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STUDENT DIVERSITY IN A CROSS-CONTINENTAL EU-SIMULATION

EXPLORING HIGHER EDUCATION STUDENTS' DIFFERENCES IN AFFECTIVE LEARNING OUTCOMES

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Abstract

This study is inspired by the expanding research that probes into the effectiveness of simulations within political science and the need for methodologically and empirically underpinned research in this area. In this study, we introduce different possible learning outcomes of simulations. Further, we present a motivational model for measuring affective learning outcomes, including motivation, self-efficacy and interest. These are known to be important predictors for other learning outcomes. Finally, we apply this model to explore students' differences in a cross-continental EU-simulation. 132 students participated in this study. We constructed a valid questionnaire, checking internal consistency and dimensionality. Students' differences were explored using ANOVA, and ANCOVA-analyses. Results indicate student diversity in affective learning outcomes and are discussed with regard to future research on simulation effects.

Keywords: political science; higher education; simulations; interest; motivation; self-efficacy

Overall, simulations in teaching political science are very much appreciated by teachers and students because of their degree of 'real world'-experience (Asal and Kratoville, 2013; Smith and Boyer, 1996; Van Dyke et al., 2000). For example, EU-simulations offer a chance to grasp the complexity of the European Union institutions and different actors at different levels (Guasti et al., 2015; Jones and Bursens, 2014). This verisimilitude is an important characteristic of simulations, as they should always represent a real situation of some sort, and thus be based on the imitation of a system or situation (Guetzkow et al., 1963; Landriscina, 2013; Sauvé et al., 2007). In an attempt to further define simulations within teaching political science, we rely on Wright-Maley (2015) who defined simulations in order to serve a clear use of the term within teaching social sciences. Next to verisimilitude, simulations should also include dynamism and variability, and active human agency. Therefore, the simulation has to be able to flow in unexpected directions based upon the participants' autonomously made decisions within the simulation's bounds (Dack et al., 2016; Leigh and Spindler, 2004; Wright-Maley, 2015). Also, they should incorporate participants in active roles through which phenomena are revealed (Wright-Maley, 2015). For example, widely spread model European Union (MEU) simulations meet these criteria, as may a three-hour in-class simulation of the European Council. It all depends on to what extent the simulation-design meets the essential criteria.

Teachers of political science have already been using such simulations as a teaching method for quite some time. Over the past decades, the use of simulations gradually expanded. Literature about the use of simulations in local political issues and international relations goes back to the 1970s and 1980s when case-studies (Davison, 1975, Mandel, 1987) and teacher guides (Karns, 1980; Khanlian and Wallin, 1975) were written to exchange experiences and expertise. Not much later, simulations were also implemented for teaching European Union (EU) politics (Brunazzo and Settembri, 2014; Zeff, 2003). Following this increased use of simulations, research on the effects of simulations within teaching political science has started to expand. However, literature that empirically tests the impact of simulations is still scarce. Many studies are rather descriptive and anecdotal; e.g. Jozwiak (2012) who describes an EU-simulation of the European Parliament using the chocolate directive. The use of different, mostly not validated, measurements hinders comparability and reflects poor methodology; e.g. by using different self-composed questionnaires (e.g. Andonova and Mendoza-Castro, 2008; Jones and Bursens, 2014) or not being able to match pre- and post-tests (e.g. Jones and Bursens, 2014). On the level of student perception, simulations are highly valued and perceived as beneficial (e.g. Andonova and Mendoza-Castro, 2008; Jozwiak, 2012). However, studies about the effect of simulations on achievement outcomes, such as grades, are inconclusive regarding the benefits (e.g. Jozwiak, 2012; Raymond, 2010).

Additionally, student diversity complicates measuring and interpreting simulation effects. Taylor (2013) illustrates this diversity by describing credit-bearing, non-credit-bearing and hybrid simulations. A credit-bearing simulation is course-embedded and therefore only attended by class-enrolled students. A non-credit bearing simulation is extracurricular. Students themselves decide on participating in the simulation and often these simulations are organized by a group of students, with or without faculty support. These simulations are characterized by more student diversity. Similarly, hybrid simulations feature student diversity as these simulations bring together students who participate in a course-embedded simulation with students who attend the simulation as an extracurricular activity.

Considering the need to measure simulation outcomes more effectively and the fact that a diverse student body more often characterizes simulations, the aims of this study are threefold. First, we introduce different possible learning outcomes, based on overall higher education research. Second, trying to grasp specific learning outcomes, we present a motivational model. Third, we apply the presented model to define student differences in a cross-continental EU-simulation.

DEFINING LEARNING OUTCOMES

Learning outcomes of simulations in teaching political science can be measured in different ways. From the angle of educational research, usually three general different learning activities and their resulting learning outcomes on a cognitive, affective, or regulative domain can be distinguished (Pintrich, 1994; Vermunt and Vermetten, 2004). These outcomes have been implicitly acknowledged in different studies that generally focus on teaching and learning political science, including simulations, but have not 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 and Vermetten, 2004). Within the research field of teaching and learning political science such learning outcomes are mostly specified as understanding better theoretical concepts and/or theories (e.g. Andonova and Mendoza-Castro, 2008; Asal et al.; 2014; Bridge and Radford, 2014; Elias, 2014; Enterline and Jespen, 2009; Galatas, 2006; Sands and Shelton, 2010), increased knowledge (e.g. Obendorf and Randerson, 2013; Zaino and Mulligan, 2009) and developed skills such as communication skills (e.g. Crossley-Frolick, 2010; DiCicco, 2014; Elias, 2014; Kaarbo and Lantis, 1997). In general, Usherwood (2013) defines substantive knowledge and skills development as possible learning outcomes of simulations, which are thus also part of the previously described cognitive learning outcomes.

A*ffective 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 and Vermetten, 2004) Research about the use of active learning within political science mostly defines these outcomes as interest (e.g. Arnold, 2014; Bridge and Radford, 2014; Roper, 2004; Zaino and Mulligan, 2009) or motivation (e.g. DiCicco, 2014; Jones and Bursens, 2015).

These 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 and Vermetten, 2004). This process of learning has thus far not directly been studied in the field of teaching and learning in political science. However, studies on simulations often report about the importance of reflective assignments, and debriefing sessions (e.g. Butcher, 2012; Crossley-Frolick, 2010; Elias, 2014; Jozwiak, 2012; Raymond and Usherwood, 2013; Sands and Shelton, 2010; Usherwood, 2013), which are activities that stimulate students to use their reflective skills and therefore foster *regulative learning outcomes* (Vermunt and Vermetten, 2004). An example of a regulative learning outcome is when students realize after the debriefing session that they should be more diplomatic in their negotiating skills. Therefore, they might decide to attend more simulations, also outside of school, and to watch more live negotiations on television or the Internet. Inherently, they thus start regulating their own learning process by adjusting their learning activities to achieve their predetermined goal.

Within teaching political science literature, Usherwood (2013) also suggests another learning outcome of simulations, which he defines as group socialization. This outcome refers to the opportunities simulations provide which allow for the development of a group identity and for introductions to problem-solving techniques. This phenomenon could also be included in the previously defined learning outcomes. Collaboration with peers during a simulation promotes several skills, which are cognitive learning outcomes e.g. collaborating, perspective taking, and problem solving.

Developing a group identity could also enhance affective learning outcomes, as identifying with the group of students, who are also attending the simulation, could motivate students to attend and participate in the simulation. Being part of a group could also be a motivational drive for students on itself. Group socialization also facilitates regulative learning outcomes, as it facilitates e.g. giving feedback, receiving feedback, and therefore it stimulates students to monitor their learning process.

Overall, research that focuses on the effectiveness of simulations could aim to elucidate cognitive, affective and/or regulative learning outcomes. A first step, in an attempt to verify this comprehensive model of learning outcomes within simulations, would be to focus on the affective learning outcomes. More specifically, in this study we present a motivational model, which includes the following concepts: motivation, self-efficacy and interest (Figure 1). These are important because they have proven to promote cognitive learning outcomes, often in the form of academic achievement (Bandura, 1997; Coutinho and Neuman, 2008; Kusurkar et al., 2013; Richardson et al., 2012; Rotgans and Schmidt, 2011b; Schiefele et al., 1992, 1995; Vansteenkiste et al., 2005) and regulative learning outcomes (Donche et al., 2013; Kusurkar et al., 2013; Rotgans and Schmidt, 2011b; Schiefele et al., 1995; van Dinther et al., 2011; Vansteenkiste et al., 2005).

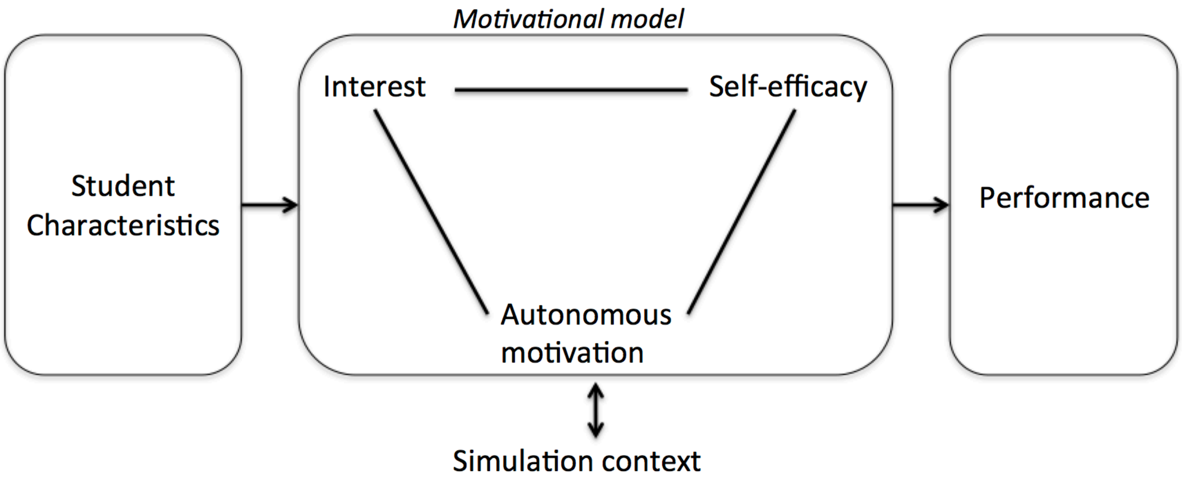


Figure 1. A motivational model representing affective learning outcomes in a simulation context.

A MOTIVATIONAL MODEL

Within the model three factors can be distinguished. First, student diversity is taken into account by means of different student characteristics e.g. gender, previous simulation experience. These student features influence different motivational aspects. More specifically, autonomous motivation, self-efficacy and interest are introduced as part of a motivational model, which can be defined as affective learning outcomes. Finally, the motivational outcomes influence other simulation outcomes, such as performance or achievement, which, depending on the type of simulation, can be related to previously set course objectives.

AUTONOMOUS MOTIVATION

Overall, in an educational context, motivation refers to what drives students for learning. The distinction between instrinsic and extrinsic motivation is well known. Intrinsic motivation, 'which refers to doing something because it is inherently interesting or enjoyable' can be distinguished from extrinsic motivation, 'which refers to doing something because it leads to a separable outcome' (Ryan & Deci, 2000: 55). Studies about motivation in teaching and learning political science usually approach motivation as a one-dimensional construct, in terms of how much motivation students have. When studying effects of simulations, students often are asked how their motivation developed, using either quantitative or qualitative measures (e.g. DiCicco, 2014; Jones and Bursens, 2014). However, one of the leading theories about motivation in education defines motivation as a multidimensional construct: the self-determination theory (SDT), developed by Deci and Ryan (2000). Where intrinsic and extrinsic motivation are considered as being opposite, SDT considers different types of motivation rather as a continuum (Deci and Ryan, 2000). Hence, it distinguishes the quantity or amount of motivation from the quality or type of motivation (Vansteenkiste et al., 2009). Applied to the effectiveness of simulations this implies that not how much motivation students experience would matter, but more so, what kind of motivation they have developed. This multidimensional approach results in a distinction between autonomous motivation, controlled motivation, and amotivation (Deci and Ryan, 2000).

Autonomous motivation is characterized by a sense of choice and psychological freedom (Deci and Ryan, 2000). Then, students themselves freely direct their learning process and learning behaviour. 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 realize the importance of the simulation for their professional development, for example when they realize 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 (Vansteenkiste et al., 2006). For example, students could feel pressured by themselves when they force themselves to attend as much simulations as possible because it would look good on their future 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 and Deci, 2000). For example, when 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 the most valuable one because it is an important predictor for academic achievement and has a strong relationship with the development of adequate regulative learning outcomes (e.g. Donche et al., 2013; Kusurkar et al., 2013; Vansteenkiste et al., 2005). As autonomous motivation is critical for cognitive and regulative learning outcomes, research has mostly focused on higher education student characteristics and their relationship with autonomous motivation. Previous studies reveal that female students report higher levels of autonomous motivation than male students (Vallerand et al., 1997; Vecchione et al., 2014). Also, motivation develops over time (Pan and Gauvain, 2012); e.g. research focusing on the first year in higher education reports a gradually increase of autonomous motivation (Kyndt et al., 2015). Furthermore, cultural context seems to be an aspect that also shapes motivation (Guay, 2016).

SELF-EFFICACY

A closely to motivation related concept is that of self-efficacy. Students' self-efficacy is mostly related to confidence, it refers to the individual beliefs that they are capable to learn and perform actions on designated levels (Bandura, 1997) and, overall, it contributes significantly to human attainments (Bandura, 1992). 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 et al., 2010). Moreover, it promotes further skill development and helps to engage and to persist in tasks, especially when encountering difficulties (Bandura, 1986, 1997). Therefore, simulation-attending students that 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; Coutinho and Neuman, 2008; Donche and Van Petegem, 2010; Richardson et al., 2012; van Dinther et al., 2011; 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 (Cassidy and Eachus, 2002; Niemivirta and Tapola, 2007; Tang et al., 2004). This results in more experienced students reporting more self-efficacy. In general, female students perform as capable as male students in various academic domains. However, they may report lower self-efficacy, especially at higher academic levels (Schunk and Pajares, 2008). Also, self-efficacy is shaped by the cultural context (Guay, 2016).

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 and Renninger, 2006). This implies that interest is, even more than motivation, related to the simulation context, topic and content. The approach to the concept of interest within the research field of political science education is similar to that of motivation. Also, to prove effectiveness, students are usually asked how the simulation influenced their interest in general or in the course subject, also using either quantitative or qualitative measures (Arnold, 2014; Bridge and Radford, 2014; Roper, 2014; Zaino and Mulligan, 2009). However, similarly to motivation, interest is not a unitary concept and can be distinguished in individual interest, which is enduring and context-general, and situational interest, which is spontaneous and context-specific (Hidi and Renninger, 2006; Rotgans, 2015; Schraw and Lehman, 2001). *Individual interest* is a more or less stable type of interest that slowly develops over time (Hidi and 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 reengagement with particular content over time (Hidi and Renninger, 2006; Rotgans, 2015). Hence, a strong individual interest for international politics may lead to students frequently attending Model United Union (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 these issues on the agenda.

On the contrary, *situational interest* is a fleeting type of interest that is triggered by environmental aspects (Hidi and Renninger, 2006; Rotgans, 2015). The use of games in the classroom e.g. Prisoner's Dilemma (Asal et al., 2014) may arouse students' situational interest by presenting them a puzzling problem. However, this type of interest is not stable and changes as situational conditions change. Within simulations, situational interest probably, as it is not empirically proven yet, fluctuates, depending on situational circumstances e.g. how well are negotiations going for your country, can you get your point come across, do you feel confident speaking in public, is the chair a nice person etc.

Similar to autonomous motivation and self-efficacy, interest is also an important predictor of academic achievement (Rotgans and Schmidt, 2011b; Schiefele et al., 1992,

1995) and regulative learning outcomes (Rotgans and Schmidt, 2011b; Schiefele et al., 1995). As students' individual interest for a domain makes them continuously reengage in activities, their difference in individual interest can be reflected in their amount of experiences (Renninger and Hidi, 2016). Students with more individual interest should seek for and reengage 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 sciences (Hoffmann, 2002) and mathematics (Bong et al., 2015). Furthermore, students may differ in developing situational and/or 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 and Hidi, 2016; Riconscente, 2013). This might imply that class preparation of a simulation, where content knowledge is introduced, might be of influence for students' interest development.

THIS STUDY

In this study, we apply the presented motivational model to define student differences in a EU-simulation called EuroSim. EuroSim is a four-day cross-continental simulation, which simulates all different actors contributing to the EU decision-making process, such as European Parliament, European Commission, European Council, relevant European Committees, NGO's, and press. It brings together students from different American and European universities, including from different fields of study and with different simulation experience. Moreover, it is a hybrid simulation, which includes students perceiving the simulation as course-embedded or extracurricular. Therefore, this context is mostly suited to explore student differences concerning affective learning outcomes of simulations. Hence, our research question is: How do students, who attend a several-day cross-continental EU-simulation, differ in their affective learning outcomes? (Figure 2)

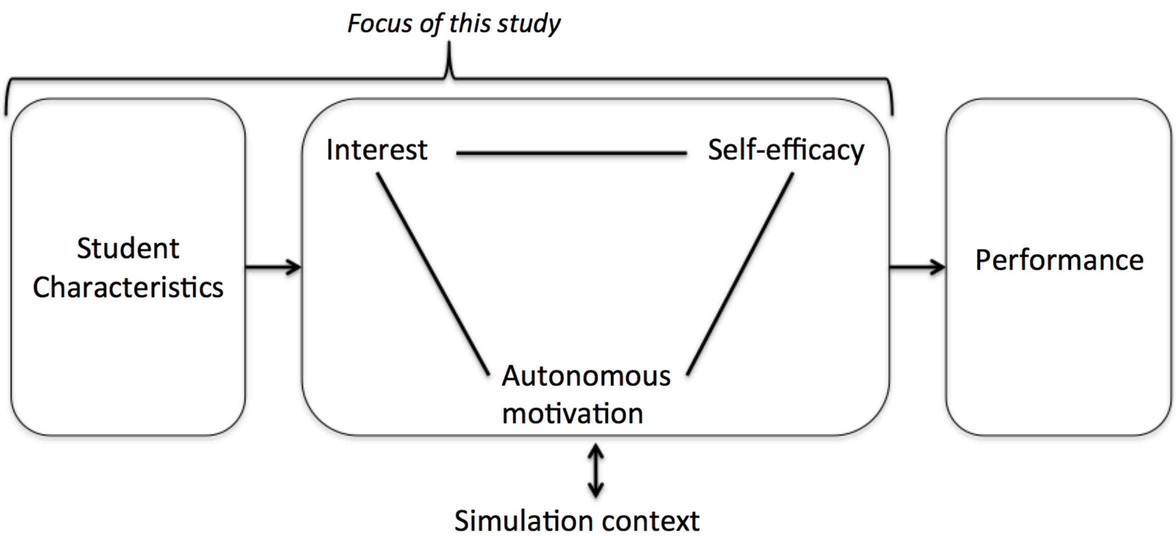


Figure 2. Focus of this study.

As we apply a self-developed motivational model, we expect the different constructs – autonomous motivation, self-efficacy, and interest – to correlate with each other, however in a way they can still be distinguished as separate constructs.

METHOD

SAMPLE

As previously described, this research was conducted during EuroSim, at that time, on the topic of EU asylum policies. Data were collected after a plenary lecture on the second day of the simulation. 139 out of the 180 attending 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. For 'Field of study' we could distinguish 5 categories of majors. Almost eighty per cent of our sample has a direct link with politics (in general, international or European). 'Number of Years in Higher Education' was divided into two groups with a cut point on 3 years, based on the bachelor-master structure. 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 (Total N = 132)

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
Field of Study				
Political science			52	39.10
International relations			33	24.81
European studies			21	15.79
Law			16	12.03
Other (e.g. media, history, economics…)			11	8.27
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

MEASUREMENTS

A questionnaire was developed using existing and, for higher education, validated scales. To measure affective learning outcomes the following scales were used: autonomous motivation (SRQ-A, Ryan and Connell, 1989; Vanthournout et al., 2012), individual interest (IIQ; Rotgans, 2015), situational interest (SIQ; Rotgans and Schmidt, 2011a, Rotgans and Schmidt, 2011b, 2014), and self-efficacy (ILS-SV; Donche and Van Petegem, 2008).

The items of the different scales were constructed with regard to a specific relevant topic. Hence, 'autonomous motivation' was to be answered in relation to students' field of study (8 items; e.g. 'I'm motivated for my field of study because I want to learn new things). For 'individual interest' all items were related to students' general interest for the European Union (7 items; 'I am very interested in the European Union, including issues of negotiation and decision-making). 'Situational interest' was measured with regard to negotiating, decision-making, or refugee and asylum policy (6 items; e.g. 'At this moment I think this topic is interesting'). 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; e.g. 'I think I'm a good negotiator').

Although all used subscales have previously been validated in higher education research contexts, because of their use 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 and Lomax, 2010), in this case several motivational constructs. To evaluate the models' fits, we rely on the χ^2 test of exact fit, the comparative fit index (CFI), the root mean square error of approximation (RMSEA) and the standard root mean square (SRMR) (Schumacker and Lomax, 2010). A CFI-value greater than or equal to.90 and SRMR- and RMSEA-value less than or equal to .08 are considered as indicators for a model with adequate fit. Additionally, a CFI-value greater than or equal to .95, SRMR-value less than or equal to .06 and RMSEA-value less than or equal to .05 are indicators for a model with excellent fit (Hu and Bentler, 1999). Results can be found in 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 and 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	.000	.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*

Finally, correlations and descriptive statistics for all dependent variables are presented in Table 3. These findings 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 et al., 2011) to consider them as different constructs. These features allow combining them in a motivational 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**

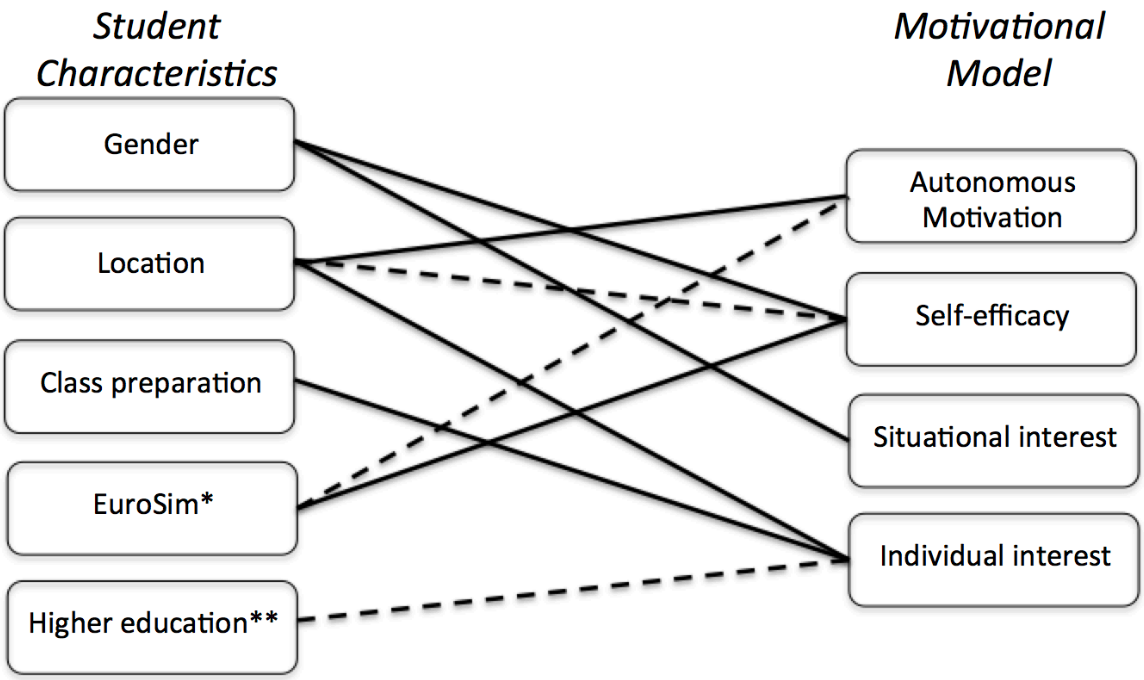
****p ≤ .001, **p ≤ .01, *p ≤ .05*

PLAN OF ANALYSIS

To explore student differences one-way ANOVA-analyses[1] and several independent t-tests were conducted. We compared means for each subscale in the following different conditions: gender, location of the university (EU/US), class preparation, number of years attending EuroSim, and number of years in higher education. Students' differences were 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

All results are presented in Figure 3. Each line defines a relationship between a student characteristic and a specific motivational construct. Each dashed line represents a relationship that no longer appears when included in a multiple model.



* *Number of years attending EuroSim; ** Number of years attending Higher Education*

Figure 3. Students' Differences Related to specific Affective Learning Outcomes.

Regarding autonomous motivation for students' field of study, results show that US-students (*M* = 4.41; *SD* = .54) score significantly higher than EU-students (*M* = 4.07; *SD* = .57); t (131) = 3.51, p = .001; Cohen's *d* = .61). Also, students who attended EuroSim for at least the second time (*Mdn* = 4.63), show to have more autonomous motivation for their field of study than students who attended for the first time[2] (*Mdn* = 4.19, *U* = 1366, p = .04, r = -.18). 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-analysis, results only reveal a significant relationship between location and autonomous motivation (F (1,130) = 7.56; $p < .01$; $\eta^2_p = .06$).

Regarding self-efficacy for negotiating (Table 4), male students score significantly higher than female students[3]. 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[3].

Table 4

Results of one-way ANOVA-analyses for '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*

A multiple model still shows a significant relationship between self-efficacy and number of years attending EuroSim (F (1,129) = 4.11; p < .05; η^2_p = .03), and self-efficacy and gender (F (1,129) = 11.39; p < .01; η^2_p = .08). These results are presented in Figure 4. The relationship with location disappears (F (1,129) = 1.609; p = .207). Figure 4 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.

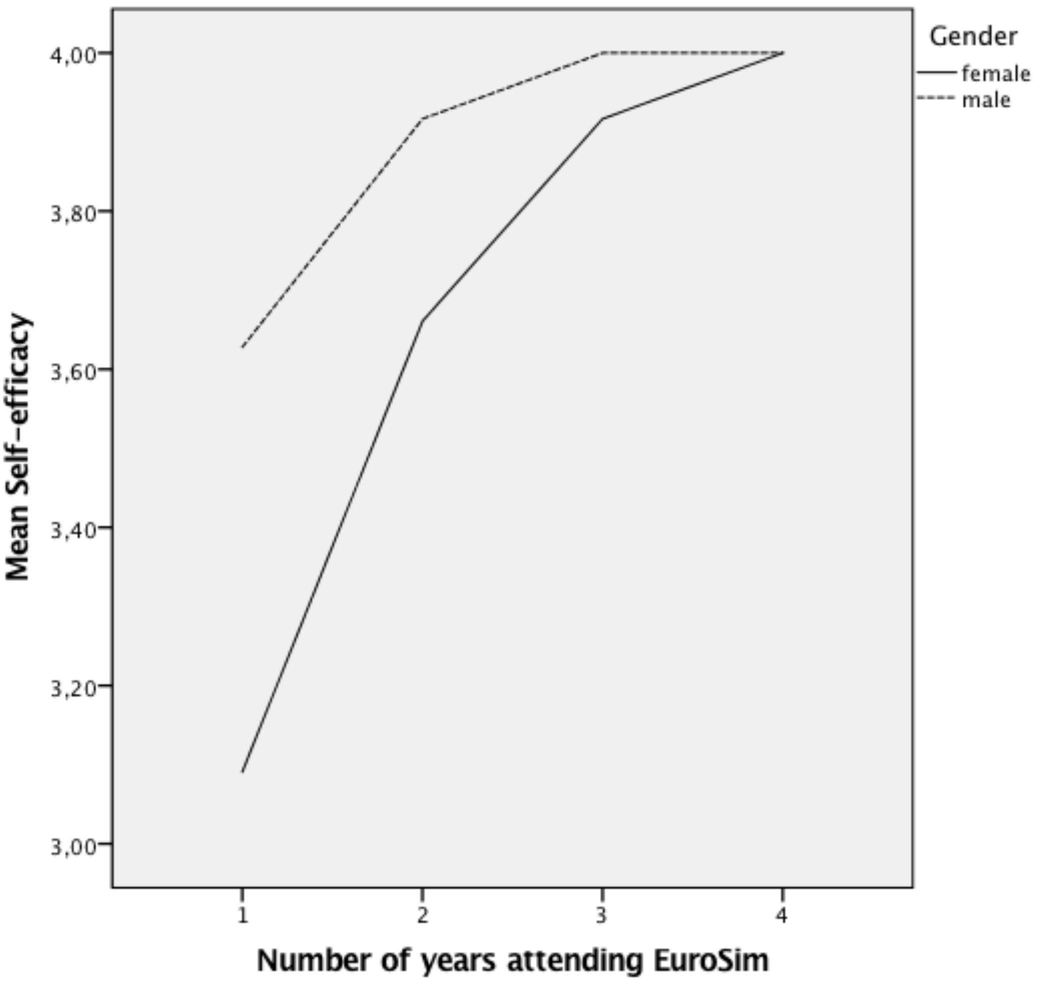


Figure 4. Differences in Self-efficacy for Gender and Number of Years attending EuroSim

With regard to situational interest, the only difference was found for female students (*M* = 3.*52*; *SD* = .43), who score significantly higher than male students (*M* = 3.30; *SD* = .44); *t* (131) = 2.94, *p* = .004; Cohen's *d* = .51).

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.

Table 5

Results of one-way ANOVA-analyses for '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 education*			133	131	2.18	.031	.38
≤ 3 years	3.10	.77					
≥ 4 years	3.39	.74					

[*] *Number of Years in Higher Education*

A multiple model confirms the significant relationship between individual interest and location (F (1,129) = 9; $p < .01$; $\eta^2_p = .07$). Also, the relationship with class preparation remains significant (F (1,129) = 6.09; $p < .05$; $\eta^2_p = .05$). However, there's no longer a significant relationship for number of years in higher education (F (1,129) = .641; p = .425; $\eta^2_p = .01$). The results for location and class preparation are presented in Figure 5. The individual interest of US-students who had class preparation (*Mean* = 2.78) approaches, but is still lower than the individual interest of EU-students with no class preparation (*Mean* = 3.24).

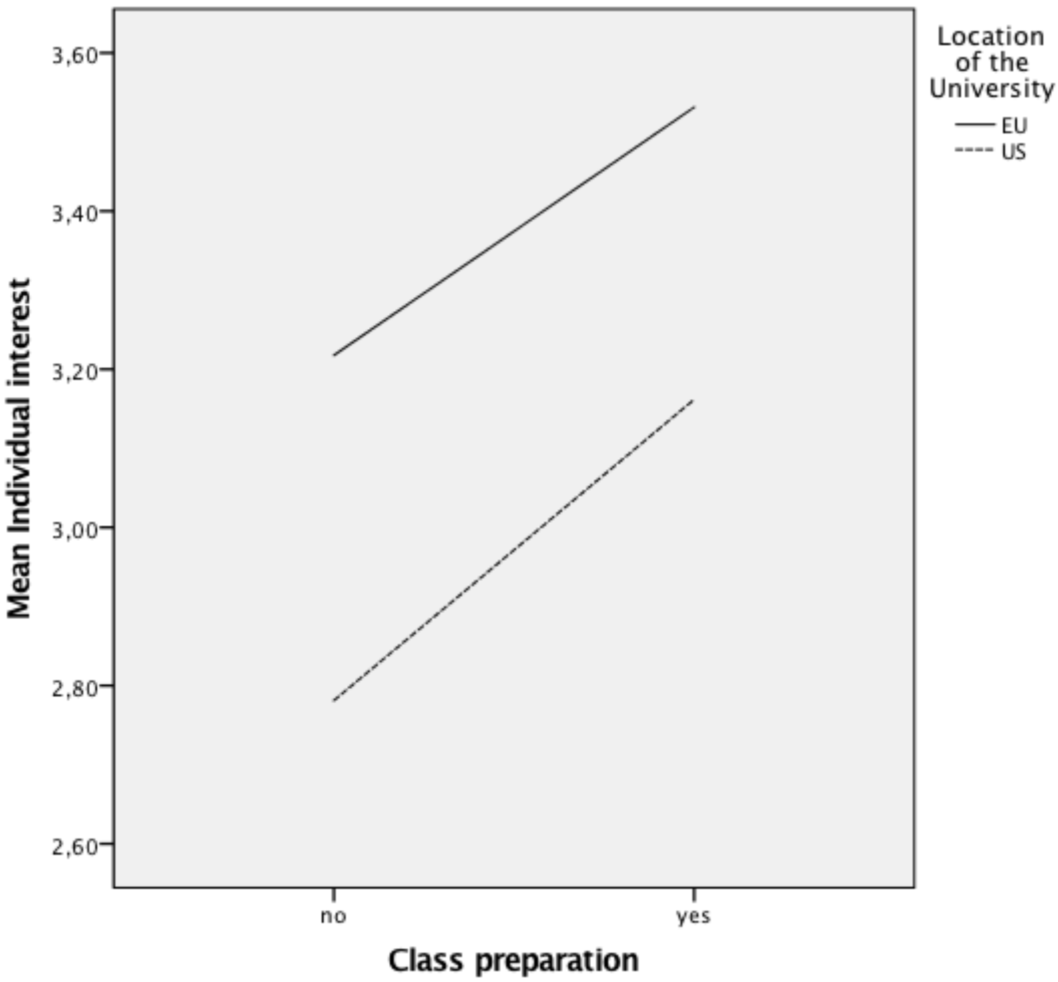


Figure 5. Differences in Individual Interest for Class preparation and Location

CONCLUSION AND DISCUSSION

Following an increased use of simulations, research on the effects of simulations within teaching political science has started to expand. However, used study designs (e.g. anecdotical, poor methodology) hinder interpretation and comparability of the research outcomes. Also, student diversity complicates measuring simulation effects. Hence, this study innovates by focusing on one set of learning outcomes, more specifically affective learning outcomes, and by exploring student diversity with regard to these outcomes. Therefore, we have introduced a motivational model, including autonomous motivation, self-efficacy, and interest, to measure the possible student diversity of affective learning outcomes.

Results show differences on each of the motivational constructs. A notable result is the relationship of gender with self-efficacy for negotiating. Most of the time, female students report lower self-efficacy than their colleague-male students. However, this does not have to mean that female students would perform less capable. In fact, research shows that female students, especially at higher academic levels, may report less self-efficacy while in general, they perform as capable as male students (Schunk and Pajares, 2008). Also notable is the fact that students' self-efficacy increases when attending more EuroSim-simulations. This confirms previous research, which reveals that the amount of experiences is related to students' self-efficacy (Cassidy and Eachus, 2002; Niemivirta and Tapola, 2007; Tang et al., 2004).

Differences between EU- and US-students on individual interest for the EU can be explained by the fact that individual interest is more deep-seated (Hidi and Renninger, 2006; Rotgans, 2015). As it develops slowly over time, everyday environment influences interest development, and, therefore, living in the EU most certainly triggers students' interest for the institution. The fact that individual interest is more deep-seated is also represented by the lacking relationship with the amount of EuroSim-simulations. This confirms that individual interest does not just develop over one simulation-attendance. Considering the fact that a stronger individual interest results in reengaging in activities (Hidi and Renninger, 2006; Rotgans, 2015), it could have been that students with a stronger interest for the EU would attend EuroSim more often. However, this idea could not be confirmed. This raises the following question: 'What if the individual interest for the EU really is not at all related to students attending the simulation more than once, then what does drive them?'

Class preparation shows also a positive relationship with individual interest. This confirms previous research, which shows that connections between content and the individual student are essential for interest development (Renninger and Hidi, 2016; Riconscente, 2013). This is strongly confirmed by the fact that EU- as well as US-students, when both have had class preparation before the simulation, show an increase in individual interest. The lacking relationship between class preparation, which might include negotiation-exercises, and self-efficacy, which could be increased by creating earlier negotiating-experiences during preparation, raises questions about how exactly students are being prepared for the simulation.

Situational interest shows only a relationship with gender. Although students' had to choose one topic to fill out the items, other environmental circumstances are not taken into account. As situational interest is very fleeting and triggered by environmental aspects, more information would be needed to interpret the results.

The relationship between location and autonomous motivation for students' field of study could be related to the fact that motivation seems to be shaped by cultural context (Guay, 2016). However, this would also need further exploring. Female students reporting higher levels of autonomous motivation (Vallerand et al., 1997; Vecchinone et al., 2014) could not be confirmed in this study.

Finally, it is also worth notifying that the number of years students already attend higher education seems to have little to no influence on motivational outcomes.

Overall, this exploratory study clearly reveals the relatedness between students' differences and possible affective learning outcomes of simulations. Depending on the type of simulation, which can be course-embedded, extracurricular or hybrid, the amount of student diversity will differ. Hence, the effect of the simulation will differ. This study offers a first attempt trying to capture simulation outcomes by introducing a motivational model. Results show that the scales used in this study are suitable for measuring affective learning outcomes in simulation contexts. The use of the same instrument in future research would enable comparability of the outcomes. Also, future research should aim to measure the suggested affective learning outcomes in various different simulation contexts.

This study uses only one measurement. Future research would benefit from a more longitudinal design, in which several aspects are measured over a longer period of time. Considering current results, self-efficacy seems to be a construct that is clearly related to simulation outcomes. This study measures self-efficacy for negotiating. However, it could also be measured for other subject-specific aspects e.g. self-efficacy for knowledge about simulation content; self-efficacy for preparing oneself for the simulation, etc. As situational interest fluctuates over time, depending on environmental aspects, its role might also become clearer when using different measurements over time. The role of autonomous motivation in the motivational model is also less clear. This study measures autonomous motivation for students' field of study. It could be valuable to bring it closer to the simulation itself and measure this concept in a more context-specific way e.g. motivation for attending the simulation itself.

Next to trying to capture the simulation process itself, it would also be valuable to look more into how students are being prepared for the simulation to be able to detect significant aspects that influence students' interest, both situational and individual, self-efficacy and autonomous motivation.

NOTES

[1] A Shapiro-Wilk test and Levene's test 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 were

conducted. These tests revealed, in most cases, similar results. Otherwise, differences are reported in the result section.

[2] Reported results are only confirmed in a Mann-Whitney U test.

[3] Equal variances not assumed.

[4] Reported results are only confirmed in an ANOVA Welch's test.

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