spector, 2006). Previous research shows that self-efficacy contributes to persistence, resilience, and conquering difficulties (Bandura, 1997; Cassidy, 2015; Pajares, 1996), which are needed during negotiating (Spector, 2006). This makes self-efficacy for negotiating a relevant outcome to focus on. Inherently, students' agency shapes the simulation dynamics, in which social processes emerge that forge students to choose actions, such as to strive for coalition or minority block (Duchatelet et al., 2019). Simulation's process is thus heavily shaped by social features, which also have been known to influence self-efficacy development (Bandura, 1997). Therefore, this study brings in students' perceived student cohesiveness – the extent to which students know, help, and support one another (Fraser, 1998) – as an important explanatory factor.

In short, this study innovates in several ways. First, it aims to increase insights into the simulation process by studying how self-efficacy for negotiating develops over the time period of a several-day role-play simulation of political decision-making. Second, it focuses on explaining student variation in self-efficacy development for which this study includes perceived student cohesiveness as a social feature, next to other individual characteristics. To this end, we analyse longitudinal data using multilevel growth models. In the next section, the outcome of self-efficacy (for

negotiating) is more elaborately introduced, and possible contributing factors to variation in self-efficacy (for negotiating) development are presented.

Theoretical background

Self-efficacy (for negotiating) as learning outcome

Over the past three decades, educational research on self-efficacy has substantially increased. Researchers' interests have been driven by findings that consistently point to the importance of self-efficacy, which is considered an important affective learning outcome (Pintrich, 1994; Vermunt & Vermetten, 2004). The concept of self-efficacy can be defined as individuals' beliefs that they are capable of learning and performing actions on designated levels (Bandura, 1997). In an educational context, research generally focuses on academic self-efficacy, which refers to students' beliefs in their academic capabilities (Zimmerman, 2000). Also, self-efficacy can apply to specific skills, such as writing skills (e.g., Pajares, 2003), or subjects, such as natural sciences or mathematics (e.g., Chen & Usher, 2013; Usher & Pajares, 2009). As self-efficacy refers to self-evaluating one's own abilities, it plays a key role in motivating students to improve competence and future actions; and is associated with students' success by positively influencing academic achievement, students' motivation, and regulative learning outcomes (Bandura, 1997; Pajares, 1996; Richardson et al., 2012; Robbins et al., 2004; Schunk & Pajares, 2005; van Dinther et al., 2011; Vermunt & Donche, 2017; Zimmerman, 2000).

In general, high self-efficacy promotes future skills development as it helps students to engage in tasks, to work harder, and to persist longer, especially when encountering difficulties (Bandura, 1997; Bouffard-Bouchard, Parent, & Larivée, 1991; Zepke et al., 2010). Resilience has also been related to a higher amount of self-efficacy (Cassidy, 2015; Lee et al., 2013). Such behaviour of engagement and persistence, related to self-efficacy, additionally contributes to student's negotiating behaviour as resilience and the ability to bounce back from impasses during negotiations is important (Spector, 2006). In political science simulation literature the following skills are implicitly connected to negotiating: oral communication skills, public speaking, and also more complex negotiation skills, such as arguing and debating issues, coalition formation, and the art of diplomacy (Crossley-Frolick, 2010; Elias, 2014; Obendorf & Randerson, 2013). Regarding the importance of self-efficacy, and the need to perform negotiation skills when engaging in the simulation (Honicke & Broadbent, 2016; McIntosh, 2001; Obendorf & Randerson, 2013),

self-efficacy for negotiating is an important learning outcome in negotiation-based simulations, such as role-play simulations of political decision-making.

Explaining self-efficacy (for negotiating) development

According to the present knowledge base, students develop self-efficacy by interpreting information primarily from four sources: by evaluating previous performances (mastery experience); by evaluating observational experiences provided by others; e.g., fellow students (vicarious experience); by appraising verbal judgements made by others; e.g., feedback (social persuasion); and by interpreting their own emotional and physical state as a confidence signal when contemplating action (physical and emotional state) (Bandura, 1997). Overall, the importance of self-efficacy has to date not been given ample attention within the political science teaching and learning research field. Research in the field of education and in particular in medical and nursing education is more elaborated. Results have already shown that role play-simulations foster several sources of self-efficacy and enhance students' self-efficacy (Egenberg et al., 2016; Stroben et al. 2016; Watters et al., 2015). Role-play simulations used within political science teaching and learning might also include these sources and therefore foster self-efficacy.

Because simulation dynamics rely extensively on students' agency, in which students choose actions – e.g., forging coalitions or blocking minorities - that shape the simulation process (Duchatelet et al., 2019), it is relevant to take into account the social aspects of role-play simulations of political decision-making. As previously discussed, Bandura (1997) hypothesized that students derive their self-efficacy beliefs from four primary sources, of which two are social sources. Firstly, students evaluate observational experiences provided by others, referred to as vicarious experiences (Bandura, 1997). These observations are being interpreted in the light of how similar the student feels to the student that succeeds or fails to execute a certain action; e.g., a fellow delegate presenting his/her opening statement. Perceiving more similarity toward the performing student is considered to be more powerful to alter student's beliefs (Usher & Pajares, 2008). Secondly, students receive judgments, appraisals, and feedback from others that influence their self-efficacy beliefs, which Bandura (1997) defined as social persuasion; e.g., compliments from a fellow delegate on a point made during the committee meeting. Messages received from significant others, such as peers and teachers, are more likely to shape student's self-efficacy than messages from unknown persons or persons who are perceived to have a lack in expertise (Bandura, 1997). Applying these

insights into social sources in role-play simulations of political decision-making, sources' influence on self-efficacy development will depend on how participating students perceive their relationship with other participants. This could be defined as student cohesiveness, i.e. the extent to which students know, help, and support one another (Fraser, 1998). Social aspects have to date not been given much attention within the field of role-play simulations of political decision-making (Duchatelet et al., 2019).

Next to these social sources, several individual characteristics may influence the ways in which students interpret information (Usher & Pajares, 2008). Gender is a characteristic worth taking into account when trying to explain variation in self-efficacy development during role-play simulations of political decision-making. For example, female students seem to rely more on information from significant others, whereas male students rather develop their self-efficacy beliefs based on their accomplishments (Usher & Pajares, 2006). Female students generally report lower self-efficacy, especially at higher academic levels (Schunk & Pajares, 2008). Previous research using data from a European Union (EU) simulation shows that male students report statistically significant higher self-efficacy for negotiating than female students (Duchatelet et al., 2018). Overall, gender is a characteristic worth taking into account when focusing on negotiation skills because, within an international negotiation simulation, female students have shown to generate significantly different processes and outcomes than male participants (Boyer et al., 2009). With regard to negotiating in a MUN-simulation, male MUN-participants reported significantly more enjoyment of the individual activities of debate, passage and defeat of resolutions than female MUN-participants, who take considerably less speaking turns. This might suggest that female delegates are less confident about their negotiation effectiveness (Rosenthal, Rosenthal, & Jones, 2001).

Another individual characteristic relates to mastery experience (Bandura, 1997). Previous research shows that self-efficacy usually increases over time, depending on the amount of experiences, for example in the case of computer self-efficacy (Cassidy & Eachus, 2002), or counselling self-efficacy (Tang et al., 2004). Due to their real-world degree, simulations provide a certain authenticity level, which should promote the development of self-efficacy (Tompson & Dass, 2000; van Dinther et al., 2011). Research already has shown that simulations may generate some of the benefits, including political efficacy, similar to participating in an internship. Results relate an increase in self-efficacy to the amount of experiences, whether in a simulation, political internship, or job experience (Mariani & Glenn,

2014). With regard to self-efficacy for negotiating, a cross-sectional study of Duchatelet et al. (2018) reveals that students who have attended the same EU-simulation more than once show significant higher self-efficacy for negotiating than students who attend the simulation for the first time. Self-efficacy for negotiating also, on average, seems to increase over time within one simulation experience (Duchatelet, 2018).

The present study

This study's aim is twofold. First, it aims to increase insights into the simulation process by studying how self-efficacy for negotiating develops over the time period of one several-day simulation. Second, it focuses on explaining student variation in self-efficacy development by including perceived student cohesiveness as a social feature, next to other individual characteristics. Two research questions (RQ) are central in this study:

RQ1 How does self-efficacy for negotiating develop during a role-play simulation of political decision-making?

RQ2 How can students' variation in self-efficacy for negotiating development be explained?

Based on previous research findings, we expect that self-efficacy for negotiating (*hypothesis 1*) will increase during the simulation process because students en-hance their amount of negotiation experience as the simulation proceeds (e.g., Cassidy & Eachus 2002; Duchatelet, 2018; Tang et al., 2004). Because the simula-tion as a social learning environment includes several social sources of self-efficacy (e.g., Egenberg et al., 2016), we also expect that students that perceive more student cohesiveness will report higher self-efficacy than students perceiving less student cohesiveness (*hypothesis 2a*). Further, we expect that male students re-port higher self-efficacy (*hypothesis 2b*) than female students (e.g., Duchatelet et al., 2018; Schunk & Pajares, 2008). Finally, we expect students with more MUN-simulation experience to report higher self-efficacy (*hypothesis 2c*) than students who attend the simulation for the first time as more experience relates to higher self-efficacy (e.g., Cassidy & Eachus, 2002; Duchatelet et al., 2018; Tang et al., 2004).

Method

Context and procedure

This research was conducted during a four-day extracurricular Model United Nations-simulation, organised by students with the support of the University of Antwerp (Belgium). This AntwerpMUN[1] event included a simulation of the United Nations General Assembly about the global refugee problem (UN), and a simulation of the European Council about drug trafficking in European ports (EC). All students voluntarily attended this extracurricular simulation, without previously defined teaching objectives to attain, and prepared themselves for their assigned role by writing a position paper. Students were expected to represent the position of an assigned country, while taking its national interests into account, protecting its national integrity, and maintaining optimal relations with the other states during the simulation. Across 12 points in time, students were asked to fill out a questionnaire, which measured their self-efficacy for negotiating. To not interrupt the on-going negotiations – which could hamper simulation's real-world degree – , these were scheduled at the end of the committee meeting sessions. The exact timing of the measurements is shown in Appendix 3.

Participants

Data from a total sample of 84 undergraduate and graduate students were collected, which represent 93 % of all participating delegates of the 2016 edition. Sample characteristics are presented in Table 1.

Table 1 Sample characteristics (N_{total} = 84)

Variable	Mean	SD	N	%
Age	21.21	2.62	75	89.29
Gender				
Male			41	48.81
Female			35	41.67
Nationality of the student				
Belgian			47	55.95
Other			29	34.52
Field of study				
Law			44	52.38
Political science / International relations			6	7.15
Economics			16	19.05
Other[*]			8	9.52
Simulation				
EC			18	21.43
UN			58	69.05
MUN-experience				
1 time			51	60.71
> 1 time	3.68	2.01	25	29.76

[*] Other – Communication, Literature, History, Sociology, Psychology

In total 20.24 % (= 17/84) of the students, who participated in the first wave, provided complete information at each of the 12 waves. Response rate per measurement wave is presented in Table 2. We made use of all available data.

Table 2 Response rate per measurement wave (N_{total} = 84)

Time	1	2	3	4	5	6	7	8	9	10	11	12
N	76	67	61	59	60	60	55	62	62	59	64	64
Missing	8	17	23	25	24	24	29	22	22	25	20	20
N%	90.5	79.8	72.6	70.2	71.4	81.4	65.5	73.8	73.8	70.2	76.2	76.2

Measures

Self-efficacy was measured during twelve time points using the self-efficacy-scale of the short version of the 'Inventory of Learning Styles' (ILS-SV; Donche et al., 2012). Student cohesiveness was measured using the student cohesiveness scale of the 'What Is Happening In this Class'-questionnaire (WIHIC; Fraser, 1998), which was filled out at the first time point. All scales showed good reliability, which is represented in Table 3 accompanied by the number of items, an item example, and used Likert-scale.

Table 3 Number of scale items, item example, Likert-scale and internal consistency of used scales

Scale	Items	Example	Scale 1 to 5	Cronbach's *a*
Self-efficacy	4	I think I'm a good negotiator.	Not true at all – Very true for me	.81 – .92
Student cohesiveness	8	I know other participating students.	Almost never – Almost always	.72

Plan of analysis

To answer our research questions, we conducted a series of individual growth models that were estimated via the PROC MIXED procedure in the SAS 9.4 statistical analysis software package (Little, Milliken, Stroup, Wolfinger, & Schabenberger, 2006; Singer, 1998). Contrary to the repeated measures designs that are usually analysed by means of ANOVA-models, analysing longitudinal data with mixed (or multilevel) modelling techniques has a number of advantages. These include a higher power in finding effects and contrasts in the data, the possibility to ignore typical ANOVA assumptions such as homoscedasticity and sphericity, the flexible way of handling with missing data, the possibility of analysing unbalanced data sets, and the ability to simultaneously model individual (within-person) change over time and between-persons variations in change (Hox, Moerbeek, & van de Schoot, 2017; Kwok et al., 2008; Steele, 2008; Quené & van den Bergh, 2004).

To fit these models, we first created a person-period data set in which each participant had one record for every time period he or she was observed (i.e., 12 records per participant). All time points were checked for outliers on the dependent varia-

ble, self-efficacy for negotiating, in which no extreme outliers were detected. Self-efficacy for negotiating showed to be normally distributed on each time point: skewness and kurtosis values are within an absolute value of 1 and should be considered normal (range is an absolute value of 2.0; Lomax & Hahs-Vaughn, 2012). Multilevel growth analysis was conducted using SAS PROC MIXED procedure (Singer, 1998), which applies full information maximum likelihood as missing data technique. As the sample contains 12 time periods, both linear and quadratic growth models were tested. To avoid biased variance components, all models were run using the restricted maximum likelihood estimation method (REML) (Raudenbush & Bryk, 2002; Snijders & Boskers, 2012)[2]. In each step of the analysis, the goodness-of-fit of all models was evaluated by means of the deviance (-2LL), AIC, and BIC fit statistics (Singer, 1998).

In a first step, a random intercept model (with the expected mean self-efficacy score for all participants over all time points as the only explanatory variable) tested for sufficient between-person variance. In a second step, time was added to the model (in both the fixed and the random part) to interpret the estimates of average growth of self-efficacy throughout the four-day simulation. This enabled us to explore how self-efficacy for negotiating develops on average during the simulation (RQ1). In the final step, a number of person-level predictors (covariates) were added to the model (both fixed and in interaction with time). These covariates included participant's age, gender, nationality, field of study, type of simulation (EC or UN), previous MUN-simulation experience, and student cohesiveness. This allowed us to explore whether the variation in the intercept and the slopes are related to any individual characteristics in our sample (RQ2).

Results

Descriptive statistics for the different self-efficacy (SE) measurements are provided in Table 4. The results revealed that the mean for self-efficacy was the lowest for the first measurement and the highest for the last measurement. Students' self-efficacy for negotiating did not vary substantially across measurements. All measurements correlated moderately to highly with each other, and all of them correlated the highest with the last measurement (range Pearson's r = .50-.92).

Table 4 Descriptive statistics for all self-efficacy measurements

	DAY 1		DAY 2				DAY 3				DAY 4	
Time	1	2	3	4	5	6	7	8	9	10	11	12
n	76	67	61	59	60	60	55	62	62	59	64	64
Mean	3.01	2.98	3.09	3.13	3.14	3.28	3.17	3.29	3.37	3.38	3.32	3.33
SD	.70	.83	.77	.73	.72	.74	.78	.70	.80	.77	.78	.61

In order to explore SE development in the course of the simulation (across 12 time points) we first plotted each participant's individual SE-scores across all of 12 time points. Figure 1 shows how self-efficacy changes over time for 16 randomly selected participants. At first sight, these plots suggest great variation between participants in the simulation. For some participants, self-efficacy increases (see, for instance, participants 2 and 3 in Figure 1), and for others it remains quite stable (participant 11) or even declines (participant 12).
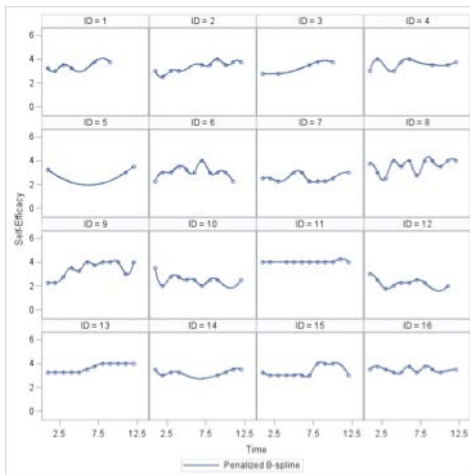
Figure 1. Smooth nonparametric summaries of how self-efficacy changes over time (SE-scores for 16 randomly selected participants)

Figure 2 reveals both similarities and differences in changes in SE across all participants. The bold line in Figure 2 shows the average change trajectory for the whole group (Singer & Willet, 2003). This line suggests a slight, almost linear increase of

SE from a score of 3 to a score of 3.3 (on the five-point scale) throughout the simulation. Both findings, the overall increase in self-efficacy and the variation in individual trajectories, make a reasonable case for further investigating the data by means of longitudinal research techniques.
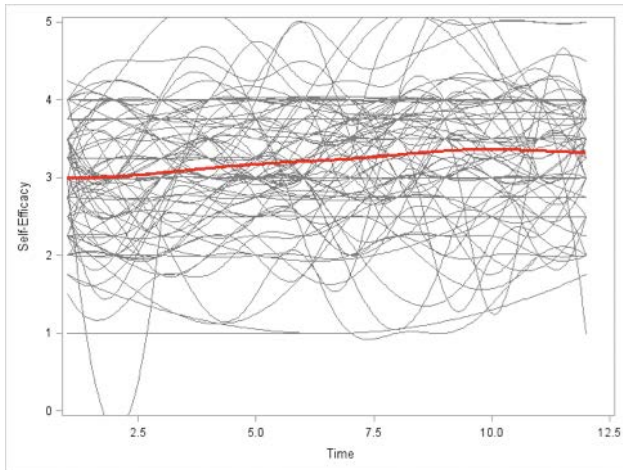
Figure 2. Smooth nonparametric summaries of how self-efficacy changes over time for all participants, including the average change trajectory for the whole group

In the next step, we computed a random intercept model (Model 0 in Table 5) that allowed us to calculate the intra-class correlation (ICC) as a measure of the magnitude of dependency between observations in our sample. The ICC was 0.45/(0.45+0.17) = .73, which suggests that 73% of the variation in self-efficacy for negotiating is explained variance at the personal level (Level 2). The high ICC is due to the longitudinal nature of the data (in which the same measure was repeatedly assessed from the same participants over time) (Kwok et al., 2008). The intercept in this model equals 3.19, which is the estimated SE-score across all participants and across all time points.

To analyse the growth trajectories, in a second step, time was added as covariate in both the fixed and the random part of the model (Model 1 in Table 5). The results show a statistically significant estimate rate of change of 0.03 in SE-scores

over each time point, which confirms the average change trajectory plotted in Figure 2. The intercept (i.e., the average SE-score across all participants when time = 0) drops to 3.00. The estimated variance in the intercept (σ_0^2) and in the slope (σ_1^2) are statistically significant, which suggests that both can be explained by person-level covariate(s), and which shows that participants vary in their development of self-efficacy for negotiating over time. The estimated covariance between the intercept and the slope (σ_{01}^2) is not statistically significant (p = .07), which means no relation could be found between the variation in self-efficacy development and the initial SE score (time = 0). Investigating if other than linear growth might fit the data better, we conducted a model that included a quadratic effect of time. Results did not reveal a statistically significant effect of time (b = -.003, SE = .001, p = .06) and showed worse fit statistics (*-2LL* = 962.4, *AIC* = 976.4, *BIC* = 993.5) compared to the linear time model (Model 1) that fitted the data best (Table 5).

Table 5 Multilevel analysis results (Self-efficacy)

	Model 0 (ICC)		Model 1		Model 2	
Intercept	3.19***	(0.07)	3.00***	(0.08)	0.95	(1.05)
Time			0.03***	(0.01)	0.03***	(0.01)
Student characteristics						
age					-0.01	(0.03)
gender					0.47**	(0.16)
nationality					-0.08	(0.17)
field of study (ref. = Law)						
Political Science/International relations					-0.03	(0.30)
Economics					0.01	(0.20)
Other					-0.12	(0.25)
simulation type					-0.03	(0.19)
MUN-experience					0.08	(0.05)
student cohesiveness					0.50**	(0.18)
Random parameters						
σ^2_0	0.445***	(.07)	0.472***	(0.08)	0.389***	(0.08)
σ^2_{01}			-.009	(0.01)	-.006	(0.01)
σ^2_1			0.002***	(0.00)	0.002***	(0.00)
σ^2_ε	0.166***	(.01)	0.129***	(0.01)	0.134***	(0.01)
Fit statistics						
-2LL	1046.9		958.2		868	
AIC	1050.9		966.5		876	
BIC	1055.7		976.2		885.2	

* $p \le .05$; ** $p \le .01$; *** $p \le .001$; Standard errors are in parentheses; Dummy codes: gender (0 = male, 1 = female), nationality (0 = Belgian, 1 = other), simulation type (0 = EC, 1 = UN)

To explore the extent to which students' variation in self-efficacy development can be explained, we conducted a series of models in which several covariates (individual characteristics) were added by means of a step-by-step approach. Each covariate was separately added as fixed effect and, when significant, in interaction with the time variable. When the interaction effect was not statistically significant (i.e., there was no difference in growth rates in SE-scores between participants who differ with respect to the specific individual feature), it was removed from the model. This was the case for all covariates in the analysis. The final model (Model 2 in Table 5) thus only contains the fixed effects of all individual characteristics. When turning to the random part of this final model, it was found that these covariates at the personal level explain 17% of the variance in the intercept (average SE score across all participants at time = 0), as the estimated variance in the intercept went from 0.47 to 0.39. Two individual characteristics significantly contribute to participants' development of self-efficacy for negotiating: gender and student cohesiveness. With regard to gender, male participants report significantly higher SE-scores than female participants on all time points. Results also show that students who perceive more helpfulness and supportiveness from other participants (i.e., student cohesiveness) report significantly higher SE-scores on all time points. Other individual characteristics do not significantly contribute to explaining variation in self-efficacy for negotiating development; e.g., the amount of previous simulation experience. Similar to the previous model, the time aspect remains significant with an estimate rate of change of 0.03 in SE-score over each time point. Taking slope variation into account, results show a range of growth from .11 to .55 in SE-score over the time period of the simulation for 95% of the participants (95% CI [.11, .55]).

Discussion and conclusion

Role-play simulations of political decision-making are the most commonly used active learning method to teach about complex, dynamic political processes (Ishiyama, 2013; Smith & Boyer, 1996). To date, research has shown tentatively that simulations, including MUN-simulations, are beneficial for student learning (Baranowski & Weir 2015; Crossley-Frolick 2010; Obendorf & Randerson 2013). While recent attention has been given to how the quality of research into simulation effects can be improved (Baranowski & Weir 2015), we additionally argue that attention should not solely be given to simulations' objective learning outcomes but also to the individual learner's perspective. We consider self-efficacy to be an im-

portant learning outcome because it plays a key role in motivating students to improve competence and future actions; and because it is associated with students' success by positively influencing academic achievement, students' motivation, and regulative learning outcomes (Bandura, 1997; Pajares, 1996; Richardson et al., 2012; Robbins et al., 2014; Schunk & Pajares, 2005; van Dinther et al., 2011; Vermunt & Donche 2017; Zimmerman, 2000). Since self-efficacy contributes to persistence, resilience, and conquering difficulties (Bandura, 1997; Cassidy, 2015; Pajares, 1996), which are needed during the negotiation process (Spector, 2006), self-efficacy for negotiating is a relevant outcome to focus on when investigating role-play simulations of political decision-making.

Because of the complexity of factors that come into play during such simulations, research should take the simulation process more often into account (Duchatelet et al., 2019). This study contributes to disentangling simulation dynamics by investigating how students' variation in self-efficacy for negotiating development over the time period of one simulation can be explained. Moreover, it innovates by including social aspects of the simulation as explanatory factor, next to other individual characteristics.

As expected, self-efficacy for negotiating increased as the simulation process continued (*hypothesis 1*) (Cassidy & Eachus, 2002; Duchatelet, 2018; Tang et al., 2004). The progress can be considered small and tentative. We hereby have to take into account that four days is a rather short period of time, and that measurements follow each other on a short notice, sometimes with only two hours in between. In any case, results point to the dynamic feature of self-efficacy development that even can change within a few hours. Findings reveal that time did not extensively contribute to explaining variation in self-efficacy development, while students' individual characteristics more substantially predicted variation in self-efficacy development. Notably, the amount of perceived student cohesiveness significantly explained variation in self-efficacy for negotiating, even to the largest extent (*hypothesis 2a*). This confirms the importance of the social aspect for self-efficacy development in role-play simulations (e.g., Egenberg et al., 2016). Results also confirm that male students report higher self-efficacy (*hypothesis 2b*), similar to previous research findings (e.g., Duchatelet et al., 2018; Schunk & Pajares, 2008). Surprisingly, the analysis showed that participants' MUN-experience does not relate to their amount of reported self-efficacy for negotiating (*hypothesis 2c*).

When interpreting our findings, some limitations need to be taken into account. First, although a linear model fitted the data best, individual plots did not show a

lot of clear linear upward trends. The concept of self-efficacy for negotiating was measured using a five point Likert-scale. It might be beneficial for future research to use a seven point or even nine point Likert-scale, which might allow capturing even smaller changes when looking for trends in self-efficacy development. Second, when measuring previous MUN experience only the quantity and not the quality of previous experiences was taken into account. We asked for how many MUN simulations students already participated in and not for how students appraised previous experience as a failure or success. Future research should take the latter into account as not the experience itself but how students' perceived it, may shape their self-efficacy beliefs (Usher & Pajares, 2008).

As results point to variation in self-efficacy development over time and individuals, it is useful to further conduct longitudinal research. As suggested before, larger scaled Likert-scales could more accurately grasp fluctuations, which might result in clearer trends and allow detecting groups of students that follow similar growth trajectories in self-efficacy development, for example, by conducting latent class growth modelling (Jung & Wickrama, 2008; Muthén & Muthén, 2000). With respect to the large contribution of perceived student cohesiveness, it would be advised to also measure this aspect longitudinally to increase insights into its interplay with self-efficacy development. However, quantitative methods fall short in comprehensively explaining variation in self-efficacy development because only a limited number of variables can be taken into account. A more person-centred approached is needed to unravel the interplay of factors that influence self-efficacy development. Since student cohesiveness predicts variation in self-efficacy development to a great extent, sources of self-efficacy (Bandura, 1997) most certainly are at play during the simulation. For example, students may feel more competent because they got their point across during the previous committee meeting (mastery experience), because they received a compliment from another delegate (social persuasion), or because they observed other delegates performing worse than themselves (vicarious experience). As growth models are less appropriate for capturing reasons for dynamics, more qualitative in-depth research is necessary. As a final suggestion, future research could also more often address the transfer of learning. As previously noted, previous MUN experience did not explain variation in self-efficacy development. We already pointed to the distinction between the quantity and quality of previous experiences. However, the question also rises if and how students transfer learning outcomes from one simulation to another.

As a practical implication, our findings clearly point to the importance of the social dimension of role-play simulations of political decision-making. Students who know other students better, who perceive other students as more helpful and supportive show significant larger increases in self-efficacy development. As research repeatedly has shown that self-efficacy strongly relates to outcomes as achievement, motivation and self-regulation (Bandura, 1997), teachers might more often take the student group composition into account. Student groups that are more familiar with each other and that already have created a safe and supportive atmosphere might be more beneficial for student learning during role-play simulations of political decision-making.

Notes
[1] For more information: http://www.antwerpmun.be/
[2] Running the models with maximum likelihood estimation (ML) for fixed effects analysis revealed similar results and showed only very small differences in the parameters of the fixed effects, the variance components estimates, and the fit statistics.

STUDY 4

Unravelling the interplay of sources of self-efficacy for negotiating in role-play simulations of political decision-making: A longitudinal in-depth case study

STUDY 4 Unravelling the interplay of sources of self-efficacy for negotiating in role-play simulations of political decision-making: A longitudinal in-depth case study

Abstract

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, it 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.

Introduction

Over the past three decades, social and educational psychology research on self-efficacy has substantially increased and has drawn more attention to investigate which aspects contribute to self-efficacy development (Ahn et al., 2017; Usher & Pajares, 2008). Self-efficacy refers to students' individual beliefs that they are capable of learning and performing actions on designated levels (Bandura, 1997). As self-efficacy refers to self-evaluating one's own abilities, it plays a key role in motivating students to improve competence and future actions; and is associated with students' success by positively influencing academic achievement, students' motivation, and regulative learning outcomes (Bandura, 1997; Pajares, 1996; Richardson et al., 2012; Robbins et al., 2004; Schunk & Pajares, 2005; van Dinther et al., 2011; Vermunt & Donche, 2017; Zimmerman, 2000). Where research repeatedly points to the importance of self-efficacy in higher education, our understanding about which aspects influence self-efficacy development in what way can be considered as rather incipient (Usher & Pajares, 2008). Several review studies point to the need for more diverse context-specific, methodologically rigorous, in-depth research to forge a deeper understanding about how self-efficacy is fostered (Klassen & Usher, 2010; Usher & Pajares, 2008).

In general, most empirical research on self-efficacy is conducted quantitatively, focusing on groups of students with little attention for intra-individual differences in self-efficacy development although self-efficacy theory describes self-efficacy from an individual perspective referring to people's own beliefs about their capabilities (Usher & Pajares, 2008). Also, the cross-sectional nature of most studies only results in snapshots of a particular point in time (Cohen et al., 2011; Usher et al., 2018) while by definition self-efficacy is a dynamic construct, thus continually being susceptible to change (Usher & Pajares, 2008; Schunk & DiBenedetto, 2016). Even longitudinal quantitative research falls short in capturing the interplay between information from multiple sources, which for example shows in the problem of multicollinearity; and fails to explain change in an exhaustive way (Ahn et al., 2017; Cohen et al., 2011; Usher & Pajares, 2008; Yin, 2018). Bandura (1997) also argued that the relationship between the hypothesized sources and self-efficacy is largely influenced by contextual factors, which results in a domain- or context-sensitivity of self-efficacy development (Butz & Usher, 2015). This issue is reflected in findings that show that self-efficacy is most predictive of outcomes, such as achievement, when measured at a similar level of specificity (Klassen & Usher,

2010). This context-sensitivity leads to a limited generalisation of available findings and the need to expand the scope of self-efficacy research, as most higher education self-efficacy research focuses on learning contexts of mathematics, science, or engineering (Klassen & Usher, 2010; Usher & Pajares, 2008).

This study expands self-efficacy research to the domain of role-play simulations of political decision-making. Such simulations are learning environments in which students act out roles of real political actors and simulate real-world policy-making processes; e.g., the legislative procedure of the European Union. Previous research has already pointed to the importance of the social dimension for role-play simulations, which could encompass several sources of self-efficacy (Duchatelet, 2018). Next to the specific simulation context, this study applies a competence-specific approach, by focusing on self-efficacy for negotiating, which is a core skill needed to engage in such simulations (McIntosh, 2001; Obendorf & Randerson, 2013). Tackling previous methodological issues, this study uses a longitudinal design, which is preferred when studying change and which fits self-efficacy's dynamic feature (Cohen et al., 2011; Schunk & DiBenedetto, 2016). More specifically, this study applies a longitudinal case study design in order to explore in-depth which sources are present and how their interplay contributes to self-efficacy development. Where most research uses retrospective data and focuses on how self-efficacy can be promoted (Usher & Pajares, 2008), this study combines retrospective with real-time data, and focuses on meaningful events that promote or inhibit self-efficacy development. This results in a person-centred approach that investigates intra-individual differences in self-efficacy development (Usher & Pajares, 2008), guided by the following research questions:

RQ1 Which sources that relate to students' self-efficacy for negotiating development can be distinguished in the context of role-play simulations of political decision-making?

RQ2 How do self-efficacy sources contribute to students' self-efficacy for negotiating development in the context of role-play simulations of political decision-making?

Theoretical background

The following section first elaborates on general insights into the role self-efficacy plays and into sources of self-efficacy within the context of higher education. Further, we discuss in detail the context- and competence-specific outcome of self-

efficacy that is central in this study: self-efficacy for negotiating in role-play simulations of political decision-making.

Self-efficacy in higher education

Social-cognitive theory considers people's behaviour as driven by environmental features but also by humans' own cognitive and self-reflective skills. The concept of self-efficacy originates in social-cognitive theory and refers to people's beliefs about their capabilities to execute action required to achieve desired performances (Bandura, 1997). Over the past three decades, educational psychology research on self-efficacy has substantially increased. Researchers' interests have been driven by findings that consistently point to the importance of self-efficacy. Self-efficacy is considered a key motivation construct that improves competence and future actions (Murphy & Alexander, 2000; Schunk & Pajares, 2005). Students with a higher level of self-efficacy will persist longer and show more resilience when encountering difficulties (Bandura, 1997; Cassidy, 2015; Lee et al., 2013; Lent et al., 1986; Linnenbrink & Pintrich, 2003; Multon et al., 1991; Pajares, 1996; Wright et al., 2012). Less self-efficacious students, in contrary, may procrastinate and not initiate the required effort needed to achieve certain goals (Honicke & Broadbent, 2016; Komarraju & Nadler, 2013; Vogel & Human-Vogel, 2016; Wäschle et al., 2014). Next to its significant contribution to self-regulation (Panadero, 2017; Zimmerman, 2000), self-efficacy relates to learning strategies students use being positively associated with deep learning; and it is supportive for creating effective environments for learning, such as finding effective study partners (Diseth, 2011; Honicke & Broadbent, 2016; Fenollar et al., 2007; Liem et al., 2008; Schunk & DiBenedetto, 2016; Vermunt & Donche, 2017). Findings repeatedly point to the strong relationship between self-efficacy, motivation and academic achievement (Honicke & Broadbent, 2016; Kyndt et al., 2017; Richardson et al., 2012; Robbins et al., 2004). Considering that self-efficacy relates to several generic competences that are also beneficial for students' future working life career (e.g., persistence, engagement, self-regulation), higher education institutions should focus more on fostering self-efficacy development (Strijbos et al., 2015; Granziera & Perera, 2019; van Dinther et al., 2011).

Although self-efficacy has received substantial attention from researchers studying higher education learning contexts, research about its antecedents and sources is far less present (Usher & Pajares, 2008). Focusing on how self-efficacy develops, Bandura (1997) hypothesized that such beliefs derive from four primary sources:

(1) students evaluating their previous experiences (successes or failures) and using these interpretations as indicators for what they believe they can or cannot do (mastery experience); (2) students observing, evaluating and comparing other students' performances to their own capabilities (vicarious experience); (3) students receiving evaluative feedback, judgments, and appraisals about their performance from significant others (social persuasion); and (4) students interpreting their physiological arousal (e.g., heart rate) and emotional reactions (e.g., anxiety) as informative for their perceived self-efficacy (physiological/emotional state). These four sources provide information that influence self-efficacy development, in conjunction with a cognitive appraisal of that information. As Bandura (1997) already contended, findings repeatedly have shown that mastery experience – past successes or failures – can be considered the most important source that contributes to self-efficacy development (Bates & Khasawneh, 2007; Lent, Brown, Gover, & Nijjer, 1996; Metcalf & Wiener, 2018; Usher & Pajares, 2008). Also, physiological/emotional states consistently contribute to self-efficacy development. Such studies, however, confined themselves to focusing on negative emotions related to fear, stress, or anxiety, which significantly hinder self-efficacy development (Bates & Khasawneh, 2007; Metcalf & Wiener, 2018). Vicarious experience and social persuasion are not always included in studies that investigate sources of self-efficacy in higher education (Bates & Khasawneh, 2007; Luzzo, Hasper, Albert, Bibby, & Martinelli, 1999). Also, findings about their contribution to self-efficacy development are less consistent and seem to very across domains or subjects (Ahn et al., 2017; Fong & Krause, 2014; Matsui, Matsui, & Onishi, 1990).

Several issues complicate investigating how sources of self-efficacy contribute to self-efficacy development. For example, in middle and high school learning contexts, recent research findings point to complex processes in which students consider information from multiple sources when evaluating their self-efficacy beliefs (Usher et al., 2018). Complexity increases following the hypothesis that psychological processes other than those initially hypothesized by Bandura might come into play (Bandura, 1997; Usher & Pajares, 2006, 2008). Bandura (1997) also argued that the relationship between the hypothesized sources and self-efficacy is largely influenced by contextual factors, which results in a domain- or context-sensitivity of self-efficacy development (Ahn et al., 2017). Recent research has drawn more attention to the contribution of specific contextual sources to self-efficacy development, such as physical environment or lesson organisation (Usher et al., 2018; Webb-Williams, 2017).

Self-efficacy for negotiating in role-play simulations of political decision-making

Aiming to expand the field of sources of self-efficacy research, this study focuses on the context- and competence-specific outcome of self-efficacy for negotiating in role-play simulations of political decision-making. Role-play simulations are authentic learning environments that contribute to self-efficacy development (Duchatelet, 2018; Stroben et al., 2016). They refer to non-computer-based simulations in which participants take on the role of a specific actor in a predefined situation while following a set of rules and interacting with others (Lean et al., 2006). Such simulations are increasingly implemented in the specific learning context of political decision-making, in which students are assigned roles within socio-political processes and expected to act as real political actors (e.g., diplomats or ministers); e.g., European Council simulation (Boyer & Smith, 2015). These simulations are characterised by their verisimilitude or real-world degree, which implies that the simulation is a valid representation of reality in a structured but simplified way (Wright-Maley, 2015). Simulations' dynamism is generated by sequential decisions that determine participants' actions; and is considered to be a product of a certain degree of human agency (i.e., choices participants make) combined with the structure provided by the simulation environment (i.e., boundaries, rules) (Chin et al., 2009; Wright-Maley, 2015). Within role-play simulations of political decision-making, a participant could make decisions based on the interest of the country or party he/she is representing (agency), or based on reality-based rules (e.g., voting rules) or procedures (e.g., minority block) (structure) (Duchatelet et al., 2019).

With regard to learning outcomes, negotiating skills are often considered as key skills because these are essential for participants to engage in role-play simulations of political decision-making (McIntosh, 2001; Obendorf & Randerson, 2013). Students wouldn't be able to make their point or contribute to the simulation in general without using their negotiating skills. In political science simulation literature the following skills are implicitly connected to these negotiating skills: participants practice oral communication skills, public speaking and also more complex negotiation skills, such as arguing and debating issues, coalition formation and the art of diplomacy (Crossley-Frolick, 2010; Elias, 2014; Obendorf & Randerson, 2013). In general, negotiating can be defined as "a unique form of social interaction that incorporates argumentation, and information exchange into reaching agreements and working out future interdependence" (Roloff et al., 2003:804). Negotiating processes can lead to positive sum outcomes but also to situations of deadlock, in

which negotiators experience difficulties – as strategies have been attempted and rejected – and which could lead to no outcome at all. In such cases, resilience and the ability to bounce back from impasses become crucial (Spector, 2006).

Considering self-efficacy contributes to persistence, resilience, and conquering difficulties (Bandura, 1997; Cassidy, 2015; Pajares, 1996), which is needed during negotiating (Spector, 2006), self-efficacy for negotiating is a relevant outcome to focus on. Previous research has already shown that self-efficacy for negotiating is an important learning outcome of role-play simulations of political decision-making that seems to increase over time within one simulation experience (Duchatelet, 2018; Duchatelet et al., 2018). However, results also point to individual variations in self-efficacy development, which might relate to several sources of self-efficacy (Duchatelet, 2018). Participants might create several chances to perform and thus to master their negotiating skills. The social context might provide vicarious experiences, as participants are continuously engaging with and observing others. Engaging with others probably creates situations of social persuasion, in which participants are being coached by and receiving feedback from other delegates. How participants interpret their physical and emotional state when speaking in public and defending their position might also influence their self-efficacy for negotiating. Research about the sources of self-efficacy has to date been given ample attention within role-play simulations of political decision-making (Duchatelet, 2018). Research about role-play simulations in the field of medical and nursing education is more elaborated. Results have already shown that such role play-simulations foster sources of self-efficacy when enhancing students' self-efficacy (Egenberg et al., 2016; Stroben et al., 2016; Watters et al., 2015).

Method

The following section first introduces the simulation setting and participants. Subsequently, we focus on the used procedure, used measures, and analysis. Finally, we discuss how several aspects contribute to the reliability and validity of this study's findings.

Participants and setting

This study expands current self-efficacy research to the specific context of role-play simulations of political decision-making and aims to deepen the often-used survey research designs by conducting a single holistic case study with longitudinal design (Yin, 2018). This study focuses on one several-day role-play simulation of political

decision-making (EuroSim), which allows exploring self-efficacy development during a longer period of time. EuroSim is a four-day cross-continental simulation that simulates around 200 actors contributing to the EU decision-making process, such as members of the European Parliament, the European Commission, the Council of Ministers, the European Council, interest groups, other concerned parties, and even the press. It brings together students from twenty American and European universities, coming from different fields of study and with different simulation experience. This research was conducted during the 2017 edition of EuroSim, hosted by the SUNY college at Brockport (New York, US), and dealing with the topic of EU energy policies.

Seeking for information richness, we applied purposive sampling (Crabtree & Miller, 1992). This case study includes a sample of a whole elective class of four students. Those four students attend the same elective course within their master program being political science, or international relations and diplomacy. The course prepares students for participating in the EuroSim simulation at the end of the semester. All students participate in different standard negotiation settings, based on their roles: European Council; Transport, Telecommunication and Energy Council (TTE); Foreign Affairs Council (FAC); or European Parliament Committee on Foreign Affairs (AFET). Three students represent the same country in the three different Councils. As the simulation is embedded in the course, prospects are similar for all students with regard to what is expected from them during the simulation. In short, representing a broad range of contextual variation, the sample was chosen aiming for participants that showed little variation in student features (e.g., same preparation course) and large variation in contextual factors (e.g., different Council or Committee) (Meyer, 2001).

Procedure

All participants have taken the same course that prepared them for the simulation and were invited to contribute to the research during a course meeting. As it is important to disclose the purpose of the study to participants (Creswell, 2007), students received information about what would be asked from them when participating in this research. All students signed an informed consent, which emphasised their voluntary collaboration, and their commitment to share requested information for the time span needed.

To maximise feasibility of the data collection methods used during the simulation, first ideas were fine-tuned after discussing them with two students who attended

the previous edition of the simulation. Coping with a tight time schedule (Appendix 4A), involving two researchers during the simulation data collection increased flexibility. Each researcher collected data for two students. Both researchers had a pre-briefing with students discussing what was expected from them. Substantial attention was given to how this fitted into the simulation schedule, as an important endeavour was not to intervene with the flow of the simulation. A WhatsApp group was installed to make sure participants could prioritise the simulation progress when needed. This resulted a few times in rescheduling interviews to maximum 15 minutes later. A detailed overview of one researcher's and two students' time schedule is depicted in Appendix 4A.

Measures

To answer our research questions about how self-efficacy for negotiating develops, we collected data during the four-day on-going simulation using the following measures: a diary that was passed between participants and researchers (passlet), repeated interviews, and semi-structured observation schemes and field notes. Interviews and observations were scheduled on similar frequencies and time points for all participants, who were expected to fill out the passlet every day (Appendix 4A).

Passlet: a special type of diary

'Passlet' refers to a booklet that was continuously being passed from researcher to participant and vice versa. The passlet integrated different sources of data collected during the simulation: repeated interview and diary data. During the day, the researcher kept the passlet to be able to take notes during the interviews. After the official simulation program had ended, at the end of each day, participants took their passlet with them to complete it further. The passlet was structured in four parts (one for each simulation day). Each part (day) consisted of four parts of semi-structured forms, which were printed on different coloured paper to improve clarity and efficiency during data collection. An overview can be found in Table 1.

Table 1 Overview of passlet content

Cluster	Focus	Format	Filled out by
Interviews	Events positively or negatively influencing self-efficacy development	Semi-structured	Researcher during interview
Diary	Self-efficacy events: Events positively or negatively related to self-efficacy develop-ment	Semi-structured	Participant
	Negotiation behaviour: conditions promoting or inhibiting negotiation behaviour	Semi-structured	Participant

Students were prompted to describe events that influenced their self-efficacy for negotiating. To enrich the findings, students could also share contextual conditions that promoted or inhibited their negotiating behaviour. All semi-structured forms followed a similar structure, of which an example is given in Appendix 4B.

Repeated interviews during simulation

Six interviews were scheduled during the simulation (Appendix 4A). Questions always related to the time period passed between the latest and current interview; and aimed to reveal meaningful events that positively or negatively contributed to the development of self-efficacy for negotiating. An outline of the questions asked is depicted in Table 2. The interviewer took notes by filling out a format as presented in Appendix 4B. Next to note taking, all interviews were audio-recorded and approximately took up 15 minutes. In that way, students still had time to engage into the simulation and to have contact with other delegates during breaks when necessary.

Table 2 Repeated-interviews protocol

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1. I'm asking you to focus on the time period that has passed between our latest inter-view[*] and the current interview... How did it go so far?

2. Can you describe me any event that resulted in you changing how confident you feel about your negotiating skills? (*increase/decrease*)[**]

3. What happened? (*aiming for detailed description*)

   Where were you?

   What were you doing?

   Who else was involved?

   What were they doing?

4. How did this event influence your thinking about your negotiating skills?

   Explain.

5. How did this make you feel?

   Explain.

6. What were you thinking at that time?

7. What does this mean for your negotiation process?

---

[*] For the first interview time period started at arrival in Brockport; [**]Students were subsequent-ly prompted toward a situation of increase and decrease of their self-efficacy for negotiating

Observations and field notes

Semi-structured observation schemes were developed for mapping student's en-gagement and student's physical/emotional state, based on Bandura (1997) and Reeve, Jang, Carrell, Jeon, and Barch (2004). Appendix 4C shows how observations were scored on a 7-point scale. Additionally, descriptions of student behaviour and attitude were requested to give meaning to the scores. Examples of paralinguistic descriptions were provided in a note. Observations were conducted during standard meetings (Appendix 4A), while choosing a position with a clear view on the dele-gate without disturbing the on-going process. One completed form covered obser-vational data collected during a half an hour time frame. Observation schemes were bundled in a researcher manual that allowed space for taking field notes dur-ing the entire simulation process. Field notes included opinions shared by student's professor or teaching assistant, observed specific contextual issues, or program changes.

Analysis

In the preparatory stage, interviews were transcribed verbatim by a student assis-tant and double-checked for accuracy by the first author. All data sources were imported into the NVivo 11 Software Program. Data was systematically analysed

following several steps. Each step was critically discussed during peer-debriefing sessions with all authors.

To answer our first research question, events related to self-efficacy development were defined. The diary part of students' passlets included fifty-five completed semi-structured forms all together. Each form included one event that either related to self-efficacy development (n = 36) or to negotiation conditions (n = 21). We chronologically structured these events on a timeline in Excel. Events that not related to self-efficacy development were omitted. Two events were merged because they discussed the same situation; in a self-efficacy development form and a negotiation conditions form. This ultimately resulted in forty-nine single events. We uploaded these in the qualitative data-analysis software package NVivo and defined them as cases. These cases were enriched by information collected during the repeated interviews. Meaningful events were selected when: (a) self-selected by students because they discussed the event during the interviews and wrote it down in the passlet, (b) information was present about how this event related to student's self-efficacy for negotiating development (increase, decrease). This resulted in twenty-seven single events that were included in further analysis, after adding relevant information from observations and field notes. In a second step, all cases were given an attribute value of self-efficacy increase or decrease. Coding of the events was both deductive and inductive. Deductive coding followed previously defined groups of hypothesized sources of self-efficacy (Bandura, 1997). Within these pre-defined groups, lines or paragraphs were further labelled with a code in an inductive way. Similarly, when groups of text did not match existing codes, new codes were added, which allowed detailed mapping of factors that come into play with regard to self-efficacy development. The coding was conducted in an iterative way. After each round, empty boxes were double-checked by the first author and codes with few cases were re-evaluated and, when appropriate, merged in a top-level code to pursue clarity. During peer-debriefing sessions, all authors discussed the choices that had to be made. After three rounds, all authors agreed upon the final coding scheme and conducted analysis. To answer our second research question, several crosstabs and queries were conducted highlighting the interplay of sources and their relation to self-efficacy for negotiating development.

Reliability and validity

Several aspects contributed to the reliability and validity of our collected data and related findings. Our design includes three types of triangulation: data triangulation, time triangulation, and researcher triangulation.

(1) *Data triangulation.* Information about self-efficacy development was gathered from three data sources (Figure 1). Data was coded using two main sources: the passlet and repeated interviews. As third data source, we used observation schemes and field notes. This contributed to detailed observational evidence and grasped the simulation's contextual complexity, also known as 'thick description' (Cohen et al., 2011). Observation data was useful to validate the data from the passlet and interviews (Meyer, 2011). This interconnectivity of data sources or data convergence ensures that more than a single source of evidence supports findings and substantially increases validity and reliability (Yin, 2018). To assure methodological consistency and to control for reliability, the interview schedule of the repeated interviews was piloted, refined and used in each related interview (Cohen et al., 2011). The semi-structured formats of the passlet that were similar to those from the repeated interviews also contributed to this.
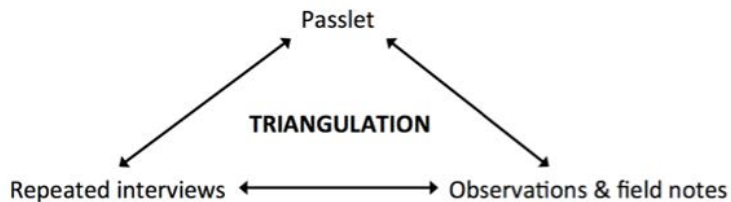
Figure 1. Triangulation of data sources

(2) *Time triangulation.* The longitudinal design also contributes to triangulation (Yin, 2018). Data were collected in real-time (e.g., observations) and retrospective (e.g., interviews). For data collected during the simulation, time laps between event(s) and interview were kept to a minimum. Students had to hand over their passlet to the researcher each morning before the first session started, which prevented them from completing it half-heartedly; e.g., by writing down all events at once after the simulation had ended. This feature allowed researchers to communicate with participants; e.g., by writing down questions for clarification when necessary. It also contributed to a continuous member-check (Yin, 2018), in which par-

ticipants could check what had been discussed and written down during interviews. Used methods stay within the critical forty-eight hour time period, after which re-call accuracy substantially diminishes (Henderson & Tallman, 2006). The longitudi-nal aspect contributes to establishing trust between the researchers and partici-pants, which is very important in terms of quality and trustworthiness of the data collected (Meyer, 2001).

(3) *Researcher triangulation.* Investigator triangulation that combines findings of different researchers can be considered as a corroboratory strategy (Yin, 2018). The two researchers who collected data during the simulation elaborately discussed the repeated-interviews protocol and observation scheme. Examples of student cases and role-plays had been used to fine-tune the interview protocol and obser-vation scheme. During the simulation, researchers repeatedly reflected on the research progress. During the entire process of the study, peer-debriefing sessions with all authors involved in this study were conducted in which the different meth-odological choices, data collection and data analysis procedures, and interpretations were critically examined (Cresswell & Miller, 2000).

Results

Which sources that relate to students' self-efficacy for negotiating development can be distinguished? (RQ1)

Probing into self-efficacy sources, three groups of sources could be defined: per-sonal, social, and contextual sources. An overview of self-efficacy sources, their description, number of related events, and example quotes are presented in Table 3.

The first group of *personal* sources refers to 'self-oriented' sources (Klassen, 2004) and includes mastery experience. We can distinguish success-related and failure-related experiences, of which most reported events relate to a success-related experience. Personal sources also include physiological/emotional states. Each event description includes one form of physiological/emotional state, either from a positive (e.g., proudness) or negative (e.g., fear) nature. As the last personal source, we can distinguish negative beliefs, which are doubt-related thoughts that either refer to the simulation in general or to reflective thoughts on one's own per-formance.

The second group of *social* sources refers to 'other-oriented' sources (Klassen, 2004), and includes vicarious experience and social persuasion. Vicarious experience refers to evaluating and interpreting other students' performances, as defined by Bandura (1997). Social persuasion relates to direct messages and appraisals of significant others, also as defined by Bandura (1997). However, we could additionally distinguish social aspects that broadened this source's definition to more than 'direct' messages. We found aspects that relate to other delegates behaviour that can also be considered a form of social persuasion. This behaviour either relates to the negotiation process (e.g., being approached by other delegates) or the negotiation outcome (e.g., being elected to represent the Council or Committee). Most events include one form of social persuasion.

The third group includes *contextual* sources, of which all reported aspects relate to participant's perception of low verisimilitude (i.e., real-world degree) of the simulation. This could be with regard to other students' position (i.e., roles other students act out), the applied procedure (i.e., rules of procedure), or simulation structure (i.e., absent parties). Compared to other groups of sources, contextual sources are less often reported.

Table 3 Overview of sources that contribute to self-efficacy development, including description, number of events, and examples (N_{total} = 27)

Sources	n	Example quotes
PERSONAL		
Mastery experience		
Success-related experiences, such as contributing to the negotiation process and outcome	18	*The second vote was a kind of overwhelming majority voting for me. So there is a lot of doubt gone about 'can I do it'? Otherwise they wouldn't have chosen you. Um, so actually it is a huge boost [for self-efficacy for negotiating]. Um.... I think that most of my doubts are gone now actually.* [Participant 3, event 19, interview]
Failure-related experiences, such as making mistakes, being dissatisfied with one's own performance, or not being able to execute the negotiating strategy as planned but having to adjust the strategy to situational conditions	9	*[My belief in my negotiating skills decreased because of Prior to the meeting I thought I had discovered a mistake in the agenda, which I wanted to raise during the meeting. However A. told me that the "mistake" was not a mistake. [...] This made me uncertain.* [Participant 3, event 14, passlet] *Romania said that they would soon be self-sufficient in their energy supply and therefore have little interest in far-reaching security targets. [My belief in my negotiating skills decreased because of...] That information removed an important ally who could have been a partner but now seems to be uncertain.* [Participant 1, event 2, passlet]
Physiological/emotional state		
Negative emotions, such as feelings of nervousness, fear, irritation, frustration, tiredness, or boredom	10	*[My belief in my negotiating skills decreased because of...] I searched all day today and last night for my other party members, but the fact that I couldn't find them was even more noticeable because [other students] could already work together. This irritated me, because I had put a lot of effort and time into coming here. And at a certain point I started wondering what I was doing here at all.* [Participant 4, event 21, passlet] *'Everyone is looking at me, I can't find my words, but I have to say something and it has to be good'. And that makes you a little more insecure, yes...* [Participant 2, event 8, interview] *[You said: "my self-confidence was knocked in that situation..."] Yes, but I think that had to do with the fact that I got very tired after lunch, so to speak. Tell me, how do you say that, I have less patience now.* [Participant 4, event 24, interview]

Sources	n	Example quotes
Positive emotions, such as feelings related to the positive atmosphere of the negotiation process (flow), excited, being proud or honoured about accomplishments, feeling competitive, or having fun	17	*[How do you feel about that?] Yes, proud. Certainly. Umm, feeling confident and working on something that you can show you have knowledge of. And then...... Because that was then, aah, okay, the presidency initiates an unmoderated caucus for ten minutes, so then everyone goes... Is it a break and then they all come to me with 'aah, that and that, how are we going to do that then? And then you notice that everyone is busy and you are leading it. [Participant 2, event 9, interview]*
		What a boost that gave. [....] We were very open with sharing ideas and uuh, and testing ideas. Um... Yes, it's a very good atmosphere I think. And I think it was important to write a proposal and think about it together. [Participant 3, event 17, interview]
Negative beliefs		
Doubt-related beliefs about the simulation in general or negative reflective thoughts on one's own performance	8	*It was also annoying that I couldn't find or reach anyone from my fellow committee [...] At one point I had something like: "What am I actually doing here if there is nothing being done in what I came for?" [Participant 4, event 21, interview]*
		The frequent interventions of other delegations reduce the visibility of the Polish argument. [My belief in my negotiating skills decreased because of...] by the idea that others probably don't consider Poland as a Member State (read: influential). [Participant 2, event 10, passlet]
SOCIAL		
Vicarious experience		
Experiences related to how others performance is being evaluated, such as characterised by fear, being successful, or performing competitive	9	*[My belief in my negotiating skills increased because of...] The fact that a first coalition was formed caused "fear" among the other parties present. That was good for me as a negotiator. They take you more seriously and quickly see you as a good coalition partner. It also confirmed my strategy, which was a helping hand. [Participant 3, event 13, passlet]*
		[My belief in my negotiating skills decreased because of...] I searched all day today and last night for my other party members, but the fact that I couldn't find them was even more noticeable because [other students] could already work together. [Participant 4, event 21, passlet]

Sources	n	Example quotes
Social persuasion Negative or positive verbal messages about student's contribution, such as compliments, or feedback. Also, other social aspects related to the negotiation process (i.e., other delegates involving the student in discussions, others acting dependent, personal bonding with other delegates, receiving award), or negotiation outcome (i.e., contributing to final amendment, being elected to represent their Council or parliamentary committee in a reconciliation session)	22	Besides, I hear from people that they uuh, that they find me a good uuh uuh delegate. Um, they are so to speak in terms of skills and public speaking um, um, proposals... Working together then. [From whom did you get that confirmation?] From Germany, euh Portugal, the Netherlands, Latvia ... [Participant 3, event 18, interview] [My belief in my negotiating skills decreased because of...] I made a "mistake" about the ACER organization: I thought that some of their competencies should be discussed, but got a note from the student director that this was a waste of time. [Participant 4, event 23, passlet] [My belief in my negotiating skills increased because of...] During an unmoderated caucus Malta soon came to me to form a coalition. This confirmed that people supported my positions and ideas. [...] and that makes me more confident, that some countries come to you, like Poland. [Participant 3, event 15, passlet + interview] So yes, that is also in the meeting itself, so I was a S&D coordinator. Then the people ask me: 'Gosh,...'. I had also written an agenda and presented and presented it even though the reporter normally does, and with the S&D they also asked about the suggestions of the agenda and as they were my suggestions I took the lead. And then there is also the fact that the chair had never chaired before and I had, so he sometimes asked me tips ... [Participant 4, event 22, interview] I can get along well with Germany; France is also okay in itself. [In what... What do you mean?] Just personally. [Participant 1, event 5, interview] [My belief in my negotiating skills increased because of...] Hungary and Latvia joined me on stopping renewable energy sources. Then the Western countries did not like it and even offered themselves to finance the transition, like Germany. The final compromise was very vague and positive for Poland. [Participant 1, event 3, passlet] Because I was elected, something positive for what happened today [...] the chairman and the secretariat decided to discuss the role based on attendance [...] Germany and I were actually carried forward to participate in the informal setting. And that is of course very positive. [Participant 2, event 11, interview]

Sources	n	Example quotes
CONTEXTUAL		
Low verisimilitude Perceptions of low verisimilitude (i.e., real-world degree) with regard to other students' position (i.e., roles other students act out), applied procedure (i.e., decision-making, chairing, rules), or simulation structure (i.e., absent parties, roles assigned too late)	7	Slovenia actually has a disproportionate role, in the sense that it has quite a… presence during the negotiations, and their voice is definitely heard. It may not actually be real, in proportion to reality, but they certainly make their point clear. [Participant 2, event 10, interview] [My belief in my negotiating skills increased because of…] The urgent transfer of the reporter's role gave me an opportunity to set the agenda; something I would not normally have been able to do. It gave me more control over the situation, which gave me more self-confidence. [Participant 4, event 9, passlet] I think I have had a great advantage and in our case the reporter failed, which is important for the dynamics of the group. […] I was able to take the lead, and the rest of the discussions benefited a lot from that. [Participant 4, event 22, interview]

How do self-efficacy sources contribute to students' self-efficacy for negotiating development? (RQ2)

In the following we present different patterns of combined sources that result in an increase or decrease of self-efficacy for negotiating. Appendix 4D presents an overview of how these patterns can be traced back to one or several single events. We subsequently introduce pathways that relate to an increase or decrease of self-efficacy.

Figure 2. Pathways for self-efficacy for negotiating increase, including the number of events (n = 18)

Figure 2 depicts pathways of patterns that result in an increase of self-efficacy for negotiating across participants. Associations that occur more often are denoted bolder. As presented in Figure 2, each event that relates to an increase of student's self-efficacy for negotiating can be traced back to personal sources. With regard to the source of mastery experience, self-efficacy increases when students interpret their performance as successful. This is always combined with a certain physiological/emotional state that can be both of a positive or negative nature. However, students report feelings of having fun or proudness far more often than feelings of

nervousness in relation to self-efficacy increase. Notably, doubt-related thoughts are completely absent in events that positively influence self-efficacy beliefs. Next to personal sources, findings show that social persuasion is a very important source that repeatedly contributes to an increase in self-efficacy for negotiating. As discussed previously, this source includes direct appraisals and messages from significant others but also social aspects related to the negotiation process and outcome. Students mostly refer to these aspects of the negotiation process and outcome as being beneficial for self-efficacy development, such as other delegates that approach the student during informal sessions, getting along with other delegates, or being elected to represent their Council or Committee. The source of vicarious experience is less reported and, if present, always combined with an aspect of social persuasion. Students mostly refer to positive vicarious experiences of evaluating their own performance as initiating fear or experiencing competitiveness in other students' behaviour. The contextual source of low verisimilitude does not seem to hinder self-efficacy development. However, when participants report aspects of low verisimilitude, self-efficacy increase only appears if the social persuasion source comes into play.
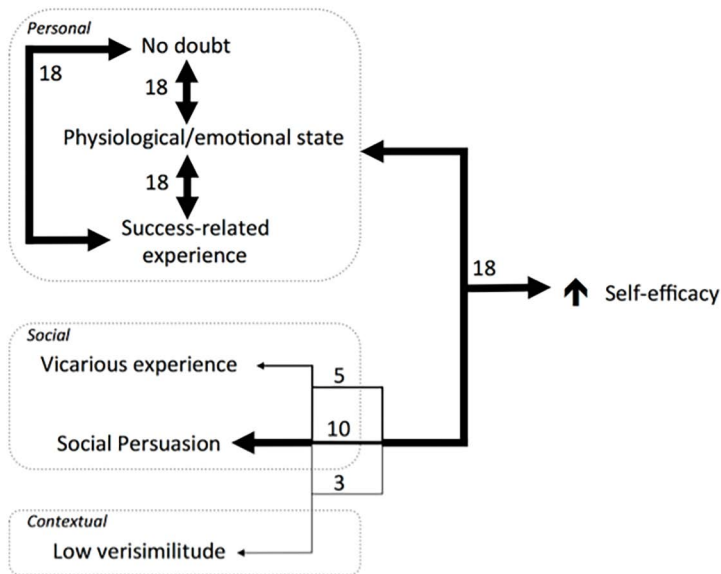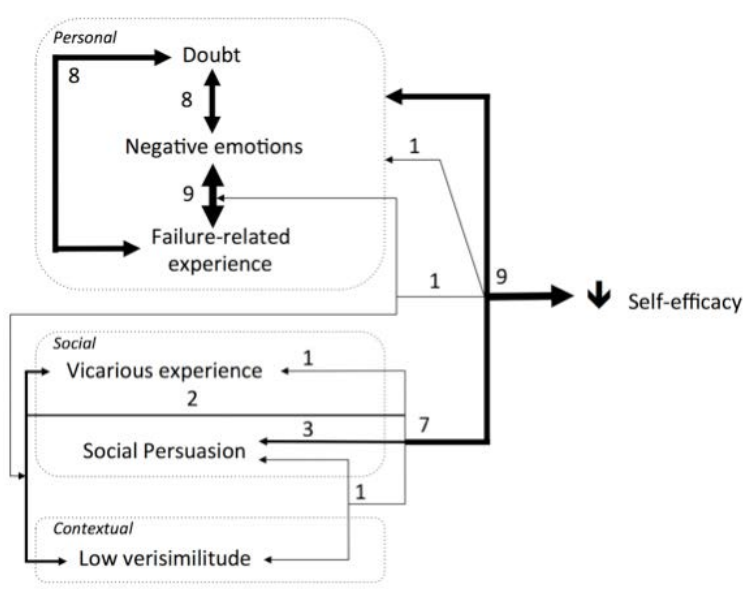

Figure 3. Pathways for self-efficacy for negotiating decrease, including the number of events (n = 9)

Figure 3 shows pathways of patterns that result in a decrease of self-efficacy for negotiating across participants. Associations that occur more often are again denoted bolder. As Figure 3 depicts, personal sources contribute extensively to a decrease in self-efficacy for negotiating. All events are characterised by failure-related experiences (e.g., making mistakes or being dissatisfied with one's own performance), negative emotions (e.g., irritation or tiredness), and all but one include thoughts of doubt. When doubt more intensely comes into play, it sometimes can even overrule experiences of positive feedback and result in self-efficacy decrease. Findings show interplay between personal and social sources. However, compared to the pathways of self-efficacy increase, the contribution of social sources is more scattered. With regard to social persuasion, negative feedback consistently relates to a decrease of self-efficacy for negotiating. Concerning vicarious experience, evaluating others as being successful usually negatively influences self-efficacy development. The contextual source of low verisimilitude only contributes to self-efficacy decrease when combined with other personal and social sources.

To sum up, personal sources predominantly contribute to self-efficacy development. Where these single-handedly can contribute to self-efficacy decrease, self-efficacy increase always (at least) additionally relates to the social source of social persuasion. The sources vicarious experience and perceived low verisimilitude play a less distinct role in developing self-efficacy, which shows in only influencing self-efficacy when combined with one or several other sources.

Discussion and conclusion

Within higher education, self-efficacy is considered a meaningful learning outcome. Previous research has repeatedly pointed to its contribution for student learning, motivation and engagement, self-regulation, persistence and study success (Bandura, 1997; Kyndt et al., 2017; Pajares, 1996; Richardson et al., 2012; Schunk & Pajares, 2005; van Dinther et al., 2011; Vermunt & Donche 2017; Zimmerman, 2000). This has resulted in more research trying to illuminate which aspects influence self-efficacy development in what way. However, researchers face the challenge of not only uncovering which sources are at play but also how their interplay contributes to self-efficacy development. This process is complicated by contextual conditions that influence self-efficacy, which hinders generalisation of findings across domains. This study expands the self-efficacy research field with regard to investigated contexts and competences by focusing on self-efficacy for negotiating

development in role-play simulations of political decision-making. Conducting a longitudinal case study that focuses on how sources of self-efficacy contribute to outcomes of both self-efficacy increase and decrease, this study aims to increase our understanding about which sources in the context of role-play simulations of political decision-making come into play and how their interplay relates to self-efficacy for negotiating development.

With regard to self-efficacy sources, three groups could be distinguished: personal sources (mastery experience, physiological/ emotional state, negative beliefs), social sources (vicarious experience, social persuasion), and contextual sources (low verisimilitude). These groups expand the by Bandura (1997) four hypothesized sources of self-efficacy. Concerning personal sources, findings confirm the importance of the source of mastery experience, which includes success-related and failure-related experiences, and which consistently contributes to self-efficacy development (Bates & Khasawneh, 2007; Lent et al., 1996; Metcalf & Wiener, 2018; Usher & Pajares, 2008). Also supporting previous findings, results point to physiological/emotional states consistently contributing to self-efficacy development (Bates & Khasawneh, 2007; Luzzo et al., 1999). Where previous research focuses on negative emotions that hinder self-efficacy development (e.g., fear) (Bates & Khasawneh, 2007; Luzzo et al., 1999), our findings show that success-related experiences often relate to positive emotions (e.g., proudness). As last personal source, we found a more general level of believing that also extensively contributes to self-efficacy development. Negative beliefs are completely absent when an increase in self-efficacy occurs and almost always present when self-efficacy decreases. With regard to social sources, we could distinguish vicarious experiences, which play a role in self-efficacy development, however, in a limited way. This source only contributes when combined with one or several other sources. Concerning social persuasion, results include 'direct' messages (e.g., feedback) but also more 'indirect' behaviour from significant others. In particular, behaviour that relates to the negotiation process (e.g., approaching delegates) or negotiation outcome (e.g., contribution to final amendment) defines social persuasion in role-play simulations of political decision-making. This expands the initial definition of social persuasion as 'direct' messages (Bandura, 1997). Finally, we could also define contextual sources, which always related to participant's perceived low verisimilitude of the simulation and only play a role in self-efficacy development when combined with other social and/or personal sources.

The number of four students that provide insights into their self-efficacy develop-ment might be considered small to draw conclusions. However, analyses were con-ducted on a total sample of twenty-seven events. Participants were selected based on little variation in student features (e.g., same preparation) and large variation in contextual features (e.g., different Council or Committee), which strengthens find-ings to be strongly related to situational conditions (sources) and encompassing maximum situational variation (Meyer, 2001). Triangulation of researchers, data, and time also contributes to this. Usher et al. (2018) point out that qualitative self-efficacy research can be subject of fallibility of participants' retrospection, which in this research is tackled by collecting data within the critical forty-eight hour time period for recall accuracy (Henderson & Tallman, 2006), and combining retrospec-tive with real-time data. A downside of repeated interviews, asking for events that relate to self-efficacy development, is that these might have constitutive effects. However, different data sources and data collection methods, spread over time, allowed a consistency check and contributed to the reliability of our findings.

Further research is necessary, preferably also in other contexts of role-play simula-tions of political decision-making to generalize our research findings. It would be interesting to relate findings about sources of self-efficacy for negotiating to stu-dent features and their negotiating performance. A next step might be to conduct a comparative case study, in which, for example, participants could be selected based on their student profile (e.g., motivation, preparation, experience, etc.) and observed throughout the simulation. In the context of role-play simulations of polit-ical decision-making, it might be interesting to also consider the role participants act out, for example because students that represent a more prominent state (e.g., Germany) simply get more chance to perform their negotiating behaviour. Further research also is needed to fine-tune current findings. For example, some patterns only relate to one event, which mostly shows in events related to self-efficacy de-crease. Patterns of the interplay of sources contributing to self-efficacy increase are more consistent. As such, we consider it important for future research to not only keep on focusing on aspects that promote self-efficacy development but to also investigate which elements relate to a self-efficacy decrease. To date, research has seldom included the sources of positive emotions, however, our findings show how these are consistently related to self-efficacy increase. It would be interesting to investigate how such positive feelings influence self-efficacy over a longer period of time. For example, success-related experiences in which feelings of proudness are present might have a 'deeper' impact on self-efficacy and, therefore, might con-

tribute for a great extent to a general self-belief over time. This is especially inter-esting because our findings show that general self-belief also plays a role in self-efficacy development: doubt-related thoughts hamper self-efficacy beliefs. Previous research has already pointed to aspects of 'self-talk' that influence self-efficacy development (Warner et al., 2014; Webb-Williams, 2017). Our findings show that doubt-related thoughts can turn positive feedback into a failure experience. In our view, this brings us back to the core of self-efficacy sources: individual's cognitive appraisal of situational aspects. Recent research also shows that not just the type of source (e.g., vicarious experience) but also the type of significant other (e.g., peer, teacher) defines the source's influence on self-efficacy development (Ahn, Usher, Butz, & Bong, 2016; Ahn et al., 2017).

As a practical implication, students could benefit from being thoroughly prepared for the simulation experience. Preparation might enhance the chance of success-related experiences to occur and might diminish doubt-related thoughts and feel-ings. For example, the preparatory activities could include practising negotiating skills. This might result in students more extensively engaging in the simulation process. In turn, this enhances the chance of being more visible and when doing well experiencing that other delegates actively involve the student in negotiations, approach the student for collaboration, or even award the student for his/her per-formance at the end of the simulation. As such, we believe that by preparing the student personal and (indirectly) social sources that contribute to a self-efficacy increase can be triggered.

GENERAL DISCUSSION AND CONCLUSION

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This dissertation deepens our understanding about which learning environment components define role-play simulations of political decision-making. Focusing on how such simulations contribute to the development of self-efficacy for negotiating, this dissertation also enhances in-depth insights into how the interplay of self-efficacy sources shape self-efficacy development, in the specific context of role-play simulations of political decision-making. Overall, this dissertation's topic lies at the nexus of political science teaching and educational psychology research.

In this chapter, we first resume the need to examine the learning context of role-play simulations of political decision-making, and to investigate self-efficacy development more in-depth. Next, we summarize the main outcomes of this dissertation per study and discuss the insights we take away, discuss limitations of the chosen approach and include our suggestions for future research. Finally, we discuss the implications for educational practice.

The need to investigate self-efficacy for negotiating development in role-play simulations of political decision-making

Role-play simulations of political decision-making have become the most commonly used active learning method in political science teaching to teach about complex, dynamic political processes (Ishiyama, 2013; Smith & Boyer, 1996). Such simulations are highly appreciated by students and lecturers (Van Dyke et al., 2000). However, literature that **empirically** tests the impact of these simulations on student learning outcomes is still scarce and rather underdeveloped. For example, many studies remain descriptive and anecdotal (e.g., Jozwiak, 2013; Elias, 2014). Researchers have been experiencing difficulties to capture simulation's effects, which shows in findings remaining inconclusive regarding simulation's benefits (e.g., Bernstein, 2008; Raymond, 2010). More specifically, studies that investigate simulation's effect on the level of student perceptions conclude that simulations are highly valued and perceived as beneficial for student learning (e.g., Andonova & Mendoza-Castro, 2008; Jozwiak, 2013). However, where research using self-report measures evaluates simulations' learning outcomes tentatively positively (e.g., Biziouras, 2013; Jozwiak, 2013; Shellman & Turan, 2006), studies about the effect of simulations on objective achievement outcomes, such as grades on quizzes and exams, remain rather sceptical (e.g., Krain & Lantis, 2006; Raymond, 2010). The

emphasis on objective outcomes seems to result in current research predominantly focusing on cognitive learning outcomes (e.g., knowledge), and to a far lesser extent on affective (e.g., motivation, self-efficacy) and regulative learning outcomes (e.g., self-directive behaviour) (Pintrich, 1994; Vermunt & Vermetten, 2004).

Inconsistency of findings thus far has been approached as an issue of research design and operationalization. Alongside methodological rigour, research designs should not ignore contextual features that might play a role in inconsistencies. The influence of different components of the learning environment should not be underestimated when probing into student learning processes and outcomes (Biggs, 1993; Baker & Delacruz, 2016; Dinsmore & Alexander, 2012). For example, simulation designs could vary in size and duration, the type of participating students might differ, and different preparatory activities might be included. So far, a comprehensive overview of variation in **learning environment components** that shape role-play simulations of political decision-making and how these relate to student learning outcomes is lacking.

Teachers, who have been using simulations for some time, have been experiencing that each time the same simulation is conducted participants initiate different interactions and behaviour, and thus generate different processes and simulation outcomes (Usherwood, 2015). The complex and unpredictable nature of the **simulation process** implies that more attention should be given to *how* and *why* simulation participants vary in their learning process and learning outcomes. Overall, we could identify three needs in the literature that studies effects of role-play simulations of political decision-making on student learning: (1) the need for more methodological rigorous research designs, (2) the need for a better understanding of which learning environment components define role-play simulations of decision-making, and (3) the need for more in-depth insights into how the simulation process contributes to student learning outcomes.

Contrary to current research that studies role-play simulations of political decision-making – which mainly focuses on cognitive learning outcomes – this dissertation included **affective learning outcomes** to capture student learning during the simulation process for several reasons. First, within higher education research affective learning outcomes have increased in importance because they are largely associated with the learning process and both, cognitive and regulative, learning outcomes (Vermunt & Vermetten, 2004). Second, research shows they are strongly related to academic achievement (Donche et al., 2013; Richardson et al., 2012;

Rotgans & Schmidt, 2012). Third, affective learning outcomes refer to student's perspective on the feelings that arise during learning, such as motivation, interest or self-efficacy (Vermunt & Donche, 2017). Consequently, measuring affective learning outcomes allows capturing the student learning process, in which objective outcome measures fall short.

Considering affective learning outcomes encompass several related but distinguishable motivational concepts, such as motivation, interest, and self-efficacy, further reducing of the main learning outcome variable was needed. Self-efficacy is a suitable learning outcome to investigate the simulation process because it is a dynamic motivational construct that is susceptible to change and that fluctuates over time (Bandura, 1997; Cassidy & Eachus, 2002; Schunk & DiBenedetto, 2016; Tang et al., 2004). Moreover, higher education research has repeatedly pointed to its contribution for student learning processes and learning outcomes by influencing motivation and engagement, self-regulation, persistence and study success (Bandura, 1997; Kyndt et al., 2017; Pajares, 1996; Richardson et al., 2012; Schunk & Pajares, 2005; van Dinther et al., 2011; Vermunt & Donche, 2017; Zimmerman, 2000). In this dissertation, we focused on **self-efficacy for negotiating** because participants cannot engage in role-play simulations of political decision-making without their negotiating skills; and because self-efficacy fosters resilience, which is needed when negotiations run less smoothly (Bandura, 1997; McIntosh, 2001; Obendorf & Randerson, 2013; Spector, 2006). Bandura (1997) hypothesized that self-efficacy beliefs derive from four main sources: mastery experience, physiological/emotional states, vicarious experience, and social persuasion. Overall, the importance of self-efficacy has to date not been given ample attention within the political science teaching and learning research field. Research in the field of education and in particular in medical and nursing education is more elaborated. Results have already shown that role play-simulations foster several sources of self-efficacy and enhance students' self-efficacy (Egenberg et al., 2016; Stroben et al., 2016; Watters et al., 2015). Role-play simulations used within political science teaching and learning might also include these sources and therefore foster self-efficacy. In general, for three reasons, our understanding about which aspects influence self-efficacy development in what way can be considered as rather incipient (Usher & Pajares, 2008). First, most higher education self-efficacy research focuses on learning contexts of mathematics, science, or engineering, of which generalisation of findings is limited because the relationship between the hypothesized sources and self-efficacy is largely influenced by **contextual factors** (Bandura, 1997; Klassen & Usher, 2010;

Usher & Pajares, 2008). Second, most empirical research on self-efficacy is of a cross-sectional nature, focusing on groups of students with **little attention for intra-individual differences** in self-efficacy development. However, self-efficacy theory describes self-efficacy from an individual perspective referring to people's own beliefs about their capabilities (Usher & Pajares, 2008). Third, recent research findings point to not just linear relationships between sources and self-efficacy development but to rather **complex processes** in which students consider information from multiple sources when evaluating their self-efficacy beliefs (Usher et al., 2018). In short, this dissertation responded to the need to (1) expand self-efficacy research to other competences and learning contexts, (2) to focus on inter- *and* intra-individual differences of self-efficacy (for negotiating) development, and (3) to unravel the complexity of the interplay of sources contributing to self-efficacy (for negotiating) development.

This dissertation applied a **mixed method approach**, which enabled to obtain a more comprehensive understanding of phenomena compared to single methods approaches (Cohen et al., 2011). In study 1 we conducted a *systematic literature review* that defined learning environment components of role-play simulations of political decision-making, and that also provided a state-of-the-art. Study 2 was of an exploratory nature and used a *cross-sectional survey* design. It examined the quality of used measures and explored student variation in different affective learning outcomes (including self-efficacy for negotiating). Study 3 and 4 specifically focused on the outcome of self-efficacy for negotiating. Both studies focused on several-day simulations because we strived for investigating maximum richness of the simulation process. This contributed to capturing influential factors and their interplay when trying to explain self-efficacy for negotiating development in the most comprehensive way. Aiming to not only increase insights into *if* but also *how* role-play simulations of political decision-making contribute to student learning, study 3 and 4 applied a *longitudinal* design. Study 3 used a longitudinal *quantitative* design to increase our understanding of how self-efficacy for negotiating develops over time. To unravel the interplay of factors that influence self-efficacy development study 4 used a longitudinal *qualitative* approach. More specifically, we conducted a single holistic case study with a longitudinal design. A schematic overview of the four studies is presented in Figure 1.
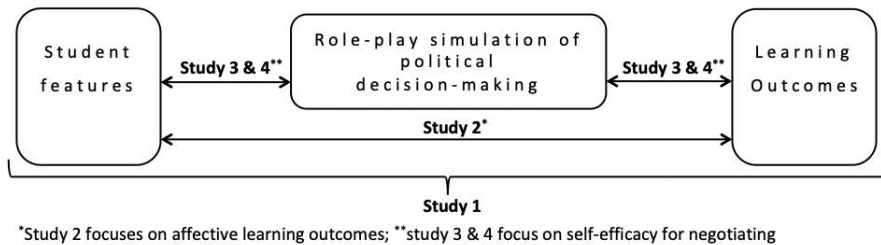
Figure 1. Schematic overview of studies

In the following sections, we first summarize the main findings of our studies. We subsequently elaborate on the insights we take away, and discuss limitations of the chosen approach and include our suggestions for future research. We conclude with the implications of our work for educational practice.

Main findings

In **study 1** we argued that, alongside methodological rigour, research designs should not ignore contextual features that might vary across different role-play simulations of political decision-making when investigating student learning. First, we distinguished simulation features of structure and agency. Structure refers to aspects of the simulation environment, which could be of a stable (e.g., simulation design) or flexible (e.g., forging coalition) nature. Agency refers to participants' actions based on choices or decisions they make, which will depend on, for example, student's preparation or the assigned role. Second, next to previous simulation features, we distinguished student characteristics (e.g., demographics), the broader learning context (e.g., debriefing), and cognitive, affective, and regulative learning outcomes. Results strikingly showed that most studies only focused on learning outcomes and took no learning environment components into account when investigating student learning. Most of the studies that took them into account included student characteristics, mostly demographics. Where studies seldom included aspects of agency (e.g., preparation), none of the studies considered aspects of the simulation structure or the broader learning context. With regard to learning outcomes, most of the studies focused on cognitive learning outcomes, such as knowledge and skills. Studies focused on affective and regulative learning outcomes to a far lesser extent. In short, study 1 predominantly pointed to the complexity and diversity of the learning environment of role-play simulations of political

decision-making and the restricted view on learning outcomes. Each learning environment component includes elements that define the learning context (e.g., debriefing) or that come into play during the simulation process (e.g., the amount of teacher involvement). However, the results of study 1 showed that little is known about the interplay of various elements as research rarely has been taking learning environment components into account when investigating simulation's effect on student learning.

Arguing that simulation effects should be measured in a more comprehensive way, **study 2** investigated how students varied with regard to the affective learning outcomes of motivation, interest, and self-efficacy. First, we evaluated used measures, of which results of the various validity and reliability tests supported the internal consistency and the factor structure of used scales. Motivation, interest, and self-efficacy clearly were related but also were distinguishable concepts in the learning context of role-play simulations of political decision-making. Second, we investigated student variation in affective learning outcomes. Standard deviations showed the largest spread for self-efficacy for negotiating. Regarding autonomous motivation for students' field of study, results showed that US-students experienced their field of study as more inherently satisfying. With regard to situational interest, female participants reported significantly higher situational interest than male participants. Regarding individual interest for the EU, EU-students scored significantly higher than US-students; and students who had a preparation class scored significantly higher than students who didn't have class preparation. Regarding self-efficacy for negotiating, male students reported significantly higher self-efficacy than female students; and students who attended the simulation more than once, also reported higher self-efficacy than students who attended for the first time. To sum up, results of study 2 confirmed construct validity and showed that the used measures for motivation, interest, and self-efficacy were applicable in the learning context of role-play simulations of political decision-making. Also, findings pointed to student variation in affective learning outcomes depending on student's gender, location, class preparation, or previous simulation experience.

In **study 3** we focused on the simulation process by investigating how self-efficacy for negotiating developed over the time period of one several-day simulation. Taking into account how social sources foster self-efficacy development, this study included the explanatory factor of perceived student cohesiveness – i.e., the extent to which students know, help, and support one another –, next to other individual characteristics. Results showed that self-efficacy for negotiating gradually increased

as the simulation process continued. We considered the progress as being rather small but we had to acknowledge that four days is a short period of time, and that measurements followed each other sometimes with only two hours in between. Time did not extensively contribute to explaining variation in self-efficacy development, while students' individual characteristics more considerably contributed to variation in self-efficacy for negotiating. The amount of perceived student cohesiveness significantly explained variation in self-efficacy for negotiating, even to the largest extent. This means that students who perceived more helpfulness and supportiveness from other participants reported significantly higher self-efficacy on all time points. Results confirmed that male students reported higher self-efficacy than female students. Participants with different MUN-simulation experience did not significantly differ in their amount of reported self-efficacy for negotiating over time. In short, findings of study 3 pointed to the dynamic feature of self-efficacy, which changes over time. Results also pointed to the importance of the social dimension, which showed in perceived student cohesiveness substantially explaining variation in self-efficacy for negotiating development. Similar to the findings of study 2, self-efficacy scores significantly varied depending on student's gender. We could not confirm the outcome of study 2 with regard to the amount of simulation experience, which showed no statistically significant results in study 3.

Building on the insights of study 3, **study 4** also focused on the development of self-efficacy for negotiating throughout the simulation process but this time more in-depth. This study aimed to illuminate which sources contributed to self-efficacy for negotiating development in what way over the time period of one several-day simulation. We focused on the four hypothesized sources (Bandura, 1997), possible additional sources, contextual sources, and their interplay. Findings showed that three groups of sources could be defined: personal sources (mastery experience, physiological/emotional state, negative beliefs), social sources (vicarious experience, social persuasion), and contextual sources (low verisimilitude). Notably, findings confirmed context-specificity of the self-efficacy sources. This resulted in an expansion of the definition of 'social persuasion' to also encompassing 'indirect' messages next to 'direct' messages. Direct messages relate to appraisals of significant others, which refers to social persuasion as defined by Bandura (1997). However, we could additionally distinguish social aspects that broadened this source's definition to more than 'direct' messages. We found aspects that related to other delegates behaviour that could also be considered a form of social persuasion. This behaviour either related to the negotiation process (e.g., being approached by

other delegates) or the negotiation outcome (e.g., being elected to represent the Council or Committee). Personal sources predominantly contributed to self-efficacy development. Where these single-handedly could contribute to self-efficacy decrease, self-efficacy increase always (at least) additionally related to the social source of social persuasion. The sources vicarious experience and perceived low verisimilitude played a less distinct role in developing self-efficacy, which showed in only influencing self-efficacy when combined with one or several other sources. To sum up, findings confirmed but also further deepened outcomes of study 3 that pointed to the importance of the social dimension for self-efficacy development. However, it seems personal sources are also important as these could overrule social sources as well as contextual sources.

General discussion

In this section, we elaborate on what we can take away from the main findings. We will both discuss the theoretical and methodological contributions of this dissertation and identify the paths forward for future research. This section is organised in accordance with the two overarching research questions of this dissertation: 'Which learning environment components characterise role-play simulations of political decision-making?' (RQ1), and 'How do role-play simulations of political decision-making contribute to the development of self-efficacy for negotiating?' (RQ2). Next, we integrate the found concepts and relationships from empirical research into the SimPol model (Figure 2). We constructed this model that offers a roadmap for future research that investigates learning outcomes of role-play simulations of political decision-making.

Which learning environment components characterise role-play simulations of political decision-making?

Combining the insights of all studies provides a comprehensive overview of which components characterise the learning environment of role-play simulations of political decision-making. First, we focus on characteristics of the context of role-play simulations of political decision-making. Second, we zoom out to characteristics of the broader learning context that often embeds the simulation.

Zooming into the context of role-play simulations of political decision-making
The most important feature of all simulations is that they include a certain real-world degree (Ellington et al., 1998; Sauvé et al., 2010; Wright-Maley, 2015). This is represented in the simulation dynamics, which is shaped by the balance between

simulation's structure and participant's agency (Chin et al., 2009; Leigh & Spindler, 2004; Wright-Maley, 2015). In role-play simulations of political decision-making, **agency** refers to participants' decisions made within the simulation's boundaries. **Structure** refers to the simulation environment in which participants act out their role. Some structural elements are considered to be stable, such as voting rules. Other structural elements are shaped by participants' actions and, therefore, are of a flexible nature, such as forging coalition (Chin et al., 2009). Study 1 innovated by uncovering the features of structure and agency in already investigated role-play simulations of political decision-making. Findings pointed to three aspects that contribute to simulations' structure: simulation design (context, setting, type, size, duration), simulation programme (formal, informal), and the amount of teacher involvement during the simulation (participating, semi-involvement, absent). These aspects are 'stable' features of simulations' structure and cannot be influenced by participants' actions. We found no aspects that referred to simulations' 'flexible' structure. With regard to agency, we could define three aspects: preparation (meetings, research, writing, presentations), role assignment (from random to elaborate selection procedures), and the played role (power versus non-power roles). Although study 1 provided a comprehensive overview of elements, findings are not exhaustive because our findings depend on what researchers reported about the simulation environment. So far, studies have not referred to the concepts of 'structure' and 'agency'. Results did reveal that studies reported on simulation features in a different way. For example, eleven articles lacked information about the size or duration of the simulation. This complicates comparison and generalisation of studies' findings.

As the interplay of structure and agency shapes the simulation process, it also relates to the issue of **verisimilitude** (Chin et al., 2009; Leigh & Spindler, 2004; Wright-Maley, 2015). In particular study 4 points to the aspect of perceived verisimilitude, which contributes to the simulation process and influences the learning outcome of self-efficacy for negotiating (further discussed below). To foster learning, the simulation should be a valid representation of reality, however, in a structured but simplified way (Ellington et al., 1998; Sauvé et al., 2010; Wright-Maley, 2015). Simulation's verisimilitude is necessarily limited because simulations inherently need a certain fidelity to reality but extensively increased complexity could confound the meaning participants get from them (Chin et al., 2009; Leigh & Spindler, 2004). This results in each simulation facing the challenge of aiming for the right balance between structure and agency. An inaccurate balance could hinder

verisimilitude. For example, when too much structure limits participants' options to choose from or when too little structure allows participants to deviate from real-world processes.

Next to verisimilitude, the interplay of simulation structure and agency creates **social dynamics**. We consider this the core element of role-play simulations of political decision-making for several reasons. First, we see a relationship with the previously defined simulation features of agency and 'flexible' structure, which reciprocally influence one another. For example, students who opt to collaborate with other students in order to forge a minority block will influence the 'flexible' structure of the simulation. This, in turn, might influence future actions and decisions of all participants. Second, within the political science teaching community, Usherwood (2013) already has introduced 'group-building' as part of the process of role-play simulations of political decision-making, which originates in social dynamics. Third, the aspect of social dynamics could explain why teachers have experienced that the simulation process as well as its outcome varies from iteration to iteration even when the same students have participated in the same simulation more than once (Usherwood, 2015). Fourth, findings of study 3 and 4, which focus on how the simulation contributes to self-efficacy for negotiating development, point to the importance of the social dimension. For example, social dynamics include elements of student cohesiveness (i.e., the extent to which students know, help, and support one another (Fraser, 1998)), and social persuasion (i.e., social direct and indirect message that influence student's self-efficacy).

Zooming out to the broader learning context
Unravelling which learning environment components characterise role-play simulations of political decision-making, study 1 showed that most investigated simulation contexts are part of a broader learning context. We could define the following components: objectives, debriefing, and assessment. **Objectives** refer to desirable outcomes to be achieved by participants (Baker & Delacruz, 2016). **Debriefing** refers to sharing of and reflecting on simulation experiences to turn these into learning. It is considered as important for learning because deeper lessons are drawn during a debriefing session (Crookall, 2010). **Assessment** evaluates the simulation, either from a formative (evaluating goals in order to improve; e.g., design, learning process) or summative nature (evaluating learning outcomes) (Baker & Delacruz, 2016). Study 1 showed that most studies describe specific simulation objectives, however, the degree of how explicitly these were addressed varied. Although debriefing is considered an essential element when implementing

simulations, not all studies reported on its content. Fewer than half of the studies reported on how they assessed student learning.

How do role-play simulations of political decision-making contribute to the development of self-efficacy for negotiating as learning outcome?

Our second research question probes into the simulation process focusing on the competence-specific outcome of self-efficacy for negotiating. Combining the insights of all studies provides an in-depth view of which factors contribute to self-efficacy for negotiating development. We subsequently discuss (1) personal, (2) social, and (3) contextual influential factors.

Personal influential factors

Previous research has pointed to **gender** as explanatory factor for variation in self-efficacy beliefs. For example, female students seem to rely more on information from significant others, whereas male students rather develop their self-efficacy beliefs based on their accomplishments (Usher & Pajares, 2006). When investigating self-efficacy in academic contexts, female students generally tend to report lower self-efficacy (Schunk & Pajares, 2008; Van Soom & Donche, 2014). Study 2 and study 3 confirmed such previous findings as in both simulation contexts male students reported significantly higher self-efficacy than female students. In study 2 results differed depending on simulation experience, in which it differed to the greatest extent for students who attended the simulation for the first time. Results showed that gender differences in reporting self-efficacy decreased with each simulation experience. However, because more experienced students were less present in our sample, we took note of this trend but expressed the need for further research to further explore this finding. Where study 2 applied a cross-sectional design, study 3 investigated the simulation process applying a longitudinal design. In study 3, male participants reported significantly higher self-efficacy than female participants on all time points. Notably, gender showed no interaction with time, which means that student's gender could not explain the variation in self-efficacy development over time. Studies included in our review study (study 1) sometimes took gender into account when investigating student learning in role-play simulations of political decision-making, however, not consistently.

As second personal influential factor we investigated the contribution of **cumulative simulation experiences** to self-efficacy development. Previous research has shown that self-efficacy usually increases over time depending on the amount of experiences (Cassidy & Eachus, 2002; Niemivirta & Tapola, 2007; Tang et al.,

2004). This could only partially be confirmed in our studies. In study 2 (cross-sectional) the amount of simulation-experience was positively related to students' self-efficacy for negotiating. These results indicated that students who had more simulation experience seemed to benefit more from a simulation in terms of how capable they felt themselves in negotiating. However, in study 3 (longitudinal) the amount of simulation experience could not explain variation in self-efficacy development. One hypothesis that could explain different outcomes is that simulation experience might matter for how students come into the simulation but that other influential factors overrule it once the simulation has started. Another hypothesis is that not the quantity but the quality of previous simulation experiences, such as mastery experience (Bandura, 1997) discussed in the next paragraph, contributes to self-efficacy development. In particular, how students perceive and interpret their mastery experiences shapes their self-efficacy beliefs (Usher & Pajares, 2008). Within one simulation experience, this hypothesis is confirmed in study 4 in which each self-efficacy increase related to a successful experience. So far, relying on our review study 1, previous research has considered prior experience, such as job experience or prior knowledge, but the quality of previous simulation experience has not been taken into account when investigating student learning outcomes (Baranowski, 2006; Kalaf-Hughes & Mills, 2016; Mariani & Glenn, 2014; Rünz, 2015)

Previous research repeatedly has shown that **mastery experience** – past successes or failures – can be considered the most important source that contributes to self-efficacy development (Bates & Khasawneh, 2007; Lent et al., 1996; Metcalf & Wiener, 2018; Usher & Pajares, 2008). As previously noted, this is confirmed in study 4, in which we found that self-efficacy increase consistently related to a success-related experience, while each self-efficacy decrease could be traced back to a failure-related experience. Previous research also shows that **physiological/ emotional states** consistently contribute to self-efficacy development. However, studies solely have been focusing on negative emotions related to fear, stress, or anxiety, which significantly hinder self-efficacy development (Bates & Khasawneh, 2007; Metcalf & Wiener, 2018). Study 4 included negative as well as positive emotions, of which the latter consistently could be associated with a self-efficacy increase. Similar to previous findings, negative emotions almost always related to a self-efficacy decrease. Study 4 additionally uncovered another personal source of negative beliefs, which mostly referred to doubt-related beliefs. This finding might point to **general self-beliefs** that play a role in self-efficacy development. Previous re-

search has already referred to aspects of 'self-talk' that influence self-efficacy development (Warner et al., 2014; Webb-Williams, 2017). Our findings showed that not just 'self-talk' but a higher order of general self-beliefs contributed to self-efficacy development.

To conclude, our empirical results show that individual student characteristics should not be ignored when investigating self-efficacy for negotiating in role-play simulations of political decision-making. Personal sources are crucial for self-efficacy development as results of study 4 showed that these are able to overrule social and contextual sources, especially when doubt-related thoughts come into play.

Social influential factors

As previously noted, students' agency shapes simulation's 'flexible' structure and vice versa, which contributes to the simulation dynamics. Social processes emerge that forge students to choose actions, such as to strive for coalition or minority block (Duchatelet et al., 2019). Simulation's process is thus heavily shaped by social features, which also have been known to influence self-efficacy development (Bandura, 1997). Study 3 and study 4 investigated the contribution of social aspects to self-efficacy for negotiating development. Study 3 focused on perceived **student cohesiveness** (i.e., the extent to which students know, help, and support one another (Fraser, 1998)), which might be a condition in order for other social sources to influence self-efficacy for negotiating development. This originates in the central role cognitive appraisal plays when interpreting information from several sources of self-efficacy (Bandura, 1997). Information from social sources, such as vicarious experience and social persuasion on which we elaborate further in this section, are differently interpreted according to the person that delivers it (Lent et al., 1996). For example, perceiving more similarity toward a social model (e.g., student who brings his/her opening statement during the first committee meeting) is considered to be more powerful to alter student's beliefs (Usher & Pajares, 2008). Also, messages (e.g., compliments) received from significant others, such as peers and teachers, are more likely to shape student's self-efficacy than messages from unknown persons or persons who are perceived to have a lack in expertise (Bandura, 1997). Applying these insights into social sources in role-play simulations of political decision-making, sources' influence on self-efficacy development should depend on how participating students perceive their relationship with other participants. Hence, the inclusion of student cohesiveness in our model was investigated in study 3. Study 3 applied a longitudinal design and results showed that

students who perceived more helpfulness and supportiveness from other partici-
pants (i.e., student cohesiveness) reported significantly higher self-efficacy for
negotiating on all time points. This confirms that the way students perceive their
relation with other students shapes their self-efficacy for negotiating, most certain-
ly by providing more or less meaningful social experiences. When more student
cohesiveness is perceived, social experiences more often might include social
sources that are known to promote self-efficacy, such as vicarious experiences and
social persuasion (Bandura, 1997).

Study 4 built further on the findings of study 3, which indicated that social ele-
ments matter for self-efficacy for negotiating development. Bandura (1997) defined
two social sources: **vicarious experience** (i.e., evaluating observational experi-
ences provided by others) and **social persuasion** (i.e., evaluating observational
experiences provided by others). These sources are not always included in studies
that investigate sources of self-efficacy in higher education (Bates & Khasawneh,
2007; Luzzo et al., 1999). Findings about their contribution to self-efficacy devel-
opment also seem to very across domains or subjects (Ahn et al., 2017; Fong &
Krause, 2014; Matsui et al., 1990). Probing into which sources contribute to self-
efficacy for negotiating development we could distinguish vicarious experiences and
social persuasion. Findings expanded the concept of social persuasion as initially
defined by Bandura (1997). Additional to 'direct' messages, we found other more
'indirect' messages that related to simulation participant's behaviour and that could
also be considered a form of social persuasion. Defined aspects point to self-
efficacy sources being context-related (Ahn et al., 2017; Bandura, 1997) because
the distinguishable behaviour either related to the negotiation process (e.g., being
approached by other delegates) or the negotiation outcome (e.g., being elected to
represent the Council or Committee).

Investigating the interplay of social sources with other sources, social sources con-
tribute to a great extent. However, their role seems to be different depending on
the presence of other sources. Where social persuasion consistently positively con-
tributed to self-efficacy, the contribution of social sources to self-efficacy decrease
was more scattered. To conclude, findings of both study 3 and study 4 confirmed
that social sources substantially contribute to self-efficacy for negotiating develop-
ment and that social dynamics are at the core of the simulation process.

Contextual influential factors

Each simulation includes a certain degree of verisimilitude*,* which implies that the simulation is a valid representation of reality in a structured but simplified way (Ellington et al., 1998; Sauvé et al., 2010; Wright-Maley, 2015). The balance between structure and agency contributes to the verisimilitude of the simulation. Investigating which influential factors contribute to self-efficacy for negotiating development in what way, study 4 defined the aspect of perceived low **verisimilitude**. This source could be present in events that related to self-efficacy increase or decrease. As well aspects of the simulation structure (e.g., absent parties), as agency (e.g., roles other students act out, choices made by the chair) defined this perceived low verisimilitude.

Study 1 uncovered constitutive elements of simulation structure and agency, of which **preparation** contributes to student's agency during the simulation. Previous research tentatively points to the importance of preparation for simulation's learning outcomes. Focusing on cognitive learning outcomes, research has already shown that the amount of preparation time, preparation content or form contribute to explaining variation in student learning (Biziouras, 2013; Hazleton & Mahurin, 1986; Levintova & Mueller, 2015). Where results of study 2 showed that students having a class preparation reported higher individual interest for the EU, no relationship was found between preparation and self-efficacy for negotiating. This lacking relationship raised questions about how exactly students are being prepared for simulations. Findings of study 4 pointed to the possible contribution of simulation preparation for self-efficacy development. More specifically, the advice was given to thoroughly prepare students for the simulation experience in order to diminish doubt-related beliefs, and increase the chance of success-related experiences to occur. In study 2 we questioned to what extent simulation preparation included negotiating exercises. Study 1 showed that most simulations that include preparation used a combination of activities such as meetings for knowledge sharing, research activities including reading assignments, written assignments such as position papers, and presentations. This points to negotiating exercises and skills training not explicitly being included in the simulation preparation. However, this might be covered in other modules of the curriculum. Overall, simulation preparation as a contextual factor might influence self-efficacy for negotiating development either directly (by including negotiation exercises) or indirectly (by diminishing doubt-related thoughts).

Investigating the interplay of contextual sources with other sources, findings shows that they play a less distinct role in developing self-efficacy for negotiating. They only influence self-efficacy development when combined with one or several other sources. Overall, outcomes confirm the complex processes in which students consider information from multiple sources when evaluating their self-efficacy beliefs (Usher et al., 2018).

The SimPol model for investigating learning outcomes of role-play simulations of political decision-making

After having answered both research questions, we integrate the found concepts and relationships from empirical research into the **SimPol model**, presented in Figure 2. The model depicts the different learning environment components, of which we see three main learning environment components: student features, the learning context, which encompasses the role-play simulation, and learning outcomes. Previously defined features of the role-play simulation context are at the centre of the model: structure, agency, social dynamics, and verisimilitude. Other aspects of the broader learning context are also included: objectives, debriefing, and assessment. Learning outcomes could refer to cognitive, affective, or regulative learning outcomes. We have adapted the model to the learning outcome of self-efficacy for negotiating. Accordingly, we have filled in elements that give meaning to the different learning environment components and which have shown to matter when investigating self-efficacy for negotiating development in role-play simulations of political decision-making. The use of the SimPol model allows tackling the challenge of illuminating which simulation configuration contributes to what kind of student learning outcomes and for which type of students. The SimPol model thus offers a roadmap for future research that studies effects of role-play simulations of political decision-making.
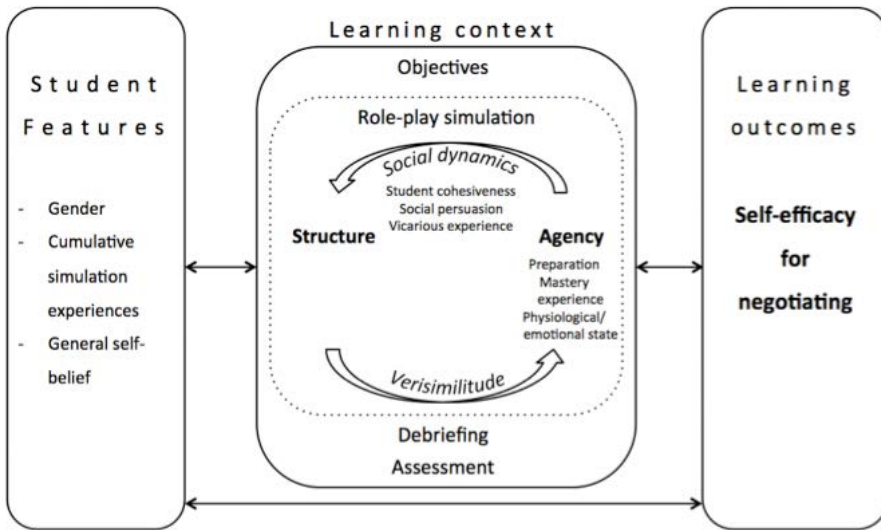
Figure 2. The **SimPol model** for investigating learning outcomes of role-play **Sim**ulations of **Pol**itical decision-making (adapted to the outcome of self-efficacy for negotiating)

Limitations and avenues for future research

This section elaborates on concepts and relationships that need further exploring. Following the SimPol model, we first discuss the role-play simulation context, which is the main focus of this dissertation, and allows discussing limitations and suggestions for future research. Next, we probe into studying student learning outcomes in the context of role-play simulations of political decision-making on a more general level. Further, we discuss possible avenues for future research with regard to students' individual characteristics. Finally, we shortly touch upon investigating the broader learning context.

Diving deeper into the simulation process

Simulation's **social dynamics** includes the elements of perceived student cohesiveness, vicarious experience and social persuasion, which seem to matter for the learning outcome of self-efficacy for negotiating. However, the *relationship between these elements remains unclear* as this dissertation studied their contribution to self-efficacy development in two separate studies: study 3 (student cohesiveness) and study 4 (vicarious experience and social persuasion). Recent research shows that not just the type of source (e.g., vicarious experience) but also the type of

significant other (e.g., peer, teacher) defines the source's influence on self-efficacy beliefs (Ahn et al., 2016, 2017). Therefore, we suggest to further investigate if perceived student cohesiveness might be a condition needed in order for vicarious experiences or social persuasion to positively influence self-efficacy beliefs. Also, the relationship between perceived student cohesiveness and self-efficacy for negotiating needs further exploring. Study 3 included perceived student cohesiveness in the model. However, it was only measured at the beginning of the simulation. If we want to increase our understanding about the relationship between perceived student cohesiveness and self-efficacy for negotiating, it would be advised to measure both aspects longitudinally. Moreover, next to a condition for learning, student cohesiveness might also be a valuable outcome of role-play simulations of political decision-making. Usherwood (2013) already introduced 'group-building' and 'group-socialization' as important outcomes of the simulation process. Considering our review study showed that most simulations are implemented in undergraduate courses, this might be valuable for higher education research that focuses on the transition to higher education. For example, research points to the importance of social integration for student retention during the first-year in higher education (Wilcox, Winn, & Fyvie-Gauld, 2005). If role-play simulations contribute to the development of student cohesiveness, they might also play a role in supporting the process of social integration when used within the first year of higher education.

The aspect of student **agency** contributes to simulation's social dynamics. *This dissertation contributes limitedly to unravelling elements of student agency*, only by investigating personal sources of self-efficacy and considering the simulation preparation. However, we belief the aspect of student's assigned **role** should receive more attention in future research. Acting out his/her role, the student contributes to the verisimilitude of the simulation because his/her actions and decisions could relate more or less to the actual position of the assigned role. This also shapes simulation's 'flexible' structure, for example by forging a minority block. Additionally, this contributes to the social dynamics, for example in order to forge a minority block students need to approach other delegates (social persuasion). Previous research already endeavoured to illuminate if the aspect of acting out a more or less power role contributed to variation in student learning outcomes (Baranowski & Weir, 2010; Chernotsky, 1990; Kalaf-Hughes & Mills (2016). However, rather than *if* we consider it important to increase our understanding about *how* student's assigned role contributes to variation in student learning outcomes. Therefore, we believe future research should focus on both the individual level and

the team level of the simulation process. Based on student's role we can distinguish two **team** levels: (1) the group of students that belong to the same Council or Committee (e.g., Foreign Affairs Council), and (2) the group of students that represent the same country or party (e.g., European People's Party). It could be interesting to investigate if students of the same country or setting perceive the simulation process more or less in the same way. Additionally, research could reveal to what extent choices made by participants reflect realistic positions and collaborations, and thus shape the simulation's verisimilitude.

Students' perceptions of simulation's **verisimilitude** also need further exploring. This dissertation's findings showed that simulation's real-world degree does not extensively contribute to self-efficacy for negotiating development. However, *our design did only focus on the interplay of sources and did not probe into causal relationships between sources*. It could be that perceptions of low verisimilitude trigger other sources. For example, perceived low verisimilitude could trigger doubt ("Is this really the procedure?") and increase the chance that self-efficacy decreases, or they could trigger vicarious experience ("I know it better, that's not the procedure") and increase the chance that self-efficacy increases. As our examples suggest, it might be interesting to examine the interplay between perceived verisimilitude and general self-belief, in particular when studying self-efficacy for negotiating development.

It is also necessary to further investigate the differential impact of the simulation **structure** on student learning outcomes, such as self-efficacy for negotiating. This is particularly necessary to check generalisation of our findings because *this dissertation solely focused on several-day simulations.* However, our review study pointed to most simulation practices being characterized by smaller sizes and shorter duration. In particular, examining structure in relation to elements of simulation's social dynamics might be useful. For example, simulations that take up less time could provide less opportunities for vicarious experiences or experiences of social persuasion to occur, or even for success-related experiences altogether. Or, it might be that the quality of the experience contributes substantially more to self-efficacy for negotiating beliefs than the quantity. For example, students might perceive a higher amount of student cohesiveness in smaller groups, which might result in a higher impact of a success-related experience on student's self-efficacy for negotiating. Overall, this brings us back to our first suggestion for future research, which emphasized the importance of unravelling the relationship between the elements of simulation's social dynamics.

Overall, future research needs to dive deeper into the simulation process in order to increase our understanding of elements that define different simulation features, and of their interplay that contributes to the dynamics of the simulation process and student learning outcomes.

Studying student learning outcomes
Following our suggestions to study the simulation process more in depth, current simulation research practices need to change in three ways. First, future research should step away from only focusing on cognitive **outcomes**, such as knowledge and understanding. This dissertation contributes considerably by confirming that affective learning outcomes are suitable learning outcomes to focus on when examining the simulation process. In a next step, research could relate insights about the simulation process to components of the broader learning context, or other learning outcomes. So far, research has only limitedly studied affective learning outcomes, such as interest in the EU, political interest, or interest in politics (Baranowski, 2006; Kalaf-Hughes & Mills, 2016; Rünz, 2015).

Second, the use of objective **measures** such as grades add little to our understanding of how the simulation contributes to student learning outcomes. This dissertation contributes by confirming that student's perspectives on the learning environment and on learning outcomes remain important to increase our understanding about students' learning process. Used measures should be adapted to the short time frame over which a simulation can unfold. For example, in study 3 results showed a significant but small contribution of time to self-efficacy for negotiating development. However, larger Likert-scales might have been able to capture change more accurately. Our study 2 applied in higher education validated measures for the first time in the learning context of role-play simulations of political decision-making. Results were promising, however, cross-validated research is needed to further test validity and reliability of these and other measures in various contexts of role-play simulations of political decision-making.

Third, putting more emphasis in research on the simulation process and student perspectives also has its implications for used research **methods**. Contrary to current research practises that often have a cross-sectional design, when studying processes that unfold over time, research should include a longitudinal and preferably mixed method research design. For example, the quantitative longitudinal approach of study 3 increased our understanding of how self-efficacy for negotiating developed over time. However, it fell short in comprehensively explaining varia-

tion in self-efficacy development. Unravelling the interplay of factors that influence self-efficacy development needed a more person-centred approach, and more in-depth research. Therefore, study 4 used a longitudinal qualitative approach. As such, this dissertation used a mixed method approach. With regard to the outcome of self-efficacy research, Usher et al. (2018) already emphasized the importance of mixed method designs to give meaning to found relationships between the sources and self-efficacy in quantitative research. To increase validity and reliability of findings, qualitative designs should aim for triangulation (time, researchers, data), as applied in study 4.

Including individual characteristics

Findings of study 1 show that most simulation research only includes learning out-comes in their design, without taking any other learning environment components into account. However, our findings point out that future research should at least take some student characteristics into account. Aiming to increase insights into how role-play simulations of political decision-making contribute to student learning outcomes for which students, future research could look for groups of students that experience the simulation process in a similar way, for example, by looking for **student profiles** that follow similar growth trajectories in self-efficacy develop-ment. Such findings could also be investigated with regard to other learning out-comes.

Probing into the relationship between self-efficacy sources and self-efficacy devel-opment, findings of study 4 pointed to the personal source of **general self-belief**. This needs further exploring because we were only able to define doubt-related thoughts. However, students might also be influenced by thoughts of 'strength'; e.g., 'I do not get confused easily'. This implies that sources of self-efficacy do not necessarily relate to situational conditions. Exceeding situational 'self-talk' there might be a 'higher order' of beliefs that influences how students interpret infor-mation from different sources. For example, this could play a role in how students handle issues of perceived lower verisimilitude during the on-going simulation. It could also be that students with a general doubtful self-belief are more hindered in their learning process during the on-going simulation.

Broadening to the broader learning context

Future research could also examine how aspects of the broader learning context, which includes the role-play simulation, relate to the simulation process and con-tribute to student learning outcomes. We elaborate on the aspect of **debriefing**

because this allows drawing deeper lessons for learning by providing students with the opportunity to reflect on their actions (Crookall, 2010). Particularly its relationship with self-efficacy for negotiating development might be relevant to investigate, because self-efficacy also relies on student's reflecting skills to evaluate one's own beliefs (Bandura, 1997). Studies on role-play simulations of political decision-making often report about the importance of reflective assignments and debriefing sessions (Elias, 2014; Jozwiak, 2013; Usherwood, 2013). However, they seldom elaborate on how to specifically conduct a debriefing. Our review study points to a variation of methods used: oral discussion and reflection, writing assignments, or a combination of oral and written reflecting activities. However, future research needs to explore further how debriefing exactly contributes to student learning outcomes, such as self-efficacy beliefs. For example, should debriefing be one single post-simulation activity or a continuous activity that triggers students to reflect on their behaviour throughout the simulation? In study 4 we conducted repeated interviews in order to capture which sources influence student's self-efficacy for negotiating development. During interviews students were triggered to reflect on their and other students' behaviour performed during the on-going simulation. Students learning process might thus be influenced by these repeated interviews, which could have functioned as a continuous debriefing. This confirms the need to further investigate how debriefing adequately contributes to reflective learning and student's learning process.

Implications for educational practice

The key findings of this dissertation enable us to formulate several implications for practice.

By unravelling the simulation process and its dynamics, findings in this dissertation do not only confirm variation in the simulation process (Usherwood, 2015) but also innovate by pointing to which elements contribute to the simulation dynamics and how some elements relate to student learning outcomes. Simulation features of structure, agency, verisimilitude, and social dynamics provide a more detailed perspective of aspects to consider when designing a simulation. However, the only feature that teachers really have control over is the aspect of 'stable' structure. For example, teachers can choose simulation's size or duration. Other features are predominantly dependent on the way the simulation unfolds, which even could result in unintended processes that could hamper simulation's verisimilitude. Next to structure, student agency shapes simulation's verisimilitude and social dynamics.

Although this feature is mainly out of teacher's control, we see two ways in which teachers could indirectly influence and support student agency.

First, student agency could be influenced by generally giving more attention to the self-efficacy for negotiating outcome. By definition, self-efficacy includes the skill to **self-evaluate** one's own abilities (Bandura, 1997), which allows students to monitor and evaluate their own progress. One way to support the development of self-efficacy skills is self-assessment, which refers to students assessing their own work (Panadero, Jonsson, & Botalla, 2017). Having students assess their progress provides them insights into their own performance and competences, which in turn strengthens their self-efficacy (Schunk, 1996). Next to having a positive influence on students' self-efficacy skills, self-assessment also positively influences academic performance and students' self-regulating strategies (Brown & Harris, 2013; Panadero et al., 2017), of which the latter includes self-reflection skills. As such, expecting students to self-assess their negotiating skills would contribute to their negotiating performance, and to self-directing and – if necessary – adapting their negotiating behaviour. This contributes to the simulation process but also to skills that exceed the simulation activity. Our findings pointed to the ambivalent relationship between cumulative simulation experiences and self-efficacy for negotiating. The ability to monitor one's own learning process most certainly also facilitates the transfer of learning across simulations.

Second, our findings showed that most simulations include **preparatory activities** that focus on outcomes of knowledge and understanding (e.g., writing position papers). Training negotiating skills is not explicitly mentioned, although it might be covered in other modules of the curriculum. Considering that preparation contributes to student's agency during the simulation, we recognize the importance of preparing students with the skills and knowledge needed to perform in the simulation-based learning environment. We advise to focus more explicitly on skill training. Negotiating skills include those skills that are specifically related to the simulation context such as arguing, debating, coalition formation, and the art of diplomacy. However, these also include more generic skills, oral communication skills, and public speaking (Crossley-Frolick, 2010; Elias, 2014; Obendorf & Randerson, 2013). Training such skills could be especially important for students with a doubtful general self-belief, as it would provide them with important opportunities for success-related experiences that could boost their self-efficacy beliefs. Unintended simulation dynamics, and thus unintended learning processes and outcomes, prob-

ably could be avoided when students feel better prepared and more confident to participate in the simulation.

Our last suggestion is related to the importance of the social dynamics of role-play simulations of political decision-making. Students who know other students better, who perceive other students as more helpful and supportive show significant larger increases in self-efficacy development. Teachers should be aware that the **group composition** most certainly contributes to students' learning outcomes. Student groups that are more familiar with each other and that have already created a safe and supportive atmosphere seem to be beneficial for developing self-efficacy beliefs during role-play simulations of political decision-making.
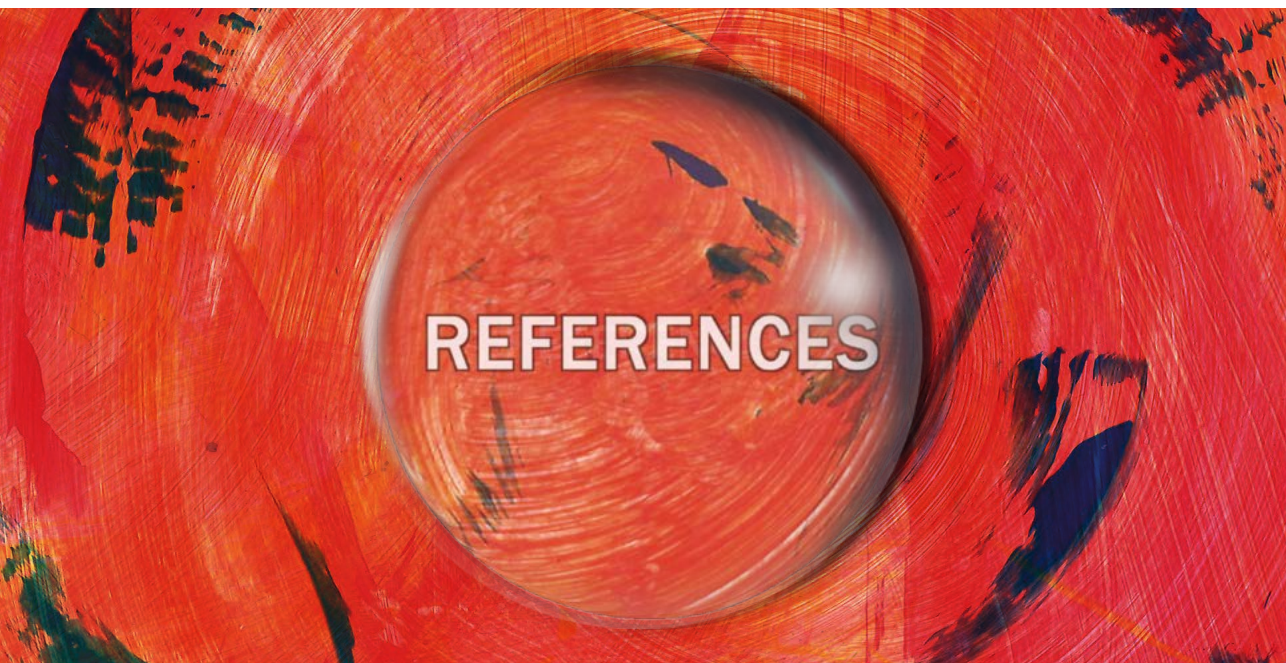
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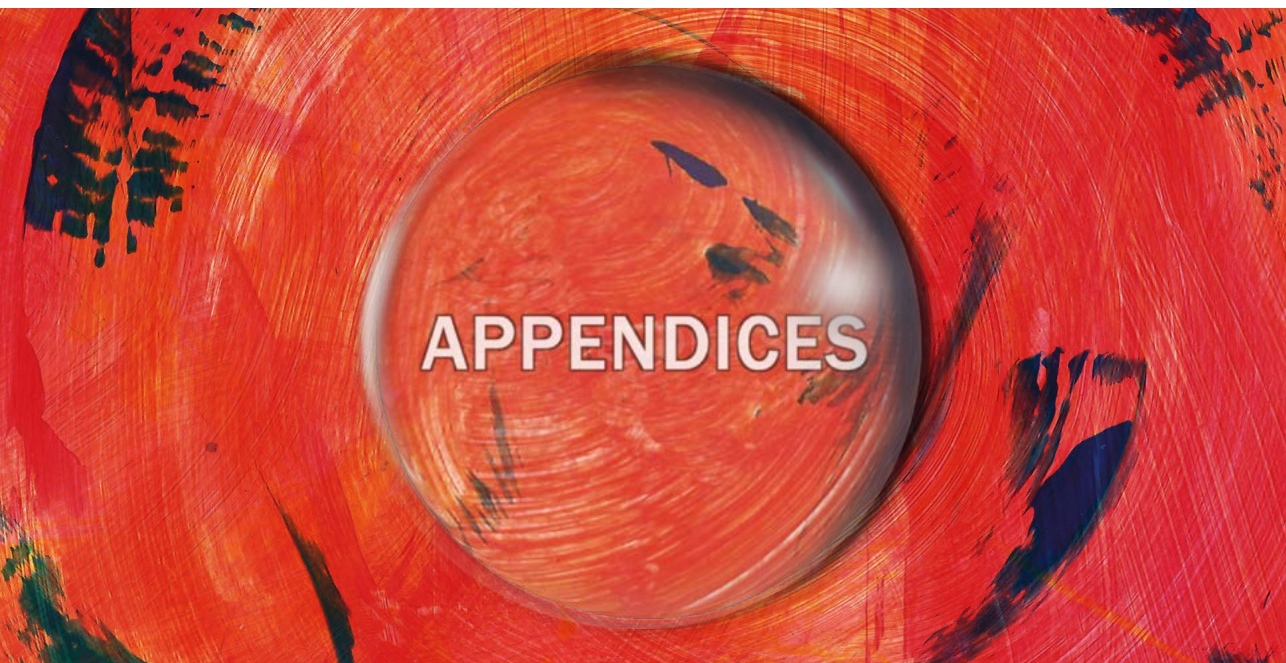
APPENDICES

Appendix 1

Detailed overview of reported learning environment components

Study	Simulation design					Simulation Programme	Teacher Involvement	Preparation				Role Assignment	Played Role	Student Characteristics				Learning objectives					Debriefing	Assessment			Learning outcomes				
	C	Se	T	Si	D			Me	Re	W	Pr			D	PE	M	B	K	S	Co	Mo	WA	O	Pre	P	Post	CLO	K	S	ALO	RLO
Andonova & Mendoza-Castro (2008)	IR	UN	C	ES	SC	X	X	X	X	X	X			X				X	X	X	X	X		X		X	X	X	X	X	
Baranowski (2006)	CP	USC	C	S	C		X	X	X			X		X	X	X							X				X				
Baranowski & Weir (2010)	CP	USC	C		C		X	X	X			X	X	X					X				X				X				
Bernstein (2008)	CP	USC	C	S	SD			X	X	X				X				X	X	X	X	X					X	X	X	X	
Bertsch & Feste (1974)	EU	O	C		SD		X	X	X					X				X			X				X		X	X	X	X	
Biziouras (2013)	CP	NSC	C	S	C			X	X	X				X				X				X	X				X				
Chernotsky (1990)	CP	NSC	C	S	SC		X	X	X			X	X	X				X					X				X				
Ciliotta-Rubery & Levy (2000)	CP	USC	C		SC				X					X				X	X		X	X					X	X			
Cowley & Stuart (2015)	CP	O	C	S	C		X	X				X	X**	X				X					X				X				
Crossley-Frolick (2010)	IR	UN	C	S	SC	X	X	X	X	X	X	X		X				X	X		X	X	X	X		X	X	X	X	X	X
DiCicco (2014)	CP	NSC	C		SC	X	X	X	X	X	X	X		X				X	X				X	X	X		X	X	X	X	
Elias (2014)	EU	EU	C	M	SC	X	X	X	X	X				X				X	X				X	X	X	X	X	X	X		
Foster et al. (1980)	CP	UP	C		C									X					X											X		

Table spanning: **Simulation structure** (Simulation design, Simulation Programme, Teacher Involvement) · **Simulation agency** (Preparation, Role Assignment, Played Role) · **Student Characteristics** · **Broader learning context** (Learning objectives, Debriefing, Assessment) · **Learning outcomes**

Study	C	Se	T	Si	D	Simulation Programme	Teacher Involvement	Me	Re	W	Pr	Role Assignment	Played Role	D	PE	M	B	K	S	Co	Mo	WA	O	Pre	P	Post	CLO K	CLO S	ALO	RLO
Frederking (2005)	CP	USC	C	SC	SC			X	X	X		X		X				X	X			X	X				X	X	X	
Galatas (2006)	EU	EU	C	ES	SC	X	X	X	X	X		X		X			X	X	X			X	X				X			X
Hazleton & Mahurin (1986)	IR	UN	M	EL				X	X	X	X	X		X			X	X	X					X	X	X	X			
Jones (2008)	EU	EU	M	EL	SD		X							X		X	X	X	X								X	X	X	X
Jones & Bursens (2015)	EU	EU	M	EL	SD	X	X	X	X	X				X			X					X					X	X	X	
Jozwiak (2013)	EU	EU	C	S	SC	X	X	X	X	X	X			X									X				X	X	X	
Kalaf-Hughes & Mills (2016)	CP	USC	C	S	SC	X		X	X	X		X	X	X	X	X		X				X					X	X		
Levintova et al. (2011)	IR	UN	C	EL		X	X	X	X					X				X	X	X		X	X				X	X	X	
Levintova & Mueller (2015)	IR	UN	C	EL				X	X					X				X				X	X				X			
Lowry (1999)	IR	O	C	S	D		X	X	X	X		X		X				X					X	X	X		X		X	
Mariani & Glenn (2014)	CP	USC	E	M	SC	X	X		X	X		X		X	X	X		X	X	X			X	X	X		X	X	X	
Mathews & LaTronica-Herb (2013)	CP	USC	C	S	SC	X		X		X				X				X	X		X	X					X		X	
Obendorf & Randerson (2013)	IR	UN	M		D	X	X	X	X	X	X	X		X				X	X			X	X	X	X	X	X	X	X	

Study	C	Se	T	Si	D	Sim. Programme	Teacher Involvement	Me	Re	W	Pr	Role Assignment	Played Role	D	PE	M	B	K	S	Co	Mo	WA	O	Pre	P	Post	CLO K	CLO S	ALO	RLO
Osgood et al. (2012)	CP	UP	C	S	SC		X	X*	X	X	X	X		X				X			X	X	X	X			X		X	X
Rackaway & Goertzen (2008)	CP	USC	C	S	C			X	X			X		X				X	X			X	X	X	X	X	X	X		
Rinfret (2012)	CP	UP	C	S	SC			X*		X		X		X				X				X			X	X	X			
Rinfret & Pautz (2015)	CP	USC	C	S	SC	X		X	X	X		X		X				X					X	X	X		X			
Ripley et al. (2009)	IR	UN	E	S	D	X							X	X				X	X								X	X		
Rünz (2015)	EU	EU	E	EL	SD	X		X						X	X	X	X	X									X		X	
Sands & Shelton (2010)	CP	USC	C	S	SC		X	X				X		X				X					X		X	X	X			
Taylor (2011)	CP	UP	C	S	SC		X	X		X		X		X				X	X				X	X	X	X			X	
Wallin (2005)	CP	USC	C	M	SC	X	X	X	X	X		X		X				X							X		X	X	X	
Zaino & Mulligan (2009)	M	O	C	L	D	X	X	X	X	X		X		X				X					X	X	X	X	X			

Simulation design: C – Content (IR – International relations, EU – European studies, CP – Comparative Politics, M - Mixed), Se – Setting (UN – United Nations, EU – European Union, USC – US Congress, NSC – National Security Council, UP – Urban Politics, O – Other), T – Type (C – Course-embedded, E – Extra-curricular, M – Mixed), Si – Size (XS – < 15, S – 15-35, M – 35-70, L – 70-120, XL – >120), D – Duration (C – 1 class, SC – Several classes, D – 1 day, SD – Several days); Preparation: Me – Meetings, Re – Research, W – Writing, Pr – Presenting; Student factors: D – Demographics, PE – Prior experience, M – Motivational aspects, B – Beliefs; Objectives: K – Knowledge & Understanding, S – Skills, Co – Confidence, Mo – Motivation; Debriefing: WA – Written assignment, O – Oral debriefing; Assessment: Pre – Pre-simulation assignments, P – Simulation Performance, Post – Post-simulation assignments; Learning outcomes: CLO – Cognitive learning outcomes: K – Knowledge & Understanding, S – Skills; ALO – Affective learning outcomes: S – Skills; RLO – Regulative learning outcomes; * These meetings include one attendance at a local government meeting; ** Roles are also assigned to practitioners

Appendix 2 — Measuring motivation, interest and self-efficacy

Autonomous motivation

I'm motivated for *my field of study* because…

1. … I want to learn new things.
2. … I am highly interested in doing this.
3. … it is personally important to me.
4. … I enjoy doing it.
5. … this represents a meaningful choice to me.
6. … it's fun.
7. … this is an important life goal to me.
8. … it's an exciting thing to do.

Individual interest

9. I am very interested in *the European Union*, including issues of negotiation and decision-making.
10. Outside of school, I read a lot about the *European Union* (newspapers, internet…).
11. I always look forward to *'European Union'* classes, because I enjoy them a lot.
12. I am interested in the *European Union* since I was young.
13. I watch a lot of *European Union*-news on TV or the internet.
14. Later in my life I want a *European Union*-related job.
15. When I am reading or watching news about the *European Union,* I am fully focused and forget everything around me.

Situational interest

Topic: EU decision-making process, EU negotiation, or EU refugee and asylum policy

16. I want to know more about this topic.
17. I enjoy working on this topic.
18. I think this topic is interesting.
19. I expect to master this topic well.
20. I am fully focused on this topic; I am not distracted by other things.[*]
21. Presently, I feel bored by this topic.

Self-efficacy

22. I think I'm a good negotiator.
23. Compared to some other students, I think I'm a considerably good negotiator.
24. I'm satisfied with my negotiating skills.
25. I'm confident with my ability to negotiate.

Appendix 3 Schedule of the AntwerpMUN-simulation, edition 2016

	Day 1	Day 2	Day 3	Day 4
8:30 - 9:00	Registration[b]			
9:00 - 9:30	"	Committee Session[a]	Committee Session[a]	
9:30 - 10:00	"	"	"	
10:00 - 10:30	Opening ceremony[b]	"	"	
10:30 - 11:00	"	"	"	Committee Session[a]
		Time 3[c]	**Time 7**[c]	
11:00 - 11:30	"	Break[b]	Break[b]	"
11:30 - 12:00	"	Committee Session[a]	Committee Session[a]	Break[b]
12:00 - 12:30	Reception/lunch[b]	"	"	Committee Session[a]
12:30 - 13:00	"	"	"	"
		Time 4[c]	**Time 8**[c]	**Time 11**[c]
13:00 - 13:30	Photo moment[b]	Lunch[b]	Lunch[b]	Lunch[b]
13:30 - 14:00	Mock debate[a]	"	"	"
14:00 - 14:30	Committee session[a]	Committee Session[a]	Committee Session[a]	"
14:30 - 15:00	(Opening speeches[a])	"	"	Committee Session [a]
15:00 - 15:30	"	"	"	(Final draft resolutions[a])
15:30 - 16:00	Break[b]	"	"	
	Time 1[c]	**Time 5**[c]	**Time 9**[c]	**Time 12**[c]
16:00 - 16:30	Committee Session[a]	Break[b]	Break[b]	Closing ceremony
16:30 - 17:00	"	Committee Session[a]	Committee Session[a]	Awards[b]
17:00 - 17:30	"	"	"	
17:30 - 18:00	"	"	"	
	Time 2[c]	**Time 6**[c]	**Time 10**[c]	
21:00 - 21:30	Pub crawl[b]	Quiz[b]		
21:30 - 22:00	"	"		
22:00 - 22:30	"	"	Gala[b]	
22:30 - …	"	"	"	

[a]Formal program – [b]Informal program – [c]Measurements

Day	Time	Simulation agenda	Researcher 1 Student 1	Researcher 1 Student 2
1	15.00	opening ceremony +	Pre-briefing	Pre-briefing
	16.30-18.00	plenary session		
	18.00-19.30	opening banquet dinner		
	19.45-20.15	standard meetings	Observation	
	20.15	END	20.15-20.30 Interview	20.30-20.45 Interview
			PASSLET	PASSLET
2	9.00-10.45	standard meetings	Observation	
	10.45-11.15	break	Observation	
	11.15-12.45	standard meetings	Observation	
	13.00-14.00	lunch	13.00-13.15 Interview	13.15-13.30 Interview
	14.00-15.30	plenary session		
	15.30-16.00	break		Observation
	16.00-16.30	non-standard meetings		Observation
	16.30-17.45	standard meetings		Observation
	17.45	END	18.00-18.15 Interview	17.45-18.00 Interview
			PASSLET	PASSLET
3	9.00-10.45	standard meetings		Observation
	10.45-11.15	break		Observation
	11.15-12.45	standard meetings		Observation
	13.00-14.00	lunch	13.15-13.30 Interview	13.00-13.15 Interview
	14.00-15.15	plenary session		
	15.15-15.30	break	Observation	
	15.30-16.30	standard meetings	Observation	
	16.30	END	16.30-16.45 Interview	16.45-17.00 Interview
			PASSLET	PASSLET
4	9.00-11.15	standard meetings		Observation
	11.15-11.45	break		Observation
	11.45-13.00	plenary session		
	13.00-14.00	lunch	13.15-13.30 Interview	13.00-13.15 Interview
	14.00	END	PASSLET	PASSLET

Appendix 4B   Semi-structured form used for interviews and passlet

HOW DID YOUR BELIEF IN YOUR NEGOTIATING SKILLS INCREASE? (*)

Short example: *During the coffee break (**where**) Estonia (**who**) told me that I had made clear arguments for preserving the coal industry. However, I felt nervous and unconfident at the time I was asked to take the floor (**factual situation**). Receiving this compliment increased my self-belief about how I handled the situation. I felt confirmed in my negotiating abilities and more confident at the time the next standard meeting started (**impact**).*

1. WHERE?

☐ standard meeting   ☐ non-standard meeting   ☐ breaks

          ☐ plenary session   ☐ off-schedule (breakfast, bus, bar,…)

2. WHO OR WHAT?

MY BELIEF IN MY NEGOTIATING SKILLS <u>INCREASED</u> BECAUSE OF…	
3. FACTUAL SITUATION	**4. IMPACT**
Elaborate on the situation in detail	*Elaborate on how exactly your self-belief increased*

(*) Similar formats were used for negatively influencing events and for contextual conditions that promote or inhibit negotiation behaviour.

Appendix 4C   Observation list (based on Bandura (1997) and Reeve et al. (2004))

DAY..............   TIME FRAME........................   STUDENT........................   SETTING........................

BEHAVIOUR

Behaviour and attitude descriptions (*)

Action
Passive
(*not taking the floor, not posing questions, not initiating contact...*)

1 2 3 **4** 5 6 7
n.v.t.

Active
(*taking the floor, taking initiative, initiating contact...*)

Perseverance (*when encountering challenges, failure, or confusion*)
Gives up easily

1 2 3 **4** 5 6 7
n.v.t.

Persists

Attention
Dispersed attention

1 2 3 **4** 5 6 7
n.v.t.

Focused attention

ATTITUDE

Involvement
Flat
(bored, disinterested,...)

1 2 3 **4** 5 6 7
n.v.t.

Positive
(enjoyment, interested, flow...)

Anxiety
Nervous
(nervous, uncomfortable...)

1 2 3 **4** 5 6 7
n.v.t.

Relax
(in control, comfortable...)

(*) Behaviour and attitude descriptions can relate to:
facial expressions
posture (vb. alert, sitting in a sprawled position)
gestures (vb. supporting oral communication)
volume (loud enough?), pitch, tone (nervous, powerful), tempo (too fast?)
manner (vb. taking the floor, passing notes, whispering)

Note: for each rating: use the bold, underlined **4** as your anchor/starting point

Appendix 4D Patterns of sources of self-efficacy influencing self-efficacy for negotiating development (N_{total} = 27)

Events	Personal sources		Social sources			Contextual sources	Outcome
	Mastery experience (1 = success; 0 = failure)	Physiological/ emotional state (1 = positive; 0 = negative)	Negative beliefs (1 = doubt; 0 = no doubt)	Vicarious experiences (1 = present; 0 = absent)	Social persuasion (1 = present; 0 = absent)	Low verisimilitude (1 = low verisimilitude; 0 = no verisimilitude issues)	Self-efficacy outcome (1 = increase; 0 = decrease)
1	1	0	0	0	1	0	1
3, 4, 7, 9, 11, 18, 19, 26, 27	1	1	0	0	1	0	1
5, 22, 25	1	1	0	0	1	1	1
6, 12, 13, 15, 17	1	1	0	1	1	0	1
2	0	0	0	1	0	1	0
16	0	0	1	0	0	0	0
8	0	0	1	1	0	0	0
10, 21	0	0	1	1	0	1	0
14, 20, 23	0	0	1	0	1	0	0
24	0	0	1	0	1	1	0
n	27	27	8	9	22	7	27

DUTCH SUMMARY

Nederlandstalige samenvatting

Dit proefschrift focuste op zelf-effectiviteit voor onderhandelen als leeruitkomst binnen rollenspel-simulaties over politieke besluitvorming, een thema dat zich bevindt op het snijvlak van onderzoek naar onderwijs binnen politieke wetenschappen en onderwijspsychologisch onderzoek.

Rollenspel-simulaties over politieke besluitvorming zijn één van de meest voorkomende vormen van actief leren die ingezet worden om studenten politieke wetenschappen te laten leren over complexe, dynamische politieke processen. Tijdens dergelijke simulaties vertolken studenten de rol van bestaande politieke actoren (vb. ministers) terwijl ze een proces van politieke besluitvorming simuleren (vb. wetgevingsprocedure van de Europese Unie). Dergelijke leeromgevingen worden bijzonder gewaardeerd door studenten en docenten. Empirisch onderzoek naar hoe deze leeromgevingen leeruitkomsten van studenten beïnvloeden is echter nog steeds beperkt aanwezig. Bestaande studies zijn vooral beschrijvend en zijn weinig eenduidig in hun conclusies. Bovendien is er nog steeds weinig zicht op welke componenten de leeromgeving van rollenspel-simulaties van politieke besluitvorming precies bepalen en hoe het proces van de simulatie zelf bijdraagt tot leren.

Binnen de leeromgeving van rollenspel-simulaties van politieke besluitvorming richtte dit proefschrift zich op de leeruitkomst van **zelf-effectiviteit voor onderhandelen**. Zelf-effectiviteit verwijst naar het vertrouwen dat studenten hebben in hun eigen bekwaamheid om bepaalde taken succesvol te volbrengen. Het wordt beschouwd als een belangrijke leeruitkomst omwille van de positieve relatie die het laat zien met motivatie, academische prestaties en regulatieve leeruitkomsten (vb. monitoren van het eigen leerproces). Echter is zelf-effectiviteit binnen het hoger onderwijs slechts binnen een beperkt aantal domeinen onderzocht, vaak met aandacht voor verschillen tussen studenten (eerder dan verschillen binnen één student) en zijn de inzichten in welke factoren zelf-effectiviteit op welke manier beïnvloeden – mede door het contextuele karakter van zelf-effectiviteit – nog steeds in ontwikkeling. Zelf-effectiviteit voor onderhandelen is een relevante leeruitkomst om het proces binnen rollenspel-simulaties over politieke besluitvorming te onderzoeken omdat studenten tijdens de simulatie beroep moeten doen op hun onderhandelingsvaardigheden. Bovendien is meer zelf-effectiviteit gerelateerd aan meer veerkracht en doorzettingsvermogen, welke belangrijke aspecten zijn wanneer de onderhandelingen minder vlot verlopen.

Twee onderzoeksvragen stonden in dit proefschrift centraal: 'Welke componenten van de leeromgeving definiëren rollenspel-simulaties over politieke besluitvorming?' (OV1) en 'Hoe dragen rollenspel-simulaties over politieke besluitvorming bij aan de

ontwikkeling van zelf-effectiviteit voor onderhandelen?' (OV2). Om deze onder-zoeksvragen te beantwoorden werd een **mixed-method** design toegepast. Het integreren van de resultaten van vier uitgevoerde empirische studies leidde tot onderstaande antwoorden op de onderzoeksvragen.

De volgende componenten konden worden gedefinieerd als onderdelen van de **leeromgeving van rollenspel-simulaties van politieke besluitvorming** (OV1): studentkenmerken (vb. simulatie-ervaring), de leercontext die de rollenspel-simulatie omvat en leeruitkomsten.

Voor de simulatie als leeromgeving vonden we volgende kenmerken: structuur, 'agency', sociale dynamiek en waarheidsgetrouwheid. *Structuur* verwijst naar de simulatieomgeving waarbinnen studenten hun rol vorm geven. Deze bevat zowel een vaste (vb. thema op de agenda) als flexibele component waarbij deze laatste gevormd wordt door de keuzes die studenten doorheen de simulatie maken (vb. gevormde coalities). Het aspect van *'agency'* verwijst naar die keuzes die studenten maken binnen de simulatieomgeving. Docenten kunnen ervoor kiezen om meer of minder 'agency' aan de studenten te geven, vb. door het opnemen van een rol als voorzitter of secretaris binnen een EU Council-simulatie heb je mogelijk als docent meer invloed op het proces in vergelijking met compleet studentgeleide simulaties. De *sociale dynamiek* konden we eveneens definiëren als onderdeel van rollenspel-simulaties over politieke besluitvorming. Hier zien we een relatie met de hierboven gedefinieerde aspecten van 'agency' en flexibele structuur. Zo zullen studenten die kiezen om samen te werken met anderen met als doel het vormen van een coalitie de flexibele structuur van de simulatie mee vorm geven. Een laatste aspect betreft de *waarheidsgetrouwheid* van de simulatie. Elke simulatie omvat de uitdaging van het vinden van een geschikte balans tussen structuur en 'agency'. Onvoldoende balans kan de waarheidsgetrouwheid in het gedrang brengen. Bijvoorbeeld wan-neer studenten te veel vrijheid hebben in het maken van keuzes en de structuur studenten toestaat om af te wijken van waarheidsgetrouwe processen.

Naast kenmerken van de simulatieomgeving, konden we binnen de *ruimere leer-context* ook nog de elementen leerdoelen, debriefing en assessment onderschei-den. Tot slot konden zowel cognitieve (vb. kennis), affectieve (vb. zelf-effectiviteit) als regulatieve *leeruitkomsten* (vb. monitoren van het eigen leerproces) worden gedefinieerd.

Binnen de leeromgeving van rollenspel-simulaties over politieke besluitvorming onderscheidden we drie groepen van **factoren die de ontwikkeling van zelf-**
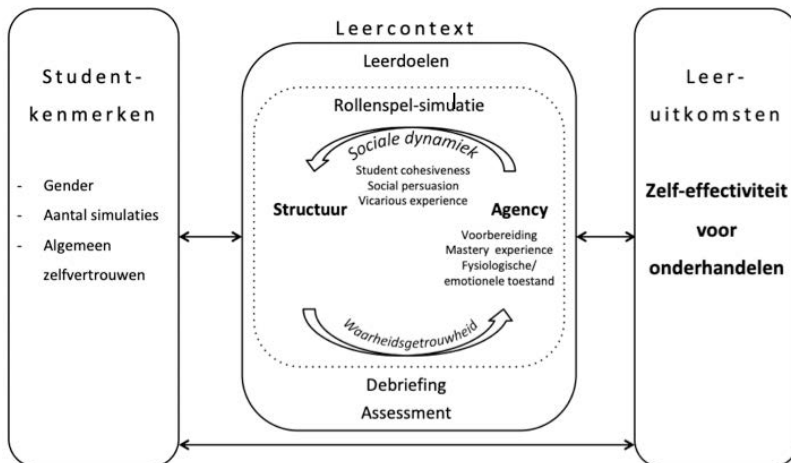
effectiviteit voor onderhandelen beïnvloeden (OV2): persoonlijke, sociale en contextuele factoren.

Als *persoonlijke* beïnvloedende factoren onderscheidden we gender, aantal simulaties, 'mastery experience' (succes/falen), fysiologische en emotionele toestand (vb. angst), en algemeen zelfvertrouwen. Concreet konden we vaststellen dat mannelijke studenten overwegend een hogere mate van zelf-effectiviteit voor onderhandelen rapporteerden dan vrouwelijke studenten. De relatie van het aantal simulaties met de gerapporteerde zelf-effectiviteit voor onderhandelen was niet eenduidig. Dit zou te maken kunnen hebben met het feit dat het hier ging over de kwantiteit (aantal) en niet de kwaliteit (succes, falen) van voorbije simulatie-ervaringen. Resultaten toonden aan dat 'mastery experiences' (succes/falen) binnen één simulatie consistent bijdroegen aan de ontwikkeling van zelf-effectiviteit voor onderhandelen (verhogen/verlagen) tijdens die simulatie. Dit gold ook voor fysiologische en emotionele toestanden waarbij positieve emoties (vb. trots) consistent bijdroegen aan een toename in zelf-effectiviteit. We vonden ook dat het algemeen zelfvertrouwen doorslaggevend kon zijn in het ontwikkelen van zelf-effectiviteit voor onderhandelen. Concreet kon een lager algemeen zelfvertrouwen leiden tot een daling van de zelf-effectiviteit voor onderhandelen en andere positieve aspecten (vb. positieve feedback) overrulen.

De tweede groep *sociale* beïnvloedende factoren omvatte 'student cohesiveness' (d.i. de mate waarin studenten elkaar kennen, helpen en steunen), 'vicarious experiences' (d.i. hoe studenten hun eigen prestaties evalueren ten opzichte van geobserveerde prestaties van andere studenten) en 'social persuasion' (d.i. gegeven complimenten of feedback). Onderzoeksresultaten toonden aan dat studenten die een hogere 'student cohesiveness' ervoeren een hogere mate van zelf-effectiviteit voor onderhandelen rapporteerden wat deed vermoeden dat verschillende sociale aspecten mogelijk het ontwikkelen van de zelf-effectiviteit beïnvloedden. We konden binnen één simulatie verschillende ervaringen van 'vicarious experiences' onderscheiden maar deze droegen enkel bij tot het beïnvloeden van zelf-effectiviteit wanneer ze samen voorkwamen met een andere factor. Bovendien leidden de bevindingen tot een uitbreiding van de definitie van 'social persuasion'. Naast 'directe' boodschappen konden we ook 'indirecte' boodschappen onderscheiden die gerelateerd waren aan het simulatieproces. Het benaderd worden door andere studenten of verkozen worden om je raad te vertegenwoordigen zijn voorbeelden van aspecten die onderdeel zijn van het simulatieproces en die consistent leidden tot een verhoging van de zelf-effectiviteit voor onderhandelen.

Als *contextuele* beïnvloedende factoren konden we de waarheidsgetrouwheid van de simulatie en voorbereiding op de simulatie onderscheiden. De mate van lagere waarheidsgetrouwheid (vb. afwezige partijen) kon zowel aanwezig zijn binnen situaties waarbij de zelf-effectiviteit toenam of afnam. Daarnaast verschilden studenten die een voorbereiding voor de simulatie hadden gehad niet betekenisvol van studenten die geen voorbereiding hadden gehad in de mate van zelf-effectiviteit voor onderhandelen. Terwijl een voorbereiding mogelijk zou kunnen helpen om succesvolle ervaringen op te doen op het vlak van onderhandelen en om gedachtes van algemeen minder zelfvertrouwen te verminderen. Deze bevinding leidt tot de behoefte naar meer inzicht in hoe studenten precies worden voorbereid op de simulatie.

Tot slot leidde het integreren van de verschillende gevonden concepten en relaties tot het ontwerpen van het **SimPol model** (model voor het onderzoeken van **Sim**ulaties over **Pol**itieke besluitvorming). In figuur 1 is dit model toegespitst op de leeruitkomst van zelf-effectiviteit voor onderhandelen. Gebruik van dit model laat toe om stap voor stap inzichten te verhogen in welke simulatie configuratie op welke manier bijdraagt tot welke leeruitkomsten voor welke student. Het model biedt een eerste aanzet tot het meer systematisch onderzoeken van effecten van rollenspel-simulaties voor politieke besluitvorming.

Figuur 1. Het **SimPol model** (aangepast voor zelf-effectiviteit voor onderhandelen)