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Do lectures matter? Exploring students' situational interest in two learning arenas in teacher education

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ABSTRACT

Motivating students to endure teacher education and enter teaching is a pressing challenge in many countries. We address this challenge by exploring the concept of *situational interest* (SI) in teacher education and students' interest in teaching. Survey data was collected from Norwegian student teachers (N = 347) using a cross-sectional design and analysed using factor analyses and structural equation modelling. The findings indicated that SI in on-campus lectures explained variation in students' interest in subject matter, pedagogy, didactics, and research, whereas SI in practicum related to interest in subject matter. The findings also revealed higher levels of SI in practicum compared to on-campus lectures. We discuss the results and their implications in relation to interest development in teacher education.

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Student teacher; teacher interest; situational interest; lectures; practicum

Introduction

Stimulating interest in students of the 21st century is referred to as one of the major challenges in education (Hidi & Harackiewicz, 2000). Apparently, the same is true for student teachers. Many European countries face challenges with ongoing or upcoming teacher shortages (European Commission/EACEA/Eurydice, 2018). Common problems for the supply of teachers relate to choices made by student teachers, such as drop or entry into professions other than teaching after graduation (e.g. Organization of Economic Co-operation and Development [OECD], 2005; Rots et al., 2014; Stokking et al., 2003). As research from around the world points to interest or similar motivational experiences as key for students' choice to teach (e.g. Fray & Gore, 2018; Heinz, 2015), increased knowledge of how to stimulate interest during teacher education, and thus how to motivate students for a career in teaching, is called for.

To foster student teachers' interest, we need insight into possible encouraging factors in teacher education. According to current theories of interest (e.g. Hidi & Renninger, 2006; Schiefele, 2009), students develop academic interests as a result of their affective and evaluative experiences during learning, captured in the concept of *situational interest* (SI). Indeed, experiences of SI have been shown to give rise to a more lasting motivational disposition toward content (e.g. Rotgans & Schmidt, 2017a), which is labelled *individual interest*. Consequently, teacher educators should stimulate SI during learning to support a more enduring inclination towards teaching. However, little is known about SI in teacher education, as the current research has focused mainly on concepts

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related to individual interest in teaching (e.g., Eren, 2012; Glutsch & König, 2019). In this study, we address this knowledge gap by exploring the concept of SI among Norwegian students enrolled in the general teacher education programme.

SI fuels the development of individual interest, which may also be the case for student teachers. However, most European teacher educations comprise two distinct learning arenas: on-campus coursework, such as lectures, and practical field experiences from practicum (OECD, 2019). In terms of interest theory, the question arises whether SI from the two learning arenas differs in their relation to student teachers' interest in teaching. The distinction between coursework and practice is a much-debated division in teacher education curriculum (e.g. Korthagen, 2010; Korthagen & Kessels, 1999; Zeichner, 2010). As professional training, teacher education is often diagnosed with a theory-practice problem (Kvernbekk, 2012), referring to a discrepancy between what goes on in the lectures (i.e. theory) and the practice of teaching. Lectures are criticised for having little relevance to the teaching profession, focusing on theoretical rather than practical knowledge (see Korthagen, 2010). To this end, practical teaching experience and practicum are often highlighted as significant to what student teachers need to learn in education (e.g. Darling-Hammond et al., 2019) which also seem relevant for student teachers' motivation. Research often observe that practicum is perceived as key for student teachers' motivation and commitment to teaching over lectures (e.g. Bråten & Ferguson, 2015; Christophersen et al., 2016; Schulz & Mandzuk, 2005; Sinclair, 2008; Smith & Lev-Ari, 2005; Ulvik et al., 2018). Therefore, we ask whether lectures matter for student teachers' interest during their formal education. In this study, we explore the influence of the two learning arenas of lectures and practicum on student teachers' interest in teaching based on the concept of SI.

Interest

Most theories describe interest as a relation between a person and certain content consisting of affective and cognitive components (e.g., Hidi & Renninger, 2006; Krapp, 2002; Schiefele, 2009). The affective components typically refer to positive feelings, such as excitement, fascination, and enjoyment, whereas the cognitive components refer to evaluative appraisals, such as personal meaningfulness and relevance of content. Interest theories also distinguish between individual and situational interest (Renninger & Hidi, 2016). Individual interest refers to stored affective and cognitive appraisals of content, whereas SI refers to ongoing affect and appraisals that may or may not last. Although distinct concepts, individual and situational interest are reciprocally related in a continuing development: individual interest can influence the experience of SI in a given context (Quinlan, 2019; Tsai et al., 2008), whereas experiences of SI can support the development of individual interest (Rotgans & Schmidt, 2017a). Research on teachers has focused mainly on the concept of individual interest, labelled *teacher interest*.

Teacher interest

Schiefele et al. (2013) proposed a three-dimensional conceptualisation of teacher interest comprised of *didactic interest*, *pedagogic* (or *educational*) *interest*, and *subject interest*. Didactic interest refers to a person's interest in teaching methods, instructions, and teaching strategies. Pedagogic or educational interest refers to a person's interest in the developmental aspects of teaching, such as student development or students with special needs. Finally, subject interest is interested in a particular subject domain for teaching. Together, these three dimensions capture different knowledge areas related to teaching: instructions and teaching methods (didactic interest), students and their development (pedagogic interest), and subject matter (subject interest). In a study on student teachers, Eren (2012) found support for a similar three-dimensional concept of interest.

Recently, an adapted version of Schiefele-and-colleagues' concept of teacher interest was empirically tested in a sample of student teachers (Høgheim & Federici, 2020). In the study, student

teacher interest was defined based on the three dimensions of didactic, pedagogic, and subject interest in addition to a fourth factor of *research interest*. Research interest refers to students' attraction and evaluation of content relating to research and methodology, which has become a more common content in teacher education worldwide in the last decade (Darling-Hammond, 2017; OECD, 2019). Høgheim and Federici (2020) found support for student teacher interest as a four-dimensional construct, in which didactic interest appeared to be related to students' ambitions to teach, whereas subject and pedagogic interest were negatively related to thoughts about dropping out. In the present study, we examine individual interest in teacher education using the four-dimensional concept of student teacher interest.

Situational interest

Individual interests develop based on repeated experiences of SI. Since the dimensions of teacher interest refer to more enduring personal traits, they represent individual interests relating to teaching. Consequently, the emergence of pedagogic, didactic, subject, and research interest in student teachers may be influenced by their experiences of SI in education. In this section, we present the concept of SI, which in prominent theories encompass two distinct experiences: triggered and maintained situational interest.

SI can be described as an ongoing experience consisting of affective and cognitive appraisals of the immediate environment (Renninger & Hidi, 2019). In addition to being a catalyst for the development of individual interests (see Renninger & Hidi, 2011), SI also refers to an immediate motivational state. In Hidi and Renninger's (2006; see also Renninger & Hidi, 2016) Four-Phased Model of Interest Development, SI consists of two phases, which constitute different responses to the learning environment or content for learning. In Phase 1, structural features of the learning environment can elicit momentary enjoyment by attracting students' attention; this initiates what is known as triggered situational interest (TSI). Structural features can refer to the way content is organised or presented to students, particularly relating to perceived novelty and surprise (e.g. Palmer, 2009; Quinlan, 2019; Silvia, 2005). In the second phase—maintained situational interest (MSI)—the interest experience is prolonged by shifting the learners' attention toward the embedded content for learning. MSI comprises positive emotions toward the content, such as enjoyment and fascination, as well as a cognitive experience of meaningfulness and personal relevance (Hidi & Renninger, 2006). Repeated experiences of TSI and MSI can support the development of the more internally regulated dispositions of emerging individual interest (Phase 3) and finally well-developed interest (Phase 4). Well-developed individual interest is defined as willingly seeking out and reengaging in particular content that leads to enjoyment (Renninger & Hidi, 2016). In this study, even though we distinguish between the two experiences of situational interest, we do not separate the two phases of individual interest. Instead, we distinguish between *amounts* of individual interest in the person (Schiefele, 2009), which is common in interest research (e.g. Reber et al., 2018). Furthermore, we focus on triggered and maintained situational interest as experiences relating to different aspects of the learning environment rather than in a developmental perspective as phases. As shown in Renninger and Hidi (2016), triggered and maintained situational interest relates to different learner characteristics in terms of affective and cognitive reactions to the environment (see also Linnenbrink-Garcia et al., 2010), which is the basis for this research.

Hidi and Renninger's model (2006) makes two important predictions regarding interest development: (1) it is possible to encourage SI in education by shaping the learning environment, and (2) SI can give rise to more enduring individual interests. Indeed, research on students at different levels in education and from diverse academic domains support SI as an amendable experience (see reviews: Harackiewicz et al., 2016; Reber et al., 2018) as well as the development from situational to individual interest (e.g. Palmer et al., 2017; Rotgans & Schmidt, 2017a). As many teacher educations face challenges concerning students' motivation (European Commission/EACEA/

Eurydice, 2018), instilling SI in student teachers may be a relevant measure to supporting their interest in teaching and subsequent motivation to pursue a career in teaching.

SI is a relevant motivational concept for teacher education for at least four reasons. First, SI may play a vital role in developing students' career motivation (Hidi & Renninger, 2006). SI denotes students' relation to their learning environment that is linked to the development of more enduring individual interests, which in turn is identified as one of the focal factors for student teachers' choice to enter into teaching alongside perceived competence (Glutsch & König, 2019; Watt et al., 2012). Second, by exploring SI in different learning arenas in teacher education, we gain insight into possible focus areas to promote students' interest in teaching, which is an ongoing challenge in many European countries (European Commission/EACEA/Eurydice, 2018). Third, research on academic interests often reveals gender differences and tendencies for interest to decline with increased experience (e.g. Frenzel et al., 2012; Krapp & Prenzel, 2011). There is evidence to suggest that females are more inclined to teach compared to males (Drudy, 2008; Su et al., 2009), which is the case for Norwegian teacher education (Statistics Norway [SSB], 2018). Furthermore, Høgheim and Federici (2020) found gender differences in pedagogic and didactic interest in favour of female student teachers. For declining interest, however, research suggests a relatively stable student motivation throughout teacher education (Watt et al., 2017). Exploring SI amongst student teachers can shed light on possible experiential differences or development in teacher education that may influence their levels of interest in teaching. If this is the case, gender differences or declined interest should be, theoretically, manageable through targeted experiences of SI. However, there are research that demonstrates that gender differences in individual interest might not be observable in situational interest (Høgheim & Reber, 2019), which suggest other possible factor in explaining gender variations, such as stereotyping. Fourth, even though it is outside the scope of this research, SI can support student learning by guiding knowledge acquisition (Rotgans & Schmidt, 2017b, 2018) and promoting immediate motivation and effort in learning assignments (Renninger & Hidi, 2019).

The present study

In the current study, we explore SI during teacher education in a sample of Norwegian student teachers at different stages of the general teacher education programme. Despite little research on SI in teacher education, we theorise three expectations based on the reviewed theory and research: (1) the two learning arenas of lectures and practicum result in two distinct experiences of SI among student teachers, (2) practicum fosters higher levels of SI compared to lectures, and (3) SI relates to student teachers' interest in teaching. Finally, we also explore possible influences of gender and experience on SI. To our knowledge, previous research has not examined these assumptions or the concept of SI among student teachers. We address these expectations in the following three research objectives (RO):

Research objective 1: *Examine two concepts of SI amongst student teachers.* In our study, we examine the established distinction between TSI and MSI amongst student teachers (Hidi & Renninger, 2006; Linnenbrink-Garcia et al., 2010). However, in line with theory and research on the theory-practice gap in teacher education, we explore two distinct concepts of SI (i.e., TSI and MSI) stemming from lectures and practice. Finally, we test our assumption that student teachers experience more SI in practicum compared to lectures (Ulvik et al., 2018).

Research objective 2: *Examine the relation between situational and individual interest in teacher education.* The basis for this research objective is the theoretical model illustrated in Figure 1. The goal of this objective is to explore the relation between the concepts of SI relating to lectures and practicum and the four concepts of student teacher interest: pedagogic, didactic, subject, and research interest. Furthermore, since the study design does not allow the study of phase-development (i.e., trigger to maintained situational interest), we explore general SI experiences, like the approach by Linnenbrink-Garcia et al. (2010; study 1), in relation to student teacher interest. As this is the first study to examine both situational and individual interest amongst student teachers, we cannot make any detailed predictions on the relation between the concepts based on empirical support. We expect, however, that SI from lectures and practicum will be distinct but

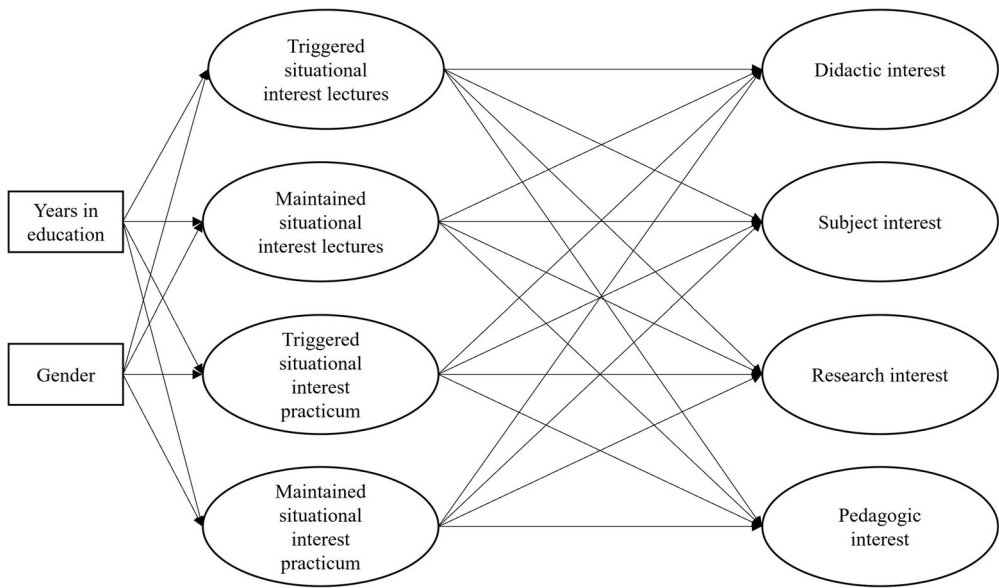


Figure 1. Theoretical model for the relation between situational interest (SI) in teacher education and student teacher interest.

intertwined concepts. Furthermore, SI from lectures and practice might relate differently to the dimensions of student teacher interest (i.e., pedagogic, didactic, subject, and research interest); however, we explore the possibility of a positive relation from SI to all concepts of student teacher interest. Based on prior research, however, we expect a stronger relation between SI from practice and student teacher interest over SI from lectures (Christophersen et al., 2016).

Research objective 3: Explore possible effects of gender and year in education (i.e. experience) on SI. To this end, we included the variables of gender and year in education as predictors of the concepts related to SI in teacher education. This allows us to explore the possibility of gender differences identified in Høgheim and Federici (2020) might be related to situational interest.

Method

Participants and procedure

Participants in this study were students enrolled in the general teacher education programme (GTEP) at two large learning institutions offering teacher education in Norway, affiliated at five different campuses. The Norwegian GTEP is divided into two tracks: primary and lower secondary teacher education for grades 1–7 and primary and lower secondary teacher education for grades 5–10. Students in both tracks have a practicum each semester and encounter the obligatory subject “Pedagogy and pupil-related skills”. Students choose up to three additional subjects from the following options: Norwegian, mathematics, physical education, natural science, social studies, English, arts and crafts, music, home economics, or Christian and other religious as well as ethical education. Depending on the track, each of these may or may not be obligatory. Due to the recent reform in Norwegian teacher education (NMER, 2017), student teachers in the current study include students from the most recent five-year Master’s programme (years 1 and 2) as well as the four-year teacher programme that included a Bachelor’s thesis (years 3 and 4). Since the two GTEP tracks overlap in grade levels for teaching as well as the structure of the education, we assume they constitute a single sample of students.

After receiving approval from the Norwegian Centre for Research Data, we collected data using an online questionnaire. The study was designed as a non-randomised cross-sectional study, as we

collected data at one time point for each participant. Furthermore, we used a non-probabilistic sampling method, in which participants were recruited by providing a link to the questionnaire on the school's online learning platform. The sample represented students from all four years in the current educational course.

Three hundred forty-seven student teachers completed the survey. The sample was 23.3% male and 76.7% female, corresponding to the overall gender distribution in Norwegian teacher education (SSB, 2018). Of the participants, 43.8% were from the primary school track and 56.2% from the lower secondary school track. The sample was almost evenly divided among the four ongoing years of the GTEP: 27.7% from the first year, 22.2% from the second year, and 26.8% and 23.3% from the third and fourth years, respectively.

Instruments

As the survey was administered in Norwegian, the item examples are English translations. Responses on all items were given on a five-point scale ranging from 1 = 'Totally disagree' to 5 = 'Totally agree'. An English translation of the scales used in this study is shown in the Appendix I.

SI was assessed with a multidimensional instrument inspired by the Situational Interest Survey by Linnenbrink-Garcia et al. (2010), particularly from Study 1. We developed two sets of scales to assess TSI and MSI for the two learning arenas: (1) lectures and (2) practicum. The scales of TSI consisted of four items and the MSI of eight items for each targeted learning arena. The instrument for assessing TSI targeted students' experience of their instructor or mentor, whereas MSI targeted their experience of the content for learning, based on affective and value appraisals. Example items for the SI in instructions are: 'The educators at our school make content interesting' (TSI), 'The content we learn in school is interesting' (MSI affect), and 'It makes sense to me to engage in the content we learn in school' (MSI value). Example items for SI in practice are: 'My practice teacher made teaching appear interesting' (TSI), 'Practice was interesting' (MSI affect), and 'I found practice useful' (MSI value). See the Appendix I for the full instrument. Using the approach by Linnenbrink-Garcia et al. (2010; Study 1), we gain insight into a broad concept of situational interest based on stored prior experiences from lectures and practicum rather than a spontaneous and situated state of interest.

We assessed individual interests with a student teacher interest scale (STIS; Høgheim & Federici, 2020), which is an instrument inspired by the Schiefele et al. (2013) teacher interest dimensions. We altered the original instrument to target student teachers by focusing more on aspects related to the instructions and activities they encounter in education rather than on practical aspects from the classroom. STIS captures four concepts of individual interest relating to teaching: *didactic*, *pedagogic*, *subject*, and *research interest*. An example item for didactic interest is: 'It is important for me to have knowledge of teaching methods.' The remaining items focus on capturing students' affective and cognitive relation to didactics. An example item for pedagogic interest is: 'I think pedagogy is interesting.' This scale relates to the knowledge domain of pedagogy rather than pedagogical practice to consider varying experiences among student teachers. An example of subject interest is: 'I think it is exciting to work with my subjects.' This scale relates to the respondent's interest in subjects for teaching, focusing on the self-chosen subject matter in teacher education. Finally, an example of research interest is: 'I think it is important to have knowledge of research and methods.' This scale was developed to capture student teacher relations to the domain of research and method. Based on previous validation in Høgheim and Federici (2020), subject interest consisted of five items, didactic interest of four items, pedagogic interest of four items, and research interest of three items.

Analyses

The data in this study were analysed in two steps. First, we tested the hypothesized latent variables of situational and individual interest by CFA. Since this study explores theoretically overlapping

constructs, we examined the constructs' convergent and discriminant validity in addition to the factor structure of the instruments (Campbell & Fiske, 1959; Rönkkö & Cho, 2020). We label these analyses “validation of the instruments”, which were done in five steps:

- (1) inspecting the factor loadings of the manifest variables using a cut-off of $<.50$ to evaluate items based on theoretical content and latent construct (Hair et al., 2010),
- (2) evaluating convergent validity based on average variance extracted (AVE) of the latent variables ($>.50$: Fornell & Larcker, 1981), which indicate that the latent variables explain more than 50 percent of the variance in the manifest variables,
- (3) evaluating discriminant validity based on comparison of AVE and squared correlations (SC: Fornell & Larcker, 1981), following the criterion of $AVE \geq SC$ as it implies that each latent variable shares more variance with its associated indicators than with any other latent variables. If issues emerge, exploratory factor analysis is used to inspect possible items cross-loading.
- (4) assessing the latent variables' internal consistency using Raykov's (1997) composite reliability (CR) coefficient, which should exceed $.70$ for satisfactory reliability.
- (5) inspecting the correlations between the latent variables to evaluate possible issues of collinearity following Kline (2011) criterion of $r < .85$.

With this approach to data analyses, we address the factor structure of the instrument as well as the individual latent variables. We also consider the dual meaning of discriminant validity by examining both the correlation between the latent variables and possible cross-loading of the manifest variables (Rönkkö & Cho, 2020). We used the *CONDISC* Stata module by Mehmetoglu (2015a) in analyses of discriminant and convergent validity, and the *RELICOE* module for CR (2015b)

In the second part of data analyses, we investigated a model of the hypothesized relations between the latent variables (see Figure 1) using SEM. A key element of SEM is to assess whether the covariance matrix estimated is consistent with the sample covariance matrix. This consistency is investigated through different measures of goodness of fit statistics, such as CFI, IFI, TLI, RMSEA, SRMR, and chi-square test (Hoyle, 2012; Kline, 2011; Tabachnick & Fidell, 2014). For the CFI, IFI, and TLI, values above $.90$ are typically considered acceptable, whereas values greater than $.95$ indicate a good fit. For well-specified models, an RMSEA of $.06$ and an SRMR of $.08$ or less reflects a good fit (Hu & Bentler, 1999; Tabachnick & Fidell, 2014).

Results

Validation of instrument

We conducted a CFA of the instruments to assess situational and individual interest among student teachers using maximum likelihood. We theorised a two-dimensional conceptualisation of situational interest —triggered and maintained situational interest — for two learning arenas: lectures and practicum. Furthermore, we theorised four dimensions of teacher individual interest: didactic, pedagogic, subject, and research interest. The specified CFA consisted of eight latent variables and 32 observed variables with no correlations between the error variances. This model had a good fit to data ($\chi^2(601) = 1306.96, p < .001, CFI = .921, TLI = .912, SRMR = .057, \text{ and } RMSEA = .058$). However, inspection of factor loadings revealed two manifest variables below $.5$ and four issues related to convergent and discriminant validity based on AVE and SC. Validation of the instrument led to four manifest variables being omitted from the analyses; see Appendix II for details. CFA of the reduced instrument had good fit to data ($\chi^2(566) = 1183.50, p < .001, CFI = .928, TLI = .920, SRMR = .055, \text{ and } RMSEA = .056$). This model had no issues related to convergent or discriminant validity based on average variance extracted, (squared) correlations, and composite reliability, as shown in Table 1.

Table 2 shows descriptive statistics for the study variables, including mean, standard deviation, and 95% confidence interval, based on manifest sum-scale variables. The student teachers report

Table 1. (Squared) correlations, average variance extracted, and reliability of the latent variables.

	1	2	3	4	5	6	7	8
1 TSI lectures	-	.54	.06	.06	.04	.17	.05	.04
2 MSI lectures	.73	-	.04	.07	.09	.33	.07	.08
3 TSI practicum	.25	.19	-	.05	.01	.03	.03	.07
4 MSI practicum	.24	.27	.73	-	.04	.08	.03	.09
5 Didactic interest	.20	.30	.10*	.20	-	.08	.05	.08
6 Subject interest	.41	.58	.17	.29	.28	-	.08	.03
7 Research interest	.22	.26	.18	.17	.23	.27	-	.07
8 Pedagogic interest	.20	.28	.26	.30	.29	.16	.26	-
Average variance extracted	.560	.641	.773	.710	.577	.542	.628	.653
Composite reliability	.82	.94	.91	.95	.74	.85	.84	.90

Notes. TSI = Triggered situational interest. MSI = Maintained situational interest.

All correlations are significant at $p < .01$ except*

Correlations above hyphen (-) are squared correlations (SC).

Table 2. Descriptive statistics based on manifest variables.

	Mean	SD	n items	CI ₉₅
Triggered situational interest lectures	3.26	.86	4	[3.17, 3.35]
Maintained situational interest lectures	3.71	.78	8	[3.62, 3.79]
Triggered situational interest practicum	4.10	1.01	3	[3.98, 4.20]
Maintained situational interest practicum	4.54	.71	7	[4.46, 4.61]
Didactic interest	4.83	.39	2	[4.78, 4.87]
Subject interest	4.30	.67	5	[4.23, 4.37]
Research interest	4.02	.81	3	[3.94, 4.11]
Pedagogic interest	4.36	.70	4	[4.29, 4.44]

higher levels of situational interest, both triggered and maintained, in practice compared to lectures. Inspection of confidence intervals shows that the experiences of situational interest in practice are significantly higher compared to the experiences in lectures at $p < .05$.

Structural model

We tested our hypothetical model (Figure 1) using SEM based on the modified CFA to address RO 2. All latent constructs were included as endogenous variables, whereas gender and year in education were included as exogenous variables. Since SEM does not allow for correlation between endogenous variables, which is the case for the concepts of situational interest in Figure 1, we specified a model with correlated error variances of the latent variables. The correlation of the error variances can be interpreted as the correlation between the unique variance not accounted for by the preceding variables in the model. We included the correlated error variances for situational interest since other factors than gender and experience are theorized to be related to these experiences, mainly situational aspects. This model had an acceptable fit to data ($\chi^2(637) = 1308$, $p < .001$, $CFI = .921$, $TLI = .913$, $SRMR = .056$, and $RMSEA = .055$). Figure 2 shows the main results from the SEM model with standardised regression weights and explained variances. Non-significant paths have been omitted from the illustration.

As shown in Figure 2, there was a significant relation between MSI lectures and all dimensions of student teacher interest: didactic ($\beta = .33$), subject ($\beta = .57$), research ($\beta = .23$), and pedagogic interest ($\beta = .28$). MSI from practicum was only significantly related to subject interest ($\beta = .22$). Years in education was negatively related to triggered situational interest in lectures ($\beta = -.12$) and maintained situational interest in practicum ($\beta = -.15$), indicating decreasing levels as students progress in teacher education. Two threshold paths were removed from Figure 2 that just exceeded the $p < .05$ -level of significance: maintained situational interest practicum to pedagogic interest ($\beta = .15$, $p = .079$) and maintained situational interest practicum to didactic interest ($\beta = .19$, $p = .061$).

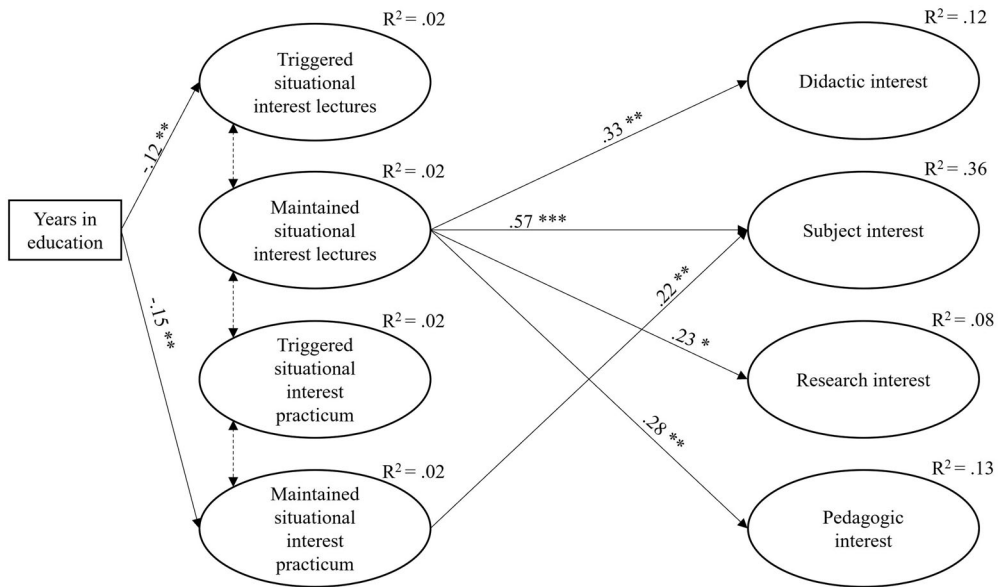


Figure 2. Structural model of the relation between study variables with standardised coefficients and explained variance (R^2).

Table 3 gives a detailed account of all relations explored in the structural model. Inspection of indirect effects revealed no influence of gender and years in education on student teacher interest mediated through situational interest. Inspection of the correlated error variances of SI indicate shared variance between the latent variables that is not captured by factor in the model. The correlations are stronger for triggered and maintained SI within each learning arena than between (see Appendix III for details).

Discussion

This study was based on the theoretical assumptions that SI is a multidimensional concept (RO1) that relates to the emergence of individual interest (RO2). For RO1, the results conformed to our expectations. In line with theory and prior research (e.g., Hidi & Renninger, 2006; Linnenbrink-Garcia et al., 2010), we found support for a two-dimensional conceptualisation of SI amongst student teachers comprised of triggered and maintained SI. Moreover, based on teacher curriculum literature (e.g. Korthagen, 2010), we hypothesised that students may experience two distinct instances of SI relating to lectures and practicum. In line with our expectations, we found support for two distinct but related experiences of SI during teacher education. Consequently, student teachers may require learning arena-specific interventions to promote the development of individual interests in teaching. This finding informs the theory-practice literature in revealing a similar perceived duality in student teachers' motivational experience in education (Zeichner, 2010). Furthermore, the significant difference levels of situational interest between the two learning arenas in favour of practicum are in line with the literature highlighting the beneficial motivational and engaging role of practicum for student teachers (e.g. Christophersen et al., 2016). However, despite experiencing higher levels of SI in practicum, the upcoming section shed light on important properties of SI in lectures that goes beyond the quantitative difference that has not yet been addressed in student teacher research.

For RO2, our results revealed some intriguing tendencies for the relation between situational and individual interests. First, in line with interest theories, triggered situational interest did not explain variance in individual interest. Second, only maintained situational interest lectures was related to

Table 3. Standardized loadings, *p* – values, and confidence intervals for the relations between situational interest and student teacher interest.

	β (S.E.)	<i>p</i>	CI ₉₅
Didactic interest			
Triggered situational interest lectures	-.07 (.11)	.537	[-.16, .07]
Maintained situational interest lectures	.33 (.10)	.001	[.14, .53]
Triggered situational interest practicum	-.08 (.10)	.395	[-.28, .11]
Maintained situational interest practicum	.19 (.10)	.061	[.00, .39]
Subject interest			
Triggered situational interest lectures	-.03 (.09)	.686	[-.20, .13]
Maintained situational interest lectures	.57 (.08)	.000	[.41, .72]
Triggered situational interest practicum	-.09 (.08)	.290	[-.24, .07]
Maintained situational interest practicum	.22 (.08)	.006	[.06, .37]
Research interest			
Triggered situational interest lectures	.00 (.10)	.938	[-.19, .21]
Maintained situational interest lectures	.23 (.10)	.015	[.04, .42]
Triggered situational interest practicum	.12 (.09)	.183	[-.06, .30]
Maintained situational interest practicum	.01 (.09)	.913	[-.17, .19]
Pedagogic interest			
Triggered situational interest lectures	-.09 (.10)	.359	[-.27, .10]
Maintained situational interest lectures	.28 (.09)	.002	[.10, .46]
Triggered situational interest practicum	.11 (.09)	.208	[-.06, .29]
Maintained situational interest practicum	.15 (.09)	.079	[-.02, .32]

all dimensions of student teacher interest: didactic, pedagogy, subject, and research interest. Maintained situational interest from practicum was only related to subject interest; however, there are strong indices for a relation to didactic and pedagogic interest. The pattern for subject interest is perhaps not surprising: subject matter for teaching may be a focus in lectures, whereas other aspects of teaching may be more noticeable in practicum. The threshold relations of maintained situational interest practicum to didactic and pedagogic interest are somewhat unexpected, particularly as student teachers typically favour experiences from practicum (Christophersen et al., 2016; Ulvik et al., 2018). We can only speculate, but one explanation might be that interest is dominantly developed in teacher education, as our data might suggest, whereas experiences from practicum might be more relevant to other motivational outcomes, such as perceived competence (Watt et al., 2012).

Concerning RO3, the results revealed no significant relation for gender on situational interest. This finding suggests that gender differences in pedagogic and didactic interest (see Høgheim & Federici, 2020) might be related to other factors than situational interest. There was a weak relation between year in education on triggered SI in lectures. The effect is small but indicates that triggered SI in lectures declines with increased experience in teacher education, which in turn can affect students' interest in teaching. The results also reveal a similar tendency for maintained SI in practicum, indicating decreasing levels of positive affective and cognitive experiences with increased experience in teacher education.

Limitations

We must acknowledge several noticeable limitations of our study. First, due to a cross-sectional design, we cannot make any definite causal inferences. Longitudinal approaches are necessary to make inferences of causal relations among the concepts. Second, we used a non-random, opportune sampling of participants, which may limit the representativeness of the sample to the population. Different random sampling strategies might be necessary to obtain generalisable inferences. Third, this study was based on a moderate sample size concerning the factors being considered, which might have influenced the estimates in the analyses. Finally, we operationalised the concepts of interest in this study solely based on theory and research on students from other academic domains. For SI, in particular, the assessments in this study may not capture the entire experience

relating to lectures or practicum. Due to the complexity of teaching and teacher education, research on interest in this field might benefit from exploratory approaches, such as interviews, to capture potential unique features of this population. Furthermore, as the design and instrument in this study do not capture the spontaneous nature of SI, additional research on SI in teacher education can benefit from both short- and long-term longitudinal approaches of affective and cognitive responses to different learning assignments in teacher education (e.g. Rotgans & Schmidt, 2017a). Finally, we must acknowledge possible conceptual overlaps between the different interest variables in this study, particularly between maintained situational interest (MSI) and student teacher interest (STI). An important distinction between MSI and STI is that the former refers to the respondents' general experience of the content they encounter in teacher education (e.g. Linnenbrink-Garcia et al., 2010), whereas the latter refers to the respondents' relation to knowledge domains relating to teaching and research (Schiefele et al., 2013). This distinction is shown in our instruments as all items assessing MSI reflect experiences of the subject matter of lectures and practicum without referring to content, whereas STI is targeted toward specific content. Our analyses support the distinctiveness of the variables for study, both in terms of discriminant and convergent validity.

Implications

This study has several theoretical and practical implications. Regarding theory, this study has three novel findings. First, our findings suggest that student teachers have two distinct experiences of SI relating to lectures and practicum, which shed light on the theory-practice gap in teacher education (Zeichner, 2010). According to Ulvik et al. (2018), student teachers feel that there is a gap between what is taught in teacher education and practice. Our study contributes to this field of study by showing that the theory-practice distinction might also be present at the experiential level for student teachers. Second, our study suggests a possible influence of teacher education on student teachers' interest in teaching through situational interest. It is evident from research from other domains that SI can lead to individual interest (e.g. Rotgans & Schmidt, 2017a). To our knowledge, this is the first study to demonstrate that the same might be true for student teachers. Third, this study demonstrates that SI from lectures and practicum might play different roles in student teachers' interest development. SI in lectures might be particularly important for subject and research interest, whereas SI in lectures and practicum is important for didactic and pedagogic interest.

In the past decade, a growing interest in students' motivation in teacher education has emerged in research, especially due to global reports of teacher shortages (see Han & Yin, 2016). Our study contributes to this field by offering some practical implications for stimulating interest in teacher education. Practicum is often seen as key to student teachers' learning (Schulz & Mandzuk, 2005). In terms of interest, our study points to lectures as an important learning arena for student teachers, especially due to the influence of SI in lectures on student teacher interest. Furthermore, students reported significantly less SI in lectures in our study, which suggests that this learning arena might be an important starting point to stimulate interest in teacher education. Our discussion might appear to contrast the existing literature that emphasise practicum for students' motivation (e.g., Sinclair, 2008; Smith & Lev-Ari, 2005), in that we argue for the importance of practicum. This is not to downplay the influence of practicum on student teachers' interest or further research on practice; however, lectures in teacher education show a greater need for improvement in terms of SI. Since this is the first study to examine SI in teacher education, this field could benefit from further research from different methodological perspectives. An intriguing approach to further study is to examine possible interest-enhancing interventions in lectures or practicum to prompt student teachers' interest. Most of the existing interventions might be more applicable to lectures (see Harackiewicz et al., 2016; Reber et al., 2018); however, new approaches might need to be developed to target student teachers or the learning arena of practicum.

Conclusion

Results from this study provide support for a conceptualisation of SI in teacher education as comprised of triggered and maintained SI, separate for lectures and practicum. As demonstrated in this study, both lectures and practicum are related to student teacher interest; however, the learning arena of lectures showed a greater need for improvement in terms of SI. Furthermore, SI from both lectures and practice relates to students' interest in teaching; however, lectures showed a stronger and more general influence on all dimensions of teacher interest. Our findings highlight the importance of lectures in teacher education for students' SI, both in terms of the need for improvement as well as concerning the different facets of teacher interest.

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