Students' interest development prior, during, and after the transition to a higher education programme

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STUDENTS' INTEREST DEVELOPMENT PRIOR, DURING, AND AFTER THE TRANSITION TO A HIGHER EDUCATION PROGRAMME

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ico

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TABLE OF CONTENTS

GENERAL INTRODUCTION

1

INTRODUCTION

Already since the early twentieth century, it is recognized that the experience of interest increases students' attention and willingness to put effort in particular topics and activities (Dewey, 1913). Empirical research has shown how students' interests are also central foci in making future oriented educational choices (e.g. Holmegaard, 2015), related to students' ideas of who they are (Barron, 2006; Hazari et al., 2010) and want to become (Nurmi, 1991). It has been argued that education has dual value in relation to interest, as it is a practice that is challenged to both recognize and nurture students' existing interests in relation to curricular topics and activities, while, on the other hand, allowing students to discover and explore new domains of potential interest (Akkerman, 2017).

Educational research focused upon students' interest development has extensively studied how a single interest develops within a single context (e.g. science in a science higher education programme; Nieswandt & Horowitz, 2015) or how new interests can be triggered in a single educational domain (Renninger et al., 2019). However, recent sociocultural, ecological research argues that one should take into account the *multiplicity* of interests and social and material contexts of a person to understand how their interests emerge and develop over time (Akkerman & Bakker, 2019; Azevedo, 2011; Bergin, 2016; Slot, 2020). Students' interests develop in tandem with all other interests they pursue in daily life, as they cannot spend unlimited time and energy on each interest. Consequently, interests may compete with one another (Hofer, 2010; Vulperhorst et al., 2018). Moreover, all contexts provide opportunities and constraints for the pursuance of interests, not only the academic context. It has for example been demonstrated that the development of traditionally labelled academic interests can be supported, yet equally inhibited by the home context, hobby clubs and other extracurricular activities, and work-related activities (Azevedo, 2011; Barron, 2006; Verhoeven, 2021). Students' multiple interests may each be supported or inhibited by these contexts in their own way (e.g. at home a student's interest in arts is supported, but their interest in mathematics is not).

More insight in interest development is especially needed when students are making a postsecondary programme choice. Students then, arguably, face their first important educational transition where they explicitly pursue and exclude specific future pathways (Du Bois-Reymond, 1998). Although studies have argued students' interests to be central in making a decision on which programme to pursue (e.g. Holmegaard, 2015; Holmegaard, Ulriksen, et al., 2014), we do not know yet how students weigh their multiple interests and decide on which they wish to pursue in and outside of educational programmes.

This thesis will focus in particular on how students' interests develop before, during, and after they make a higher education programme choice. We thereby aim to contribute to interest development theory, specifically on how interests develop in the context of educational transitions. Moreover, we aim to contribute to theory on how students make interest-based higher education programme choices. Practically, this thesis will provide insight into how interests can be nurtured and cultivated in and outside of education and how students can be supported when making a

higher education programme choice. Just in the Netherlands, 90,000 secondary school students have to make a choice for a higher education programme each year (CBS, 2021). Around a third of these students subsequently opt out of their programme in their first year, often because they feel they have made a wrong choice (Ulriksen et al., 2010). Thus, more insight into how students can be supported when making this choice is needed.

Theoretical framework

Interest refers to the (re)engagement of a student with a specific object (i.e. activities, ideas, topics) and reflects a state in which value, emotion, and cognition are intertwined (Akkerman & Bakker, 2019; Hidi & Renninger, 2006). Interest development theory has postulated how interest develops along four phases. Interest first emerges as a situational interest; a new interest that is triggered by the environment. Interest may then be disregarded or evolves across subsequent phases into an individual interest; interests that persons explicitly pursue and are found to be reflected in personal goals and their identity (Hidi & Renninger, 2006; Krapp, 2002).

Recent research has put forward a *person-object-contexts perspective* on interest development as an expanded, sociocultural perspective on interest development. This perspective accounts for how interest always is experienced *by a particular person* with a distinct object *in a specific situation* (Akkerman & Bakker, 2019). This suggests that both a person and all contexts across which they move might matter for whether, how and why one engages with particular objects in and over time. Empirical studies subscribe to this argument; new, situational interests can be triggered by personal goals or by other individual interests (Draijer et al., 2020; Knogler et al., 2015) and long-term, individual interests continue to be shaped by the affordances and constraints of the contexts one engages in (Azevedo, 2011).

Taking a person-object-contexts perspective on interest development not only calls for acknowledging all contexts in which a person participates, but also all of one's parallel interests (Akkerman & Bakker, 2019; Slot, 2020). As mentioned, interests develop in relation to all of students' other interests as interests compete for time (see Hofer, 2010). Students may reduce this competition by synthesizing interests (e.g. a student's interest in biology and chemistry can be synthezised into biochemistry; Vulperhorst et al., 2018). But competition can also arise when an interest develops and splits into more specific topics or activities (e.g. a student's interest in music develops into an interest in listening to music and playing the guitar; Akkerman & Bakker, 2019). Even when interests do not compete for time, interests may spill over into another, impacting how interests develop over time (e.g. a hard day at school may have impact on the kind of leisure interests students pursue later in the day; Slot, Bronkhorst, et al., 2020).

Although scholars have recently started studying how students' multiple interests develop across their daily life when enrolled in school (see for an example of young adolescents Slot, 2020), we do not understand yet how and why parallel interests are sustained over time. A person-object-contexts perspective is especially welcome to provide more insight into how interests are sustained when students are making a higher education programme choice, as we do not know why they pursue specific interests in favour of others when confronted with a decision for their educational

career (c.f. Holmegaard, Ulriksen, et al., 2014). Unravelling students' interest development during this choice process may lead to insight into how students can make a substantiated choice for a higher education programme. Such insight is needed as students now often regret, looking back on their choices, not having pursued other interests in higher education (Kucel & Vilalta-Bufí, 2013). Moreover, being more interested in another programme has been found to be a leading cause of drop-out from a higher education programme (Malgwi et al., 2005).

To decide on what programme to choose, students typically have to weigh and contrast multiple interests (Holmegaard, Ulriksen, et al., 2014; Vulperhorst et al., 2018). The interests students consider pursuing in their future *feed forward* to which programmes students aim to explore (Germeijs & Verschueren, 2006; Holmegaard, 2015). A recent, small-scale study has indicated that programmes at the same time *feed back* on students' interests: students must assess whether their interests can be realistically pursued in a programme. This feed back effect may even lead students to reconsider and change their conceptualization and valuation of interests, accordingly changing or directing students' interests and related engagements (Akkerman & Bakker, 2019). It nonetheless remains unclear what considerations students have when weighing their interests to one another and how their interests develop over time throughout the process of considering programmes and coming to higher education programme decisions.

When students have made a higher education programme choice, interest development continues both in and outside the context of higher education. Already in the first week after enrolment, students have been made aware of specific rules, expectations, and affordances and constraints of the programme that may shape the space students think is available for them to engage in certain topics and activities (Gregersen et al., 2021). Students may not only try to continue pursuing certain interests within the bounds of the programme, but may also develop interest in new objects (e.g. topics or activities) that are offered and valued in academic practice (see Akkerman, 2017). Studies indeed indicate that the curriculum of a higher education programme allows students to both trigger and sustain interests in specific (new) subject areas (e.g. Harackiewicz et al., 2008).

Taking a person-object-contexts perspective on interest development in higher education, we nonetheless cannot assume that interests will develop solely based and completely in line with the context and curricular directions of a programme. As argued, students' interests develop also in parallel contexts outside the programme. More generally, we can assume students' interest development to be idiosyncratic from start, with different histories of engagement even with similar, shared domains of interests (Akkerman & Bakker, 2019) and with specific and always selective ideas for their own future regardless of the programme (Nurmi, 1991). It is therefore important to study interest development of students also directly *after* enrolment in higher education, so as to better understand how the space provided by programmes matters for how students' interests develop over time in higher education.

This thesis
This thesis provides insight into students' interest development prior, during, and after them making a higher education programme choice by taking a person-object-contexts perspective.

First, I try to provide more insight into how students sustain their interests over time before the higher education programme choice, as this allows us to understand in more detail how interests develop regardless of upcoming educational transitions. Second, I aim to provide insight into how students weigh their sustained interests over time to come to a higher education programme choice. Third, we trace students' interest development directly after enrolment, to see how the curriculum may provide space for students to develop particular interests more than others.

## Measuring interest from a person-object-context perspective

Akkerman and Bakker (2019) argue that interests should be measured from moment-to-moment, as this allows one to acknowledge *interests across all contexts* throughout students' daily life. Multiple scholars suggest an experience sampling method (ESM; e.g. Akkerman & Bakker, 2019; Bergin, 2016; Slot, 2020) as the optimal method designed to measure psychological constructs in the moment over an extended period of time (see Csikszentmihalyi & Larson, 2014).

A special smartphone application called inTin has been developed (see Akkerman & Bakker, 2019; Slot, 2020), and validated (Draijer et al., 2020) for capturing people's interests and related engagements, which has been used for studies reported in this thesis. In this application, students are asked every two hours, during waking hours, to report all experiences of interest since the last report, for seven days or a fortnight straight. When reporting an experience of interest, students were asked to indicate what they did and why they experienced interest in that moment. To subsequently trace students' interest development over time, we repeated these data waves every three months for an extended period of time. This allowed us to identify whether interests sustained over time and to subsequently analyse why students kept experiencing interest in these objects.

ESM has been applied in Chapter 2 and Chapter 5 to gain more insight into students' interest development before and after students' choice for a higher education programme (see Figure 1.1). In Chapter 2, the inTin application was used in a total of six data waves in a period of one and a half years throughout the third and fourth year of secondary education with general education and pre-university students. A total of 69 students completed the data collection. Data was used to obtain insight into the mechanisms of interest sustainment *before* an educational transition. In Chapter 5, inTin was used across eight data waves in a period of two years throughout the final year of pre-university and students' first year in higher education, 177 students completed the data collection. Data was analysed to see how students' interests developed *before and after* the higher education transition.

Measuring students' interest development during the higher education programme choice

To get more insight into students' interest development *during* their higher education programme choice process, one needs to unravel how students reason about considered programmes for their near future in relation to their interests. To trace students' reasoning, I interviewed a varied subsample of students from the larger sample of pre-university students who participated in the data collection reported on in Chapter 5 twice (see Figure 1.1).

Figure 1.1. *Overview of the used methods in this dissertation*
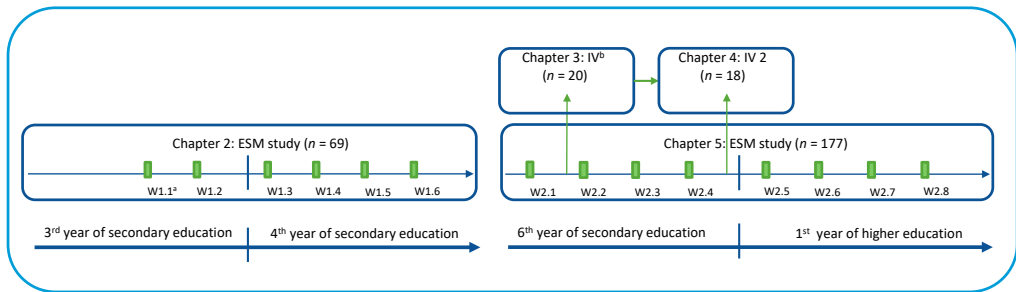
Note. [a] W= wave of data collection, [b] IV= interview

Chapter 3 is based on the first interview held with students. Twenty students were interviewed half-way through their sixth and final year in pre-university to uncover students' considerations for pursuing specific interests and the different ways programmes could feed back on students' interests. Chapter 4 reports on the second interview, held with eighteen students. Interviews were held a few days or weeks before final enrolment, and focused on students' commitment to a programme over time, to understand in more detail why students may switch in their orientation and commitment from one programme to another and how this related to students' interest development.

Dutch context

After primary school, students in the Dutch educational system are tracked into pre-vocation, general secondary, or pre-university education. Approximately 20 per cent of the students enrol in pre-university education, while 25 per cent enrol in general secondary education. Chapter 2 reports on the interest development of general secondary and pre-university students and traces this development from their third into their fourth year. As students in pre-university education transition more often to higher education than students in other tracks, Chapters 3 to 5 report only on pre-university students. Chapters 3 and 4 report on how students in their sixth and final year have made an interest-based higher education programme choice, while Chapter 5 follows pre-university students' interest development throughout their final year in secondary education and their first year in a higher education programme. After graduation in pre-university, students directly enrol in a specific programme at a specific institution. With their pre-university diploma, students can enrol in most programmes without further admission criteria, although some programmes require students to have graduated with specific school subjects and some highly selective programmes apply admission at the gate. Higher education institutes are governed nationally and therefore have roughly the same academic standing and tuition fees.

Overview of the chapters

To trace how students' interests develop before, during, and after their higher education programme choice, we have conducted four separate studies in the form of journal articles that are fully included here as Chapter 2 to 5.

Chapter 2 presents the interest sustainment mechanisms of students enrolled in secondary education (*What mechanisms sustain adolescents' interests?*). By tracing the 8,281 interest experiences of 56 students across 334 sustained interests, we aimed to understand why they continued experiencing interest in the same object over time. We thereby aimed to go beyond the explicit, individual reasons students may give for interest sustainment in a single moment. Understanding in more detail how interests are sustained and develop in daily life, without an upcoming major educational transition, provides a first necessary step to subsequently understand how interests develop during and after the higher education programme choice.

In Chapter 3, we subsequently provide insight into how students make a higher education programme choice based on their interests. Studying how twenty, sixth year pre-university students made a choice for a higher education programme, we explored which considerations students had for pursuing specific interests and programmes. We also investigated in which instances the feed back of programmes led to a change in the interests they wished to pursue in the future, illustrating how and why interests developed during the higher education programme choice process. The research question central in this chapter is as follows: *What considerations do students have when weighing their multiple interests in light of their future study programmes and in what ways does the feed back of explored programmes lead to changes in the interests students consider to pursue in a programme*?

In Chapter 4, we unravel the mechanisms that underly students switching in their commitment from one programme to another during the higher education programme choice process (*What mechanisms underly students' switches in their commitment from one study programme to another when they are choosing a higher education programme?*). In the interviews with eighteen sixth year pre-university students, we traced, retrospectively, whether they were committed to a programme. Subsequently, we examined why students switched in their commitment over time if they already found a programme that aligned with their interests.

In Chapter 5, we describe how students' interests develop in their final year of secondary education and their first year of higher education. We specifically studied how students' interest divergence (e.g. the extent to which students are interested in different domains) developed over time. To determine students' interest divergence per data wave, we analysed the 33,230 interest experiences of 124 students. We modelled the development of interest divergence for students enrolled in occupational, disciplinary and broad programmes separately in a multiple group latent growth curve model, as this allowed us to study whether the scope of the curriculum of a programme may impact students' interest divergence differently over time. Broad programmes may allow more space for students to develop divergent interests, while occupational and disciplinary programmes may allow students to converge in interests. We posed the following research question: *To what extent are there differences in the development of interest divergence over time for students across occupational, disciplinary, and broad programmes?*

Finally, Chapter 6 discusses the findings of Chapters 2 to 5, integrates theoretical and practical implications for students' interest development and higher education programme choice, and describes limitations of the thesis and subsequent ideas for future research.

MECHANISMS OF INTEREST SUSTAINMENT

2

ABSTRACT

Sustaining an interest leads to a wealth of positive outcomes for adolescents. Previous research has often attributed interest sustainment to the drive of the individual, in that adolescents may deliberately sustain their interests to pursue goals, develop expertise or identify themselves with the object at hand. Nonetheless, based on recent literature, one may argue that processes related to the daily routines and practices individuals participate in play a role in sustainment as well. The present study aims to provide a detailed and differentiated account of interest sustainment, which may shed light on how interest may be sustained beyond the deliberate goals and needs of the individual. In order to do so, an experience sampling method was applied in which 56 adolescents filled in a smartphone application in which they were asked six times, for a period of two weeks, with intervals of three months, to report *all* their moment-to-moment experiences of interest. By analysing the content of these 8281 experiences of interest of 334 sustained interests chronologically, we found six mechanisms of interest sustainment. Two mechanisms were found in which individuals deliberately steered their sustainment, while four mechanisms were identified in which the object and/or practice seemed to play a role in the sustainment. Our findings thereby demonstrate that future studies, in order to understand interest sustainment and development, should look beyond the active role of the individual in sustaining interests.

Keywords: Mechanisms of interest sustainment, Experience sampling method, Interest development

INTRODUCTION

Interest plays a significant role in adolescents' learning and development (Renninger & Hidi, 2015). Interest can be defined as a preferred engagement of an adolescent with a specific object (Akkerman & Bakker, 2019; Hidi & Renninger, 2006). Adolescents that experience interest show high intrinsic motivation to learn (Harackiewicz et al., 2008; Hidi & Renninger, 2006), experience positive emotions, and over time report high well-being (Renninger & Hidi, 2015; Schulz et al., 2018). This is an important reason to try and explain when individuals' interest is triggered as well as *sustained* over time, where sustainment in terms of Prenzel (1992) would be defined as a 'prolonged relation with an object of interest that involves repeated episodes of active engagement over time'.

Previous interest research has often attributed sustainment solely to the 'drive' of the individual: interest is often associated with an individuals' expertise (e.g. Renninger, 2000), goal pursuit (e.g. Hofer, 2010) and identification with the object (e.g. Deci, 1992; Krapp, 2002). These studies stress that an interest is sustained if the interest is compatible with an individual's goals and values (Krapp, 2002). Although research shows that individuals deliberately sustain interests (Hofer, 2010; Krapp, 2002), research has also indicated that focusing on the individual alone is not sufficient to understand why adolescents' sustain interests. Some studies show that interests are experienced in multiple ways, suggesting that there may also be different ways in which an interest may be sustained over time. Social practices and routines may play more of a role in interest sustainment than previously theorized (Akkerman et al., 2020; Akkerman & Bakker, 2019; Azevedo, 2011, 2018; Draijer et al., 2020). Gaining insight into the different mechanisms of interest sustainment might lead to a detailed and differentiated understanding of how interests develop over time (Azevedo, 2018) as well as provide insight for educational practice in the multiple processes that play a role in adolescents' interest development.

Multiple ways of sustaining interests

Interest research has suggested that individuals deliberately direct the sustainment of their interests: they repeatedly engage with an interest to achieve personal goals (Hidi & Renninger, 2006; Hofer, 2010), satisfy personal values or needs (Krapp, 2002; Prenzel, 1992) or express their personal identity (Barron, 2006). These studies portray the individual as an active agent, suggesting the individual has explicit reasons for sustaining interests. This assumption is even included in the concept 'individual interest', as the individual is assumed to deliberately seek repeated engagement with his or her interest (Hidi & Renninger, 2006). Individual interest is predominantly used in literature to describe the sustained interests of individuals.

However, recent studies have found that prolonged interests can be experienced in multiple ways (Akkerman et al., 2020; Draijer et al., 2020). Based on a latent profile analysis of indicators that seem to underly individual interest, these studies have found that engagement for some interests are associated with high personal value, flow and levels of agency (self-initiation), suggesting the individual may deliberately direct and sustain interests. At the same time, they found interests that were sustained in a more routine way, as some interests were associated with low personal

value, flow, and agency (Akkerman et al., 2020; Draijer et al., 2020). For example, one might have the long-term habit of listening to music in the shower every day, without deliberately directing the sustainment of this interest (Akkerman & Bakker, 2019). There are indications that interests sustained in this way, may more likely represent ordinary aspects of daily life, like watching television or eating, suggesting that not only the individual but also the individual's daily life rhythm and routines might influence sustainment (Larson & Verma, 1999; Slot et al., 2019).

Interests may also be sustained because engagement is embedded in a particular community (Azevedo, 2011; Nolen, 2019). Belonging to a community provides opportunities as well as meaning and direction for sustainment (Azevedo, 2011, 2013). Over time, individuals might attune their preferences to the community's practices and conditions, developing their own distinctive patterns of engagement (Azevedo, 2011). Engagement may thus revolve over time around participating in a community, as individuals might experience their participation as rewarding, without pursuing particular goals. For example, one might be singing in a choir every Tuesday evening in Church. Engagement in this case may be largely context-dependent, and might be abandoned as soon as the community stops to exist or changes (Akkerman & Bakker, 2019). Hence, research shows that there may be multiple ways of sustaining interest, suggesting that sustainment can best be understood by looking also *beyond* the deliberate reasons an individual provides for sustainment.

Mechanisms of interest sustainment

This shift towards understanding interest sustainment as being dependent on an individuals' participation in practices and routines across different contexts (see Akkerman & Bakker, 2019; Chesworth, 2019) implies one should also make a shift in how we study interest sustainment. Sustainment is typically studied through focusing on the reasons an adolescent provides for the sustainment of specific interests. This is problematic, not only because contextual processes may remain underexposed but also because interest sustainment may be expected to change over time. Narrative research has shown that adolescents might highlight different reasons for sustaining an interest over time (e.g. Holmegaard, Ulriksen, et al., 2015), confirming that focusing on the reasons in one moment in time may not fully capture why interests are sustained.

Therefore, one should focus on the processes or *mechanisms* involved in interest sustainment (see Maxwell, 2004). In order to identify these sustainment mechanisms, it is needed to trace how individuals experience interest across specific moments *over time* (e.g. Chesworth, 2019; Prenzel, 1992; Ramey & Stevens, 2019). Based on human experience literature (Gillespie & Zittoun, 2013; Zittoun et al., 2013), we may argue that incorporating these moment-to-moment experiences into analyses allows the identification of various mechanisms involved in sustainment: individuals might provide explicit reasons for sustaining in an object *within* a particular moment in time, but mechanisms might also be revealed by studying all momentary experiences of interest *chronologically,* considering similarities and prolongation of reasoning across experiences.

The present study

In order to gain a detailed and differentiated understanding of the mechanisms involved in interest sustainment we use a person-centred approach that was put forward by Akkerman and

Bakker (2019). They posited that looking from the perspective of the individual towards how they experience interest in daily life may help to better understand how practices and situations shape interest over time. In order to identify interest sustainment mechanisms, the present study aims to trace adolescents' moment-to-moment experiences of prolonged interest in objects, as suggested by Prenzel (1992). Practically, our study provides insight in causes of adolescents' sustained interests, even when the individual does not deliberately steer sustainment. The following research question was posed: *What mechanisms sustain adolescents' interests?*

METHOD

To trace experiences of interests over time we used the experience sampling method. This method has been proven useful for obtaining empirical data on psychological states, daily activities, and social interactions in a moment-to-moment fashion, making it possible to measure adolescents' experiences of interests multiple times a day (Csikszentmihalyi & Larson, 2014). Moreover, this is regarded a suitable method because individuals have to respond immediately after or even during an experience of interest, which avoids memory problems (Bergin, 2016).

Participants
Participants in this qualitative ESM study were drawn from a sample of 90 adolescents (see also Slot et al., 2019) who took part in six data collection waves between February 2016 and June 2017. Over 75% (*n* = 69) participated till the end of the data collection, but thirteen of these participants had one wave missing. The 56 remaining adolescents with complete data (18 boys, 38 girls) were 14-15 years of age in the period of the data collection. During the data collection, participants transitioned from grade 9 to grade 10. Adolescents were enrolled in four different schools from different regions in the Netherlands. All participants took part in our study voluntarily. Informed consent was obtained from all individual participants and their parents before participation.

Instrument
A smartphone application called *'inTin'* was used as a personalized experience sampling method (ESM), in which participants received signals on their phones every two hours (during waking hours) to answer questions about their experiences of interest (Hektner et al., 2007). If they experienced interest in a particular object, they had to report about it in an interest event. An interest event provided us with information on *how* they engaged in the object of interest, i.e. what they were doing/thinking/talking about, with whom they shared their interest, and *why* they experienced interest at that moment (i.e. their experience of interest). Such an interest event thus informed us about one's real-time experience with an object of interest. For example, Vera reported that she experienced interest in working at the 9th of September 2016 at 19:28. She explained that she engaged in the object by helping customers and chatting with her colleague Sharon. She reported to experience interest as she 'likes building a relationship with Sharon and learning to understand what her customers want'.

Procedure

Data collection started in February 2016 and ended in June 2017. In total, our participants took part in six data collection periods of two weeks, which were held every three months (February – June - September – December – March – June). Prior to the first period of data collection, participants received a 1.5-hour instruction during which we discussed what interests are and how to correctly use the application 'inTin'. Participants practiced filling in the application and we allowed time to answer any questions they might still have. After the meeting, we asked them to take part in a one-week pilot study in November 2015 in order to be prepared for the daily task of reporting activities; all participants agreed. During this pilot study we mainly worked on optimizing the technicalities of the application and had daily contact with our participants, asking them how they were doing and providing them with feedback when needed.

At the start of each data collection period, participants had to enter all topics and activities that they perceived as their interests. No predefined categories were made to allow participants to label the object of interest themselves. Moreover, they were asked to add all social contacts they see regularly or that are important to them. During data collection, interests or social contacts could be added to the list each time a participant added an interest event. When participants subsequently received a notification on their smartphone, they first had to indicate whether they had done anything interesting. If that was the case, subsequent questions related to the interest event were asked (see the instrument section), if this was not the case, they could go to the end of the report immediately. Every participant was supported and motivated by a research assistant during each data collection period. These assistants acted as coaches, and were instructed to encourage ('Good job, you are almost halfway!') and help participants to fulfil the criteria of payment ('Do not forget to report your interests this morning/afternoon/evening: Did you spend time on any interesting topics or activities?').

Participants were offered financial compensation for every data collection period if they fulfilled payment criteria (25 €). These criteria were as follows: (1) participants filled out at least three reports a day for two weeks, (2) these reports were spread throughout the day (i.e., morning, afternoon, and evening), (3) their reports were accompanied by clear and elaborative comments on why they experienced interest, and (4) participants added ten contacts and two different social groups to their mobile application. Ethical approval for this study was received from the ethical review board of the Faculty of Social and Behavioural Sciences of Utrecht University (FETC15-035).

Data analysis

Before analysis, we identified all sustained interests for each participant. In line with our definition of sustainment (Prenzel, 1992) we included interests that were actively engaged with over a relatively long period of time. Therefore, the object of interest had to be reported at least once in at least four of the six data collection periods (not per se each period, as interests can be latent for a while and then re-appear; Akkerman & Bakker, 2019), resulting in a hypothetical minimum of four events for analysis. We realized how this excluded not only short-term engagements, but also season-dependent interests that are sustained if you look over the course of multiple years (e.g. skiing; see Akkerman et al., 2020).

We regarded different interest labels (i.e. how a participant labelled an interest when adding it to the application) across data collection periods as the same object if the labels were similar in terms of the activity/topic it represented (e.g. playing soccer and soccer). In total, this resulted in an analysis of 56 participants, with 334 sustained interests (5,6 sustained interests on average per person) across 8281 reported interest-events, in total with a range between 4 and 171 events per sustained interest. We checked whether different types of interests (e.g. sports, media, school) were included in the analysis, to make sure mechanisms were not limited to a certain type of interest. A large diversity exists in terms of what types of interests were included in analysis (see Appendix 2A).

After identifying the objects for analysis, we started thematically coding the interests of twelve participants (Braun & Clarke, 2006). First, we read through all interest events that belonged to the sustained interests of these adolescents and subsequently drew 'timelines' for each sustained interest of these twelve participants, as this allowed us to see how experiences of interest change, remain similar or build upon each other over time. Each interest event in a timeline included information on the interest label, what topic or activity the adolescent reported to be engaged in (i.e. situational engagement), and why one experienced the object as interesting in that particular event (i.e. experience of interest). With regard to the question *why* it was interesting, we noticed that adolescents reflected on their experience of interest in the here-and-now (termed a momentary experience of interest) or by reflecting back on past or (imagined) future experiences with the object of interest (termed a momentary surpassing experience of interest; see Zittoun & Gillespie, 2015).

Secondly, we applied open coding to identify *chronological references* to past, present and future in each experience of interest, i.e. on being a momentary or momentary surpassing experience of interest, or a combination of both, as well as on *what* the individual referred to as interesting in their experience of interest. Thirdly, we explored themes in how adolescents chronologically *qualified* their sustainment. This was done separately for momentary and momentary surpassing experiences. When momentary surpassing experiences of interests were mentioned, qualifications could be directly coded (e.g. 'I have always liked playing the piano'), as adolescents explicitly referred to their past or (anticipated) future in their experience of interest. Concerning momentary experiences, qualifications could be identified by searching across the whole chain of interest events for similarities in chronological references (e.g. repeatedly mentioning 'It was fun to do', or 'it was enjoyable'). Axial coding was applied to all qualifications by comparing and contrasting them, eventually identifying the mechanisms explaining interest sustainment (e.g. joy and fun were merged in enjoyment). Finally, we applied selective coding through checking and refining these mechanisms in the data of the remaining 44 participants with a confirmatory approach (see also Quality assurance).

Quality assurance

To assure quality of the data analysis, several strategies were employed. First, analyses were done by the first two authors together, to check each other's interpretation and to come to final themes. Subsequently, themes and final mechanisms were discussed with the whole research team. This

process of researcher triangulation may contribute to the credibility and confirmability of our results (Guba, 1981). Second, to assure dependability, we asked the third author to conduct a formative audit after analysing the second group of 44 participants (Akkerman et al., 2008; De Kleijn & Van Leeuwen, 2018). In this audit, the third author checked the data and our interpretation of the data and suggested minor changes in how we coded and named the final mechanisms, which we agreed upon. The most prominent change that was a result of the audit, was the adding of a sixth mechanism (i.e. progress valuation), that we did not identify as a separate mechanism after the first round of (exploratory) analysis. Third, the audit trail was repeated with an independent researcher who was not involved in this study but was working in the same research team in the department. She was given access to the data of all 56 participants including the coding and a description of our data analysis that is similar but more detailed than the above. She performed a *summative* audit to assure dependability and confirmability of the data analysis, where summative implies that her judgment could not be used to improve the study, but to validate the reported results (De Kleijn & Van Leeuwen, 2018). She indicated to understand the coding process and the subsequent results and had some minor suggestions on how to increase transparency and understandability of our analysis and result sections.

RESULTS

Based on the chronological qualifications that adolescents made in their experiences of interest, we identified six sustainment mechanisms (see Table 2.1).

Table 2.1.

Sustainment mechanisms including an explanation and illustrative examples of experiences of interest characteristic for the mechanism

Mechanism of...	Interest sustainment lies in...	Example
Goal setting	An individuals' setting of a goal (i.e. future desirable state)	'I want to become a better hockey player'
Biographical identification	An individuals' identification with historical participation in an object	'I love playing the piano, I always have'
Progress valuation	An individuals' continuous valuation of knowledge or skill progression	'I learnt more about this topic/Working in the lab helps you to understand how it works'
Chronotopical captivation	An individuals' continuing curiosity in a storyline evolution	'I am eager to know how the story continues'
Engagement appreciation	An individuals' repeated positive appreciation of engaging in an object	'It was fun/I enjoyed this/It was relaxing/We laughed a lot'
Substantive participation	An individuals' sizeable and manifold participation in a practice like school	'I got a good grade'/'I liked talking to friends in the break'/'The class on micro-organisms was interesting'

First, sustainment lies in individuals' goal setting; adolescents referred in their experiences of interest to a future desirable state like wanting to master a skill or becoming better in something. This mechanism of *goal setting* was reflected in adolescents' *momentary surpassing* experiences of interest; adolescents qualified their experience of interest by referring to a goal (e.g. becoming a better piano player, learn to speak English), sometimes by additionally reflecting back on their growth since a previous engagement (e.g. improving my weaknesses). In some cases, goals were less explicit, as adolescents were fantasizing about possibilities in the future (e.g. I might want to live in England). Illustrating this mechanism of goal setting, Lazlo indicated multiple times when experiencing interest in hockey that he is working towards the goal of becoming a better hockey player (e.g. 'training is nice as I can improve my weaknesses', 'I see how much I have grown since last year', 'I can apply techniques in the game that I learned in training'). Sometimes, adolescents additionally made implicit references to the goal they set. For example, Lazlo stated 'we lost, but we did our best and that's good I think'. This may not reflect an explicit goal in the specific experience of interest but can be understood in terms of his desired state of becoming a better hockey player.

Second, sustainment lies in an individuals' identification with a historical participation in an object. Similar to the first mechanism, this mechanism of *biographical identification* was reflected in adolescents' *momentary surpassing* experiences of interest, where they recalled their personal history of participation with an object, or their love or liking for the content (e.g. I have always loved dancing). An example of this mechanism can be found in Bram's engagement with gaming. Bram reflects in multiple experiences on how he just loves to play games, including specific parts of the object he seems to identify with (e.g. ' I always like playing games after school', 'I just love sci-fi', 'Gaming is just something I like to do in my spare time'). Thus, adolescents can qualify their sustainment by referring to an image of themselves based upon their long-term engagement with an object (e.g. I am someone who loves to game), as they express through their interests who they are and what they like. Both the mechanisms of goal setting and biographical identification reside in someone's references to his/her (distant) future or past.

Third, sustainment resided in individuals' continuous valuation of progression in knowledge or skills. This mechanism of *progress valuation* became apparent across multiple *momentary* experiences, where adolescents recurrently referred to learning or knowing more about a specific topic or indicated to develop a skill. The mechanism of progress valuation does not revolve around working towards a 'desirable state' in the future, such as with the mechanism of goal setting, as the increasing knowledge or skills one acquires by engaging in a particular object of interest is interesting to adolescents in the moment itself. To illustrate this mechanism further, a part of the timeline of Zania's engagement in Biology is illustrated in Figure 2.1. In her experiences of interest, we could not identify a goal, in that she is deliberately working towards becoming an expert in Biology, but she rather seems to value each time she learns something about the domain Biology. As can be seen from the Figure, she reports to experience interest as she is 'learning about risks of sexual diseases' or 'I know more about ecologies now'. This mechanism thus seems to revolve around gaining knowledge and skills and valuing that in the situation, without formulating a clear goal pursuit.

Fourth, sustainment resided in an individuals' continuing curiosity in the evolution of a storyline. This mechanism of *chronotopical captivation* became apparent across multiple *momentary and momentary surpassing* experiences of interest, where adolescents repeatedly referred to the evolution of a chronotope (e.g. watching the next episode of a series or the season finale; wondering who is going to be champion in the soccer competition). More specific, adolescents referred in their experiences of interest that they were captivated by characteristics of an object; they continuously wished to know how the storyline of the object evolved over time. This curiosity towards the evolution of a storyline was most often found in objects that were designed to have clear and compelling storylines (e.g. books, series, games), but could for example also be found in objects that revolved around following a sports competition. As this mechanism could only be identified across multiple experiences of interest, we included another figure to illustrate this mechanism. As becomes clear from Figure 2.2, Laura is interested in Netflix and is in her experiences of interest focused on the main storyline of a series she watches. Her experiences of interest reflect back on previous engagements with the object (e.g. 'It's more exciting than last time, everything comes together now'), but mainly evolve around being curious what will happen in future engagements with the object (e.g. 'I wonder what will happen next time'). A chronotope may end (e.g. end of series), which often led adolescents to search for a new storyline. Often, they found periods in between storylines less interesting as they had to 'get into a new story' (e.g. 'nothing exciting has really happened yet this season'; 'it was not so interesting, the story is lacking'). This mechanism of chronotopic captivation thus seems to rely on the characteristics of the specific object that can catch one's interest (e.g. exciting writing style, cliff-hangers, unexpected happenings).

Fifth, sustainment lies in individuals' repeated appreciation of their engagement with an object. This mechanism of *engagement appreciation* became apparent across multiple *momentary* experiences of interest in which adolescents tended to repeatedly mention that they liked engaging with an interest in the moment. Adolescents reported in their momentary experiences of interest to experience fun, excitement, relaxation, or enjoyment when engaging with their interests. Often, this revolved around doing things together with others (e.g. peers, family, colleagues). To illustrate this mechanism further, we included part of Vera's engagement in music (Figure 2.3). Vera's experiences of interest repeatedly reflected why she appreciated to listen to music, as this was relaxing or fun in the moment (e.g. 'A way to relax after a long day of learning', 'It was fun to discover new music', 'Music provides a good vibe for the party'). Her experiences of interest also reveal that adolescents can appreciate the moment by contrasting the engagement to past or anticipated experiences. For example, while engaging in her interest in music, Vera reported she *anticipates* Christmas as she likes to get in the Christmas mood, *remembers* how fun the concert of Adele was last night and likes to discover *novel* songs. This mechanism thus seems to revolve around appreciating a specific object engagement in any given situation, where a situation can be appreciated because of the characteristics of the moment itself (e.g. presence of social others), or because it evokes certain memories, anticipatory thoughts or something novel/something other than normal. This suggests that the characteristics of a *situation* (i.e. opportunities for engagement) become important for sustainment; each situation is unique in terms of the opportunities it brings for engagement and how an individual interprets these opportunities.

Finally, sustainment resided in adolescents' substantive (i.e. sizeable and manifold) participation in a practice like school. This mechanism of *substantive participation* became apparent when looking at interests adolescents reported regarding school (e.g. learning, following lessons, school), although not all *school-related* interests were sustained in this way: adolescents could for example sustain in school through setting goals (e.g. school is important for my future). Across their momentary experiences of interests, adolescents appeared to 'seek' something interesting in each situation (e.g. in a lesson, while doing homework), and what was interesting to adolescents seemed to diverge over time. As can be seen in Figure 2.4, where Nathaly's engagement in school can be found, her experiences of interest varied widely from moment-to-moment. These constant shifts in her qualifications imply that her experiences of interest in school are focused on characteristics of the specific situations (e.g. lessons, homework) she engages in, without her explicating why she sustains in school in general (e.g. see Figure 2.4 where Nathaly regulates interest in presentations, self-study hours and specific subjects). Hence, this mechanism appears to rely on the opportunities provided by the substantive participation for experiencing interest. As can be seen in Figure 2.4, this did not mean that no other mechanisms could be identified that sustained the interest (e.g. I always have liked arts), but these mechanisms could only explain sustainment in a specific activity or content in the moment and could not explain sustainment beyond this specific activity or moment.

Simultaneous involvement of sustainment mechanisms

Although we found six different sustainment mechanisms, objects of interest were often sustained through the simultaneous involvement of several of these mechanisms. Our findings presented thus far have shown how interest sustainment is not only associated with the goals and personal preferences an individual refers to in the moment, but also resides in object- and context-specific characteristics inherent to one's real-time, moment-to-moment engagement with an object *over time*. In this simultaneous involvement of sustainment mechanisms, we noticed that over time some mechanisms become more or less foregrounded in the experiences of interest. Moreover, we found indications that new sustainment mechanisms may develop over time. To illustrate how mechanisms might simultaneously be involved in interest sustainment, we have included a last example (Figure 2.5) of (part of) Kelly's interest in cooking. The first few times she engaged with cooking, she is focused on learning new recipes and becoming better in cooking (mechanism of goal setting) but in subsequent events a positive state is also highlighted (e.g. It is fun to do, I like to spend time with Julia; mechanism of engagement appreciation), suggesting both mechanisms may explain Kelly's sustainment in cooking. Half a year later she mentions that cooking does not provide a challenge for her anymore, which might mean she does not get the feeling that she still works towards the goal, but instead we can see that cooking has developed into a personal preference for cooking (e.g. I like to cook, I have always loved cooking), and that she sustains in the interest because she identifies herself with cooking at this point.

Figure 2.1. *Visualization of part of Zania's moment-moment engagement in the sustained interest biology, illustrating the mechanism of progress valuation.*

| Date and time | 12-09-2016 (11:51) | 10-12-2016 (13:49) | 18-12-2016 (14:41) | 15-03-2017 (13:15) | 6-6-2017 (13:27) | 13-06-2017 (13:08) |

Situational engagement

- I studied for a Biology test on organisms at school
- I constructed two tables about anticonception and sexual disease
- I studied the chapter about evolution
- I had tutoring in Biology
- Outside we did a practical assignment about animal and plant behavior
- I did a Biology project on ecology and processed my data

Experience of interest

- I keep learning and understanding new things, that interesting
- I learned about all the risks and that's interesting to know
- Interesting to know how the evolutionary process happened
- I learned new things because of it
- A practical assignment helps you to understand it better and I like doing it
- I learned about what an ecology is and that's interesting to know

Note. The underlined text highlights how Zania continuously values her progression learning about biology.

Figure 2.2. *Visualization of part of Laura's moment-to-moment engagement in the sustained interest Netflix, illustrating the mechanism of chronotopical captivation.*

| Date and time | 02-12-2016 (23:26) | 04-12-2016 (12:14) | 05-12-2016 (20:10) | 07-12-2016 (21:47) | 09-12-2016 (21:02) | 10-12-2016 (14:22) |

Situational engagement

- I started to watch Vampire Diaries again, a while ago I stopped watching it
- I watching VPD again
- Watched VPD again
- Watching Safe Haven on Netflix
- Watching the VPD again
- I watched VPD on Netflix

Experience of interest

- The series has good plot (twists), every time I watch there is a new clue
- The season final is approaching, so it's getting more and more exciting!
- I am watching the season final, it's interesting because it all comes together
- It was not so interesting, normally I watch Netflix for the great stories but here there was none
- I started watching a new season, nothing exciting is really happening yet.
- It's getting more and more interesting as the lead character may die

Note. The underlined text highlights how Laura is continuously captivated each time by the storyline of the series.

Figure 2.3. *Visualization of part of Vera's moment-to-moment engagement in the sustained interest music, illustrating the mechanism of engagement appreciation.*

Date and time	13-02-2016 (16:23)	19-02-2016 (20:31)	04-06-2016 (09:00)	05-09-2016 (16:47)	12-12-2016 (16:22)	06-06-2017 (11:17)

Situational engagement:
- Listening to music under the shower
- I listened to music
- I thought about Adele's concert of last night
- I watched new Beyonce videos on Youtube
- I looked up Christmas music and downloaded it
- Listening to music in the morning

Experience of interest:
- It's relaxing after all that studying
- It gives a cozy and sociable sphere to the party
- Thinking back on how great it was
- Discovering and listening to new songs; finding out if I like the music video
- I like getting in the mood for Christmas by learning these new songs
- Relaxing, it distracts me from the though day that lies ahead. Nice sing-a-long

Note. The underlined text highlights how Vera repeatedly appreciates her engagement in music in terms of gaining a positive state.
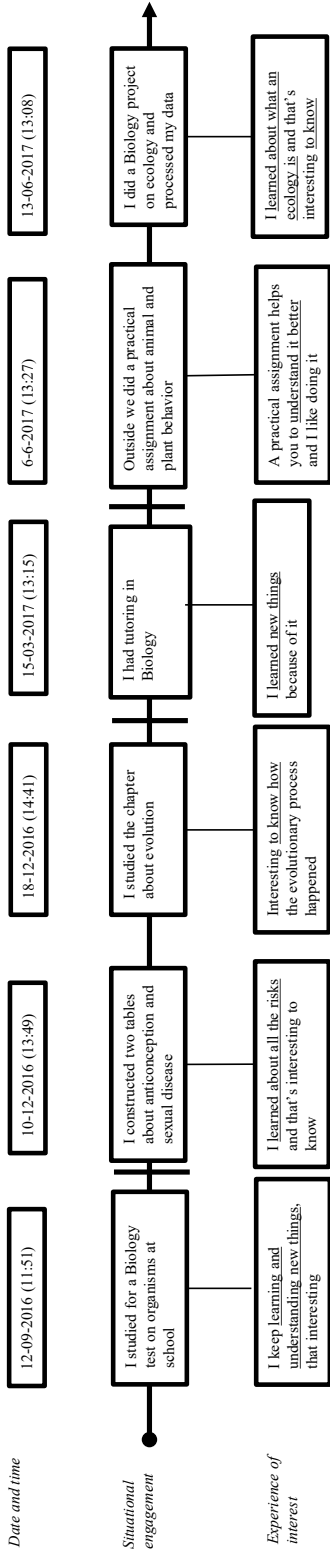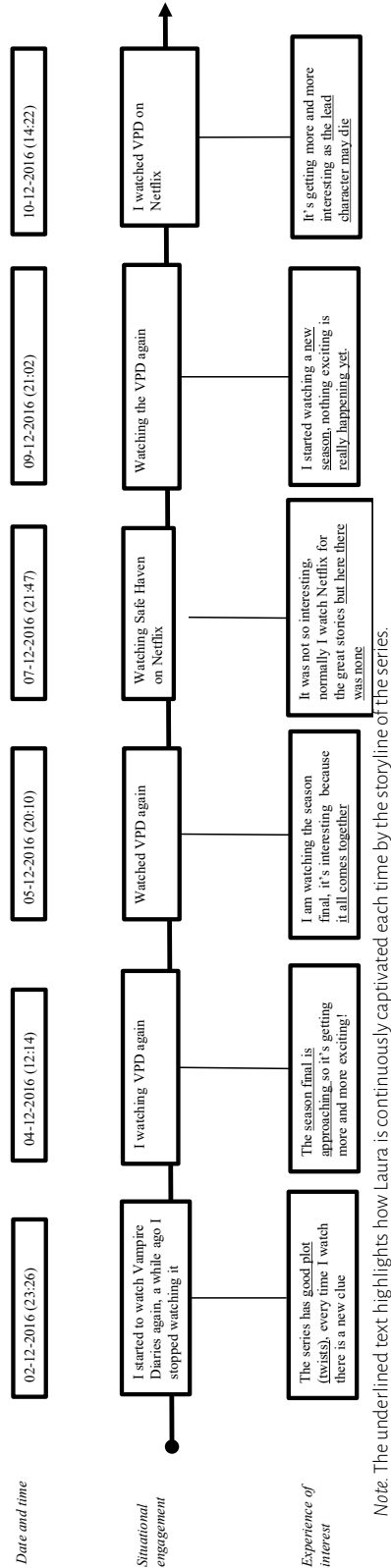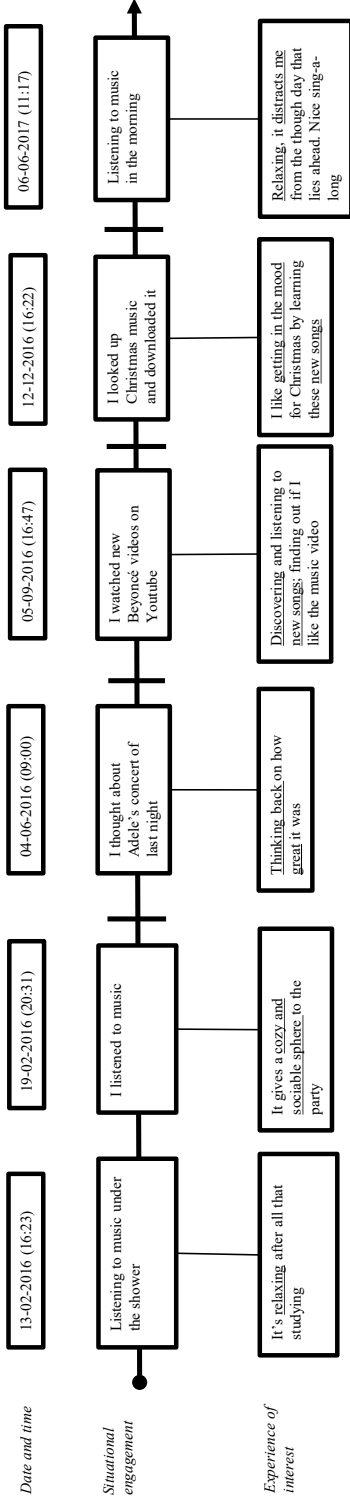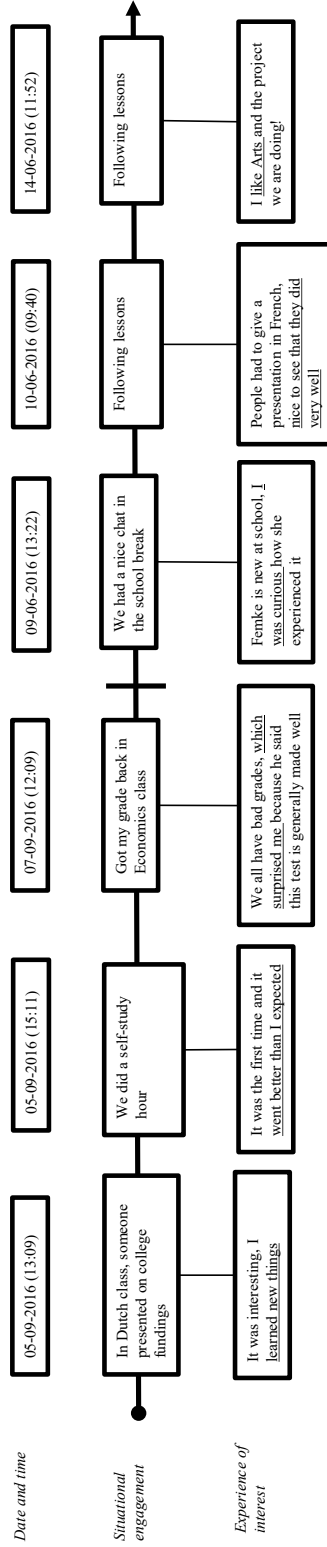
Figure 2.4. *Visualization of part of Nathaly's moment-to-moment engagement in the sustained interest school, illustrating the mechanism of substantive participation.*

Date and time	05-09-2016 (13:09)	05-09-2016 (15:11)	07-09-2016 (12:09)	09-06-2016 (13:22)	10-06-2016 (09:40)	14-06-2016 (11:52)

Situational engagement:
- In Dutch class, someone presented on college findings
- We did a self-study hour
- Got my grade back in Economics class
- We had a nice chat in the school break
- Following lessons
- Following lessons

Experience of interest:
- It was interesting, I learned new things
- It was the first time and it went better than I expected
- We all will have bad grades, which surprised me because he said this test is generally made well
- Femke is new at school, I was curious how she experienced it
- People had to give a presentation in French, nice to see that they did very well
- I like Arts and the project we are doing!

Note. The underlined text highlights how Nathaly refers to something else in her participation each time she reports to experience interest

2

27

Figure 2.5. *Visualization of part of Kelly's moment-to-moment engagement in the sustained interest cooking, illustrating the simultaneity of mechanisms.*
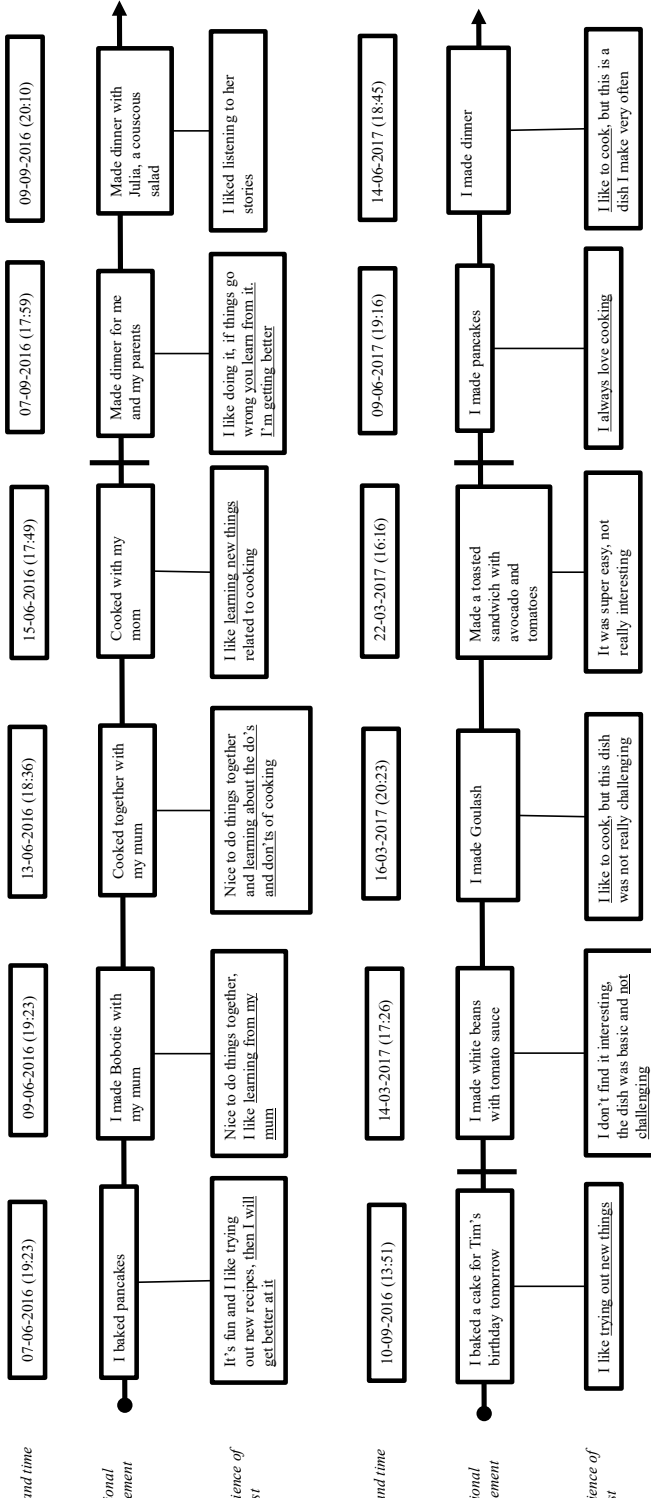
Note. The underlined text highlights how Kelly's interest sustainment over time is associated with mechanisms of goal setting, engagement appreciation as well as biographical identification.

DISCUSSION

The aim of the present study was to provide a detailed and differentiated account of the mechanisms involved in interest sustainment, beyond the (active) role of the individual in sustaining interest. Together, the sustainment mechanisms we found show that an individuals' goal setting, knowledge and expertise as well as identification with an object are important for understanding interest sustainment, but that other processes become visible when taking into account the whole 'history' of one's moment-to-moment engagement with an object (Prenzel, 1992).

Our finding that individuals may intrinsically steer interest sustainment over time in terms of goal setting or biographical identification is largely in line with previous interest development research (e.g. Hidi & Renninger, 2006). The importance of personal goals for sustaining interests has already been acknowledged by multiple scholars (Hofer, 2010; Krapp, 2002; Nolen, 2019; Prenzel, 1992), as well as the importance of individual's preferences and identification with certain objects of interest (Prenzel, 1992; Renninger & Hidi, 2015). Adolescents may deliberately evaluate if they find their interests fitting with their image of self and if they see themselves sustaining this interest in the future (Azevedo, 2011; Barron, 2006; Hedges, 2019).

When object- or context specific characteristics are foregrounded in one's momentary experiences of interest, sustainment may be less on an 'action-level' (Akkerman & Bakker, 2019), i.e. characterized by conscious pursuit and active engagement, and instead revolve around certain *routine* or *practice-based* activities. First, individuals may sustain their interests over time because of learning opportunities in specific practices (e.g. in a biology class, but also YouTube; Barron, 2006) to develop their knowledge or competence with regard to particular content, which we found is not linked to a distant goal of becoming better in something, but rather refers to how they value learning something new in the specific situation. Furthermore, individuals may sustain interest because they repeatedly appreciate their engagement, often in terms of positive feelings (i.e. relaxation, enjoyment, social sharing) that may be inherent to participating in their specific routines or practice-based activities (e.g. singing in the shower, see Akkerman & Bakker, 2019; e.g. skateboarding, see Hollett & Hein, 2019). Moreover, adolescents may re-engage with particular content over time because the storylines in books and series tend to captivate them: the characteristics of the object, such as exciting plot twists, may direct adolescents to sustain their interest over time. Finally, a substantive participation may play a role in sustainment. If adolescents have to spend a large amount of their time in a practice like school that provides manifold opportunities for experiencing interest, adolescents might find something different in each moment that may evoke interest (Sansone & Thoman, 2005). These processes that appear context- and object-dependent are mentioned in the literature, but mostly with regard to the *triggering* or emergence of interests (e.g. Bergin, 1999; Hidi & Renninger, 2006). Thus, our study can add to theory by showing that aspects that are solely attributed to understanding the emergence of interest (e.g. participating in a practice, positive emotions, storylines), may also be important for understanding interest sustainment.

We may thus conclude that interests are not only sustained by deliberate intentions of the individual, but also by other object-specific and contextual processes that are associated with engaging in interests over time. Interests were often sustained through the simultaneous involvement of various mechanisms. Which mechanism may be foregrounded in a specific experience of interest may be dependent on the social and material opportunities for engagement in the situation at hand. For example, whether someone experiences a positive state while engaging with an object or reports to be captivated by a storyline, may be dependent on the presence of social others (Chesworth, 2019). Moreover, changes in the social or material opportunities for pursuing a specific object of interest, may play a role in how the sustainment mechanisms develop or change over time. For example, if one's best friend quits playing volleyball, this may lead an individual to qualify his or her sustainment less in terms of volleyball as being fun. Also, *parents* still play a vital role in how adolescents sustain their interests, for example through providing means to pursue a specific object of interest (Crowley et al., 2015; Neitzel et al., 2019).

These moment-to-moment (changes in) opportunities for engagement may also play a role in whether the more 'deliberate' mechanisms are foregrounded. For example, a goal can be temporarily less foregrounded when one is busy with studying for exams or suffering from an injury, and might even disappear as a whole over time. This disappearance may be explained by the life-tasks of individuals, i.e. the developmental tasks that arise during certain age periods. According to Hofer (2010), interests may decline over time or be abandoned all at once if the goals are achieved or if preferences are no longer relevant for a person as he grows older and has to tackle other life-tasks (e.g. going to college). Hence, sustainment mechanisms should not be regarded as static entities (i.e. like an on/off button) but instead as dynamic processes that are strongly connected to one's prolonged, real-time engagement with an object of interest and an individual's interpretation (Akkerman & Bakker, 2019; Azevedo, 2011).

Implications for research and practice

Our findings imply that *predicting* interest development is difficult, since persistent engagement can change from moment-to-moment: what determines interest sustainment is dependent on the 'fullness of life' (Hedges, 2019), i.e. both the object- and context-specific characteristics of a situation and how an individual interprets this with regard to their history of engaging with that object or their imagined future. A similar argument has been made by Akkerman and Bakker (2019) who have argued that a person-object-context perspective is needed to understand interest development, as the development of interests is dependent on the situatedness of one's engagement with a specific object in everyday life. They indicate that interest development may be difficult to predict because of the nonlinearity and fluid nature of interests, i.e. the possibility that interests develop and grow in different directions over time. We have empirically demonstrated this fluidity and nonlinearity, as various mechanisms simultaneously sustain interests and may become more or less foregrounded in the experiences of interest over time. For future research, this implies that studies should trace the object engagement from moment-to-moment across different contexts, if one aims to provide theoretical insight in how interests may develop over time (see Akkerman & Bakker, 2019). Moreover, this fluid and nonlinear nature of interest additionally implies that it is difficult for practitioners to predict whether and how interests of students will develop over time.

Limitations and future research

In the present study we asked adolescents how they experience interest in a particular object from moment-to-moment, to derive sustainment mechanisms. This can be considered a strength on one hand, as the measurement of these 'real-time' experiences of interest leads to a differentiated understanding of why adolescents sustain interest (see Akkerman & Bakker, 2019; Bergin, 2016; Hollett, 2016; Prenzel, 1992) On the other hand, the experience sampling method is very focused on how the individual may indicate to experience interest, fully relying on momentary self-reports. Observations and follow-up interviews after reporting may be helpful for future research to study the processes underlying sustainment, especially to further study sustainment mechanisms that seem to be more associated with object and context characteristics.

Moreover, our definition of sustainment (i.e. 'prolonged relations with an object of interest that involves repeated episodes of active engagement over time'; Prenzel, 1992) may have narrowed the scope of this study. Through having the strict requirement that interests should be sustained for at least a year, we may have excluded specific interests. For example, interests that may be engaged with over a large timespan, but only for a short period (e.g. snowboarding can only be done in winter time; Akkerman & Bakker, 2019) where not included. Perhaps these interests, with yet a different way of engaging (i.e. season-specific) might have revealed different sustainment mechanisms. Nonetheless, we would like to stress that we have included a large enough variety of interests in this study to provide a nuanced understanding of adolescents' interest sustainment. Not only did we study 'active leisure' interests like hockey or piano playing, also 'passive leisure' interests like watching TV were included, and non-leisure interests like 'school' as well as maintenance interests like 'eating' were included (Hofer, 2010). Future research could validate the identified mechanisms through tracing adolescents' interest sustainment over a larger (connected) time span than the two-week data collection periods in this study.

A final limitation might be the age group in which we studied the sustainment of interests. Young adolescents' lives are still highly dominated by school (Csikszentmihalyi & Hunter, 2003) and we found that this substantive participation in school could sustain interest. We are curious whether we will find this sustainment mechanism in higher age groups (e.g. after the transition to higher education). Hence, future research is needed in other age groups to find out if the sustainment mechanisms we identified remain similar, or additional or different mechanisms can be found.

Conclusion

In sum, our study contributes to interest research by giving a detailed and differentiated account of interest sustainment through examining adolescents' moment-to-moment engagement with an interest. Adolescents may deliberately sustain interests through referring to past or future images of themselves, but interests may also be (simultaneously) sustained by objects and contexts. This may imply that we should reconsider whether to use the term 'individual interest' to describe sustained interests, as more than the individual may sustain an interest.

Appendix Table 2A

Participants (*n* = 56), their number of sustained interests (including labels) as well as the number of interest events analysed per interest and person

Name	Sustained interests (N)	Object labels	Interest events (N)
199	10	Reading the newspaper	31
		Talking	27
		Cycling	54
		Bouldering	27
		Breaks	14
		Watching Netflix	10
		Music	11
		Watching the news bulletin	5
		Snapchat	8
		P.E.	5
269	5	Watching tv	33
		Reading	22
		Volleyball	29
		Listening to music	10
225 (Laura)	5	Music*	29
		Working	35
		Dancing	49
		Netflix	18
		Make-up	13
227 (Lazlo)	6	Watching tv	33
		Listening to music	50
		Playing piano	22
		Gaming/games	22
		YouTube	15
		Hockey*	11
226	4	Playing the piano	67
		Socializing	50
		Trains	34
		Time travelling	12

195	6	Gaming	23
		Hockey	31
		Watching movies	11
		Running	6
		Fitness	8
		YouTube	10

260 (Bram)	5	Eating	28
		Watching tv	20
		Cycling	12
		Gaming[*]	18
		School	40

229 (Kelly)	4	Hockey	12
		Netflix	41
		School	47
		Cooking[*]	18

| 284 | 2 | Watching Netflix | 14 |
| | | Playing soccer | 16 |

193	6	Watching YouTube	46
		Playing a game	49
		Watching tv/Netflix	28
		Reading	21
		Listening to music	11
		Talking to friends	64

242	6	YouTube	36
		School	112
		Gaming	99
		Anime	36
		Music	20
		Social media	15

246 (Nathaly)	6	Hockey	11
		Meeting friends	17
		School[*]	41
		Guitar playing	7
		Tennis	9
		Watching Netflix/series	8

275 (Zania)	1	Biology[*]	11
261	5	Listening to music	40
		P.E.	7
		Netball	31
		Meeting friends	17
		YouTube	49
201	10	Driving my scooter	29
		Watching Arrow/series	20
		WhatsApp	24
		Cycling	26
		Watching movies	10
		Music	53
		Instagram	18
		Shopping	4
		Volleyball	19
		YouTube	9
256	5	Dancing	20
		Guitar playing	10
		P.E.	6
		Chemistry	9
		Working at the McDonalds	19
207	5	P.E.	8
		Listening to music	34
		Netflix	35
		Tennis	35
		Watching tv	36
208	2	(Online) shopping	18
		Contact with people	56
279	4	Netflix/series/movies/tv	26
		School	30
		Work	20
		Friends/chilling with friends	32

258	8	Going into town	11
		Reading	13
		Dog	12
		Horse riding	19
		Drawing	10
		Watching tv	13
		Hiking	29
		YouTube	18
251	3	Athletics	40
		School	130
		Fitness/the gym	6
272	4	Family	38
		Friends	31
		iPad/phone	36
		Fencing	11
262	5	Watching a movie	9
		Listening to music	8
		Shopping (online)	7
		Series/Gossip Girl	29
		YouTube	15
230	9	Meeting up	16
		Faith/church	23
		Cooking	25
		Hiking	13
		Break/gap hour	21
		social media/WhatsApp	26
		Out for dinner	16
		Soccer	24
		Singing	17
205	3	Meeting friends	8
		Hockey	31
		Babysitting	10

2

212	6	Party	8
		Gaming	27
		Earning money	13
		Music	19
		Sports	18
		Soccer	38
217	4	Chilling	9
		FIFA	36
		Hockey	22
		Soccer	27
187	10	Chilling	16
		(Making) dinner	23
		Cycling	18
		Gaming	15
		Studying	15
		Listening to music	21
		School	32
		Sports	9
		Work	17
		YouTube	15
198	8	Biology	22
		English	34
		Physics	19
		Dutch	14
		Chemistry	12
		Netball	23
		Watching soccer	21
		Math	23
200	2	(Watching) Soccer	58
		FIFA	43
239	5	Gaming	34
		News	26
		Studying	24
		School	101
		Social Media	23

214	8	Meeting family/friends	57
		Series/Netflix	34
		Fashion	18
		Hockey	16
		School	30
		Social Media	32
		Sports	8
		Going out	15
216	2	Reading	42
		Dancing	46
218	6	Bass	27
		Play the drums	20
		Game/CS: GO	15
		Hockey	9
		Making music with the band	16
		Tennis	8
222	3	German	8
		French	9
		Hockey	11
223	5	Playing guitar	8
		Netball	11
		Music	13
		Piano playing	19
		Playing a game	10
236	10	Family	15
		Partying	5
		Cooking	16
		Babysitting	8
		Horse riding	6
		School	75
		Sailing	6
		Friends	60
		Leisure time	43
		Work	12

2

237	10	Friends/chilling	29
		Eating	10
		Party	4
		Listening to music	14
		Netflix	15
		Rugby	34
		School	85
		Watching tv	28
		Working	12
		YouTube	25
240	7	Meeting up	12
		Gaming	20
		Netball	72
		News reading	32
		Watching tv	35
		WhatsApping	29
		YouTube	68
243	14	Anime	11
		French	18
		Hair	6
		Instagram	6
		Jumbo	22
		Cooking	32
		K-pop	43
		Art	25
		Make-up	27
		Music	35
		Netflix	30
		Soccer	18
		Science	33
		YouTube	11
244	4	Gaming	46
		Watching tv	13
		Working	27
		YouTube	28

247	12	History	8
		Reading	8
		Global science	11
		Being with family	11
		Being with friends	17
		Music	11
		Babysitting	5
		School	19
		Watching tv	27
		Shopping	9
		YouTube	22
		Drawing	21
246	9	Hockey	34
		Walking the dog	44
		Getting food at Jumbo	6
		Cooking/baking	11
		Listening to music	39
		Babysitting	10
		Provide (hockey) training	6
		Watching tv	38
		YouTube	28
249	4	Watching movies	43
		Gaming	22
		Watching tv	68
		Swimming	72
202	5	P.E.	6
		Playing hockey	20
		Listening to music	21
		social media	24
		(Watching) soccer	5

2

203	8	Meeting up	12
		Chatting on the phone	10
		P.E.	7
		Instagram	27
		Listening to music	34
		Break	43
		Watching Pranks	19
		Watching tv	15
206	7	Watching movies	7
		Handball	30
		Cooking	15
		Reading	25
		Listening to music	41
		Netflix (series)	34
		Playing the piano	39
211	6	Acting	6
		Dancing	8
		Hockey	16
		Student Council	6
		Listening to radio	10
		Watching (Netflix) series	8
213	7	Hockey	45
		Cooking	17
		Reading	48
		Playing saxophone	49
		Shopping	16
		YouTube	27
		Watching series (on Netflix)	29
250	5	Cooking	12
		School	97
		Watching tv	11
		Working at the Vomar	29
		YouTube	83
253	5	Parties	9
		Hockey	22
		Class	14
		Netflix	18
		Break	8

264	9	Cycling	16
		Chatting	19
		Make-up	13
		Music	18
		Visiting others	9
		School	18
		Social media	9
		Watching tv	15
		Watching YouTube/Netflix	46
266	2	Sports	28
		Food (and subcategories)	24
270	4	Gaming	171
		9Gag	116
		Watching tv	21
		YouTube	78
276	13	Geography	7
		Do It Yourself	7
		English	6
		Math	7
		Cycling	12
		French	7
		History	12
		P.E.	9
		Reading	33
		Walking the dog	8
		Writing	9
		Drawing	17
		Watching tv	66
277	5	Dancing (and subcategories)	61
		P.E.	7
		Physic	10
		Watching tv	17
		Birthday	8
56	334		8281

Note. *Interest engagements that are drawn upon in the paper.

DYNAMICS IN HIGHER EDUCATION CHOICE: WEIGHING ONE'S MULTIPLE INTERESTS IN LIGHT OF AVAILABLE PROGRAMMES

3

ABSTRACT

Recent studies have shown that students' interests are decisive in making a substantiated higher education choice, yet do not indicate how students decide which interests they aim to pursue. This study aimed to find the considerations students have when weighing interests and higher education programmes. Thematic analysis was applied to uncover considerations based on semi-structured interviews with twenty Dutch high-school seniors. Students weighed their interests from an interest-to-programme perspective (contrasting interests and deciding which is most important for their future) and from a programme-to-interest perspective (evaluating how possible programmes reconcile with one's interests). By applying both perspectives simultaneously, students dynamically considered which programmes and interests they wished to pursue. These findings imply higher education choice theory and studies should acknowledge that the programmes and interests students consider is dependent on the feed forward of the considered interests on programmes and the feed back of considered programmes on interests.

Keywords: Multiple interests, Higher education, Programme choice, Web of reasons, Student choices, Narrative psychology

INTRODUCTION

Deciding which higher education programme to pursue is a long-term and complex process (Leach & Zepke, 2005; Taylor & Harris-Evans, 2018). Recent studies have argued that the higher education choice can be seen as an interest-based choice (e.g. Holmegaard, 2015). Interests may direct students' future choices as students think about who they want to become based on their interests, which starts at the end of primary school and continues during later study and working life (Sharp & Coatsworth, 2012). Students may regret not pursuing specific programmes or interests (Kucel & Vilalta-Bufí, 2013), which can lead to drop out from the programme (Ulriksen et al., 2010). To get more insight in the higher education choice process and to support students to make a substantiated choice, one should first learn how students weigh their multiple, often diverging, interests when trying to decide which they are going to pursue in a programme (Holmegaard, 2015). The present study therefore focuses on the considerations students have when weighing their interests in light of possible future study programmes.

The higher education choice process from a personal approach

Traditionally, the higher education choice process has been studied from a socio-economic perspective. Research taking this perspective studies factors that influence the individual's choice to enrol in a specific institution. Several models have been put forward by Chapman (1981) and Hossler and Gallagher (1987) and later extended by Cabrera and La Nasa (2000) and Perna (2006). These models tend to emphasize the sociological and economic factors (e.g. parental education, cost of a programme) that may explain part of the variance in individuals choosing to enrol in specific programmes and colleges.

Based on a synthesis of college choice literature, Bergerson (2009) stressed that the socio-economic perspective has been most dominant in literature and suggested that as a next step, studies should take a personal perspective. A personal perspective has added value in that it focuses more on the individual's decision-making *process* and aims to identify and explain the doubts students have and ways in which they overcome them. Making the student's own choice process more clear, may help altering existing theories or putting forward new ones and inform policy in what ways they may support students in making a sustainable choice (Bergerson, 2009).

Several models have already been developed that, next to describing socio-economic factors, touch upon the possible doubts and considerations students have, such as the expectancy-value model (Eccles & Wigfield, 2002) or the social cognitive theory of career (Lent et al., 1994). According to these models, students try to find a programme that is associated with the highest personal gains and lowest costs. Students may doubt between several programmes and may list positive and negative reasons for pursuing that specific programme to come to a final decision. Multiple factors have been identified that lead to a positive or negative evaluation of a programme, for example: ability in the programme (Eccles & Wigfield, 2002; Lent et al., 1994), institutional quality (Brooks, 2003), peer expectations (Brooks, 2003; Paat, 2016) and career prospects (Eccles & Wigfield, 2002; Paat, 2016; Pinxten et al., 2015). The most important factor identified in these studies are often students' interests (e.g. Malgwi et al., 2005; Pinxten et al., 2015). Nevertheless,

these studies give no insight in the process of how students weigh these different reasons and why interests may play a key role in this decision-making process.

Interests and choices

Interest can be defined as 'the psychological state of engaging or the predisposition to reengage with particular classes of objects, events, or ideas over time' (Hidi & Renninger, 2006, p. 112). Inherent to the pursuance of interests is that students aim to reengage with their interests *over time*, and therefore are strongly future-oriented (Akkerman, 2017; Dewey, 1913; Hofer, 2010). As students form images of who they want to be based on their current interests (Sharp & Coatsworth, 2012), it is not surprising that some higher educational models argue interests may be central in students' process of deciding which programme to pursue (Holmegaard, 2015).

In daily life however, students have multiple interests (Akkerman & Bakker, 2019). From at least kindergarten on, students have developed several interests in objects in and outside the school domain. These multiple interests constantly compete for students' time, as not all can be pursued (Hofer, 2010). The process of contrasting interests and deciding what to spend time on, likely occurs intuitively also depending on the opportunity structure provided for specific engagements (Bergin, 2016). Nonetheless, when confronted with a high-stake decision such as the higher education choice, interests may be weighed more explicitly (Vulperhorst et al., 2018).

Weighing multiple interests

Students have to weigh their multiple, often diverging, interests, and have to commit to a (specific set of) interest(s), as students cannot pursue all their interests in a higher education programme (Hofer, 2010; Vulperhorst et al., 2018). Deciding which interests to pursue is difficult as committing to specific interests means other interests cannot be pursued, which may lead to regretting the choice students made (Kucel & Vilalta-Bufí, 2013).

During this weighing process, students start to express reasons why they want to pursue specific interests (Akkerman & Bakker, 2019; DiGiacomo et al., 2018). In most research, it is assumed that each interest and related reasons exist independently of others, taking interest-based reasons as separate factors contributing to the choice for a specific higher education programme (Mikkonen et al., 2009). Nonetheless, Holmegaard, Ulriksen, et al. (2014) have shown that the interest-based reasons students express may be compared and contrasted with each other, indicating interdependence between students' interests and interest-based reasons (e.g. If a student states she likes learning about diseases the most, this implies she likes learning about her other interests to a lesser extent). Acknowledging this interdependence in interest-based reasons, students are likely to consider their *relative* ability, enjoyment, and social support as a whole when making a decision. We therefore argue it may be more informative to focus on the contrasting of students' multiple interest-based reasons as this may inform us about the doubts or considerations students have when trying to decide which interests they wish to pursue.

Interest-to-programme and programme-to-interest perspective

Studies taking a personal approach emphasize more insight is needed in what considerations students have related to which interests they aim to pursue, without explicitly taking into account students may be constrained by the future options available to them. Future programmes may constrain interest pursuance, as not all interests or combinations of interests might be pursued in programmes (Buzzanell & Lucas, 2013; Gottfredson, 2002). Programmes have to be actively explored to see what possibilities they provide for specific interest pursuance.

Students may reason from both a *programme-to-interest perspective* and an *interest-to-programme perspective*. Both perspectives differently orient reasoning, with a *programme-to-interest perspective* starting from the *future* programmes available and then looking at oneself and questioning how one's interests would fit in these options versus the *interest-to-programme perspective* starting from ones' own *past and present* interests and then looking at which future programme this would logically lead them. This implies students may provide different reasons from a programme-to-interest and an interest-to-programme perspective and may have different considerations from both perspectives.

Which interests students aim to pursue is likely to be dependent on how students attune both perspectives. Based on narrative psychology and transition literature (Holmegaard, Ulriksen, et al., 2015; Zittoun & Valsiner, 2016), we expect that the interests students wish to pursue (i.e. interest-to-programme perspective) *feed forward* to the programmes they consider and the programmes that students consider (i.e. programme-to-interest perspective) may simultaneously *feed back* on the interests they wish to pursue. The feed forward of interests has to some extent been studied, and studies indicate that students' most important interests may be directive for which programmes they consider (e.g. Holmegaard, 2015). In contrast, studies have only recently begun to explore how possible programmes feed back on interests. Akkerman and Bakker (2019) indicated, based on a small longitudinal study of four students, that students' interests changed based on what was specifically possible in light of the future programmes they considered, implying that the feed back of programmes may lead to changes in the interests students wish to pursue.

As we aim to study how the feed back of programmes may impact the interests students consider, we should acknowledge that students reason from the present, and therefore will be selective in expressing which interests and programmes they have considered in the past (Holmegaard, Ulriksen, et al., 2015). We do not know in what ways feed back of programmes may lead to changes in the interests students aim to pursue and we may expect that students present a consistent story from the present why they aim to pursue specific interests in a programme. Therefore, it is interesting to study to what extent and in what ways students explicitly mention that programmes may provide feed back that potentially leads students to make a shift in the interests they consider to pursue.

The present study

The present study expects that students will weigh multiple interests and related reasons simultaneously and try to attune an interest-to-programme and a programme-to-interest perspective when deciding which interests to pursue in a specific programme. We aim to identify

the considerations students have when weighing their multiple interests. Moreover, we study in what ways the feed back of explored programmes may lead to changes in the interests students consider to pursue, which may give insight in the internal dynamics inherent to the higher education choice process of students (Leach & Zepke, 2005; Taylor & Harris-Evans, 2018). The following research question was formulated:

What considerations do students have when weighing their multiple interests in light of their future study programmes and in what ways does the feed back of explored programmes lead to changes in the interests students consider to pursue in a programme?

METHOD

Interviews were deemed most suited to uncover considerations in the weighing process of students' multiple interests, as interest-based reasons are expressed in narratives students tell about themselves (Holmegaard, Ulriksen, et al., 2015). Moreover, in narrative interviews, students provide reasons why they are going to make a certain choice through aligning past and present experiences and considered futures (Crossley, 2000), thereby giving insight in how previously considered programmes may feed back on the interests they considered.

The Dutch educational system

After primary school, Dutch students enter in the secondary vocational education track, general secondary education track, or pre-university track. Approximately twenty per cent of the students transition to the pre-university track. Our sample consisted of pre-university students, as most of these students go to research-based universities or universities of applied sciences, whilst less students enter higher education from other tracks. After three years in the pre-university track, students are required to specialize in subject clusters or educational profiles: Culture & Society, Economy & Society, Nature & Health, or Nature & Technology. After three more years students transition to higher education. In the Dutch higher education system, students directly choose to enrol in a specific programme at a specific institution. The pre-university diploma allows students to enrol in all programmes without other admission criteria, although some programmes require students to graduate with a specific profile. Moreover, some highly selective programmes apply admission at the gate.

Participants

Twenty students were randomly selected for interviews from a larger sample of 244 pre-university students who participated in a longitudinal experience-sampling method measuring students' interests. Students were recruited through high schools and could voluntarily participate. As too many students were willing to participate a random sample of students was drawn per school. The current study only concerns the interviews, which were held five months before students had to commit to a programme. Students were distributed across eleven secondary schools in the middle of the Netherlands. To make sure reasons and considerations were not limited to certain student or school characteristics we tried to include a diverse group of students. We included students from different schools, which ranged from relatively large urban schools to

small rural schools. Moreover, from each school a male and female student were selected. No other background variables were available to sample on. From the two smallest schools, one student was selected, which resulted in the final sample of twenty students. All students were aged between 16 and 18 years old. Students of all educational profiles were included.

Instruments and procedure

To uncover interest-based reasons and feed back of programmes on considered interests, individual interviews were held. The first part was set up as a narrative interview (Holmegaard, Ulriksen, et al., 2015) consisting of open questions (e.g. can you tell me what options you are considering for next year?) and multiple prompts (e.g. can you explain more about the programme you just mentioned) to let students freely narrate why they are pursuing specific programmes and possible interests.

The second part of the interview consisted of semi-structured questions, to elicit all reasons for pursuing a programme and interest (e.g. can you think of more reasons to pursue this programme/interest?) and to let them explicitly weigh multiple interests at the same time (e.g. why are you considering to pursue interest X and not other interests?).

Interviews were piloted with two students who were not included in the sample. Some questions were altered to make them less ambiguous. A translated version of the final topic list can be found in Appendix 3A. Interviews lasted between 45 and 90 minutes and were conducted in a meeting room at the students' secondary school. All interviews were conducted by the first author to maintain consistency across cases. Interviews were recorded after permission and informed consent of the students and were transcribed verbatim.

Analysis

Thematic analysis (Braun & Clarke, 2006) was applied. Interview transcripts were read thoroughly and passages were highlighted when students mentioned why they wanted to pursue specific programmes or interests. Next, per interest we identified which interest-based reasons were provided in the interviews through open coding and separately coded interest-based reasons that were related to why they considered pursuing specific interests in their future (interest-to-programme perspective) and interest-based reasons that were related to how programmes would adhere to specific interests (programme-to-interest perspective). Next, to summarize all interest-based reasons of each interest of a student, webs of reasons (Bakker et al., 2017) were created for each student (see Figures 3.1 and 3.2). Webs of reasons summarize all reasons provided by a single student in which the valence of reasons (positive or negative implications for pursuing this interest) and how reasons may relate to each other is included. Furthermore, we identified students' considerations. Based on all contrasts between interest-based reasons we openly coded the considerations students aimed to resolve with their interest-based reasons. We clustered considerations and grouped them in four themes.

Moreover, we analysed how programmes may feed back on the interests students wished to pursue, and which feed back led students to a shift in which interests they aimed to pursue.

In the interview, students explained how they made shifts in which interests they considered and explained how the reality of programmes (feed back) contributed to these shifts. These explanations were thematically analysed and clustered in four themes. Based on students' reported chronology of when they considered which interests and programmes, we created timelines in which the feed back of considered programmes on the interests were visualised and following from this, what shifts they made in which interests they considered (see Figure 3.3 and 3.4). Considerations and feed back of programmes on considered interests were discussed with all authors multiple times to check and reach consensus about interpretations.

RESULTS

Two webs of reasons (Figure 3.1 and 3.2) illustrate how students refer to the multiple interests they considered to pursue (i.e. rectangles) and what associated interest-based reasons they expressed from an interest-to-programme perspective (i.e. key words next to the lines coming from the interests). For example, in Figure 3.1, you can find the two reasons why Grover considered pursuing his interest in computers in a future programme: he has always liked computers and he wants to learn more about how they work. Moreover, the figures illustrate how students integrated two or more interests in a single interest (i.e. lines that connect two interests). An example can be found in Figure 3.1: Grover indicated to be able to integrate his interests in gaming and computer science. Students considered multiple programmes (i.e. ovals) and expressed multiple interest-based reasons from a programme-to-interest perspective (i.e. key words next to the lines coming from the programmes). For example, Figure 3.2 shows how Riley argued she could pursue her interest in arts in a minor she could choose once enrolled in Architecture. Students explicitly mentioned they could combine multiple interests in a programme (i.e. lines connecting two interests from a single programme; see Figure 3.2 where Riley argues Architecture allows her to combine both her interests in arts and technics). We identified whether interest-based reasons supported or discouraged interest and programme pursuance (i.e. plusses and minuses) and identified whether interests and programmes were still considered at the moment of the interview (i.e. the faded interests and programmes were *not* considered anymore). For example, Figure 3.2 illustrates that Riley did not consider to pursue her interest in law anymore. Finally, we identified whether students had a dominant interest and programme at the moment of the interview (i.e. shaded interests and programmes were dominant). In these instances, students stressed they were quite sure they wanted to pursue certain interests or certain programmes (see Figure 3.1).

Although these webs of reasons may show all reasons students have for pursuing specific interests, these webs do not show how they weighed and contrasted these different reasons in and over time. The next section reports the four considerations that students generally had, which explain how students weigh multiple reasons.

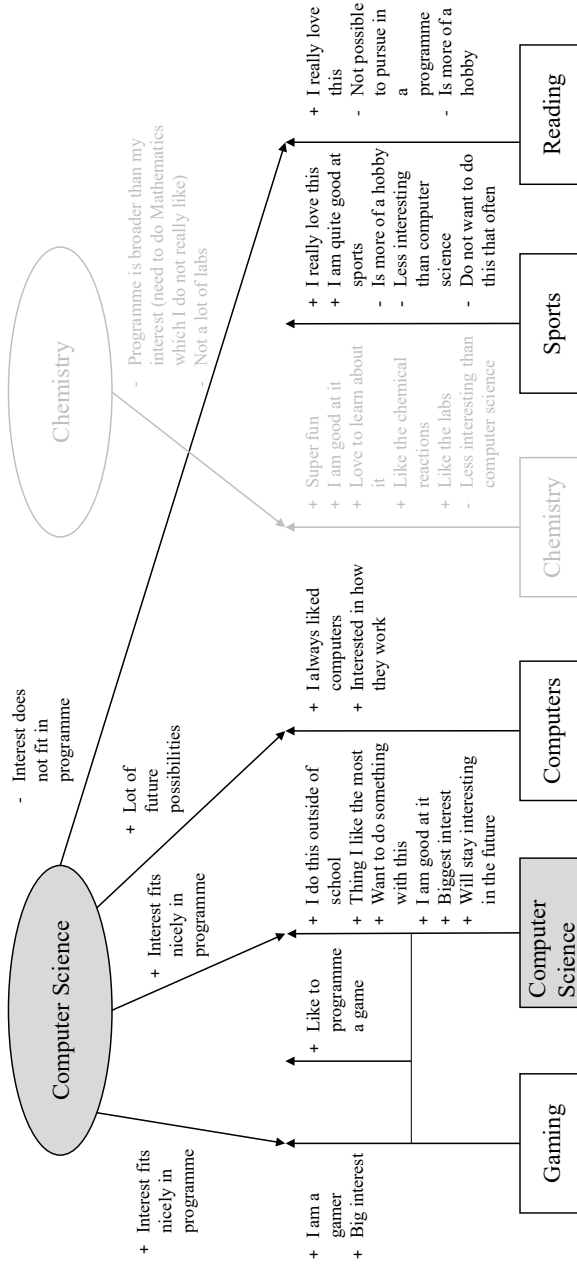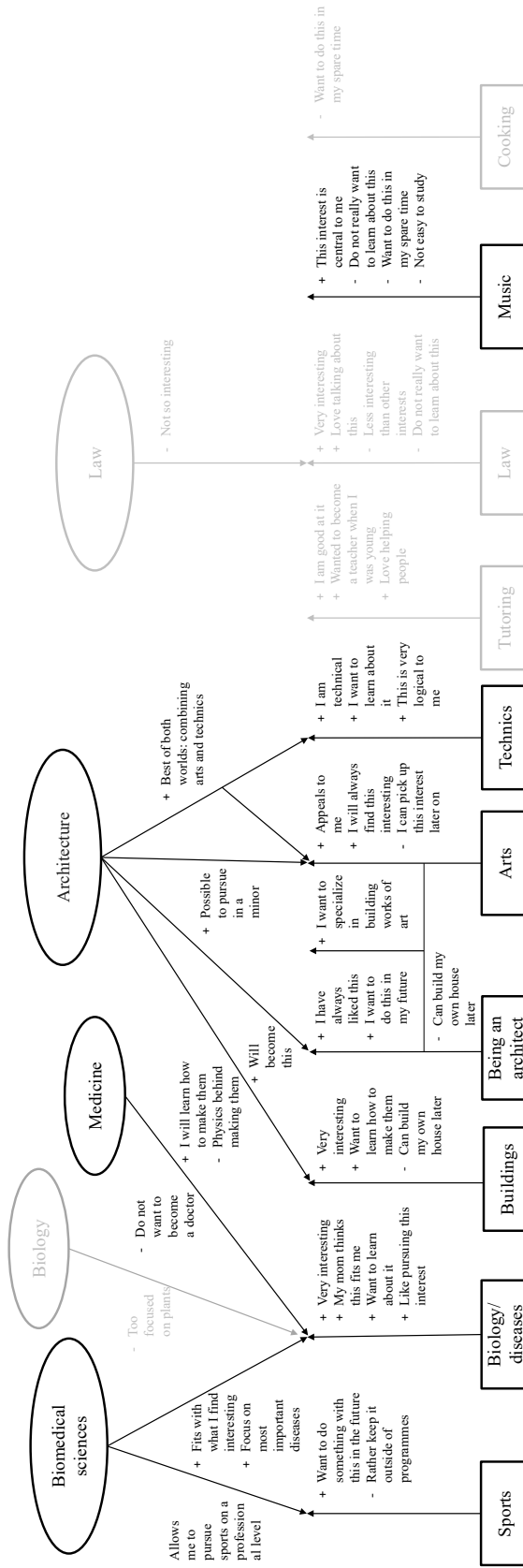**Figure 3.1.** *The interest-based reasons of Grover*

Figure 3.2. *The interest-based reasons of Riley*

Considerations when students are weighing their interests
Finding interests that are pursuable in an academic future
Students considered, from an interest-to-programme perspective, which interests they wished to pursue in an academic future and which not. Decisive for this decision was what *function* students ascribed to an interest. Jolene: 'Well, I love listening to music … I think it is something you need to keep separate, to just enjoy it without thinking too much about it… maybe it will lose its relaxing function.' Jolene illustrates the contrast students made between relaxation-oriented interests, which were not considered further academically and cognitively challenging interests, which were seen as holding future academic potential. Interest-based reasons mentioned by students which were related to this consideration, were reasons related to keeping a specific interest as a hobby (see sports and reading in Figure 3.1) and reasons related to academically learning about this in their future (see biology/DNA, buildings, and technics in Figure 3.2).

Interests that did not fit students' standard academic image (e.g. drawing, cooking, sports), were often disregarded immediately as a possibility to pursue in their future, although students differed in whether they saw academic potential in these interests. For example, Edward stated that: 'I like playing video games, but this does not matter in deciding which programme I will chose, it's like independent.' Uriah stated: 'I like games, so I wish to learn more about the design of gaming and like the psychology behind it.' Even though it concerns a similar interest, Uriah saw academic potential in his interest in video games, while Edward did not.

Determining which academic interest is most important
Students considered which academically pursuable interest(s) was most important to them through weighing positive and negative reasons for each academic interest from an interest-to-programme perspective (e.g. ability, enjoyment, social support of others; see Figures 3.1 and 3.2). Students thus argued which academic interest was most important through comparing and contrasting interests. Octavia argued:

> So yeah, I am pretty good in Biology, but I don't know, I do not really like it. Physics is really nice, but then again, I'm not so good at it, so I do not know whether it is smart to do something with it… I'm not a star in Chemistry either, but in Physics I'm like really dramatic.

Octavia provided reasons about her relative liking and ability and whether this would support or oppose interest pursuance to determine her most important interest. This contrasting illustrated moreover that interest-based reasons are not established independently, but in the comparative relations between interests, stressing *relative* ability, importance, enjoyment, etc.

Students tried to maximise the amount of interests they could pursue in and parallel to a possible programme, to resolve competition between multiple important interests. First, students tried to integrate their interests. Douglas: 'I find computer things very interesting, but also like language recognition and stuff. To be able to do something like that with computers, I would find that very interesting.' By integrating his interests in computers and language, these interests no longer

competed, and he started searching for a programme that adhered to such integration. Nonetheless, integration of interests was often not possible due to academic divergence. Edward argued:

> It is just if you have different interests that is hard to do, you cannot find something with like gaming and sports, yeah maybe something would be possible with that. But to combine gaming with language or something like that and maybe something with other interests as well, that is just like impossible.

Second, students typically considered which academic interests could be pursued parallel to a programme. If students could learn more about academic interests in other contexts than an academic programme, these interests were often not considered further. Students preferred pursuing interests that they thought could only be pursued in a higher education programme.

Third, students considered pursuing interests sequentially, and argued they could pursue other interests after completion of an academic programme. For example, Riley (see Figure 3.2) argues:

> Architecture, I could pursue later in my life, I want to build my own house later and then I can talk with an architect and design it together. But I do not think I will do something with biology if I decide to pursue Architecture.

The search for their most important interest(s) led to a more or less dominant (set of) interest(s) which students considered to pursue in a programme. Some students identified a single dominant (set of) interest(s), which is illustrated in the web of reasons of Grover (see the shaded interest in Figure 3.1). Grover: 'Well I just like computer science best; it really is my number one, so I actively searched for options related to this.' Others had a hard time identifying a dominant (set of) interest(s), because none seemed important to them. Stan stated he did not have an academic interest he really wanted to pursue in the future. He argued he could only do something with his weak interest in societies: 'I really tried to search… but clearly there are no other interests that fit me or my educational profile.' Finally, some students were conflicted about which interest was dominant. These students constructed different positive reasons for each interest, which is illustrated in the web of reasons of Riley (see Figure 3.2). Reflecting a state of impasse, she described: 'I always wanted to become an architect, but then I rediscovered biology and realized I just found it very interesting… I have a hard time deciding which I like more.'

Determining the reconcilability between interests and programmes

From a programme-to-interest perspective, students provided reasons how reconcilable programmes and interests were (see Computer Science in Figure 3.1 and Biomedical Sciences and Architecture in Figure 3.2). Students considered, based on the reconcilability of all their important interests with each considered programme, which programme and interests were favoured.

> Lana: With Nutrition and Health [bachelor programme] I can focus on nutrition, learning about it and what is healthy and what not. I just find it fascinating how food works and

what your body does with it… I also looked at Food Technology [bachelor programme], that is also about nutrition but is more focused on the process of making food instead of how it works in your body, so I like Nutrition and Health better.

This excerpt illustrates on the one hand that students evaluate each programme on how well these could be reconciled with their important interests, as each programme is evaluated how well it fits with Lana's interest in nutrition. On the other hand, this shows the interdependence of interest-based reasons constructed from a programme-to-interest perspective as Lana sets off how well her interest is suited to each programme relative to the other programmes she considered.

Evaluating the reconcilability of a programme and an interest could lead to disappointment, sometimes against expectations. Octavia: 'I first considered Architecture as I really love drawing and designing … but it did not really work out … I just do not want to do constantly the same thing with my creative interests.' Octavia's interest was not reconcilable with the programme, as she would have been required to adjust her interest into something she would have not found interesting anymore.

Students considered explicitly whether multiple interests would be reconcilable with programmes, as this may reduce competition between interests. Marlon: 'Artificial Intelligence is very broad and programming, linguistics, philosophy all fit and interest me.' Artificial Intelligence allowed Marlon to continue with multiple of his important interests. Nevertheless, broad programmes were not always favoured, as students also considered whether programmes had uninteresting content. Marlon: 'I have the idea that Political Science is like broader, also focused on the law and like the political system, and that just does not suit me.'

Finding an optimal balance between time spend on interests pursued inside and parallel to a programme

Students combined both perspectives in this consideration. From an interest-to-programme perspective, students provided reasons related to how much time they wished to spend on an interest in the future. From a programme-to-interest perspective, they provided reasons on how much time they would be required to spend on interests in the programme and how much time would be left to spend on interests parallel to a programme. Combining both perspectives, students searched for a balance between time spend on interests in and parallel to the programme. Students differed in what they considered to be the optimal balance. Tisha argued: 'I do not think the time left to do these [out-of-school] interests influences which study I am choosing. It does not matter as I still can do all these things, maybe to a lesser extent though.' Nigel argued: 'I do not like spending time on school, I just like it when I have the afternoon and do not have to do something school-related… Well, yeah that is just me.' Nigel argued he therefore rather enrolled in a programme which required less effort from him, as his interests parallel to a programme were very important to him.

Shifts in the interests students consider

As expected, the interests students identified as most important and aimed to pursue feed forwarded to the programmes students considered, as students explicitly considered how reconcilable the programmes were with their important interests, and consequently multiple programmes were considered and evaluated (see the quote of Lana above). Programmes also provided feed back on the interests which sometimes led students to shift in what they considered to be their most important interest. In the following excerpt multiple of these shifts can be found in what Heather considered to be her most important interests for the future:

> Well, in the beginning I wanted to do something with classical languages, as I really like Greek… no study ancient Greek exists, there is only a Greek and Latin programme. I do not have Latin, and I'm not that good in Latin, so that's a shame. Moreover, I do not know what future job opportunities I would have with this programme. So, I thought maybe I should do dentistry, as I could then take over my fathers' practice and the study seemed super nice. Only… I do not see myself as a dentist, I rather have no patients to take care of. I rather be the one working behind the scenes, in a lab or something. Yeah... that fitted more with Biomedical Sciences.

We identified four ways how feed back of programmes led to shifts in which interests were considered.

Two timelines are presented to illustrate students' considerations and programme feed back which led to shifts in which interests they considered to pursue in a programme (see Figure 3.3 and 3.4). The line in the middle of the figure represents the chronology as recalled by the participant and at each time point (vertical line) specific events are mentioned in the texts above or below the line. Italicized text represents the identified considerations presented earlier and underlined text represents the feed back of a programme that led students to shift in which interest(s) they aimed to pursue.

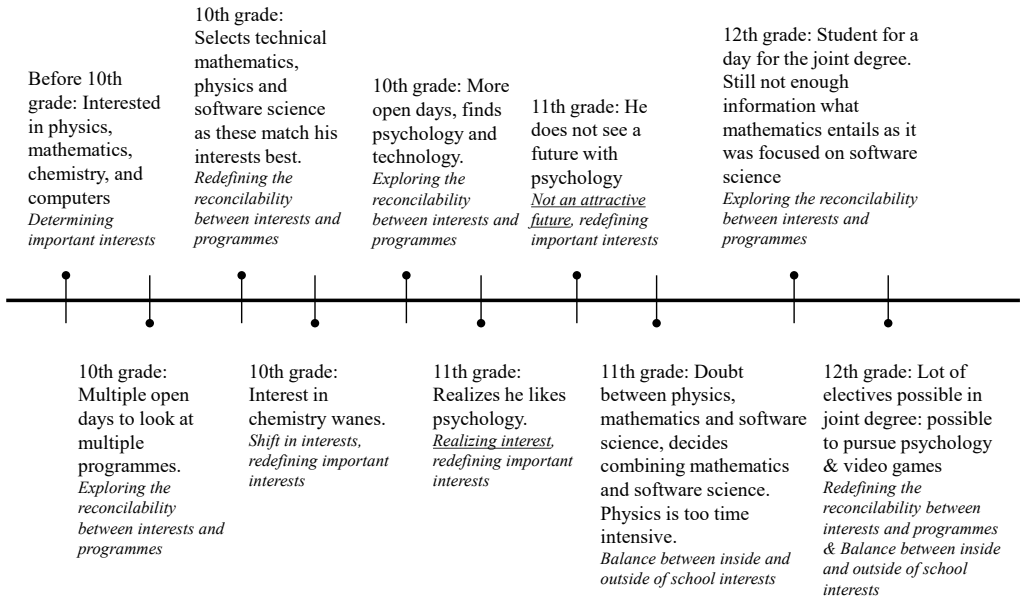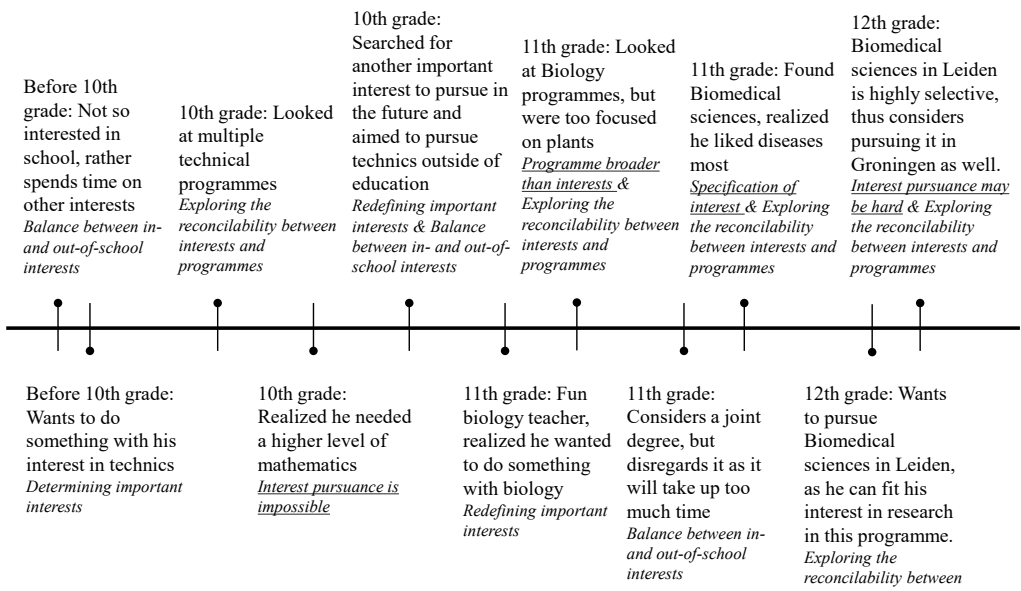**Figure 3.3.** *The interest considerations and shifts as reconstructed by Uriah*

Before 10th grade: Interested in physics, mathematics, chemistry, and computers
Determining important interests

10th grade: Selects technical mathematics, physics and software science as these match his interests best.
Redefining the reconcilability between interests and programmes

10th grade: More open days, finds psychology and technology.
Exploring the reconcilability between interests and programmes

11th grade: He does not see a future with psychology
Not an attractive future, redefining important interests

12th grade: Student for a day for the joint degree. Still not enough information what mathematics entails as it was focused on software science
Exploring the reconcilability between interests and programmes

10th grade: Multiple open days to look at multiple programmes.
Exploring the reconcilability between interests and programmes

10th grade: Interest in chemistry wanes.
Shift in interests, redefining important interests

11th grade: Realizes he likes psychology.
Realizing interest, redefining important interests

11th grade: Doubt between physics, mathematics and software science, decides combining mathematics and software science. Physics is too time intensive.
Balance between inside and outside of school interests

12th grade: Lot of electives possible in joint degree: possible to pursue psychology & video games
Redefining the reconcilability between interests and programmes & Balance between inside and outside of school interests

Figure 3.4. *The interest considerations and shifts as reconstructed by Kevin*

Before 10th grade: Not so interested in school, rather spends time on other interests
Balance between in- and out-of-school interests

10th grade: Looked at multiple technical programmes
Exploring the reconcilability between interests and programmes

10th grade: Searched for another important interest to pursue in the future and aimed to pursue technics outside of education
Redefining important interests & Balance between in- and out-of-school interests

11th grade: Looked at Biology programmes, but were too focused on plants
Programme broader than interests & Exploring the reconcilability between interests and programmes

11th grade: Found Biomedical sciences, realized he liked diseases most
Specification of interest & Exploring the reconcilability between interests and programmes

12th grade: Biomedical sciences in Leiden is highly selective, thus considers pursuing it in Groningen as well.
Interest pursuance may be hard & Exploring the reconcilability between interests and programmes

Before 10th grade: Wants to do something with his interest in technics
Determining important interests

10th grade: Realized he needed a higher level of mathematics
Interest pursuance is impossible

11th grade: Fun biology teacher, realized he wanted to do something with biology
Redefining important interests

11th grade: Considers a joint degree, but disregards it as it will take up too much time
Balance between in- and out-of-school interests

12th grade: Wants to pursue Biomedical sciences in Leiden, as he can fit his interest in research in this programme.
Exploring the reconcilability between

The programme adheres to more than what students are interested in

The most common form of feed back that led students to a shift in which interest(s) were aimed to pursue was that the programme adhered to an interest too much, in an unappealing way (see the quote of Octavia above), or that a programme adhered to other content students found uninteresting, even though interests and programmes seemed to be reconcilable. Students were required to pursue the content they found uninteresting if they committed to the specific programme and interest and sometimes shifted in which important interests they aimed to pursue as they realized this content may be an inherent part of pursuing this interest in a future programme. Bart:

> I went to a student for a day of Econometrics and they scared me that I would have to do a lot of mathematics, which is not my thing. So, I decided to leave it. Then I looked at Fiscal Economics… and then I really looked at what it was, and I decided this was not it for me as well.

Pursuing his interest in economics in the Econometrics programme implied Bart had to pursue mathematics as well, which he found uninteresting. Therefore, he decided to explore new programmes, but once again came to a similar conclusion. After this, Bart indicated he stopped considering economics and shifted in what he considered to be his most important academic interest.

Important academic interests cannot be pursued in a programme

Another common form of feed back that led students to a shift in which interest(s) they aimed to pursue was that important interests sometimes could not be pursued in an academic programme. Students indicated they could not pursue their important interests as they failed to meet requirements for enrolling in a specific programme, they thought that the selection of programmes was too strict, or that no academic programme was reconcilable with a specific important interest. Kevin: 'I first thought about doing something with technology, as I really like that… but I realized I needed a higher level of Mathematics than I will graduate with.' Kevin could not find a programme that allowed him to continue with his interest in technology in an academic way. Therefore, he had to find another important academic interest, find programmes that were reconcilable with this interest and had to decide how much time he could spend on interests in the programme as he now wanted to do something with technology in his spare time (see Figure 3.4).

Programmes do not lead to a positive academic future

Students sometimes learned that the interests they aimed to pursue in a programme would probably not lead to an academic job in which these interests can be pursued, as future job opportunities were scarce in that academic field. Future job opportunities thus feed backed, as an extension of a specific programme, on the considered interests. As some students found it only worthwhile to pursue specific interests if it leads to a possible future in which they can work with these interests, these students made a shift in which interest(s) they aimed to pursue (see Figure 3.3). Other students found the lack of future opportunities with a programme less

problematic, and consequently did not shift in which interest(s) they wanted to pursue in the future.

Realizing and reconceptualising interest
The feed back of the programmes did not always lead to disregarding the interest that was previously considered, but could lead to a realization that other content might be interesting too or could lead to a shift in the conceptualization of an interest.

Students could realize they had interest in specific content, only after exploring specific programmes. Uriah illustrates he only realized when exploring Software Science, that he had an interest in psychology (See Figure 3.3). He subsequently reasoned he has liked psychology for a long time as he linked this to his long-term interest in games and game design: 'There is just a lot of psychology in it [game design], yeah... I just find it very fun how it works and how to design it that people are going to react in a certain way.' This quote illustrates that students may recognize and signify events from the past that support the realizing of the interest in the present sparked by the exploration of a future programme. When mentioning reasons why he considered pursuing Software Science, he explicitly stated his interest in psychology was reconcilable with the programme.

Moreover, students may reconceptualise their interests. Riley: 'I started to look for the things I really liked in biology and I went to open days and I noticed that it was not something like Medicine, or only cells, but I am rather interested in diseases.' Riley realized she liked DNA and diseases most and reconceptualised her interest in biology based on the feed back of the programmes she explored.

DISCUSSION

The present study focused on the considerations students have when weighing their multiple interests in light of their future study programmes and on the ways that feed back of programmes may lead to shifts in the interests students aimed to pursue. As expected, we found the reasons that students provided were interdependent as they contrasted them with each other. This implies that it is important to focus on the whole web of reasons one has for choosing a specific option, rather than focusing on separate reasons students have for pursuing a specific programme or interest.

Four considerations were identified that explain how students contrasted their interest-based reasons. First, from an interest-to-programme perspective, students considered which interests were academically pursuable. Cleaves (2005) and Archer et al. (2010) have already found that not all interests hold academic potential and students rather continue their out-of-school interests outside of education. Based on our results, it is important to add that out-of-school interests may hold academic potential for students, which may dependent on what function this interest has for a specific student (e.g. gaming is *only* relaxing versus gaming may be something I want to learn more about).

Second, students considered which of their present interests were most important for an academic future. The idea that finding the most important academic future-oriented interest is central to the higher education choice process has been put forward by Holmegaard (2015). We add to this by showing *how* students try to resolve competition between multiple important interests, either by integrating interests, by pursuing interests in parallel in or outside an educational programme, or by delaying pursuance of certain interests.

Third, from a programme-to-interest perspective, students considered how reconcilable future programmes were with past and present interests. Although prior studies have acknowledged that students have to deal with the range of programmes that is available to them (e.g. Buzzanell & Lucas, 2013), this study shows that students explicitly evaluated multiple programmes and compared these realistic options with the interests they aimed to pursue in the future.

Finally, students explicitly considered both perspectives when trying to find a balance between time spend on interests in the programme and parallel to the programme. Several studies have already suggested that the interests that one aims to pursue parallel to a programme may compete for time with interests that are pursued in a programme. The interests one wishes to pursue parallel to a programme may therefore influence which interests are pursued in a programme (e.g. Hofer, 2010; Vulperhorst et al., 2018). Our results illustrate this point further by showing how students carefully balance time spend on interests in and parallel to an educational programme.

The considerations from the interest-to-programme and programme-to-interest perspectives usually conflicted, as the feed forward of which interests students aimed to pursue did not directly align with the feed back of how these interests could be realistically pursued in the programmes. Students had to attune these conflicting perspectives through exploring and reflecting on their programmes and interests in a cyclical manner in order to find a programme that they felt adhered to their interests. Although previous studies have shown that students explore and reflect upon multiple programmes in a cyclical manner (see Germeijs et al., 2012; Milsom & Coughlin, 2015), we have shown that students may explore and reflect on their interests *and* programmes in a cyclical manner. Which programmes were considered was dependent on the important interests students aimed to pursue, but which interests students aimed to pursue was also dependent on what was possible in future programmes. More specifically, we found programmes could feed back on interests if not all of the content of programmes adhered to interests, interest pursuance may be hard or impossible in a programme, or if future opportunities were not attractive. This suggests that transitions evoke heightened reflexivity during which people tend to redefine themselves in light of the possible choices they can make (Bruner, 1990). In transition to higher education more specifically, the programmes students consider may not only lead to reconsideration of which interests are most important to pursue in a future, but may even lead to reconceptualization and specification of one's interests.

Limitations & future research

Holmegaard, Ulriksen, et al. (2014) have shown students' narratives can shift while exploring and choosing a higher education programme. This may imply that the considerations we have found

and the ways how the feed back of programmes leads to shifts in which interests students wish to pursue may be time-variant. When following the choice process of students longitudinally, maybe more considerations and ways of feed back may become apparent that specifically play a role at the beginning or the end of the choice process, as we studied the higher education choice process five months before students had to make a final choice.

Furthermore, we identified the ways programmes may feed back on the interests students wished to pursue based on how students recalled their choice process. Although students may refer to actual experiences, which experiences they recall and how they interpret them is dependent on their present considerations (Holmegaard, Ulriksen, et al., 2015). Therefore, we may have underestimated the ways programmes may feed back on the interests students consider, as they try to create a coherent narrative of making their choice at a specific moment in time. Future research could study longitudinally the considerations and the feed back of programmes to validate and add to our results.

Results pertain to the Dutch context in which admission criteria are often not present, universities all roughly have the same quality and distances are relatively small between universities. In educational contexts of other countries (and cultures) the accessibility of programmes, the distance to university, and the reputation of the university may play a bigger role in interest pursuance and programme selection (e.g. Sojkin et al., 2012; Tavares & Cardoso, 2013). This might imply that students in these countries take the programme-to-interest perspective more than the interest-to-programme perspective. Nevertheless, given that all students have interests that orient them to future, we do believe these students have similar considerations and experiences of feed back from programmes on their interests. To get a better grip on this, we propose that future research considers how both perspectives and feed forward and feed back processes potentially play out differently in and across countries with different educational infrastructures and space to pursue interests.

We may have influenced students' weighing process through interviewing them. During the interview we asked students to reflect on why they wanted to pursue specific interests and programmes and while thinking out loud, students may have come to formulate new reasons or may have framed their considerations differently. Although we can see this as a limitation as we do not know how the interview may have impacted students' thought processes, it can be considered a useful tool for practice. Engaging in such an interview with students may help in attuning both perspectives, as students are stimulated to reflect on why they consider specific interests and programmes.

For future research, it may be interesting to identify processes that shape the interests and programmes students consider. For example, students' exploration behaviour may be related to what and whether they know about programmes (Germeijs et al., 2012), thereby influencing how interests and programmes are attuned over time. These specific exploration processes in turn may be dependent on whether the home context can provide support in gathering information (e.g. social network of the family; Holmegaard, Ulriksen, et al., 2014), the tendency of the individual

to commit to certain options (van der Gaag et al., 2016), and how institutes make information of possible programmes available. Providing insight in what and how processes impact students' considerations when weighing their interests and programmes over time, may give an even more detailed account of how students go through the higher education choice process.

Practical implications

Some tentative practical suggestions can be given. Students can be stimulated by counsellors to explicitly consider both perspectives by asking them questions related to the four considerations mentioned. Students should be stimulated to reflect on what they think are worthwhile future interests to pursue, what their most important interest for the future is, how these interests may reconcile with considered programmes, and how they will balance time between the educational programme and interests they want to pursue parallel to the programme. Drawing a web of reasons as we have done for our analyses, might be used as a practical tool for reflection in counselling practices. Through stimulating students to think both about the interests they want to pursue and how they fit in a programme, students explicitly have to attune an interest-to-programme and programme-to-interest perspective. This may possibly lead to several cycles of attuning both perspectives, but may also lead to higher persistence in a programme, as students are more likely to persist when they have a realistic image of what a programme entails and how the programme (partly) fits or does not fit with their interests (Holmegaard, Madsen, et al., 2014).

Furthermore, higher education programmes can help students in their process through the information they provide about a programme. Information allows students to specify what interests the programme intends to adhere to, but also what space or degrees of freedom there is left for students to explore their own, existing or emerging interests in the same, related or other disciplines. For example, if a Psychology programme focuses mainly on presenting Psychology as a disciplinary field, this may attract students who are strongly interested in psychology, but not students whose interests go beyond psychology (mathematics, communication). Contrarily, Psychology could present itself as a multidisciplinary programme. This may attract students who are broadly interested, but may put off students who are solely interested in psychology (see Akkerman, 2017). This consideration is then inherently also a strategic decision where, by means of the information, programmes anticipate what students (i.e. with what kinds of interest profiles) they want to invite in (e.g. interdisciplinary interested). Future research could focus on the specific nature of the information that programmes provide and follow the uptake of this by students in evaluating how this information may feed back on the interests students consider to pursue.

Implications for interest development

Interest development is often characterized as a process that stabilizes students' interaction with the object of interest; these developed forms of interest rarely change after adolescence (Hidi & Renninger, 2006; Low et al., 2005). Based on our findings that interests can be redefined based on the feed back of possible future programmes we challenge this conception. In periods of transition, we can see how interests may shift as they may be reconceptualised or integrated with other interests (see also Akkerman & Bakker, 2019; Vulperhorst et al., 2018). Interest

development theories should acknowledge that, at least in periods of transition, even developed forms of interests may change over time.

Moreover, our results show interests are set off against each other and may compete for pursuance in a programme. This implies interests should not be studied separately, but the whole interest profile of students should be taken into account when studying interest development (Hofer, 2010). How students resolve competition between their multiple interests will have implications for how their interests develop further, as students tried to integrate or combine multiple interests. Although some recent articles have acknowledged the multiplicity in interest development (e.g. Akkerman & Bakker, 2019; Vulperhorst et al., 2018), most research is only focused upon the development of a single interest (e.g. Ainley & Ainley, 2015).

Implications for higher education choice theories and studies

Our results supported the claim that interests are important in the higher education choice (e.g. Malgwi et al., 2005), as students searched for their most important interests to base their decision for a higher education programme on. Our results add a more refined explication to existing higher education choice process models (e.g. Holmegaard, 2015) as we have shown how interests may be weighed and negotiated in and parallel to programmes and what considerations students have during this process. As the reasons students put forward for interest pursuance are interdependent, we discourage future studies to focus on identifying separate reasons and assessing the importance of these reasons. Moreover, the importance of these reasons may fluctuate over time, depending on the narrative students express at that time (Holmegaard, Ulriksen, et al., 2014). Rather than focusing on the reasons students provide, studies should focus on how they contrast and weigh these reasons and what considerations they have when deciding which programme to pursue.
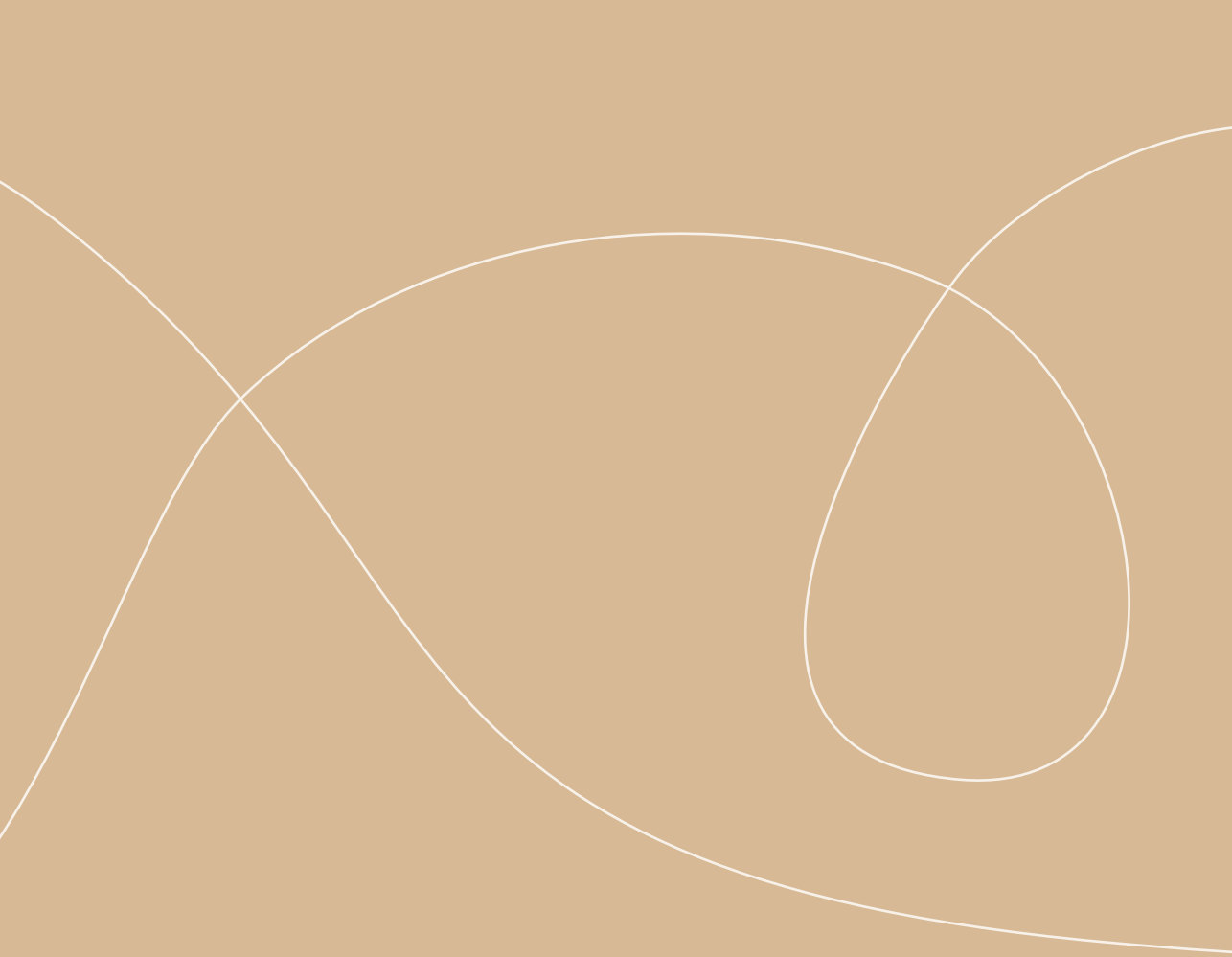
This study conceptually contributes to the field through showing that the higher education choice is inherently dynamic. The attuning of the interest-to-programme and programme-to-interest perspective led to multiple cycles of feed forward of interests on considered programmes and feed back of programmes on considered interests. Based on these findings, we argue that studies should acknowledge this nonlinear, idiosyncratic, and iterative nature of the choice process (see also Akkerman & Bakker, 2019; Taylor & Harris-Evans, 2018), as the choice process is often still seen as a linear process or a process that becomes increasingly stable over time (e.g. Lent et al., 1994).

Appendix Table 3A

A translated version of the topic list that was used to guide the interview.

Section	Topic	Sub-topic	Main question	Prompt
Study choice	Choice + considered options	Options	Do you already know what you want to do next year?	What do you want to do? Can you explain a bit more about what you aim to do?
		Certainty	To what extent are you certain about your choice?	
		Gap year	Have you considered taking a gap year?	
	Process of choice	Searching	Which options did you consider over time?	Can you tell me a little bit more about each option?
		Extra prompts	Did you visit open days and student for a day days?	Which programmes did you visit?
			Are there options you wish to explore in the future?	
			Did you ever doubt what you wanted to do?	Where did you doubt between? Can you explain the doubt?
			How long do you already know what you wanted to do?	
			Did you have an idea of what you wanted to do before you had the idea of the current programme/ gap year?	
		Reasoning	Can you explain why you aim to pursue this programme?	Can you explain that a bit more?
			Are there other reasons why you want to pursue this programme?	Can you explain that a bit more?
Interests and study choice	Interests in programmes	Importance of interest	Do you look for programmes that fit your interests, or do you think it doesn't matter that much?	Can you explain your answer?
		Interest in programme	Do you expect to spend time on an interest in the study programme?	Can you tell me more about that?
		Multiple interests	Do you expect to spend time on more interests in the study programme?	

Section	Topic	Sub-topic	Main question	Prompt
		Consideration	Can you explain why you aim to pursue these interests and not others?	
			Do you have other interests that may play a role in your future?	
			Is it important for you that you can specifically pursue this interest/these interests in a programme?	
	Other interests	Which interests	Do you have other interests that you currently have, but you did not mention yet?	Can you describe in more detail these interests?
		Interest in programme	Do you consider to pursue these interests in your current study?	Maybe in another programme? Can you explain why you do or do not consider to pursue them?
		Interest parallel to the programme	What interests do you aim to pursue outside of a programme?	Can you explain a bit more about how you will do that?
		Why not inside of a programme	Can you explain why you will not consider these interests in a programme?	

UNRAVELLING WHY STUDENTS DO OR DO NOT STAY COMMITTED TO A PROGRAMME WHEN MAKING A HIGHER EDUCATION CHOICE

4

ABSTRACT

Over the past forty years, scholars have been studying students' choice of higher education programmes to unravel the complexity of the choice process. Recent studies have shown that students may commit to a programme, i.e. they make a choice to enrol in that programme, when they find a programme that attunes well with their interests. Students may nonetheless decide to switch from one programme to another before final enrolment and research has not yet sufficiently explained why they do that. The present study therefore focused on the mechanisms underlying students changing their minds after they had previously committed to a higher education programme. Eighteen semi-structured interviews with Dutch pre-university students in their final year at school were held just before final enrolment: students retraced their higher education programme choice process over time with the help of a timeline and a storyline. Interviews were thematically analysed. We identified two mechanisms whereby students, sometimes quite suddenly, switched in their commitment from one programme to another and two mechanisms that could hold them back from committing to another programme despite having doubts. This paper provides detailed theoretical insight into how students make higher education programme choices over time and concludes with practical recommendations on how to support students.

Key words: Programme choice, Higher education, Interests, Commitment, Timeline, Storyline

INTRODUCTION

Students' choice of higher education programmes has long been the focus of research (e.g. Bergerson, 2009; Chapman, 1981), as this choice is considered to be the first consequential decision adolescents have to make for their future (Du Bois-Reymond, 1998). As around a third of students may start regretting the programme choice they have made (Kucel & Vilalta-Bufí, 2013) and may drop out of a programme (Ulriksen et al., 2010), research aims to understand the complexity of the higher education programme choice process and how students can be supported in making the best decisions (Bergerson, 2009; Holmegaard, Ulriksen, et al., 2014).

Research has shown how students' educational and career choice processes reflect identity work, with notable impact of social background, parental and peer attitudes, race and gender (Archer et al., 2010; Cabrera & La Nasa, 2000; Lent et al., 1994). Although research into such factors has been important in stressing the personal and social nature of choices, Bergerson (2009) calls for more process-oriented research to better understand how students experience and make sense of their future, particularly the considerations and doubts they have over time when choosing a higher education programme.

Recent studies on students' experiences in the higher education programme choice process have shown the critical role of students' interests (e.g. Holmegaard, 2015). Interests are any sort of activities, ideas, and objects students identify with and *aim to reengage with over time* (Akkerman & Bakker, 2019; Barron, 2006; Dewey, 1913). Interests are therefore inherently future-oriented and inform life choices (Nurmi, 1991; Sharp & Coatsworth, 2012). Students have been found to weigh and contrast their multiple interests in order to make a higher education choice, considering what interests are most important for them to pursue in an educational and career context (Hofer, 2010; Holmegaard, 2015; Vulperhorst et al., 2018). This process includes an exploration of how interests relate to available programmes, as not all interests and combinations of interests are realistic or can be pursued in more or less set study programmes (Vulperhorst et al., 2020).

When students find a programme which attunes with their most valued interests, they may commit themselves to this study programme, meaning they aim to enrol in this specific programme in the future (Germeijs & Verschueren, 2006; Luyckx et al., 2006). Both Holmegaard, Madsen, et al. (2014) and Vulperhorst et al. (2020) have shown that, despite such intentions, students can suddenly decide to switch from one programme to another before final enrolment. These studies have not yet explained why, after finding a programme that attunes well with their interests, students change their minds and commit to another programme. This is the focus of our study: we aim to uncover the pre-enrolment mechanisms underlying switching, i.e. the explanatory processes that underly students changing their commitment from one programme to another. Uncovering these mechanisms should provide more detailed insight into the complexity of students' higher education choice processes as they unfold over time. Moreover, such insight can help counsellors (e.g. educational professionals that aim to provide support, information, and guidance to students) in making more informed decisions on how to support and guide students in making a higher education programme choice.

4

An interest-based higher education programme choice

Students have multiple interests in daily life that they want to pursue in their future. These interests are always in competition, as time and energy to spend on our interests is finite (Hofer, 2010). In everyday life, with devoted time slots for specific sorts of activities (e.g. hobby club), deciding which interest to spend time on is often intuitive. Pursuing interests then comes naturally and does not require consideration. However, when making high-stakes decisions, such as choosing a higher education programme, students are challenged to reflect on their interests more explicitly and actively, as the decision to pursue a specific interest in a programme may imply that they are not able to pursue other interests for the coming years or in their future at all (Akkerman & Bakker, 2019; Holmegaard, 2015; Holmegaard, Madsen, et al., 2014). Such reflection has been found to generate a process of revaluation of interests, also relative to one another (Vulperhorst et al., 2020), although not necessarily in an immediate and listwise rational process reviewing the costs and benefits of pursuing specific interests in favour of others.

An interest-to-programme and programme-to-interest perspective

Considering which interests to pursue in a higher education programme, Vulperhorst et al. (2020) found that students not only need to make sense of the interests that are most important for them to pursue in their future (i.e. an *interest-to-programme* perspective), but also have to find out how future programmes might afford the pursuance of important interests (i.e. a *programme-to-interest* perspective). Often, the interest-to-programme and programme-to-interest perspectives do not align; how students would ideally combine and pursue interests is not directly compatible with how interests can be pursued in programmes. Students therefore need to attune and negotiate an interest-to-programme and programme-to-interest perspective over time, to make a decision on which programme to pursue.

To be more specific, the interests students consider to be most important from an interest-to-programme perspective *feed forward* to relevant programmes that they explore (e.g. based on my interests in Chemistry and History I will explore programmes related to these interests). The more divergent or convergent students' interests, the more or less diverse the programmes to be explored. Considering how interests attune with specific programmes from a programme-to-interest perspective *feeds back to interests:* framing interests in a formal landscape of domains and disciplines, we found that students may come to label, prioritize or cluster their interests differently, coming to see either more or less divergence in their interests (e.g. based on my exploration of the Biology programme I realize I am not so interested in Biology as I thought and based on my exploration of the History programme I realize I am actually interested in Art History and Archaeology).

Committing to a programme

When students *commit* to a programme, this means that they aim to enrol in that specific programme (Crocetti, 2017; Germeijs & Verschueren, 2006; Klimstra & van Doeselaar, 2017; Meeus, 2011). It is a common perception that the programme choice process ends once students are committed to a programme. Once students have concluded which specific programme fits their most valued interests, there appears no reason to continue exploring and considering other

programmes (Germeijs et al., 2012; Germeijs & Verschueren, 2006). Nonetheless, several studies have shown that students can break their commitment to a programme and chose to enrol in another (Cleaves, 2005; Holmegaard, Madsen, et al., 2014).

Literature on life transitions and narratives more generally has stressed the dynamic nature of future orientations and choices, as people's decisions will always be reconsidered in the light of new experiences (Bruner, 1990; Zittoun & Gillespie, 2015; Zittoun & Valsiner, 2016). Holmegaard, Madsen, et al. (2014) and Holmegaard, Ulriksen, et al. (2015) found how this also applies to the higher education programme choice, as students may continue to talk about their future and may encounter new information about programmes, and so may change their orientations toward a programme they have committed to accordingly. Although these studies have shown that students may switch from one programme to another, the specific mechanisms behind this process remain undefined.

The present study
The present study focused on the mechanisms that underly students switching in their commitment from one programme to another when they are choosing a higher education programme. This will theoretically contribute to understanding how students make a higher education programme choice over time. Based on this insight, practical recommendations are shared on how counsellors can support students in making a programme choice over time. Specifically, we formulated the following research question: *What mechanisms underly students' switches in their commitment from one study programme to another when they are choosing a higher education programme?*

METHOD

Semi-structured interviews with students were held. The interviews allowed students to unfold their higher education programme choice process, including how and why their commitment to programmes changed over time.

Context
In the Dutch education system, students are placed into tracks from secondary education onwards. After 8 years in primary school, students enrol in the pre-vocational, general secondary, or pre-university track. Roughly twenty percent of all students enrol in the pre-university track. The present study focused on pre-university students as students in this track transfer most often to higher education. At the beginning of the 4th year of secondary school, students have to choose subject clusters known as educational profiles (Culture & Society, Economics & Society, Nature & Health, or Nature & Technics). After the 6th year, students generally transition to higher education, where they choose to enrol in a specific programme at a specific institution. Often, the pre-university diploma is enough to enrol in a programme, although some programmes have additional criteria and selection procedures or require students to have graduated from school with a specific educational profile. All Dutch universities are public institutions, have roughly the same academic standing, and enrolment costs are the same for every institution.

Participants

Eighteen pre-university students in the final year of secondary school (6th year) were interviewed. Participants were selected from a larger sample of 244 pre-university students who participated in an experience-sampling study focused on students' interest development. Students of the larger sample were recruited through eleven high schools. Twenty students were purposefully selected for maximum case variation, based on gender, geographical location (e.g. students from urban and rural schools), and educational profile. Eighteen students accepted and were able to participate: 10 girls and 8 boys between 17 and 19 years of age.

Procedure

The participants were interviewed following a semi-structured approach. It was the second time we had interviewed these students about their higher education programme choice. The first interview was solely focused on students' interests and the programmes they were considering (see Vulperhorst et al., 2020), without focusing on their commitment to a programme over time, which is why we only describe and analyse the second interview in this paper.

Interviews were carried out a few weeks or days before students enrolled in higher education, apart from one student, whose interview was held four days after the student enrolled in the programme. All interviews were conducted by the first author and were held in a location the participant preferred: in school, in the library, or at home. Interviews lasted between 45 minutes and 105 minutes. Consent was obtained from students to record the interview. Recordings were transcribed verbatim and subsequently analysed.

Instrument

The interview aimed to elicit all considered interests and programmes over time, paying specific attention to whether students had committed to a programme and whether this changed. To help them recall considered interests and programmes over time, and to let them narrate more freely compared to a regular and more structured interview, a timeline was created with the students (Adriansen & Madsen, 2014; Sheridan et al., 2011). To elicit students' commitment to programmes, a storyline was also created with them where they had to indicate and explain how certain they were about pursuing certain programmes over time. In a storyline, students draw the development of a process where the horizontal axis typically represents time and the vertical axis a measure of growth. Storylines help students reflect on how processes develop over time and *why processes might change over time* (for more information see Beijaard et al., 1999; Sandelowski, 1999; Scager et al., 2013).

A linear timeline was given to the students on A3 paper that showed the passage of time from the 4th year to the 6th, with separate blocks for the beginning, middle, and end of each year, as students typically are considering what to study in this period (e.g. Cabrera & La Nasa, 2000). Students could extend the timeline if they had been thinking about their future before the 4th year. They were encouraged to fill in the timeline with events they found related to their higher education programme choice process (e.g. conversations, thoughts and considerations, moments of information gathering). Narrative questions were formulated that focused on explaining,

drawing and writing down these events (e.g. What did you do? What did you consider? What happened next?). An example of part of a constructed timeline can be found in Figure 4.1.

Next, the storyline was created with the students. We gave them an A3 sheet with a vertical axis that ranged from -5 (I am very uncertain which programme I should pursue), to 0 (I am not certain/uncertain which programme I should pursue), to 5 (I am very certain this is the programme I want to pursue). For the horizontal axis we used the previously constructed timeline. We instructed the students to indicate how certain they were they wanted to pursue a specific programme at each moment in time. No further instruction was given on how to create the storyline, to allow students the freedom to create the shape and look of their own storylines. Questions were asked during and after drawing to clarify why certain points were higher or lower than previously created points or why the line/dot/graph changed direction, to elicit statements reflecting their commitment to a programme and their reasoning about why they may have switched in their commitment from one programme to another.

Figure 4.1. *Part of a translated timeline of one of the students*
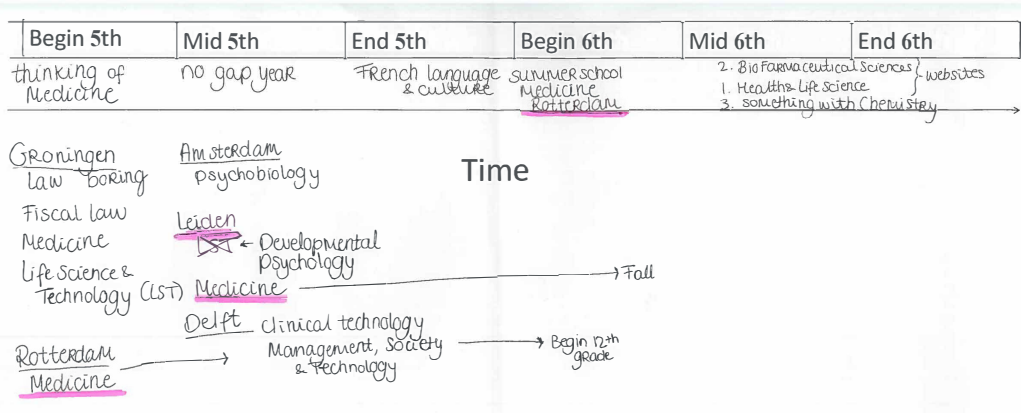
Analysis

Thematic analysis (see Braun & Clarke, 2006) was applied to identify commitment switching mechanisms. We analysed both the explicit reasons students had for switching or not switching and their reasoning from an interest-to-programme and programme-to-interest perspective when their commitment to a programme changed over time. Combining both explicit reasons and students' reasoning allowed us to identify, in a more holistic manner than when only focusing on students' explicit reasons, what mechanisms made students switch in their commitment from one programme to another.

First, to get a grip on students' interests, programmes, and commitment over time, we read through the interview transcripts and looked at students' timelines. We coded students' considered

interests, considered programmes, and commitment. The specific coding rules and examples of the content that was coded in this step can be found in Table 4.1.

Table 4.1.

Coding rules and examples of coded data

Concept	Rule for identification	Exemplary quote
Students' interests	Any object marked by the student as an interest or, more implicitly, as something he or she likes, wants to pursue in the future or wants to spend more time on.	I really like *Arts*; I like to spend a lot of time on drawing and painting.
Considered programmes	Any programme a student mentions to consider and/or explore.	Then I started looking at *Law*, like searching for stuff about it online.
Commitment to programme	Any mention of an intention to pursue a programme.	And from then on, I had *Biomedical Sciences* in my mind, I thought I was going to study that.

We subsequently coded when students reasoned from an interest-to-programme perspective over time (e.g. when they considered which interests, whether interests were more convergent or divergent, and how this led to exploring specific programmes over time) or a programme-to-interest perspective over time (e.g. how considered interests attuned to programmes and how programmes could change the considered interests over time) and whether and why students indicated that they were committed to a programme over time. This resulted in a list of codes clustered per person per time point.

We used the codes and the full transcripts to create a summary of the higher education programme choice process per student *over time*, to get more grip on how their reasoning from an interest-to-programme and programme-to interest perspective changed, when they committed to a programme, when they broke off their commitment to a programme, and when they committed to a new one. This allowed us to identify eight students who committed to a programme before final enrolment but subsequently changed their minds. We then identified two commitment switching mechanisms based on the explicit coded reasons given by students to explain why they changed their commitment and through comparing and contrasting whether and how students' reasoning changed from an interest-to-programme perspective (e.g. a shift in interests to pursue over time) and a programme-to-interest perspective (e.g. a shift in considered programmes).

Analysing the explicit reasons and changes in interest-to-programme and programme-to-interests reasoning, we found that students could be hesitant to switch or explicitly kept holding on to the programme they were committed to, even though switching would have led them to better attune their considered interests and programmes. We therefore decided to analyse all students that were committed to a programme before final enrolment, to identify themes that could explain why students would *not* break off their commitment to a programme. Again, we analysed both explicit reasons for students staying committed to a programme over time and, more holistically, whether something in their reasoning from an interest-to-programme and programme-to-interest perspective changed once they had committed to a programme. This revealed two commitment *preservation* mechanisms.

Quality

To ensure the quality of our instrument, we piloted the instrument with two 6th year pre-university students who were not included in the sample. We changed the wording of some questions to simplify them and we enlarged the timeline and storyline format, so students had enough space to draw and write. To ensure the quality of our analysis, we conducted an audit (Akkerman et al., 2008). In this summative audit, an independent researcher within our research institute with expertise on students' higher education programme choice was asked to assess the dependability and confirmability of the data analysis (Guba, 1981). All transcripts, timelines, storylines, codes, and summaries were made available to the auditor. The auditor agreed with the data analysis and found it transparent.

RESULTS

Through tracing students' reasoning from an interest-to-programme and programme-to-interest perspective and their commitment to programmes over time, we identified several mechanisms that underly students (not) switching in their commitment from one programme to another. To exemplify these mechanisms, we created three figures that each portray the choice process of a student over time (see Figures 4.2, 4.3, 4.4). The horizontal arrow at the top of the figure illustrates the passing of time. The start of each school year that students reported in their timeline is marked in each figure. Below the horizontal arrow, the divergence of their considered interests, exploration of programmes and commitment to a programme are summarized over time.

As can be seen from the figures, students' considered interests fed forward (from an interest-to-programme perspective) to which programmes they explored, which is illustrated by regular arrows. At the same time the dotted arrows show how the explored programmes fed back to students' interests, potentially changing which interests they considered pursuing. We highlighted at each time whether students were committed to a programme or not.

Of the eighteen students interviewed, sixteen had committed to a programme before communicating their final choice to an institution. Of these sixteen students, eight made one or more switches, all of which were made before they had to communicate their final choice to higher education institutions: in the period of four months between communicating their final

choice and actual enrolment, no students switched in their commitment from one programme to another. When students broke off their commitment to a programme, they could directly commit to another programme (as in Jolene's case, see Figure 4.2), or they could decide to wait a while before committing to a new programme (as in Marlon's case, see Figure 4.3). Below we will illustrate the two commitment switching and commitment preservation mechanisms.

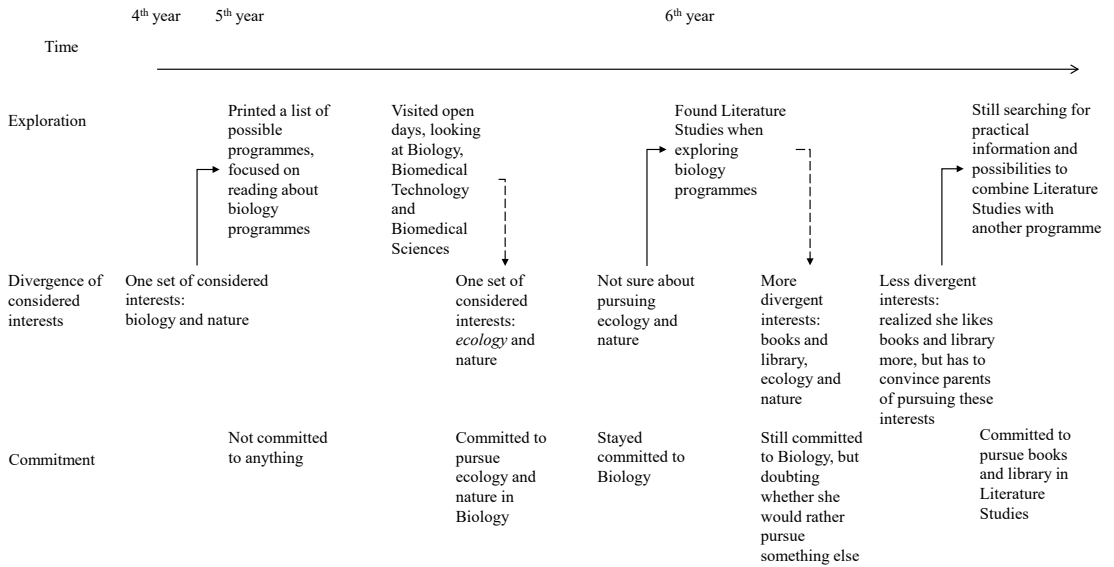**Figure 4.2.** *Summary of Jolene's higher education programme choice process*

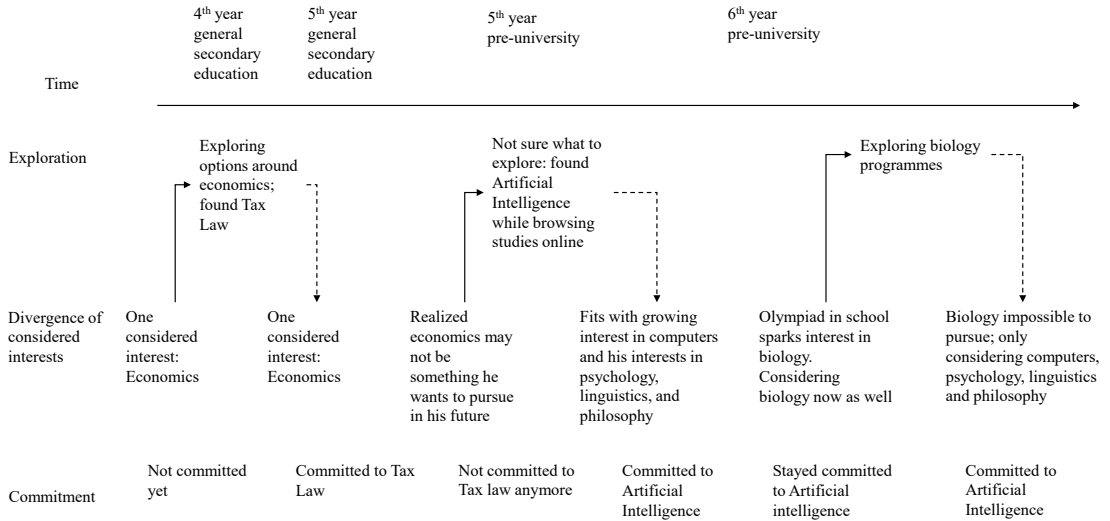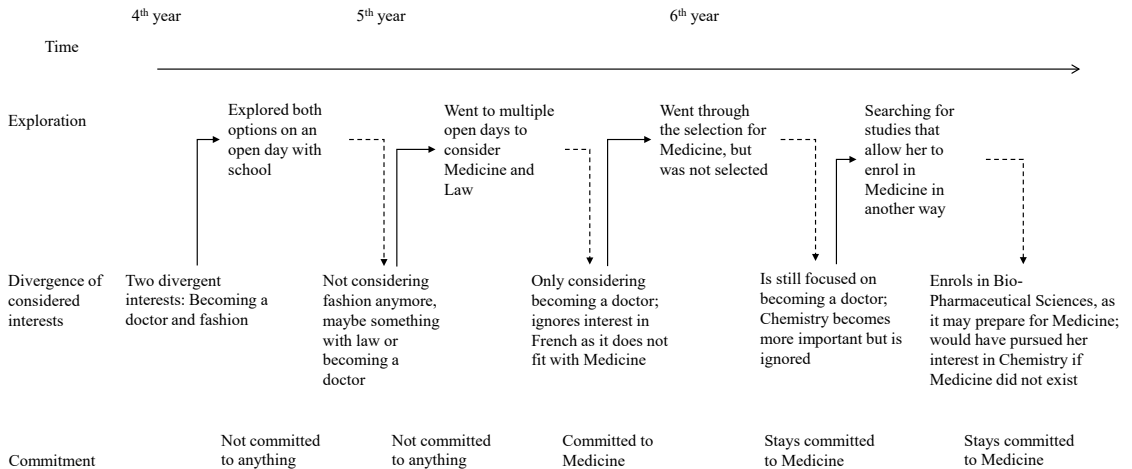**Figure 4.3.** *Summary of Marlon's higher education programme choice process*

	4th year general secondary education	5th year general secondary education	5th year pre-university		6th year pre-university	
Time						
Exploration		Exploring options around economics; found Tax Law		Not sure what to explore: found Artificial Intelligence while browsing studies online	Exploring biology programmes	
Divergence of considered interests	One considered interest: Economics	One considered interest: Economics	Realized economics may not be something he wants to pursue in his future	Fits with growing interest in computers and his interests in psychology, linguistics, and philosophy	Olympiad in school sparks interest in biology. Considering biology now as well	Biology impossible to pursue; only considering computers, psychology, linguistics and philosophy
Commitment	Not committed yet	Committed to Tax Law	Not committed to Tax law anymore	Committed to Artificial Intelligence	Stayed committed to Artificial intelligence	Committed to Artificial Intelligence

4

Figure 4.4. *Summary of Carla's higher education programme choice process*

	4th year	5th year		6th year		
Time						
Exploration		Explored both options on an open day with school	Went to multiple open days to consider Medicine and Law	Went through the selection for Medicine, but was not selected	Searching for studies that allow her to enrol in Medicine in another way	
Divergence of considered interests	Two divergent interests: Becoming a doctor and fashion	Not considering fashion anymore, maybe something with law or becoming a doctor	Only considering becoming a doctor; ignores interest in French as it does not fit with Medicine	Is still focused on becoming a doctor; Chemistry becomes more important but is ignored	Enrols in Bio-Pharmaceutical Sciences, as it may prepare for Medicine; would have pursued her interest in Chemistry if Medicine did not exist	
Commitment	Not committed to anything	Not committed to anything	Committed to Medicine	Stays committed to Medicine	Stays committed to Medicine	

Optimization mechanism

Students could switch once they became aware of a more *optimal* higher education programme, which attuned better with their current considered interests than the programme they had been committed to. We found that students continued reasoning about making a higher education programme choice, even after they were committed to a programme. They kept considering several programmes and kept weighing their interests to determine which interests they wanted to continue in which programme (see the cycles of feed forward and feed back in all figures after students' commitment to a programme). This was also highlighted by Riley: 'So here I thought, I am going to study Architecture, but I felt I should keep my options open.'

This continuous contrasting and weighing of interests and programmes to the interests and programme they were committed to functioned as a check and, in some cases, students realized they would rather pursue other interests in another programme. These students could make a switch in their commitment to a programme. This is illustrated by Jolene (see Figure 4.2) who was committed to pursuing her interests in ecology and nature in the Biology programme but also continued exploring other options:

> In 5th year I visited the university for an open day for the Biology programme. At the time I was convinced about studying Biology, but I wanted to check whether it was the right choice one last time. By coincidence I saw Literature Studies, and checked whether I could fit it in my schedule on the open day. I really liked it [Literature Studies], which is why I dropped Biology and focused on Literature.

Contrasting the programmes of Literature Studies and Biology, Jolene realized she could pursue a programme with her interests in books and the library, which she preferred over her interests in ecology and nature which she could pursue in the Biology programme. Jolene had not considered pursuing her interests in books and the library academically before exploring Literature Studies. She then became aware that she would love to pursue these interests academically. Consequently, Jolene switched from being committed to Biology to committing to Literature Studies.

Discontinuation mechanism

Students could also switch in their commitment when they realized that the programme they were committed to did not attune that well anymore with their considered interests. In contrast to the previous mechanism, where students found a better programme, but often would have considered enrolling in the programme they were previously committed to, these students abandoned the idea of pursuing the programme they were committed to when they realized that their interests did not attune that well with this programme.

Students could realize through extended exploration that a programme did not attune as well as they previously thought. Lana for example remarked:

So, for the whole of the 5th year I was focused on Biomedical Sciences, until the 'student for a day', then I thought, no way I am going to study that… I was like triggered, do I really like studying this, well maybe not.

At this introductory activity for prospective students ('the student for a day'), Lana realized Biomedical Sciences did not attune that well with her interests in brains and nutrition. Consequently, Lana stopped committing to Biomedical Sciences.

Students could also realize the programme they were committed to did not attune that well anymore with their interests, because the interests they aimed to pursue changed over time. Students' interests were constantly developing in their daily lives. Based on new experiences, interests could become more or less important for students to continue in their future, which could lead to a shift in which interests they wished to pursue most.

Looking for example at Marlon (Figure 4.3), we see that Marlon was committed to Tax Law at the end of the 5th year in the general secondary education track because of his strong interest in economics. Transitioning to the 5th year in the pre-university track, he realizes his interest in economics has declined:

I wrote an essay about the depression and the subsequent economic crisis for school… and that gave me a really negative image of the world of economics… And also, from conversations with others in my family who worked in that [economic] sector, I got like an image of economics which I did not feel fitted me… So, I felt, well, maybe I should consider something else.

Marlon subsequently changed his orientation: he decided not to commit to any programme while he considered pursuing multiple interests and programmes again.

Students could also make a direct switch to a new programme when they dismissed the programme they were committed to, if they had already explored a programme that attuned with the interests now considered to be more important. Edward, for example, was interested in Chemistry, Mathematics, and Physics and explored programmes related to these interests. Edward committed to a Physics programme in the 5th year, as he was most interested in Physics. He realized later:

I think at the end of the 5th year we had a chapter [for Physics] that I really did not like, and from the 5th year on I had a Mathematics teacher who was nice. It was more of a realization moment, I think… I thought, actually, I do not like Physics that much. Once the idea was there, I realized I liked Mathematics more.

Edward consequently switched in his commitment from the Physics programme to a previously explored Mathematics programme.

Self-fixation mechanism

We also found two commitment preservation mechanisms. First, we discovered how students could fixate themselves on their most valued interests and programmes. Then we noticed how students could deliberately downplay information that appeared to contradict their thoughts and orientation, disregarding the idea that another programme may attune better with their interests or that other interests may over time have become more valuable for them to pursue in their future.

Grover, for example, mentioned but downplayed information that implied that the programme he was committed to attuned to a lesser extent with his considered interests than he thought when he committed to this programme. Grover was strongly interested in computers, technology, and games. He therefore committed to Software Science at the beginning of the 5th year, as, at first glance, this aligned with all his interests. He remarked after several open days:

> Yeah it is really theoretical, it is more about what Software Science is and not just doing it like practically… like a lot of theory books, and not how you do Software Science, also history about computers, so… I want something more practical.

Even though Grover voiced some doubts about the programme, as the programme went beyond his practical interests in programming and designing games, this did not prompt him to explore other programmes. Grover stayed committed to Software Science arguing that once enrolled in the programme, he would probably spend most of his time learning to programme and design games, instead of having to learn Mathematics and the history of Software Science.

This fixation with enrolling in a specific programme with specific interests, could also make students disregard strengthened interests in other domains. For instance, Carla (see Figure 4.4) was committed to studying Medicine, and notes the following about her interest in Chemistry:

> I started liking Chemistry more in the 6th year, but that was just at the end of the year, so I did not pursue it… After I was not selected to study Medicine… my father said, why don't you go to study Chemistry?... But I knew quite quickly that I wanted to study something in preparation for Medicine, as I want to try to get through the selection next year… If there was no Medicine, I would have probably started studying Chemistry.

Carla mentioned how only after her father explicitly mentioned the possibility of studying Chemistry, did she realize she could pursue this interest in her future. Nonetheless, as she was set on studying Medicine, she did not really consider pursuing her interest in Chemistry, although she acknowledged she may have really liked studying Chemistry.

Social confirmation mechanism

Students could also stay committed to a programme when significant others were convinced that the programme they were committed to was the best choice for them. If this was the case, students had to convince and explain to significant others why a switch would lead to an even

more plausible choice for them. Without a strong rationale to pursue a different programme, students could confirm their social environment, and not make a switch in their commitment. This social confirmation mechanism is illustrated by Jolene (see Figure 4.2). As mentioned above, Jolene wanted to switch from Biology to Literature Studies, but making this change was at first somewhat problematic for her as her parents were not convinced about her pursuing Literature:

> My father was very confused, I really had to convince him. He is himself also very interested in nature and biology and he went with me to the Biology open days and saw me very enthusiastic there. And I could not convince him in the beginning, which is why I was also doubting what I should do… I then had multiple conversations with my parents about whether Literature Studies would be a smart choice for me, but after they finally saw that I really liked Literature it was okay.

As Jolene kept talking with her parents about changing her intention from the Biology programme to the Literature Studies programme, she was eventually able to convince them that making such a switch would be the best choice for her.

4

DISCUSSION

We uncovered two commitment switching mechanisms and two commitment preservation mechanisms when students are making a higher education programme choice. In accordance with recent studies focused on programme choice (Cleaves, 2005; Holmegaard, Madsen, et al., 2014; Vulperhorst et al., 2020), we found that students did indeed switched in their commitment, either directly committing to another programme or leaving the alternatives open to explore and decide later.

Theoretical implications for the higher education programme choice process

The present study contributes to higher education programme choice theory. Building on Vulperhorst et al. (2020), we have shown in more detail how students attune an *interest-to-programme* and *programme-to-interest* perspective over time. We have shown that this attuning of the two perspectives does not end once students have found a programme that attunes well with their considered interests, supporting the suggestion that the higher education programme choice is a process without a clear end point and continues even after students have enrolled in a programme (Holmegaard, Madsen, et al., 2015; Taylor & Harris-Evans, 2018).

We found that students kept searching for a more *optimal* higher education programme choice by contrasting other considered interests and programmes to those they were committed to, and that sometimes students came to the conclusion that another programme would suit them better. Students often feel that the future is set in stone after they have made a higher education programme choice, as they feel they have to pursue a career in that direction and are less aware of choices they can make after enrolment (Holmegaard, Ulriksen, et al., 2014; Kucel & Vilalta-Bufí, 2013). Students may consequently feel under pressure to make the best choice possible as they are scared of finding out they made a wrong choice in hindsight (Du Bois-Reymond, 1998).

During their continued exploration and comparison of interests and programmes, students could experience *discontinuity*: they could come to realize that the programme they had committed to was not a good option for them anymore. Holmegaard, Madsen, et al. (2014) found that students may reconsider their future programme based on new information, we have shown in more detail that students may learn through extended exploration that a programme does not attune with their interests as well as they thought or they may come to realize that their interests have developed and consequently may not attune that well anymore with the programme they are committed to. Our findings support the argument made by Gravett (2021) and Taylor and Harris-Evans (2018), that the higher education choice process is a non-linear, iterative process rooted in daily life, in which students constantly try to make sense of the upcoming transition based on their lived experiences.

We also found that students could be hesitant about making a shift in their orientation from one programme to another, even when such a shift might lead them to enrol in a programme that is better attuned to their interests. First, we found that students could *fixate* on the programme and interests they had committed to, creating a set narrative about why this would be the most logical choice for them. Consequently, they could downplay or try to ignore experiences that would contradict this idea. This fixation on specific narratives resonates with findings that some narratives may become dominant. Dominant narratives are resistant to change as all new experiences are assimilated in the dominant narrative; people may consequently struggle to form a different, more fitting narrative about themselves (see Zittoun et al., 2013). For the higher education choice process, this finding illustrates why students may sometimes seem not to take up new information or may, in the eyes of others, make unfitting higher education programme choices.

Second, we found that students *confirmed ideas of significant others*. Students could find it difficult to switch their commitment from one programme to another, if they had already communicated their commitment to a programme to significant others. Other studies have already highlighted that students not only have to make an appropriate choice for themselves, but are also required to make a logical programme choice in the eyes of others (Brunila et al., 2011; Holmegaard, 2015). We have illustrated in more detail how these significant others can hold students back when they try to shift their commitment from one programme to another. If students are unable to convince others that switching is the most logical choice for them, they may confirm their social environment and will not make the change. The social confirmation mechanism may also explain why we found that students rarely made multiple changes, as they may have lost credibility in the eyes of significant others about making a logical higher education programme choice if they committed to multiple programmes over time.

Limitations and future research

In the present study students recalled which interests they considered, what programmes they explored and how committed they were to specific programmes over time. As others have argued, students may interpret their past experiences in the light of the present to make a more consistent narrative (Holmegaard, Ulriksen, et al., 2015). This implies that students may not recognize or

recall all commitment changes they have made when reasoning from the present situation and the programme they are committed to now. Following methodological recommendations (e.g. Bagnoli, 2009), we used timelines and storylines to help students better recall and reconstruct their prior situations. Future research should nonetheless focus on tracing the higher education programme choice process longitudinally over time, to validate and add to our results.

The present study was conducted in a Dutch educational context. Even though studies have shown that students in other educational contexts also attune their interests with possible programmes to come to a higher education programme choice (see for an example in Portuguese context Tavares & Cardoso, 2013), one may question whether similar commitment switching and commitment preservation mechanisms would be found in other educational contexts. Future research in different educational systems may provide insight into this.

Future research could focus on whether students change programmes after enrolling in a programme, and whether similar commitment switching mechanisms can be identified in that period of students' lives. None of the students in our study switched between programmes in the time between communicating their final choice to the institution and enrolment, suggesting that students may be less inclined to switch once enrolled in a programme. Changing programmes after enrolment would seem likely to have more consequences for students than switching their commitment to a programme before enrolment, as changing course after enrolment would require them to drop out of their programme and lose the time already invested in it (Bradley, 2017). Nonetheless, studies focused on the future choices of students after enrolment have shown that some students may come to regret their study choice (Kucel & Vilalta-Bufí, 2013) or consider pursuing a programme that attunes better with their interests (Malgwi et al., 2005), which may result in them switching after enrolment (Lykkegaard & Ulriksen, 2019).

Practical implications

Although our aim was to theoretically understand why students (do not) switch in their commitment from one programme to another when making a higher education programme choice, we can provide some practical recommendations based on the found commitment switching and commitment preservation mechanisms. The found commitment switching mechanisms highlight that students keep evaluating their interests and programmes after they pronounce their commitment to a programme. This suggests that counsellors should keep guiding students through the process of choosing a programme even after students have pronounced their commitment to a programme. Moreover, our commitment preservation mechanisms suggest that counsellors should be aware of the possibility that students keep holding on to specific interests and the programme they have committed to, even when another programme may better attune with their current interests. It is therefore important that counsellors keep reflecting with students on their important interests and possible programmes and emphasize in these ongoing conversations that changing your orientation from one programme to another is a process that happens quite frequently when still deciding on a higher education programme. Counsellors can then potentially make students aware that switching their commitment from one programme to another may, sometimes, lead to a more suitable programme for them.

Defining commitment

Based on our findings, we can provide more insight into how students' commitment during the higher education programme choice process should be defined. Our findings suggest that commitment is neither a stable state that functions as an end point of the programme choice process (as suggested in Germeijs & Verschueren, 2006), nor a meaningless state that continuously changes (as one may argue based on narrative literature; e.g. Holmegaard, Ulriksen, et al., 2015). Rather, we propose to understand programme commitment as taking a *temporal position as a future student*. This definition suggests that commitment is rather fixed: through taking an explicit position as a future student of a programme, a student communicates that other positions as students of different programmes are less desirable; students can then be held responsible for keeping this position over time by their social environment. Moreover, from the position as a future student of a specific programme, students may ignore, disregard or change the interpretation of daily life experiences to make keeping this position the most logical choice for them. Students may nonetheless realize that a shift in position may be needed when another position has been found that is more desirable to them or when they realize that the position as a future student of a specific programme is less desirable than previously thought.

HOW STUDENTS USE THE SPACE PROVIDED BY BROAD AND SPECIALISED PROGRAMMES TO DEVELOP THEIR INTERESTS IN HIGHER EDUCATION

5

ABSTRACT

There is an ongoing debate in higher education about the value of broad programmes versus specialised programmes. Educational professionals argue that students use the space provided by broad programmes to develop interests in diverse domains, while the scope of specialised programmes allows students to converge in interests. The present study investigates whether students enrolled in broad and specialised programmes indeed differ in how their interests develop. To do so, we traced the interest development of 124 Dutch students from their final year in secondary education until the end of their first year in higher education. We used an experience sampling method to measure students' momentary interests over a week and repeated this every three months. For each data collection week, we coded in how many different domains students were interested, and subsequently ran a multigroup, sequential, latent growth curve model. We found that students in broad programmes develop more divergent interests, while students in specialised programmes develop more convergent interests. This shows how students use the space provided by programmes to shape their interests. Our results can help higher education institutes in discussing whether a more diverse or focused curriculum is desirable from a societal and student perspective.

Keywords: Interest development, Higher education, Liberal Arts programmes, Occupational programmes, Interest divergence

INTRODUCTION

Since the end of the 20th century, a debate has been ongoing about the distinctive value of broad versus specialised programmes in higher education (Godwin & Altbach, 2016; Van der Wende, 2011). On the one hand, scholars and educational professionals argue that broad programmes allow students to pursue multiple interests in different domains while also providing space for them to develop new interests across these domains. This allows graduates to become flexible and interdisciplinary professionals (Spelt et al., 2009), and such professionals are said to be highly needed for tackling complex and contemporary issues such as global warming or dealing with a pandemic (Godwin & Altbach, 2016; Scott, 2002). On the other hand, we find scholars and educational professionals who stress the value of specialised programmes, as these provide a more focused space for students to pursue and develop interests and expertise in one domain (Goyette & Mullen, 2006). This allows graduates to become highly skilled specialists, who are needed to advance knowledge and innovate within their domains (e.g., medical specialists, engineers).

Although scholars and educational professionals assume that students develop divergent or convergent interests depending on whether they enrol in and graduate from a broad or specialised programme, it has not yet been empirically studied whether students actually use the space provided by the programmes to develop their interests. Studying how interest divergence develops in broad and specialised higher education programmes helps explain how and whether curricular space is used as intended by students. In turn, higher education institutes may make more informed choices when developing or revising programmes, depending on what interest divergence they aspire to facilitate. Therefore, the present study will focus on whether students' interest divergence develops differently over time for students enrolled in broad and specialised programmes. Students have *high-interest divergence* when they pursue multiple interests across different domains (e.g., humanities, social sciences, arts) and *low-interest divergence* when they pursue interests in one domain.

Defining broad and specialised programmes

Traditionally, two classifications are used when distinguishing between broad and specialised higher education programmes. First, a distinction is made between liberal education and occupational education programmes. Liberal education focuses on students' personal growth and equips students with diverse knowledge and skillsets to make them well-rounded professionals. Occupational education, in contrast, focuses on educating students with the knowledge and skills required for a specific profession (Brint et al., 2005; Goyette & Mullen, 2006; Labaree, 2006). Liberal education is therefore often labelled as broader than occupational education.

Second, within liberal education, a distinction can be made between broad and disciplinary liberal education programmes. In broad liberal education programmes (often labelled liberal arts), students are trained in multiple disciplines and have opportunities to shape their curricular trajectory. In disciplinary liberal education programmes, students are trained in one discipline and have less autonomy in the programme, as most courses in the curriculum are predetermined (Brint et al., 2009; Coenen et al., 2015; Spelt et al., 2009).

Taking both of these classifications into account, we can roughly distinguish three types of programmes in terms of the scope of the curriculum. In order from specialised to broad, those are *occupational* programmes (e.g., speech therapy), *disciplinary* liberal education programmes (e.g., mathematics), and *broad* liberal education programmes (e.g., liberal arts & sciences).

Interest development in higher education programmes

Interests are considered to be the objects, activities, or ideas students prefer to (re)engage in (Akkerman & Bakker, 2019; Hidi & Renninger, 2006). At the start of the 20th century, Dewey (1913) argued that students value education through their existing and developing interests. On the one hand, education can nurture existing interests; on the other hand, it can expose students to new areas of potential interest, allowing them to move beyond what is already familiar to them through other life domains (see Akkerman, 2017).

In higher education, Harackiewicz et al. (2008) have already demonstrated how a single course may trigger new and enduring interests in students. This illustrates that the specific content to which programmes expose their students may have consequences for how their interests develop. Broad programmes may provide space for students to develop more divergent interests over time, as broad programmes allow students more agency in choosing courses and may expose them to more diverse subject areas than occupational or disciplinary programmes (Spelt et al., 2009). Occupational and disciplinary programmes may allow students to develop fewer diverging interests, as these programmes have predetermined curricula, often within a single domain (Goyette & Mullen, 2006).

Nonetheless, no studies have yet examined whether students enrolled in broad and specialised programmes actually differ in the interests they develop. This appears to be a core assumption in the debates on broad versus specialised programmes; however, it should also be noted that students differ in their interests and developmental trajectories even within the same programme. In addition to participating in these programmes, students move between diverse peer, family, and leisure contexts in daily life that may equally provide space for students to develop their interests in particular directions (Akkerman & Bakker, 2019; Azevedo, 2011). Moreover, students have different histories of engaging with their interests, even if shared (Akkerman & Bakker, 2019; Slot, Vulperhorst, et al., 2020), and have different, sometimes very specific, ideas for their future (Holmegaard, Ulriksen, et al., 2014; Nurmi, 1991; Vulperhorst et al., 2020). This implies that students may selectively value and pick up different interests from the same programme (see Akkerman, 2017) and may not necessarily show similar patterns of interest development and divergence throughout their higher education programme.

Interest development before enrolment in higher education

To unravel whether interest divergence develops differently over time for students enrolled in occupational, disciplinary, and broad higher education programmes, it is important to consider their interests *before enrolment*. One may argue that at enrolment in higher education, students in occupational or disciplinary programmes may already be less divergently interested (e.g., physics, biology, chemistry), while students in broad programmes may already be more divergently

interested (e.g., law, history, economics, psychology, arts), suggesting that different types of students may choose to pursue occupational, disciplinary, or broad programmes (Cleaves, 2005; Goyette & Mullen, 2006; Vulperhorst et al., 2018). The differences between the interest divergence of students enrolled in occupational, disciplinary, or broad programmes may then not be attributable to the development of their interests during the programme but rather because they already differ in interest divergence at the start of their studies.

Furthermore, it is important to note that students already start orienting to programmes in secondary education, even to such an extent that students may, based on how they interpret programmes, alter or redirect their interests. Multiple studies have shown that students base future study and career decisions on their interests. To make a higher education programme choice, students weigh and contrast multiple interests and programmes over time when deciding what programme to pursue (Holmegaard, 2015; Holmegaard, Ulriksen, et al., 2014; Vulperhorst et al., 2020). Vulperhorst et al. (2020) found that students' interests changed during this process of weighing and contrasting, depending on the programmes they explored. More specifically, students realised, depending on how they interpreted the programmes, that they were more or less interested in specific objects, activities, or ideas than they previously thought and could even realise new interests. Based on these results, one may expect that students who aim to enrol in broad programmes may already show an increase in interest divergence at the end of secondary education, as they have encountered more diverse domains that helped them realise new interests or allowed them to combine interests they previously thought incompatible. The opposite may hold for students considering occupational or disciplinary programmes; because they consider a predetermined programme in one domain, students may come to focus on the interests they can pursue in these programmes, decreasing interest divergence at the end of secondary education.

The present study

The present study investigates whether students' interest divergence develops differently over time for students who enrol in occupational, disciplinary, and broad higher education programmes. By considering how students' interest divergence develops both before and after enrolment, we aim to provide a detailed account of how the scope of programmes may allow students to develop more or less divergent interests over time. The following research question was central in the present study: *To what extent are there differences in the development of interest divergence over time for students across occupational, disciplinary, and broad programmes?*

METHOD

Longitudinal data on students' interests were collected before and after enrolment in higher education. An experience sampling method was used (see Csikszentmihalyi & Larson, 2014) to obtain a complete overview of students' interests across all contexts in which they pursued these interests. Students participated in a week of data collection every three months for two years, one year before and one year after enrolment in higher education. During this week, students had to report multiple times per day which interests they spent time on.

Dutch educational context

After primary school, Dutch students are placed in the pre-vocational, general education, or pre-university secondary education track. Students in the pre-university track most often transition to higher education, which is why we sampled students from this track. Approximately twenty per cent of all students are placed in the pre-university track. After the sixth year in pre-university education, approximately 90 per cent of the students immediately enrol in higher education. In the Dutch educational system, students enrol directly in a specific programme at a specific institution. Students can enrol in all programmes with their pre-university diploma, although most programmes require students to have graduated in specific subjects, and some highly selective programmes apply admission at the gate. Universities across the Netherlands all have roughly the same academic standard, and tuition fees are standardised nationally.

Participants

Pre-university students were recruited at the beginning of their final year in secondary education across eleven schools in the middle of the Netherlands. Students had to actively consent to the research, while passive consent was required from parents. Students were asked to participate in eight data collection waves from October 2016 through June 2018, and 244 students agreed to participate. Approximately 73 per cent of the students (177 students) participated until the end of the project. Forty-five of these students could not be included in subsequent analyses, as they did not graduate as expected, took a gap year between secondary and higher education, or dropped out from their higher education programme. Of the 132 remaining students, eight additional students were excluded, as we could not determine which higher education programme they were enrolled in, resulting in our final sample of 124 students. Participants were between 16 and 19 years old at the start of data collection ($M = 17.57$, $SD = 0.53$), and 64.5 per cent were female.

Instruments

A smartphone application called inTin, developed in previous studies (see Akkerman & Bakker, 2019) was used to measure students' interests over time through daily life. Draijer et al. (2020) and Akkerman et al. (2020) illustrated the validity of the application, as students were found to report interests across all different phases of interest development and across a variety of objects.

In a data collection wave, during waking hours, students received a notification from the app every two hours. The notifications reminded them to report whether or not they had been interested in something in the past two hours. When students indicated having spent time on something interesting, they were subsequently asked to indicate which interest(s) it concerned and how they engaged with their interest(s) (i.e., whether they were thinking about, talking about, or actively involved in an interest, whether they pursued their interest alone or with someone, and why they were interested in that moment). We give an example to illustrate this gathered interest-event data: Jan experienced an interest in swimming on the 9th of January 2017 at 17:00. He experienced this interest alone through thinking about swimming. He found this interesting because 'Swimming is my favourite sport, so I like thinking about it and thinking about my schedule.'

We asked students about their higher education programme choice twice. One month before final enrolment in higher education (August 2017), we asked students whether they would enrol in a study programme and, if they aimed to enrol, which programme they would choose. One month before the start of the second year in higher education (August 2018), we asked students whether they were still enrolled in the same programme.

Procedure

Participants took part in eight data waves, in which they filled out the inTin application for seven days straight. Data waves were held every three months. The first four data waves were held while students were still enrolled in secondary education (October 2016, January 2017, April 2017, June 2017). The four subsequent waves took place during students' first year in higher education (September 2017, December 2017, March 2018, June 2018). Before the first wave, a one-and-a-half-hour instruction meeting was held with participants per school, in which we discussed the definition of interest and practised filling in the app.

At the start of each data collection period, participants had to enter all interests manually in the application (i.e., activities, topics, ideas, or objects they preferred spending their time on). No predefined interest categories were made to allow participants to label their own interests, as they considered it most meaningful. During data collection, interests could be added to the list at any time. Participants received a notification every two hours, between 9 a.m. and 11 p.m., to ensure interests were reported throughout the day. Participants subsequently had half an hour to fill in the application and received a reminder notification after ten and twenty minutes. Students first indicated whether they had done something interesting the past two hours when responding to a notification. If that was the case, questions detailed in the Instrument section were asked; if not, students could immediately go to the report's end to prevent them from giving insincere responses. Every participant was supported and motivated by the first author or a research assistant via WhatsApp messages during each data collection period. We acted as coaches and encouraged ('Good job, you are almost halfway!') and helped participants fulfil the criteria of participation ('Do not forget to report your interests this morning/afternoon/ evening: Did you spend time on any interesting topics or activities?').

Participants were offered financial compensation per data wave (€ 10) if they met the compliance agreements made in the instruction meeting. The criteria were as follows: (1) participants responded to at least five of eight notifications per day, and (2) their reports had to be accompanied by clear and elaborative comments on why they experienced interest. Furthermore, participants could double the money they received if they participated until the end of the project (a maximum of € 160) to minimise attrition. To earn this doubling, participants had to answer the questions regarding their study programme just before enrolment and just before the start of their second year in higher education. Ethical approval for this study was received from the ethical review board of the Faculty of Social and Behavioural Sciences of Utrecht University (FETC16-015).

Data analysis
Coding students' interests

Through the application, we measured all of students' interests. Although one may argue that all interests are potentially relevant for and impacted by students' future academic choices, we did not want to overestimate students' interest divergence by including every one-off momentary interest experience that appears throughout daily life. Therefore, we decided to use a more conservative measure of students' interest divergence, including only reported interests for which we found an indication of having some sort of academic or future value: the interests they pursue within the school or programme context and the non-school related interests they perceive as holding potential for the future. To identify these *academically relevant* interests, we needed to code all of the students' interest-event data. We coded interests in a two-step procedure. First, we coded all *interests related to school*: interests reflecting academic topics or school subjects that students wanted to learn more about or liked engaging with. From a societal or school perspective, students can be expected to continue to pursue these interests in later study and career choices (e.g., if I am interested in mathematics, I can enrol in a mathematics programme). As seen in Table 5.1, school-related interests that were explicitly mentioned to be boring or not interesting were not coded even if they recognised the importance of some of their schoolwork.

In the second step, we coded interests that may be academically pursuable from a personal perspective. Objects, activities, or ideas of interest for *ongoing development towards the future* (e.g., mastering skills, attaining a goal, repeatedly mentioning learning and development; see Slot, Vulperhorst, et al., 2020) are interests that students might pursue in their academic future (Nurmi, 1991; Vulperhorst et al., 2020), even if these interests are traditionally labelled non-school and non-academic (e.g., sports, music, gaming). As seen from Table 5.1, interests were not coded when no reference to the future was made, even if one may argue that some of these interests could potentially be relevant for students' future academic choices or careers.

Coding was performed by the first and second authors, and through ongoing dialogue between all authors, coding rules were improved, and doubts were resolved. The first draft of this coding showed that students mentioned almost no academically relevant interests in the fourth data wave (June 2017), which may be explained by students just finishing their exams and going on holiday. In other data waves, students were either going to secondary school or were occupied with their studies. We, therefore, decided to exclude this fourth data wave from further analyses. We eventually coded 33,230 interest-events of 124 participants (an average of 268 interest-events per student across seven data waves).

Table 5.1

Examples of coded and not coded interests

Type of interest	Coded		Not Coded	
	Interest	Explanation	Interest	Explanation
Academic Interests	Biology homework on DNA	I did my homework on DNA analysis. *I liked learning* about the different methods of DNA analysis because we haven't discussed them in class yet.	Homework	Working on a presentation for English. *It's very boring because the topic doesn't interest me.* But it has to be done because it's an important grade.
Non-academic Interests	Playing piano	Played piano before I left for school. I tried … [a new piece]. It didn't go very well, but *I'll get there.*	Louis Theroux	Watched a documentary by … Louis Theroux. He always makes very interesting and nice documentaries about interesting/crazy people. *That fascinates me very much.*
	Dancing	I danced some choreos … I think her choreographies are so cool, and *I really want to be able to do them well*	Listening to music	Listened to different songs that I like … *I enjoy the music and like singing along.*

5

Coding students' interest divergence

The coding of all interest-events led to a list of academically relevant interests for each student per data wave. Next, we needed to determine the divergence of these interests. As no existing framework or tool was found that could determine the divergence of interests between domains, we created our own framework. We wanted this framework to account for the divergence between general domains (e.g., STEM, humanities, social sciences) and for divergence within these domains, as students can be diversely interested within such a general domain (within humanities, one can, for example, distinguish history, language, literature, philosophy, religion, and media).

A classification of Dutch higher education programmes by the Central Register of Higher Education Programmes (CROHO in Dutch) was used as a starting point, given that this is a good reflection of how divergence in domains is seen in current society. A higher education programme framework was specifically chosen, as the divergence between higher education interest domains is of significance in the present study. The CROHO is a register where programmes are classified into different domains (e.g., STEM and humanities) and subdomains (STEM has the subdomains chemistry, biology, mathematics, and physics), which is kept up to date by the Dutch Ministry of Education, Culture, and Science and is based on the International Standard Classification of Education of the European Union (Inspectie van Onderwijs, 2017). We slightly altered the classification used by CROHO, excluding some overarching domains and subdomains (e.g., the domain cross-sectoral) and adding some domains and subdomains that students could pursue within a higher education institute (e.g., the domains of sports and music) that seemed to be missing. Finally, some highly similar subdomains were grouped together (e.g., general law and

private law), and subdomains had to be made mutually exclusive (e.g., chemistry was mentioned in both the STEM and technics domains). The final classification of domains and subdomains can be found in Table 5.2.

Next, we coded all the students' academically relevant interests per wave into the subdomains and domains to which they belonged (e.g., 'performing a play' is classified in the subdomain of theatre and the domain of arts). Consequently, interests that students labelled differently could end up in the same (sub)domain (e.g., 'how people learn' and 'ADHD' both belong to the subdomain psychology and the domain social sciences). We subsequently determined the divergence between interests in two ways: first, we counted the different domains students had interests in per data wave (e.g., STEM, humanities, sports, art, health). Second, we counted the different subdomains students had interests in (e.g., physics, mathematics, literature, history, sports, visual arts, medicine). Our coding resulted in two divergence scores per data wave: a domain divergence score (ranging from 0 to 11) and a subdomain divergence score (ranging from 0 to 31; see Table 5.2).

Table 5.2

Used coding classification of domains and subdomains

Domain	Subdomains
Economics	Accountancy, Finance & Business administration
	Tourism & Catering
	Communication
Social Sciences	Psychology & Education
	Political Science & Public administration
	Sociology
	Anthropology
	Geography
Health	Medicine & Veterinary
	Nursing & Coaching
Nature & Earth	Climate & Sustainability
	Nutrition
	Agriculture & Nature conservation
Natural Sciences	Biology (excluding medicine, veterinary, and ecology)
	Chemistry
	Physics
	Mathematics
Law	Law

Humanities	Languages
	Literature
	Philosophy
	Religion & Spirituality
	History
	Journalism & Media
Technics	Computers & Programming
	Engineering
Music	Music
Sports	Sports
Arts	Fashion
	Theatre
	Visual arts (e.g., painting, drawing, making movies)

Coding students' study programmes

Next, we coded whether students were enrolled in an occupational, disciplinary, or broad programme. Based on the classification of occupational and liberal education programmes of Goyette and Mullen (2006), we first coded the occupational programmes. Second, based on a list of interdisciplinary programmes (Brint et al., 2009) and a list of broad programmes on the websites of the University of Amsterdam and Utrecht University, we subsequently coded the liberal arts programmes into disciplinary and broad programmes. The list of coded occupational, disciplinary, and broad programmes can be found in Appendix 5A.

Latent class growth models

To analyse the development of interest divergence over time, we modelled two sequential latent class growth models, one based on students' interest *domain* divergence scores and one based on students' interest *subdomain* divergence scores. Latent class growth models allow one to trace the development of a variable over time using a person-centred approach and allow one to find different growth trajectories over time for different classes (i.e., in our case, differences between occupational, disciplinary, and broad programmes; Jung & Wickrama, 2008). The grouping of occupational (n= 65), disciplinary (n = 42), and broad (n= 17) programmes resulted in unbalanced and small groups. We, therefore, decided to only model the parameters necessary to answer our research question. We chose a latent class growth model in favour of a latent growth curve model, as this allowed us to constrain the variance of intercepts and slopes at zero while being able to test differences between the means of intercepts and slopes (Jung & Wickrama, 2008). As this model can still be considered underpowered, we interpret both the significance and parameter estimates in our results. Analyses were run in Mplus v8.4 (Muthén & Muthén, 1998-2017), and missing data were modelled with maximum likelihood estimation.

We chose to run a *sequential* latent class growth model, as this allowed us to separately model both an intercept and slope in the period before the transition to higher education and after this transition

instead of measuring the growth as a whole over time (Kim & Kim, 2012). The first intercept and slope were estimated on the first three data waves in which students were still enrolled in high school (October 2016, January 2017, April 2017). The second intercept and slope were estimated on the final four data waves when students were enrolled in higher education (September 2017, December 2017, March 2018, June 2018). We ran a model in which the means of intercepts and slopes were freely estimated across the three groups. We performed Wald tests on the same parameters across groups to test whether differences between groups were significant. The same steps were performed for both the interest divergence domain and interest divergence subdomain models.

RESULTS

Age and gender were compared between students enrolled in occupational, disciplinary, and broad programmes to check whether significant differences existed between the groups. No significant differences were found. Table 5.3 shows the means of interest domain and subdomain divergence per data wave per group. Assumptions of normality were met for both the domain and subdomain interest divergence models.

Table 5.3

Mean domain and subdomain interest divergence across all waves for occupational, disciplinary, and broad programme students

		Wave 1	Wave 2	Wave 3	Wave 5	Wave 6	Wave 7	Wave 8
Domain interest divergence	Occupational	4.38 (0.23)	3.93 (0.20)	3.31 (0.21)	2.89 (0.16)	2.48 (0.15)	2.66 (0.15)	2.66 (0.16)
	Disciplinary	4.15 (0.21)	3.64 (0.19)	3.03 (0.22)	2.44 (0.19)	2.69 (0.20)	2.59 (0.18)	2.18 (0.16)
	Broad	4.13 (0.42)	4.06 (0.34)	4.00 (0.45)	2.94 (0.27)	2.75 (0.35)	3.50 (0.35)	3.25 (0.47)
Subdomain interest divergence	Occupational	5.89 (0.35)	5.08 (0.31)	3.95 (0.30)	3.21 (0.19)	2.79 (0.17)	2.95 (0.18)	2.92 (0.19)
	Disciplinary	5.59 (0.35)	4.67 (0.30)	3.87 (0.31)	2.90 (0.23)	3.08 (0.21)	3.05 (0.20)	2.56 (0.19)
	Broad	6.06 (0.66)	5.56 (0.54)	5.25 (0.64)	3.88 (0.34)	3.75 (0.50)	4.31 (0.41)	3.81 (0.53)

Domain interest divergence

A sequential latent class growth model was fitted to the data. Model fit indices indicated that the model was not a good fit to the data ($X^2[72, N = 126] = 371.19$, $p = < .001$, RMSEA = 0.32, CFI = 0.00, TLI = 0.13, SRMR = 0.36). Looking at the modification indices, we decided to estimate the variance of both intercepts, thereby fitting a slightly more complex, latent growth curve model to the data, which resulted in a better model fit (see Table 5.4). No further modifications were suggested that made theoretical sense; therefore, this model was used to compare differences in parameters between the three groups.

Table 5.4

Parameter estimates and model fit of the latent growth curve model on students' domain interest divergence

|			Latent growth curve model
	Model fit	Chi-square (df)	81.73 (63)
		RMSEA	0.09
		CFI	0.94
		TLI	0.94
		SRMR	0.11
Occupational programme students	Means	Intercept SE*	4.45 (0.20)
		Slope SE	-0.53 (0.09)
		Intercept HE**	2.68 (0.14)
		Slope HE	-0.05 (0.05)
Disciplinary programme students	Means	Intercept SE	4.12 (0.19)
		Slope SE	-0.52 (0.11)
		Intercept HE	2.58 (0.17)
		Slope HE	-0.13 (0.06)
Broad programme students	Means	Intercept SE	4.17 (0.34)
		Slope SE	-0.09 (0.22)
		Intercept HE	2.89 (0.27)
		Slope HE	0.21 (0.11)

Note. * SE = Secondary Education ** HE = Higher Education

In Figure 5.1, parameter estimates found in Table 5.4 were used to plot the growth trajectories of each group separately. Looking at the figure and parameter estimates, we see that the intercept of domain interest divergence in secondary education is slightly higher for students aiming to enrol in occupational programmes than students who aim to enrol in disciplinary or broad programmes. Nonetheless, differences between the three groups were found to be non-significant, $X^2(2) = 1.54$, $p = .46$. Looking at the slope of students' domain interest divergence in secondary education, we see that the slope decreases similarly for students aiming to enrol in an occupational or disciplinary programme. In contrast, the slope seems to decrease less for students aiming to enrol in broad programmes. Differences were nevertheless non-significant, $X^2(2) = 3.40$, $p = .18$.

Comparing the intercepts of all three groups at enrolment in higher education (wave 5), we see that students' domain interest divergence is highest for students enrolled in broad programmes and lowest for students enrolled in disciplinary programmes. However, differences between the three groups appear to be small. Indeed, differences in the intercepts were found to be non-significant,

$X^2(2) = 1.54$, $p = .46$. Examining the slopes of domain interest divergence in higher education, we see that domain interest divergence decreases for students in occupational and disciplinary programmes, while it seems to increase for students enrolled in broad programmes. Differences were found to be significant, $X^2(2) = 7.33$, $p = .03$. Post hoc testing revealed no significant differences between students enrolled in occupational and disciplinary programmes, $X^2(1) = 0.92$, $p = .34$, while significant differences were found between students enrolled in occupational and broad programmes, $X^2(1) = 4.72$, $p = .03$, and between students enrolled in disciplinary and broad programmes, $X^2(1) = 7.33$, $p = <.01$.

Figure 5.1. *Plots of students' interest domain divergence growth trajectories*
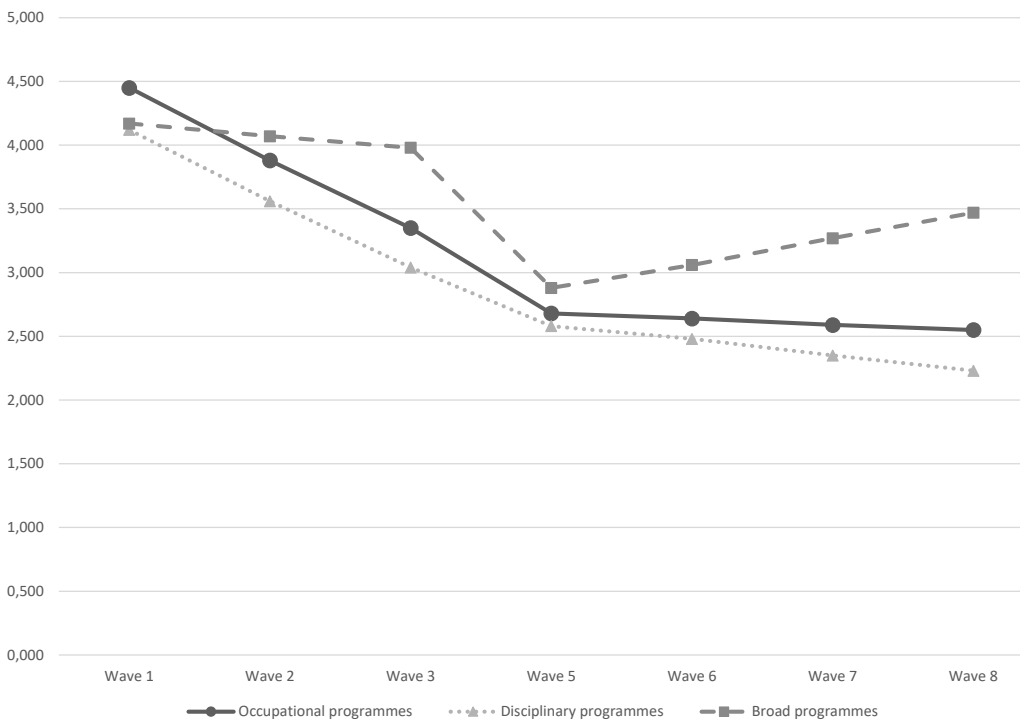
Subdomain interest divergence

A sequential latent class growth model was fitted to the data. Model fit indices indicated that the model was not a good fit to the data ($X^2[72, N = 126] = 368.36$, $p = < .001$, RMSEA = 0.32, CFI = 0.01, TLI = 0.13, SRMR = 0.35). Freeing up the variance of both intercepts, thereby fitting a latent growth curve model to the data, resulted in an acceptable model fit (see Table 5.5).

Table 5.5

Parameter estimates and model fit of the latent growth curve model on students' subdomain interest divergence

|			Latent growth curve model
Model fit		Chi-square (df)	69.24 (63)
		RMSEA	0.05
		CFI	0.98
		TLI	0.98
		SRMR	0.09
Occupational programme students	Means	Intercept SE*	6.01 (0.30)
		Slope SE	-0.93 (0.12)
		Intercept HE**	3.01 (0.16)
		Slope HE	-0.07 (0.06)
Disciplinary programme students	Means	Intercept SE	5.53 (0.31)
		Slope SE	-0.83 (0.17)
		Intercept HE	3.03 (0.19)
		Slope HE	-0.15 (0.08)
Broad programme students	Means	Intercept SE	6.03 (0.53)
		Slope SE	-0.43 (0.32)
		Intercept HE	3.85 (0.35)
		Slope HE	0.10 (0.14)

Note. * SE = Secondary Education ** HE = Higher Education

Parameter estimates of this model can be found in Table 5.5, while we also plotted the model in Figure 5.2. Considering the subdomain interest divergence intercept in secondary education, one can see that initial interest divergence is similar for students aiming to enrol in occupational and broad programmes, while students aiming to enrol in disciplinary programmes seem to have less diverse interests in subdomains. Differences between the groups were nonetheless non-significant, $X^2(2) = 1.47$, $p = .48$. Looking at the slope estimates in secondary education, we see that subdomain interest divergence seems to decrease greatly for students aiming to enrol in occupational and disciplinary programmes. In contrast, interest divergence seems to decrease less for students aiming to enrol in broad programmes. Differences were, however, non-significant, $X^2(2) = 2.18$, $p = .34$.

Examining the intercepts of subdomain interest divergence at the start of higher education (wave 5), we see that students enrolled in broad programmes seem to have more divergent interests than students enrolled in occupational or disciplinary programmes. Differences appeared to be non-significant in the overall Wald test, $X^2(2) = 5.05$, $p = .08$. However, because of unequal

group sizes and highly similar intercepts for students enrolled in occupational and disciplinary programmes, we found significant differences between the three groups in post hoc tests. Significant differences were found between the intercepts of students enrolled in occupational and broad programmes, $X^2(1) = 4.77$, $p = .03$, and between the intercepts of students enrolled in disciplinary and broad programmes, $X^2(1) = 4.20$, $p = .04$. Reviewing the slopes of subdomain interest divergence in higher education, we see that interest divergence decreases slightly for students enrolled in occupational and disciplinary programmes, while it slightly increases for students enrolled in broad programmes. Differences were, however, non-significant, $X^2(2) = 2.41$, $p = .30$.

Figure 5.2. *Plots of students' interest subdomain divergence growth trajectories*
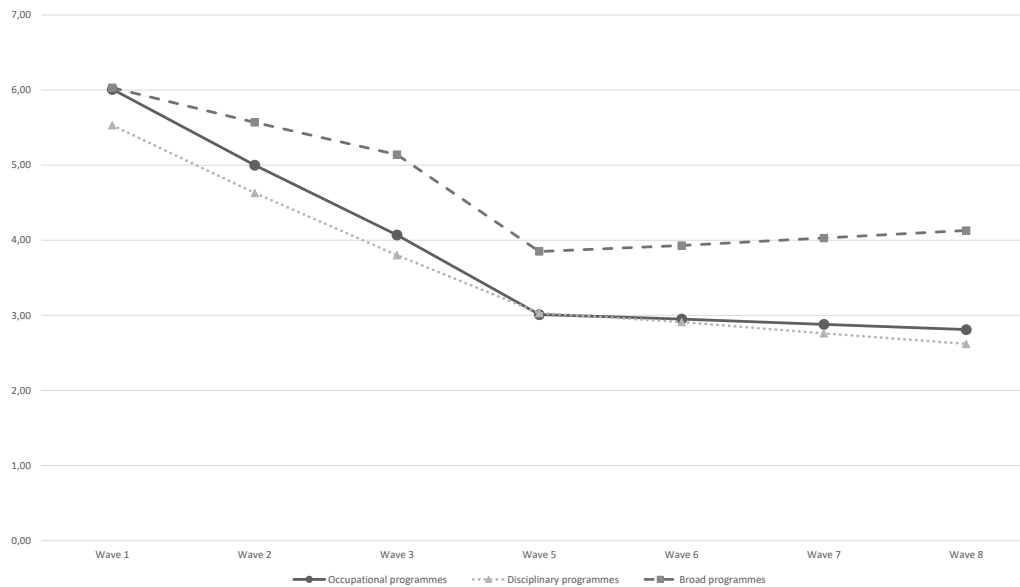
DISCUSSION

The present study examined interest divergence development before and after enrolment in higher education and whether students who chose to enrol in occupational, disciplinary, or broad programmes differed in their interest divergence over time. No differences were found in interest divergence across the three groups before enrolment. At the moment of enrolment, we found that students enrolled in broad programmes had significantly more divergent interests in terms of subdomains but not in terms of domains compared to students enrolled in occupational and disciplinary programmes. In contrast, we found that students enrolled in broad programmes developed significantly more divergent interests over time after enrolment, in terms of domains but not in terms of subdomains, compared to students enrolled in occupational and disciplinary programmes.

No differences were found in students' interest domain and subdomain divergence across the three groups at the start of their final year in secondary education or in how interest divergence subsequently developed over time in secondary education. However, we expected that the scope of students' prospective programmes would already provide students in secondary education with different opportunities to develop more or less diverging interests. Vulperhorst et al. (2020) have shown that students' interests change in secondary education based on the programmes they consider pursuing in the future. We nonetheless found no support for this expectation.

Notably, we found that interest divergence decreased similarly across all groups in students' final year of secondary education. This trend may be explained by students increasingly focusing on the domains and subdomains that are relevant for them in a future academic context the closer they get to the transition, instead of focusing on all academically relevant interests they can pursue in and outside of secondary education in their daily lives (Holmegaard, 2015; Vulperhorst et al., 2020). This means that students lose at least some of their academic interests in the process of choosing a higher education programme, as not all of their interests can be combined, even when choosing and transitioning to a higher education programme with the widest scope.

Furthermore, we found that students enrolled in broad programmes are, at the start of their programmes, more interested in diverse subdomains *within* one domain (e.g., accountancy, tourism, and communication) than students enrolled in occupational or disciplinary programmes; however, they are not more interested in subdomains *across* different domains (e.g., languages, visual arts, sports). Due to the wide scope of broad programmes, we expected that students in broad programmes would also be more interested in subdomains across different domains. This finding may be explained by the nature of some broad programmes and how broad programmes may present themselves to students. At least at first glance, multiple broad programmes seem to focus only on combining multiple subdomains within one domain (e.g., Interdisciplinary Social Science, Science Studies). Moreover, students may come to focus on subdomains within one domain, when a single domain is strongly favoured in advertisement of the programme or in the very first weeks (e.g., focus on Science in Liberal Arts & Sciences; see Akkerman, 2017). The significant differences in students' subdomain interest divergence across the three groups do, however, suggest that students enrolled in a specialised or broad programme have a different interest profile at enrolment. Students may already have these different interest profiles upfront and purposefully enrol in a specialised programme because they wish to focus on one subdomain (e.g., psychology) or in a broad programme to combine multiple subdomains within a domain (e.g., psychology, sociology, political studies). One may also argue, as no differences were found across the three groups in students' interest divergence before enrolment, that the different interest profiles are created in the transition to a broad or specialised programme. A transition to a new programme with new contexts, peers, teachers, rituals, and rules may directly impact students' interests in the first days or weeks of higher education (Akkerman & Bakker, 2019; Gregersen et al., 2021).

Finally, we found that interest domain divergence increased over time, as expected for students enrolled in broad programmes, while interest domain divergence decreased over time, as

expected for students enrolled in occupational or disciplinary programmes. As no differences in students' subdomain interest divergence were found over time across the three groups after enrolment, our findings suggest that students enrolled in broad programmes replace some of their interests *within* the same domain for interests *across* domains (e.g., instead of being interested in languages, philosophy, and history, students become interested in languages, mathematics, and political studies). The opposite holds for students enrolled in occupational or disciplinary programmes: they may replace some of their interests in subdomains *across* domains for interests in subdomains *within* the same domain. We thereby provide the first evidence in support of the arguments made by scholars and educational professionals that the scope of higher education programmes provides space for students to develop interests within or across domains (see Brint et al., 2005; Godwin & Altbach, 2016; Goyette & Mullen, 2006). Broad programmes expose students to diverse subject areas, even more than students might expect upfront, which allows them to develop parallel interests across domains. Specialised programmes seem to support students in generating more nuanced interests within one or several domains due to their focused curriculum. Altogether, these findings support arguments on how higher education can both align with interests of and generate new interests in students (Akkerman, 2017; Dewey, 1913).

Limitations & future research

This study comes with some limitations and related suggestions for future research. First, although our intensive and extensive measurement of students' interests can be considered a strength, as this allowed us to take into account *all* academically relevant interests, traditionally labelled school and non-school interests alike, it also led to a relatively small sample size for a multiple group latent growth curve model. Moreover, students were unequally distributed across the three groups. The small and unequal sample size across groups may have led to underpowered models in which differences between the three groups would have been hard to detect (Chen, 2007).

Although future research in a similar fashion on a larger scale is time-consuming and may not be as feasible (e.g., the present study required the coding of more than 33,000 interest events), we encourage scholars to set up similar studies to validate our findings in various contexts. Future research may follow larger cohorts of secondary school students over an extended period of time, potentially measuring interests less extensively over time (e.g., with the help of questionnaires). Some interests may be more passively pursued by students, as specific affordances or habits in contexts support the pursuance of these interests (Akkerman & Bakker, 2019; Draijer et al., 2020; Slot, Vulperhorst, et al., 2020). Although they may be important to students and their considerations for the future, such interests can be overlooked when using methods that solely rely on self-identified academically relevant interests. Future research may also use similar research methods but start studying different groups of students at the start of higher education. Although the development of academically relevant interests before higher education is lost, researchers may ensure equal sample sizes between students enrolled in occupational, disciplinary, and broad programmes.

Second, our findings pertain to students in the Dutch higher education context. In the Netherlands, as in many other European countries, students need to decide on a specific programme before

enrolment. In other educational systems (e.g., the United States), students are enrolled in liberal arts programmes in a specific college and can declare a major later on in their studies (Van der Wende, 2011). It can be expected that these higher education systems impact interest development differently over time. It would be valuable to conduct future research that compares students' interest development in higher education programmes across different educational systems to obtain even more detailed insight into how the scope of programmes may provide space for students to develop their interests in different directions.

Practical implications

As mentioned above, our results suggest that both broad and specialised programmes seem to play out in ways educational professionals have previously assumed they do. Broad programmes allow students to maintain and develop interests in multiple domains (Brint et al., 2009; Spelt et al., 2009), enabling them to become broadly deployable professionals. Specialised programmes support students in focusing on interests in one or several domains, enabling them to become specialists in their respective fields (Brint et al., 2005; Goyette & Mullen, 2006). Knowing this impact, institutions should be aware of the scope of their programmes and continuously consider how existing curricula align with what they aspire to offer, what students expect, and what developments in the labour market and societal needs ask for.

Moreover, it is important that students be actively involved in this continuous evaluation of the scope of a programme, as *students'* interests and later careers are dependent on the space provided in their programme. This asks programmes to explicitly create a dialogue between staff members and students to talk about whether a programme focuses on a single or multiple domains and how much space the programme allows for electives across or within domains. Not only will this allow students to have a voice in creating the space that is available in the programme to develop their interests, but this ongoing dialogue may also help them form realistic expectations of which interests can and cannot be pursued in the programme. Finally, this dialogue may also bring important implicit norms of the programme to light that may prevent students from using the full space available to develop their interests. Students are aware of the implicit dominant norms in higher education (see Ulriksen, 2009), where often specific domains are favoured and try to comply with these norms. This may imply, for example, that students pursuing a specific broad programme may actually develop interests mainly in one domain instead of the intended multiple domains. By discussing the programme's intended scope, implicit norms may be made explicit and subsequently can be questioned and negotiated by students and staff to create explicit norms more in line with the programme's scope.

5

Appendix Table 5A

Coded occupational, small, and broad programmes

Occupational education	Disciplinary programmes	Broad programmes
Law	Biology	Artificial Intelligence
Psychology/Pedagogy	Chemistry	Interdisciplinary Social Sciences
Education	Physics	Arts & Culture
Therapy (e.g. speech, physical)	Astronomy	American Studies
Business	Mathematics	International Studies
Medicine	Kinesiology	International Relations & Communication studies
Nursing programmes	Health Sciences	Global Sustainability Science
Veterinary sciences	Language programmes	Environmental Sciences
Biomedical Technology	Literature	Biopsychology
Laboratory Technician	Art History	University College
Art programmes (e.g. illustrator, movie)	History	Liberal Arts & Sciences
Design programmes	Media Sciences	
Engineering programmes	Political Sciences	
Architecture	Criminology	
Computer Science	Security Studies	
	Sociology	
	Geography	
	Spatial planning	
	Anthropology	

6

SUMMARY OF RESULTS
AND DISCUSSION

The present thesis was focused on exploring students' interest development from a person-object-contexts perspective before, during and after they make a higher education programme choice. First, I aimed to provide more insight into interest sustainment before students' higher education programme choice. Second, I aimed to illustrate how students weigh their sustained interests to come to a choice for a higher education programme. Third, I aimed to show whether and how higher education programmes provide space to students to develop their interests in. I thereby intended to provide more detailed insight into how interests develop during educational transitions and how students make an interest-based choice for a higher education programme over time. As a third of the students drop out of their higher education programme in their first year (Ulriksen et al., 2010), and most students do so because another programme seems to be more interesting than the one they enrolled in (Malgwi et al., 2005), such insight is needed. Interest development and students' higher education programme choice process were studied through interviews and a longitudinal, experience sampling method (ESM), which allowed interest development to be monitored simultaneously on a microgenetic (moment-to-moment) and ontogenetic (over the course of two years) scale.

This discussion chapter starts with a summary of the four preceding chapters, after which I discuss and synthesize findings across these chapters to provide insight into students' interest development, students' choice for a higher education programme, and how students' interests develop in and through the higher education programme they have enrolled in. I conclude the chapter by discussing limitations and suggestions for further research.

Summary of results
Chapter 2: Mechanisms for interest sustainment

In this chapter, I studied students' interest sustainment mechanisms before they made a higher education programme choice. Interest sustainment is often solely attributed to the individual's situational or personal preference for an object of interest; interest develops if an individual identifies with an object of interest or if a goal can be reached through interest pursuance (e.g. Hidi & Renninger, 2006). Recent socio-cultural and ecological research has nonetheless illustrated how practices and routines of the individual can also mediate and contribute to sustainment of interests (e.g. Akkerman & Bakker, 2019).

Taking a person-centred perspective on how students experience their interests from moment-to-moment (as suggested by Prenzel, 1992), one can see in more detail how interest develops throughout one's daily life and contexts of participation. To realize a more detailed moment-to-moment investigation, ESM was used in the current study. We studied the 8281 interest experiences of 334 sustained interests of 56 students.

Six interest sustainment mechanisms were found. First, students sustained interest by *setting goals* related to that interest (e.g. 'I want to become a better dancer'). Second, students sustained interests through *biographical identification* with their interests (e.g. 'I have always liked video games'). The other found mechanisms went beyond the active role of the individual in sustaining

interest, as context- and object- characteristics contributed to interest sustainment. Third, interests were sustained through students' *progress valuation*, when students recurringly valued the learning opportunities with the object of interest in each situation (e.g. a student recurringly mentioning: 'I learned new things in Biology class today'). Fourth, sustainment resided in students' *chronotopical captivation*: students' continuous curiosity in the evolution of a storyline (e.g. 'I want to know how this book/series end'). Fifth, sustainment lay in students' *engagement appreciation*: students recurringly indicating to like engaging with their interest in the moment (e.g. students repeatedly mentioning: 'I like listening to music'). Sixth, sustainment resided in students' *substantive participation*, in which a sizeable practice provides a manifold of opportunities to students to experience interest (e.g. school).

Interests were often sustained through multiple mechanisms and specific mechanisms were foregrounded in students' interest experiences depending on the situation at hand. Over time, mechanisms could become more or less pronounced in students' interest experiences, such that new mechanisms could arise, and old mechanisms could cease to sustain a particular interest.

This chapter has shown that a students' goal setting as well as identification with an object are important for understanding interest sustainment, but that students' practices and routines also contribute to interest sustainment in various ways. Interest sustainment thereby cannot be completely understood and explained by the active role of the individual alone.

Chapter 3: Unravelling students' interest-based higher education programme choice process

This chapter provided more detailed insight into how students make an interest-based choice for a higher education programme. Research has argued recently that students make a choice for a higher education programme based on their multiple interests (e.g. Holmegaard, 2015), but it remains unclear how students weigh their conflicting interests over time to come to a decision. To make sense of the upcoming transition to higher education, students start reasoning from an *interest-to-programme* perspective, in which students' most important interests *feed forward* to which programmes they consider pursuing. At the same time, students start reasoning from a *programme-to-interest* perspective, in which programmes *feed back* on how interests can be realistically pursued in their future. To find a suitable programme, students have to attune both perspectives, but how they do so over time remains unclear. This chapter was therefore focused on students' doubts and considerations for pursuing specific interests in a specific programme over time. Moreover, it was studied in what ways feed back of programmes on interests could lead to changes in the interests students considered to pursue in their future.

Interviews with 20 pre-university students were held in their final year of secondary education to identify their considerations for pursuing specific interests in programmes and to track changes in their reasoning of considered programmes and interests.

Four considerations for pursuing or not pursuing interests in a programme were found. First, students considered, from an interest-to-programme perspective, which interests held academic

potential. Academic potential of an interest was not directly related to traditionally labelled academic (e.g. mathematics) and non-academic interests (e.g. painting), as students themselves made sense of which interests could be possibly pursued in their academic future and which not. Second, students considered, again from an interest-to-programme perspective, which interests were most important to them. Students tried to pursue as many interests as possible by merging interests, pursuing interests in parallel contexts (e.g. study and hobby club), and even by considering which interest-related engagements they could most easily pick up after they completed their studies. Third, from a programme-to-interest perspective, students considered how their important interests attuned to specific programmes, to see whether the pursuance of interests was realistically possible. Finally, from both an interest-to-programme and programme-to-interest perspective, students considered the balance between spending time on interests in the programme and interests outside of the programme. Over time, students came back to these considerations time and again, as their interests continuously developed and new programmes could change their considerations.

Students oftentimes changed the interests they wished to pursue over time through feed back of the programmes. First, students could realize that the programme was more broad than what they were interested in, which could lead students to pursue another interest in another programme (e.g. 'I like economics, but in an economics programme I have to engage in mathematics as well, which is why I do not consider pursuing economics anymore'). Second, students could realize that pursuing specific interests in an academic programme was unlikely, as they did not meet requirements of the programme or they had to go through a strict selection to get in. Third, future job perspectives, as extension of the programme they considered, could feed back on students' interests: students could disregard pursuing specific interests if a future job in this area was highly unlikely. Finally, students could realize new interests or specify existing interests through exploration of the programme (e.g. 'through my exploration of the Biology programme I realized I was interested in diseases rather than biology as a whole').

These results imply that interests develop in a less stable manner then assumed for late adolescents (e.g. Low et al., 2005) and that, in periods of upcoming transition, interest can change more radically (e.g. be disregarded, reconceptualized, or specified) in light of future contexts they consider to participate in. Moreover, these results imply that the higher education programme choice process cannot be seen as a linear process in which students search for an optimal 'fit' between possible programmes and stable and existing interests (e.g. Porter & Umbach, 2006), but rather should be seen as an iterative process in which students constantly reconsider themselves and their interests in relation to programmes as potential future contexts of participation.

Chapter 4: Mechanisms underlying students' switches in commitment when making a higher education programme choice

This chapter provided insight into why students switched in their commitment from one programme to another when making a higher education programme choice. Students are said to commit to a programme (i.e. they explicitly intend to enrol in that specific programme) when they find a programme that allows them to pursue their most important interests (e.g.

Germeijs & Verschueren, 2006). Nonetheless, students can decide to break their commitment to a programme. Although research has acknowledged students can switch in their commitment from one programme to the next, so far, no studies clarified the processes underlying students' switches.

Interviews with 18 pre-university students at the end of their final year were held to see whether and why students switched in their commitment from one programme to another. Thematic analysis was applied that allowed us to identify two commitment switching mechanisms. During the analysis, it was also found that students could explicitly hold on to a programme they were committed to, even though students voiced doubts about pursuing this programme. This resulted in the identification of two commitment preservation mechanisms.

The first commitment switching mechanism that we found was the *optimalisation mechanism*. After committing to a programme, students kept evaluating new programmes based on their interests to see whether the programme they were committed to attuned the most to their interests, or if another programme attuned even better to their interests. If they realized another programme attuned better to their interests, students could make a switch in their commitment. Second, the *discontinuation mechanism* was found. Students could realize that the programme they were committed to was not as well attuned to their interests as they previously thought. Through extended exploration of the programme students could realize that the programme did not attune that well to their interests or, as students' interests were constantly developing, students could realize the programme did not attune to the interests they now considered to pursue in a programme. Consequently, students could switch in commitment.

The first commitment preservation mechanism that we found was the *self-fixation mechanism*. Students could be eager to pursue specific interests in a specific programme and could create a set narrative why they would do so. Students subsequently ignored or downplayed any information contradicting this narrative. We also noticed how students could disregard notable development and increased importance of interests in other domains, as if students did not entirely oversee the emerging lines in their own development. Second, we found a *social confirmation mechanism* for some students. In these cases, students stayed committed to a programme referring to and following arguments of significant others who said they were convinced about a particular programme as the best and most logical choice for them. It appeared that students struggled in their narration if they considered to switch, as if they searched how to convince these significant others about the way a certain alternative would be better for them.

We concluded from these findings that students' higher education choice process may continue well after first committing to a programme to evaluate on basis of all kinds of daily life experiences and conversations with others whether their programme choice makes sense in relation to their developing interests (e.g. Taylor & Harris-Evans, 2018). Students thereby continuously search to create a narrative to make sense of the choice they are going to make (Holmegaard, Ulriksen, et al., 2015). Once a narrative crystallizes, this narrative may also prevent students from changing their mind, as students find it difficult to get rid of reasons, they, or significant others, have once

6

formulated for pursuing a specific programme. These findings moreover highlight that students search and are asked by close social others to make 'the right choice' (see also Brunila et al., 2011). One may wonder whether we could reduce the pressure on students to rationalize their possible choices by emphasizing the dynamic and ongoing nature of making choices.

Chapter 5: Interest divergence development for students enrolled in broad and specialised higher education programmes

In this chapter, students' interest development in their final year of secondary education and their first year in higher education was studied. Students that chose a specialised (occupational or disciplinary programme) or broad higher education programme were compared to see whether groups showed differences in their interest development over time. That students develop more divergent interests (e.g. interests across more domains) in a broad programme, in a broad programme, while students develop more convergent interests in occupational and disciplinary programmes is often assumed in debates revolving around the value of broad versus specialised programmes. If we however acknowledge that interests develop in parallel and throughout many different contexts of participation, we cannot assume such direct impact. As illustrated in Chapter 2, persons are never only students and participants of programmes, and parallel interests and contexts may allow for or hamper students' interest development. Moreover, students may have different histories and different ideas for the future even with similar, shared interests. Consequently, one cannot assume students' interests to develop similarly solely based on that they enrol in the same programmes. To empirically test the assumption that students' interest divergence develops differently across broad and specialised higher education programmes, I studied how students' interest divergence developed over time for students enrolled in broad, disciplinary, and occupational programmes.

A longitudinal ESM method was applied in three data waves before students' transition to higher education and four data waves after their transition. We studied the 33,230 interest experiences of 124 participants to determine the divergence between different interest domains (e.g. STEM, Social Sciences, Humanities, Arts) and between subdomains (e.g. within STEM we can distinguish between Mathematics, Physics, Chemistry, and Biology). We fitted a separate multiple group, sequential latent growth curve model for students' interest domain and subdomain divergence scores.

Results showed that students who were going to enrol in an occupational, disciplinary, or broad programme did not differ in their interest divergence *before* transition to a higher education programme. At the *moment of transition* to higher education a difference in subdomain interest divergence was found, but not in domain interest divergence. Students in broad programmes combined more subdomains within one domain than students in an occupational or disciplinary programme. *After the transition* to higher education a difference was found in how interest domain divergence developed over time, but not in how interest subdomain divergence developed over time. Students enrolled in broad programmes substituted interests in subdomains *within* a single domain for interests in subdomains *across* domains (e.g. from being interested in history, literature, and philosophy to being interested in history, psychology, and biology), while students enrolled in occupational or disciplinary programmes replaced interests in subdomains *across* domains for

interests in subdomains *within* the same domain.

These results provide, to our knowledge, the first empirical evidence that students enrolled in broad programmes use the space provided by these programmes to develop more divergent interests after enrolment, while students enrolled in occupational or disciplinary programmes use the focused curricula of these programmes to develop more convergent interests over time. As almost no differences were found in students' interest divergence up to students' transition to higher education, our results suggest that educational programmes can encourage students to develop more divergent or convergent interests by incorporating more or less different subject areas. Acknowledging the impact of the scope of their curricula on students' interest development, programmes should be explicitly aware of the diversity in subject areas they offer to students.

Interest development throughout daily life

In this thesis, I have empirically demonstrated that interests develop through a confluence of personal preferences, available objects of interests and the characteristics of these objects, and opportunities to act and engage in such objects in and throughout various contexts of participation. I thereby have shown the value of a person-object-contexts perspective to understand students' interest development in more detail (see Akkerman & Bakker, 2019) and subscribe to arguments that interests develop from moment-to-moment in het *fullness of life* (see Hedges, 2019): interests develop through the lived experiences of students in their daily life.

These findings not only imply that future research and interest development models should define interest as a person-object-context construct instead of a person-object construct separate from its environment, but also call into question whether situational interest and individual interest are the best terms to respectively indicate newly developed and sustained interests. I found that interests were often not solely sustained by the individual, but remains closely interrelated with the object and context (see Chapter 2). Furthermore, recent research has confirmed that newly developed interests can be triggered by students' goals for the future or through other sustained interests (Knogler, 2017).

That interests develop throughout students' daily life implies that interest development is idiosyncratic and consequently difficult to predict (see Chapter 2; Akkerman & Bakker, 2019). Nonetheless, this does not imply that research can only show interest development to be unpredictable and dynamic. Research can focus on understanding interest development in all its complexity, through searching for patterns in how interests develop in and over the different contexts students participate in daily life. The studies in this thesis are all examples of how one can search for patterns in students' interest development. In Chapter 5 I even demonstrated that education, as already stated a long time ago by Dewey (1913), admittedly cannot impose what specific objects students become interested in, but can create the scope of subject areas for students to explore and develop interests in (see also Akkerman, 2017).

Interest development during the higher education programme choice

Research has shown and has often assumed that students' interests crystallize throughout

adolescence and that interests become more and more stable, regardless of educational transitions (e.g. Low et al., 2005). I have shown in this thesis that interests are not that stable and can develop suddenly, *especially* in periods of upcoming transition. Upcoming transitions encourage people to become more reflective and may give them the opportunity to redefine themselves and their interests (Bruner, 1990).

More specifically, I have shown that students' interests not only develop throughout their lived experiences in daily live when making a higher education programme choice, but their interests also develop by explicitly contrasting and weighing these interests in relation to one another and through feed back of future programmes to determine what subsequent academic direction to pursue in their future (see Chapter 3). Since the interests students want to pursue in their future do not attune directly to how these interests can be realistically pursued in programmes, students go through multiple cycles of attuning interests and programmes (see Chapter 3 and 4). Consequently, students interests may rapidly develop or be disregarded.

In this process of attunement, I found that students often disregard or synthesize interests to come to a higher education programme choice, highlighting even more why interests may develop suddenly during this process. In Chapter 5 I found that interest divergence decreased for *all* students during their final year in secondary education. As no difference in interest divergence development was found between students that aimed to enrol in a specialised or broad programme, this suggests that even students that aim to enrol in a broad programme cannot combine all of their important interests in a programme.

Redefining students' higher education programme choice process

The finding that students attune interests and programmes in an iterative manner over time to come to a decision for a higher education programme has implications for how one can conceptualize the programme choice process. Higher education programme choice cannot be seen as a linear phase model in which students become increasingly sure about the programme they aim to enrol in, as has been claimed in the literature (e.g. Cabrera & La Nasa, 2000). Studies have already claimed that students do consider programmes iteratively over time, as well as argued how students can make a switch in their commitment to other programmes over time (e.g. Germeijs & Verschueren, 2006). These studies however did not yet reckon that students' interests may themselves develop iteratively and in tandem with future considerations. In light of the programmes that students explore, they may for example discover more specified, broader, or still unknown areas of interest, and accordingly redefine, revalue, categorize or prioritize their existing interests differently.

This iterative process of attuning interests and programmes cannot be considered to be a rational process of weighing pros and cons of separate criteria, as often assumed by higher education programme choice theories that do take into account that students' considered interests and programmes may change over time (e.g. the expectancy-value theory by Eccles & Wigfield, 2002). Studies in accordance with these models oftentimes focus on identifying the most important criteria in student' higher education programme choice process (e.g. Mikkonen et al., 2009).

I nonetheless found that students always contrasted criteria to one another (e.g. 'I am more interested in Mathematics than in History', 'I am more skilled in drawing than in music') to make situated inferences of which programme they liked best (see Chapter 3). Future research could therefore focus less on the relative importance of separate criteria and instead should focus more on the personal, situated, and multifaceted considerations underlying students' reasoning, to understand in more detail how students come to a higher education programme choice over time.

Guiding students in their higher education programme choice process

Practically, counsellors need to be made aware of the dynamic nature of the programme choice process in which students' interests and programmes may be reconsidered over time so as to avoid forcing conclusions and improve their ongoing guidance to students. First, one may question the use of career interest tests, that oftentimes are used as starting point in guiding students through the programme choice process (Holland et al., 1981). Not only do these tests assume students to be *stably* interested in domains or objects over time, but these tests also assume one can capture students' interests in predefined domains. In Chapter 3 I have demonstrated that students are often more specifically interested than and may cross-cut predefined domains (e.g. a student interested in designing video games is interested in a part of both the domains of programming and designing), and that students search for a programme that allows to pursue such specific and combined interest areas.

Second, reflection on students' interests and considered programmes can be stimulated more throughout students' higher education programme choice process. Counsellors can help students reflect through encouraging students to talk about their continuing choice process with others (e.g. peers and parents) and give students reflection exercises to look back on why they considered pursuing specific interests and programmes over time. It is thereby important for counsellors to highlight that it is all right if students do not know yet what interests or programmes they would like to pursue in their future, and that the exercises are simply intended to start or continue thinking about their future programme choice. For example, students can fill out a time line of their higher education choice process at home with specific prompts to consider which interests and programmes they considered over time to become aware of the various reasons why they considered these interests and programmes and not others (similar to the time line used in Chapter 4). Afterwards, they can talk their timeline through with peers and the counsellor. The four considerations found in Chapter 3 can be used as a guideline for the conversations and can help students to fill out their timeline even more and can point out important interests not yet considered or interest-related programmes they may wish to explore. This reflection on their higher education choice process can lead students to become more aware of the various interests they want to pursue over time and which programmes allow them to develop these interests further in their future. Students that have more insight into their own choice process have been found to have more realistic expectations of the programme they enrol in, and have a smaller chance of drop out from the programme once enrolled (Holmegaard, Madsen, et al., 2015).

Third, even after students have made a provisional choice for a higher education programme, they would benefit from support and opportunities to reflect upon their provisional choice.

6

In Chapter 4 I found that after commitment to a higher education programme, students kept searching for programmes that, in their eyes, would lead them to make an even better choice. Counsellors can lend support and can possibly reduce the pressure of needing to make 'the best programme choice' by explaining to students that they can still make decisions for their future after enrolment, as most higher education programmes allow them to create a part of the curriculum themselves. In Chapter 4 I also found that students can create dominant narratives that are resistant to change: they can keep being committed to a programme and not recognize that the programme may not attune that well to their interests as they previously thought. By encouraging students to keep reflecting on their interests and continue exploring other programmes, counsellors may help students to create other possible narratives. Counsellors thereby have the difficult task of encouraging students to keep reflecting on themselves and their future, while simultaneously reducing pressure on students to find the 'best programme'.

Based on this thesis, one may also provide recommendations for policy on how students can be guided during the higher education programme choice process. In Dutch context, a law has been introduced in 2013 that obliges higher education institutes to provide, just before enrolment, an activity for students called matching to check whether they fit with the programme they aim to enrol in (see Mittendorff et al., 2017; Soppe et al., 2019). In theory, matching allows students to make a more sound higher education programme choice. When students are nonetheless already committed and provisionally enrolled in a programme and when they cannot transfer easily to another programme after the matching, one may question whether the matching in its current form contributes to their higher education programme choice process. Students may want to preserve commitment just before enrolment and consequently may play down contradicting information (see Chapter 4). In line with this argument, I found that no students made a switch in their commitment after the formal registration date (see Chapter 4), afterwards which matching takes place. Moreover, others have shown that students question the timing of the matching, stating they already have made their choice for a programme at the moment of matching (Mittendorff et al., 2017). Instead of the matching, higher education institutes and counsellors can encourage students to participate in *earlier* and *more extensive* activities that allow students to explore and gain insight into their interests and future programmes. Student for a day activities, in which students get to know programmes intimately *before* they have to make a final choice, seem to encourage reflection on how considered interests and programmes attune (see Chapter 3 and 4). Moreover, transition programmes from secondary education to higher education may allow students extensive room to get to know different programmes and explore different areas of interest (see Draijer et al., 2017).

Broad and specialised programmes impact students' interest development

Chapter 3 has shown that the scope of a higher education programme already matters for students' interest development when they are trying to decide on a programme. Students can realize that through broad programmes they can combine more of their valued interests than previously thought. Other students can be put off by broad programmes as they can realize they are not interested in all the content and consequently orient on specialised programmes they associate with specific interests. I therefore argued that higher education programmes can attract

students with a different interest profile depending on how educators present them to students. Programmes can be presented as having either a more broad or more specialised curriculum, which is likely to respectively attract students with more diverging versus more converging interest profiles.

Chapter 5 nonetheless showed that students that chose to pursue a broad or specialised programme did not differ in their interest divergence development in their last year of secondary education, suggesting that students do not have notable different interest profiles in terms of interest divergence before enrolment. Admittedly, we found small differences in interest divergence at the moment of enrolment, but only so for students in broad programmes who were more inclined than students in specialised programmes to pursue interests in subdomains *within* one domain (e.g. psychology, sociology, anthropology). Contrary to our expectations, we did not find that students in broad programmes reported to pursue more interests *across* domains (e.g. mathematics, arts, anthropology) than students in specialised programmes.

Future research is needed to provide more insight into whether broad and specialised programmes attract students with a different interest profile. Research can specifically study the divergence of interests that students try to combine only *within* the context of the programme at the moment of enrolment, as we focused in the present thesis on how all academically relevant interests were pursued across all contexts and not just in the programme.

Differences were found in students' interest divergence development between students enrolled in broad and specialised programmes, *after* transition to their higher education programme. Chapter 5 illustrated that students in broad programmes developed more divergent interests over time in higher education, while students in specialised programmes developed more convergent interests over time. Higher education programmes can thereby purposefully expose students to multiple subject areas if they want them to become broadly interested professionals, or expose students to a single subject area if they want them to become specialised professionals.

6

Balancing the proportion of broad and specialised higher education programmes

As both broadly interested professionals as well as specialists are needed to solve complex societal issues, one may question whether the current ratio of broad and specialised programmes offered by higher education institutes is desirable. In Chapter 5 I noticed that only 17 of the 124 students chose to pursue a broad higher education programme. A search throughout the programmes offered by Dutch universities showed that this was no coincidence: approximately 15 per cent of the programmes offered by Dutch universities can be seen as broad, while 85 per cent of the offered programmes can be characterized as specialised. One may question whether this proportion of broad and specialised programmes offered is desirable from both a student and societal perspective.

If one wishes to provide more of an equilibrium between broad and specialised programmes, solutions can be sought in broadening the curriculum of already existing specialised programmes, to prevent a proliferation of higher education programmes (van der Zwaan, 2016). Programmes

can integrate different subject areas in their curriculum and provide more room for electives across various subject areas, provided that combining these subject areas makes sense for students' professional development. If students are free to create more of their own curriculum across different subject areas, it is important that programmes explicitly stimulate students to combine subjects across different domains. If programmes still have implicit norms that a specific pathway within one domain is most desirable, students will be less inclined to use the space in programmes to create a broad curriculum for themselves (see Ulriksen, 2009).

Limitations and future research

Using ESM to measure students' developing interests over time can be considered a strength of this thesis, as this allowed tracing interests from moment-to-moment so as to provide more detailed insight into students' interest development as they experience it (Slot, 2020). Nonetheless, applying this method is not without limitations. The opportunity for students to create situated interest labels made it possible to overlook more easily the connections between labels referring to the same objects of interests. At the start of each data wave, students were asked to label all interests they had, and no previously used interest labels were given to students, as interests could develop or cease to exist. In this thesis, I studied the sustainment of the same interest object over time (Chapter 2) and which academically relevant interests were sustained over time (Chapter 5). Consequently, I had to interpret students' interest labels and decide whether different interest labels reflected the same or a different object. Often labels belonging to the same interest object were similarly formulated (e.g. videogames and gaming), but sometimes different labels were given that could potentially reflect the same or at least overlapping interests (e.g. dancing and watching dance movies). By looking at the descriptions of what students were doing when engaging with their interest and what they found interesting in that moment, I compared similar interest labels to see whether experiences of interests were comparable, and therefore belonging to the same interest object, or different, indicating both represented another interest object. Despite carefully considering the different interest labels, it is possible I have over- or underestimated students' sustained interests.

Future research could ask students themselves, after data collection in short interviews, which interest labels they think are related or overlapping over time. This way, researchers do not have to consider whether different interest labels reflect the same object. Nonetheless, asking students themselves has a downside, as they have to reflect back on interests they have possibly pursued years ago. One may wonder whether students can then validly interpret their own interest labels.

To unravel students' higher education programme choice process, I interviewed students twice in their final year of secondary education. Although I did follow students longitudinally in the last half year before enrolment, I did not follow them throughout their whole higher education programme choice process. Research suggests that students already start thinking about their higher education programme choice in or before 10th grade (i.e. 4th year of secondary education; e.g. Cabrera & La Nasa, 2000), two years before I started to interview students. Students continue constructing their narrative to create a consistent story on how they have made an important choice (Bruner, 1990; Holmegaard, Ulriksen, et al., 2015). Consequently, I

may have underestimated the dynamics in how students attune an interest-to-programme and programme-to-interest perspective (Chapter 3 and 4) and the switches students make in their commitment to a programme (Chapter 4). Future research may follow students' higher education programme choice process from 10th grade on. This may provide even more insight into the dynamics of choosing a programme and may lead to the identification of different considerations from an interest-to-programme and programme-to-interest perspective and to new commitment switching and preservation mechanisms.

Future research could moreover focus on how students' interests continue to develop after their first year in higher education and how students make choices for their future education and career based on their interests after enrolment in a higher education programme. First, research could study the interest divergence development of students throughout higher education. This is important to uncover, as the interests students have at the end of their bachelor and master will be important in later career decisions (Holmegaard, Ulriksen, et al., 2014). For example, research can study whether different growth trajectories in interest divergence exist for students enrolled in broad and specialised programmes (as found in Chapter 5) over the course of the *whole* bachelor programme. Students in specialised programmes can choose to pursue elective courses across different subject areas in their second and/or third year, at least in most Dutch higher education programmes, which allows them to create a broader programme if they want to. One may consequently wonder whether different growth trajectories exist in the second and third year for students enrolled in broad and specialised programmes.

Second, research could focus on the future-oriented choices students keep making in higher education. Research can provide more insight into whether students keep going through the process of attuning an interest-to-programme and programme-to-interest perspective by conducting repeated interviews with students from their first year on. More specifically, such research may provide more insight into how students make choices for their electives and later master, and whether similar commitment switching mechanisms are found when students switch from one programme to the next after enrolment in higher education.

Conclusion

This thesis provided more insight into students' interest development by demonstrating how interests develop from moment-to-moment through students' lived experiences. I have shown that interests especially develop during the higher education programme choice, as students need to explicitly attune their multiple interests to the reality of available programmes to come to a choice. This continuous attunement of interests and programmes led me to suggest that higher education programme choice models need to recognize the dynamic and idiosyncratic nature of this process more than is currently the case in linear and rational models, and I subsequently provided suggestions on how counsellors can guide students through this process. Finally, this thesis has shown how the scope of a higher education programme can create notable space for students to develop their interests further into both existing and new directions.

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7

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Al in het begin van de 20ᵉ eeuw werd erkend dat wat jongeren interesseert hun aandacht grijpt en bepaalt voor welke onderwerpen en activiteiten zij moeite willen doen (Dewey, 1913). De interesses van jongeren spelen een belangrijke rol in studie- en carrièrekeuze (e.g. Holmegaard, 2015). In de literatuur wordt beargumenteerd dat onderwijs de interesse-ontwikkeling van jongeren kan stimuleren op twee manieren. Ten eerste kunnen docenten, en jongeren zelf, de bestaande interesses van jongeren signaleren en verder voeden binnen het curriculum. Ten tweede kan het curriculum zo ingericht worden dat jongeren nieuwe, potentiële interessedomeinen ontdekken en exploreren (zie Akkerman, 2017).

Onderwijskundig interesse onderzoek heeft de afgelopen decennia voornamelijk gefocust op hoe een bepaalde interesse binnen een vak ontwikkelt (e.g. natuurwetenschappen; Nieswandt & Horowitz, 2015) of hoe interesse in het onderwerp van een vak opgewekt kan worden (e.g. Renninger et al., 2019). Recent sociocultureel, ecologisch onderzoek laat echter zien dat de multipliciteit in interesses en sociale en materiele contexten van een jongere meegenomen moet worden als men beter wil begrijpen hoe interesses ontstaan en ontwikkelen over de tijd (Akkerman et al., 2020; Azevedo, 2011).

Meer gedetailleerd inzicht in interesse-ontwikkeling van jongeren is nodig wanneer zij een studiekeuze maken. Al beargumenteert onderzoek dat jongeren hun studiekeuze baseren op hun interesses (Holmegaard, 2015), onderzoek laat nog niet zien hoe jongeren hun *multipele*, vaak conflicterende, interesses afwegen om tot een keuze te komen met welke interesses ze verder willen gaan binnen een studieprogramma en derhalve welke interesses binnen en buiten het studieprogramma verder kunnen ontwikkelen. Deze dissertatie focust daarom op de interesse-ontwikkeling van jongeren voor, tijdens, en na de studiekeuze.

Theoretisch kader

Interesse refereert aan de betrokkenheid van een student bij een specifiek object (i.e. activiteiten, ideeën, onderwerpen) en is een staat waarin waarde, emotie en cognitie met elkaar verweven zijn (Akkerman & Bakker, 2019; Hidi & Renninger, 2006). Psychologisch interesse onderzoek laat zien hoe interesse ontwikkelt van een situationele interesse, een nieuwe interesse die wordt getriggerd door de omgeving, naar een individuele interesse, een interesse die jongeren doelbewust nastreven of waarmee ze zich identificeren (e.g. 'Ik wil beter worden in viool spelen', 'Ik houd van koken').

Recent sociocultureel onderzoek stelt een persoon-object-contexten perspectief op interesse-ontwikkeling voor waarin beargumenteerd wordt dat interesse altijd ervaren wordt door een bepaald persoon met een object *in een specifieke situatie* (Akkerman & Bakker, 2019). Dit suggereert dat de contexten waarin iemand beweegt, altijd uitmaken voor of, hoe, en waarom iemand interesse ervaart in *en* over tijd. Een persoon-object-contexten perspectief op interesse-ontwikkeling stelt dat men niet alleen de multipliciteit in contexten moet meenemen, maar ook de multipliciteit in interesses. Aangezien jongeren geen onbeperkte tijd en energie hebben, kunnen jongeren hun multiple interesses in competitie zijn met elkaar (Hofer, 2010).

Meer inzicht in de interesse-ontwikkeling van jongeren met behulp van een persoon-object-contexten perspectief is nodig wanneer zij een studiekeuze maken. Men weet namelijk dat jongeren hun multiple interesses moeten afwegen om tot een studiekeuze te komen (Holmegaard, 2015), maar nog niet welke overwegingen jongeren daarbij hebben en hoe zij tot een beslissing komen over het al dan niet voorzetten van interesses binnen en buiten een studieprogramma.

Na de transitie naar het hoger onderwijs blijven interesses van jongeren zich ontwikkelen, zowel binnen als buiten de context van het gekozen programma. Van hoger onderwijs programma's wordt aangenomen dat het curriculum de interesse-ontwikkeling van jongeren richting geeft (see Goyette & Mullen, 2006). Als men echter met een persoon-object-contexten perspectief naar interesse-ontwikkeling kijkt, kan men niet zonder meer aannemen dat interesses alleen op basis van, en compleet in lijn met, het aangeboden studieprogramma ontwikkelen, aangezien jongeren zich ook in andere contexten bewegen die hun interesses vormen. Het is daarmee van belang om de interesse-ontwikkeling van jongeren binnen en buiten het programma direct *na* hun studiekeuze te onderzoeken, om beter te begrijpen hoe curricula kunnen bijdragen aan de interesse-ontwikkeling van jongeren.

Deze dissertatie heeft drie doelen. Ten eerste poog ik meer inzicht te geven in hoe de interesses van jongeren worden voortgezet over de tijd vanuit een persoon-object-contexten perspectief *voordat* zij een studiekeuze maken, los van transities in het onderwijs. Ten tweede tracht ik meer inzicht te geven in hoe jongeren deze voortgezette interesses afwegen over de tijd *tijdens* het studiekeuzeproces. Ten slotte onderzoek ik de interesse-ontwikkeling van jongeren direct *nadat* ze gestart zijn in het hoger onderwijs, om te zien hoe curricula kunnen bijdragen aan de interesse-ontwikkeling van jongeren. Inzicht hierin kan bijdragen aan interesse-ontwikkelingstheorie en studiekeuzetheorie en kan leiden tot meer praktisch inzicht in hoe jongeren ondersteunt kunnen worden in hun studiekeuze. Dit is nodig aangezien een derde van de jongeren uitvalt in hun eerste jaar, omdat ze, naar eigen zeggen, een verkeerde studiekeuze hebben gemaakt (zie Malgwi et al., 2005; Ulriksen et al., 2010).

Onderzoeksdesign

Om de doelen te behalen zijn vier deelstudies uitgevoerd. In twee deelstudies is gekeken naar de interesse-ontwikkeling van jongeren aan de hand van een experience sampling methode (ESM). ESM is een methode waarin psychologische constructen van moment-tot-moment bestudeerd kunnen worden over een langdurige periode. Een speciale smartphone applicatie, genaamd inTin, is hiervoor ontwikkeld (zie Akkerman & Bakker, 2019; Slot, 2020).

In Hoofdstuk 2 keken we naar zes dataverzamelingsweken waarin de inTin applicatie gebruikt is gedurende een periode van anderhalf jaar. In totaal voltooiden 69 havo en vwo leerlingen doorheen de derde en vierde klas de dataverzameling. De data werd geanalyseerd om te begrijpen waarom jongeren interesses voortzetten over de tijd, *voordat* jongeren een studiekeuze maken. Voor de studie in Hoofdstuk 5 hebben we de inTin applicatie gebruikt gedurende acht dataverzamelingsweken in een periode van twee jaar. In totaal voltooiden 177 jongeren in hun laatste jaar van het vwo en het eerste jaar van het hoger onderwijs deze dataverzameling. De data

werd geanalyseerd om meer inzicht te krijgen in hoe de interesses van jongeren ontwikkelen *voor* en *na* de transitie naar het hoger onderwijs.

Voor de twee andere deelstudies zijn interviews gehouden met jongeren om interesse-ontwikkeling *tijdens* het studiekeuzeproces te ontrafelen. In Hoofdstuk 3 zijn 20 jongeren halverwege 6 vwo geïnterviewd over hun overwegingen om in de toekomst juist wel of niet verder te gaan met bepaalde interesses en hoe deze overwegingen veranderden over de tijd. In Hoofdstuk 4 zijn 18 van dezelfde jongeren geïnterviewd aan het einde van vwo 6, om inzicht te krijgen in waarom jongeren veranderen van studiekeuze nadat ze al een voorlopige keuze hebben gemaakt en hoe dat relateert aan hun interesse-ontwikkeling.

Hoofdstuk 2

In dit hoofdstuk onderzochten we, voordat jongeren een studiekeuze gingen maken, welke mechanismes onderliggend zijn aan het voortbestaan van interesses. In theorie wordt het voortbestaan van een interesse voornamelijk toegeschreven aan de situationele of persoonlijke preferentie van een individu; een interesse blijft bestaan als het individu zich met een interesse identificeert of wanneer een persoonlijk doel aan de interesse gekoppeld wordt (e.g. Hidi & Renninger, 2006). Recent socio-cultureel en ecologisch onderzoek heeft echter vanuit een persoon-object-contexten perspectief beargumenteerd dat de praktijken en routines van het individu interesses ook in stand kunnen houden (Akkerman & Bakker, 2019).

Door vanuit een persoonlijk perspectief te kijken naar interesse-ervaringen van moment-tot-moment (zoals gesuggereerd door Prenzel, 1992), kan men in meer detail kijken hoe interesses doorheen het dagelijks leven en de verschillende contexten waarin jongeren participeren ontwikkelen. Een ESM methode is gebruikt om de interesses van jongeren van moment-tot-moment te meten. In totaal zijn 8281 interesse-ervaringen van 56 jongeren geanalyseerd van 334 langlopende interesses. Door de temporale verwijzingen van jongeren in hun interesse-ervaringen per langlopend interesse-object te analyseren, vonden we aanwijzingen voor bewuste instandhouding van interesses (als jongeren referenties maakten naar hun verleden of toekomst) en meer onbewuste instandhouding van interesses (als jongeren herhaaldelijk hetzelfde ervaarden in het hier en nu).

Zes mechanismes onderliggend aan het voortbestaan van interesses werden gevonden. Ten eerste vonden we het *goal setting* mechanisme; jongeren konden hun interesses voortzetten als ze het verbonden aan een persoonlijk doel (e.g. "Ik wil beter worden in skateboarden"). Ten tweede vonden we dat jongeren interesses konden voortzetten door zichzelf te identificeren met het object van interesse: het *biographical identification* mechanisme (e.g. "Ik heb altijd al van koken gehouden"). De andere vier gevonden mechanismes gingen voorbij aan de actieve rol van het individu zelf in het voortbestaan van interesses, aangezien context- en object-kenmerken in deze mechanismes ook een rol speelden in het voortbestaan van interesses. Ten derde werd het *progress valuation* mechanisme gevonden, waarin de interesses van jongeren werden voortgezet doordat zij herhaaldelijk de leermogelijkheden van een specifieke situatie met een bepaald object zagen (e.g. jongeren die herhaaldelijk zeiden: "Ik heb nieuwe dingen geleerd in muziekles vandaag").

Ten vierde bleef een interesse voortbestaan als jongeren continu nieuwsgierig bleven naar hoe een verhaallijn zich zou gaan ontvouwen: het *chronotopical captivation* mechanisme (e.g. "Ik wil graag weten hoe dit boek/deze serie eindigt"). Ten vijfde vonden we het *engagement appreciation* mechanisme, waarin jongeren herhaaldelijk aangaven het leuk te vinden om met hun interesse in het moment bezig te zijn (e.g. jongeren die herhaaldelijk zeiden: "Ik vind het leuk om te hockeyen"). Ten slotte vonden we dat interesses konden voortbestaan door het participeren in een langdurige, intensieve praktijk (*substantive participation* mechanisme), waarbij jongeren meerdere mogelijkheden kregen om geïnteresseerd in de praktijk te raken (e.g. school).

We vonden dat mechanismes vaak samen voorkwamen en dat afhankelijk van de situatie bepaalde mechanismes meer of minder op de voorgrond traden in de interesse-ervaringen van jongeren. Ook vonden we dat bepaalde mechanismes over tijd meer of minder benadrukt konden worden in interesse-ervaringen, wat mogelijk impliceert dat mechanismes over de tijd kunnen verdwijnen of juist verschijnen.

Deze bevindingen laten zien dat interesses niet alleen bewust worden voortgezet door het stellen van doelen of door het identificeren met het object van interesse, maar dat ook praktijken, routines en het object van interesse zelf kunnen bijdragen aan het wel of niet voorbestaan van een interesse. Interesse-ontwikkeling kan daarmee niet compleet begrepen worden als men alleen kijkt naar hoe personen zelf interesses voortzetten.

Hoofdstuk 3

In dit hoofdstuk werd gekeken naar hoe jongeren een interesse-gebaseerde studiekeuze maakten. Recent onderzoek heeft laten zien dat jongeren hun overwegingen voor een hoger onderwijs programma voornamelijk baseren op hun interesses (Holmegaard, 2015), alleen is nog niet duidelijk hoe jongeren daarin conflicterende interesses afwegen over de tijd om tot een uiteindelijke keuze te komen. We weten wel dat jongeren gaan redeneren vanuit een interesse-naar-programma perspectief, waarbij de belangrijkste interesses van jongeren feed forward geven op welke programma's jongeren exploreren en overwegen te gaan volgen. Tegelijkertijd gaan jongeren redeneren vanuit een programma-naar-interesse perspectief, waarbij programma's feed back geven op of en hoe belangrijke interesses kunnen worden voortgezet in het studieprogramma. Hoe jongeren specifiek beide perspectieven op elkaar afstemmen om tot een studiekeuze te komen is echter nog onduidelijk. Dit hoofdstuk keek daarom naar de overwegingen die jongeren hebben vanuit een interesse-naar-programma en programma-naar-interesse perspectief om tot een studiekeuze te komen. Daarnaast werd speciale aandacht besteed aan de feed back van programma's op interesses: op wat voor manieren kan deze feed back leiden tot een verandering in de interesses die jongeren willen voortzetten in hun toekomst?

Interviews met 20 jongeren werden halverwege 6 vwo gehouden om te achterhalen waarom ze bepaalde interesses in bepaalde programma's wilden gaan volgen en hoe en waarom ze van gedachten veranderden over de tijd. Aan de hand van thematische analyse identificeerden we vier type overwegingen voor het afwegen en contrasteren van interesses om tot een studiekeuze te komen. Daarnaast vonden we vier manieren van feed back waardoor jongeren, op basis van

exploratie van programma's, van gedachten konden wisselen met welke interesses ze verder wilden gaan in de toekomst.

Als eerste overweging vonden we dat jongeren, vanuit een interesse-naar-programma perspectief, zich afvroegen welke interesses academisch potentieel hadden. Academisch potentieel was niet direct gerelateerd aan wat traditioneel gezien gelabeld wordt als academische (e.g. wiskunde) of niet academische (e.g. schilderen) interesse, aangezien jongeren zelf zinvol invulden welke interesses voor hen academisch waren en welke niet (e.g. videogames kan daarmee een academische interesse zijn). Ten tweede vonden we dat jongeren overwogen, opnieuw vanuit een interesse-naar-programma perspectief, welke interesses relatief gezien het meest belangrijk voor hen waren. Jongeren probeerden daarbij zoveel mogelijk van deze voor hen belangrijke interesses voort te zetten door interesses samen te voegen (e.g. scheikunde en biologie in de gecombineerde interesse biochemie), interesses te gaan volgen in toekomstige parallelle contexten (e.g. studieprogramma en hobbyclub), en zelfs door te overwegen welke interesses zij na hun studie makkelijk zouden kunnen oppakken (e.g. "Ik kan altijd nog mijn interesse in architectuur oppakken door zelf een huis te gaan bouwen"). Ten derde, vanuit een programma-naar-interesse perspectief, evalueerden jongeren de ruimte die overwogen programma's boden voor het volgen van bepaalde interesses om te bepalen welke interesses realistisch in hun toekomst konden worden voortgezet. Ten slotte, vanuit zowel een interesse-naar-programma als een programma-naar-interesse perspectief, overwogen jongeren de balans tussen tijd spenderen aan interesses binnen en buiten het programma (e.g. "Ik wil graag verder in topsport, dus is het handig als daar ook ruimte genoeg voor is in mijn programma"). We vonden dat jongeren terugkeerden naar deze overwegingen over de tijd, omdat de interesses van jongeren door ontwikkelden en nieuwe informatie kon leiden tot een verandering in hun gedachten.

We vonden daarnaast dat feed back van programma's ervoor kon zorgen dat jongeren van gedachten wisselden over met welke interesses ze verder wilden gaan in hun toekomst. Ten eerste konden jongeren inzien dat het programma breder was dan waar zij geïnteresseerd in waren, waardoor ze liever met een andere interesse in een ander programma verder gingen (e.g. "Ik ben geïnteresseerd in economie, maar in alle economieprogramma's die ik gezien heb moet je ook iets met wiskunde doen, daarom wil ik niets met economie doen"). Ten tweede konden jongeren erachter komen dat ze helemaal niet verder konden met bepaalde interesses vanwege strenge selectie of omdat ze niet aan eisen van programma's voldeden. Ten derde konden toekomstige banen, als extensie van het programma, feed back geven; zo schreven jongeren sommige interesses af omdat het werkveld weinig mogelijkheden bood om later een baan te vinden in hun interessegebied. Ten slotte vonden we dat jongeren door middel van de programma's interesses konden ontdekken, specificeren, combineren of anders definiëren (e.g. "Door mijn exploratie van het programma biologie, realiseerde ik me dat ik niet geïnteresseerd was in biologie in zijn geheel, maar alleen in DNA en ziektes").

Deze resultaten impliceren ten eerste dat interesses zich niet zo stabiel ontwikkelen voor late adolescenten zoals aangenomen (e.g. Low et al., 2005), en dat in periodes van transitie, interesses juist radicaal kunnen veranderen (e.g. combineren, specificeren, herdefiniëren) in het licht van

toekomstige programma's waarin jongeren willen participeren. Daarnaast impliceren deze resultaten dat de studiekeuze niet gezien kan worden als een lineair proces waarin jongeren zoeken naar de beste 'fit' tussen hun stabiele interesses en programma's (e.g. Porter & Umbach, 2006), maar dat de studiekeuze gezien kan worden als een iteratief proces waarin jongeren zichzelf en hun interesses in relatie tot mogelijke toekomstige programma's steeds herdefiniëren.

Hoofdstuk 4

Dit hoofdstuk gaf meer inzicht in waarom jongeren van programma wisselden als ze zich al gecommitteerd hadden aan een programma (i.e. dat jongeren de intentie hadden uitgesproken om dat programma te gaan volgen in hun toekomst) tijdens het studiekeuzeproces. Jongeren committeren zich aan een programma als ze een goede afstemming hebben gevonden tussen het interesse-naar-programma en programma-naar-interesse perspectief. Ondanks een goede afstemming tussen hun interesses en het programma, kunnen jongeren toch besluiten om hun intentie te doorbreken als er veranderingen optreden in hun interesse-naar-programma of programma-naar-interesse perspectief. Onderzoek heeft echter nog niet voldoende uitgewezen welke mechanismes aan een wisseling van intentie van het ene naar het andere programma ten grondslag liggen (c.f. Cleaves, 2005; Holmegaard, Ulriksen, et al., 2014).

Interviews met 18 jongeren uit 6 vwo werden gehouden om te kijken of en waarom jongeren hun intentieverklaringen aan programma's doorbraken. Om te achterhalen of jongeren gecommitteerd waren aan een programma vulden jongeren een tijdslijn en zogeheten storyline in, waarin jongeren werden gevraagd uit te leggen hoe zeker ze waren over het volgen van een programma en waarom er veranderingen optraden in hun zekerheid over de tijd. Aan de hand van thematische analyse identificeerden we twee *commitment switching* mechanismes. In de analyse vonden we ook dat jongeren soms vast konden houden aan een programma, terwijl ze wel twijfels leken uit te spreken over het volgen van het programma. Dit leidde tot de identificatie van twee *commitment preservation* mechanismes.

Als eerste *commitment switching* mechanisme vonden we het *optimalisation* mechanisme. We vonden dat jongeren nadat ze gecommitteerd waren aan een programma bleven redeneren vanuit een interesse-naar-programma en programma-naar-interesse perspectief om na te gaan of het programma waaraan ze zich gecommitteerd hadden het beste bij hun interesses paste. Jongeren realiseerden zich soms dat een ander programma toch beter bij hun interesses paste dan het programma waar ze nu aan waren gecommitteerd en doorbraken vervolgens hun intentie om dat programma in de toekomst te gaan volgen. Ten tweede vonden we het *discontinuation* mechanisme. Jongeren konden erachter komen dat het programma toch niet paste bij hun interesses zoals gedacht, doordat ze door exploratie zich er bewust van konden worden dat het programma toch niet aansloot bij hun interesses of omdat hun interesses door ontwikkelden en jongeren zich realiseerden dat het programma niet meer paste bij de interesses die ze nu wilden voortzetten in een programma.

Als eerste *commitment preservation* mechanisme vonden we het *self-fixation* mechanisme. Jongeren konden gefixeerd raken op het volgen van bepaalde interesses in een bepaald programma.

Jongeren konden daardoor informatie negeren of bagatelliseren die de afstemming tussen hun belangrijkste interesses en het gecommitteerde programma zou bedreigen. Ook viel het op dat jongeren leken te ontkennen dat interesses in andere domeinen verder ontwikkelden en misschien belangrijker werden, alsof jongeren niet helemaal het belang meer van andere ontwikkelende interesses zagen. Als tweede vonden we het *social confirmation* mechanisme. Jongeren konden zelf willen overstappen naar een ander programma, maar konden gecommitteerd blijven aan een programma als hun directe sociale omgeving ervan overtuigd was dat dat programma de beste keuze voor hen was. Jongeren leken te worstelen met het creëren van een narratief voor een andere studiekeuze, alsof ze zoekende waren naar hoe ze naasten konden overtuigen dat een andere studiekeuze een *nog* logischere keuze voor hen was.

Op basis van deze bevindingen concludeerden we dat het studiekeuzeproces van jongeren continueert nadat zij zich voor het eerst committeren aan een programma. Jongeren blijven op basis van allerlei ervaringen in hun dagelijks leven en gesprekken met anderen evalueren of hun programmakeuze nog steeds passend is bij hun ontwikkelende interesses (zie ook Taylor & Harris-Evans, 2018). Jongeren creëren daarmee continu een narratief om de keuze die ze gaan maken zinvol uit te leggen op basis van huidige ervaringen (Holmegaard, Ulriksen, et al., 2015). Als een dergelijk narratief zich uitkristalliseert, kan dit narratief ervoor zorgen dat jongeren niet makkelijk van studiekeuze veranderen terwijl ze er wel over twijfelen, omdat jongeren het lastig vinden om tegen eerder gevormde argumenten, van zichzelf dan wel naasten, in te gaan. Deze bevindingen laten daarnaast zien dat jongeren continu blijven zoeken, vanuit zichzelf en vanuit druk van naasten, naar het maken van 'de beste keuze' (zie ook Brunila et al., 2011). Men kan zich afvragen of we de druk op jongeren om alle mogelijke studiekeuzeopties te rationaliseren kunnen reduceren door te erkennen dat het studiekeuzeproces continu doorgaat en vormgegeven wordt door de ervaringen die jongeren opdoen in hun dagelijks leven.

Hoofdstuk 5

Dit hoofdstuk richtte zich op hoe de interesses van jongeren ontwikkelden in het laatste jaar van 6 vwo en het eerste jaar van het hoger onderwijs. Daarbij werd onderzocht of jongeren die uiteindelijk voor een professiegericht, disciplinair, of breed programma kozen, verschillen vertoonden in hun interesse-ontwikkeling over de tijd. In debatten rondom de waarde van professiegerichte en disciplinaire versus brede programma's wordt vaak aangenomen dat het curriculum van brede programma's ruimte biedt aan jongeren om meer divergerende interesses (i.e. interesses over domeinen heen) te ontwikkelen, terwijl het gefocuste curriculum van professiegerichte en disciplinaire programma's de ruimte biedt aan jongeren om meer convergerende interesses te ontwikkelen (e.g. Goyette & Mullen, 2006). Deze assumptie kan echter niet zonder meer aangenomen worden, wanneer men ervan uitgaat dat interesses zich in parallelle en doorheen verschillende contexten waarin jongeren participeren ontwikkelen. Zoals geïllustreerd in Hoofdstuk 2 dragen de verschillende contexten waarin zij zich begeven bij aan hoe en welke interesses voortgezet worden over de tijd. Als men daarnaast erkent dat jongeren, zelfs met eenzelfde interesse, een verschillend verleden hebben en verschillende ideeën hebben voor de toekomst, kan men er niet vanuit gaan dat de interesses van jongeren op eenzelfde manier ontwikkelen alleen gebaseerd op het feit dat ze eenzelfde soort programma volgen. In dit

hoofdstuk is daarom deze assumptie getest door te onderzoeken of jongeren die voor een breed programma kiezen een andere ontwikkeling in interessedivergentie over de tijd laten zien dan jongeren die kiezen voor een professiegericht of disciplinair programma.

Een longitudinale ESM methode werd toegepast in dit hoofdstuk om een zo compleet mogelijk beeld te krijgen van de diverse interesses die jongeren voortzetten over de tijd. Jongeren werden in zeven datawaves, drie voor de transitie en vier na de transitie naar het hoger onderwijs, een week lang elke twee uur gevraagd naar hun interesse-ervaring in het moment. Vervolgens zijn alle 33.230 interesse-ervaringen van 124 participanten geanalyseerd, om na te gaan welke interesses academisch relevant waren. Op basis van deze interesses is vervolgens per dataweek de divergentie tussen verschillende domeinen (e.g. STEM, sociale wetenschappen, kunst, geesteswetenschappen) en tussen subdomeinen binnen domeinen (e.g. in STEM kan men wiskunde, natuurkunde, scheikunde en biologie onderscheiden) bepaald. Vervolgens is een apart multipele groep, sequentieel-latent groei curve model geschat voor de domein en subdomein interessedivergentie scores, om zo verschillen in interessedivergentie te achterhalen tussen jongeren die kozen voor een professiegericht, disciplinair, of breed programma.

Uit de resultaten blijkt dat jongeren die kiezen voor een professiegericht, disciplinair of breed programma niet verschillen in interessedivergentie *voor* de transitie naar hun programma. *Op het moment van* transitie naar het hoger onderwijs vonden we een verschil in subdomein interessedivergentie, maar niet in domein interessedivergentie. We vonden dat jongeren in brede programma's meer subdomeinen combineerden *binnen* een domein dan jongeren in professiegerichte of disciplinaire programma's. *Na* de transitie vonden we een verschil in hoe de domein interessedivergentie van jongeren in professiegerichte, disciplinaire, en brede programma's ontwikkelde, maar niet in hoe subdomein interessedivergentie ontwikkelde. We vonden dat jongeren in brede programma's interesses *binnen* een domein vervingen door interesses *over* verschillende domeinen heen (e.g. van geïnteresseerd zijn in geschiedenis, literatuur en filosofie naar geschiedenis, economie, en biologie) terwijl jongeren in professiegerichte en disciplinaire programma's juist interesses *over* verschillende domeinen heen vervingen door interesses *binnen* eenzelfde domein.

Deze resultaten vormen het eerste empirische bewijs dat jongeren de ruimte in brede programma's gebruiken om meer divergente interesses te ontwikkelen, terwijl jongeren in professiegerichte en disciplinaire programma's de focus van het curriculum benutten om meer convergerende interesses te ontwikkelen. Dit suggereert dat hoger onderwijs programma's jongeren kunnen aanmoedigen om interesses in een bepaalde richting te ontwikkelen door specifieke disciplines wel of niet aan te bieden. Van deze impact uitgaande, is het belangrijk dat programma's expliciet bewust zijn van de reikwijdte van hun curriculum.

Interesse-ontwikkeling in het dagelijks leven
In deze dissertatie heb ik empirisch laten zien dat interesses zich ontwikkelen door een samenvloeiing van persoonlijke preferenties, mogelijke objecten van interesse en de karakteristieken van deze objecten, en de mogelijkheden van verschillende contexten van participatie om te kunnen acteren

en engageren in deze objecten. Daarbij heb ik de meerwaarde van een persoon-object-contexten perspectief geïllustreerd voor het in meer detail begrijpen hoe de interesses van jongeren zich ontwikkelen (zie Akkerman & Bakker, 2019) en heb ik onderschreven dat interesses van moment-tot-moment ontwikkelen in de *fullness of life* (Hedges, 2019): interesses ontwikkelen doorheen de geleefde ervaringen van jongeren in hun dagelijks leven.

Dat interesses zich gedurende het dagelijks leven van jongeren ontwikkelen impliceert dat interesse-ontwikkeling inherent idiosyncratisch is en daarmee lastig te voorspellen is (zie Hoofdstuk 2; Akkerman & Bakker, 2019). Interesse onderzoek zou zich minder kunnen richten op het voorspellen en vastleggen van waar jongeren geïnteresseerd in raken en meer kunnen focussen op patronen in interesse-ontwikkeling in en over verschillende contexten van participatie heen om zo interesse-ontwikkeling in alle complexiteit te begrijpen. De hoofdstukken in dit proefschrift zijn allen voorbeelden van hoe men kan zoeken naar dergelijke patronen. In Hoofdstuk 5 kon ik daarmee bovendien laten zien dat onderwijs, zoals al lang geleden gesteld door Dewey (1913), niet kan opleggen *waarin* jongeren specifiek geïnteresseerd raken, maar dat het wel de diversiteit aan vakgebieden kan bepalen en daarmee impact heeft op welke (potentiële) interesseobjecten jongeren kunnen continueren en exploreren.

Interesse-ontwikkeling tijdens de studiekeuze van jongeren

Interesse onderzoek heeft laten zien dat de interesses van jongeren stabieler worden over het verloop van de adolescentie, en dat interesses van jongeren over onderwijskundige transities heen alleen lijken te verstevigen (e.g. Low et al., 2005). Ik heb in deze dissertatie laten zien dat jongeren hun interesses niet stabiel zijn en kunnen ontwikkelen, *juist* in periodes van transitie. Specifieker heb ik laten zien dat de interesses van jongeren niet alleen ontwikkelen op basis van ervaringen in het dagelijks leven wanneer zij een studiekeuze maken, maar dat hun interesses ontwikkelen doordat zij expliciet interesses gaan contrasteren en afwegen in het licht van toekomstige programma's (zie Hoofdstuk 3). Aangezien de interesses die jongeren willen volgen in hun toekomst niet direct overeenkomen met hoe interesses realistisch gevolgd kunnen worden in een programma, gaan jongeren door meerdere cycli heen om interesses en programma's op elkaar af te stemmen (Zie Hoofdstuk 3 en 4). Hierdoor kunnen interesses snel ontwikkelen of juist worden afgestoten om tot een studiekeuze te kunnen komen.

Het studiekeuzeproces herzien

Het afstemmen van interesses en programma's op een iteratieve manier over de tijd heeft implicaties voor hoe men het studiekeuzeproces kan conceptualiseren. Ten eerste kan het studiekeuzeproces niet beschreven worden vanuit een lineair fase model waarin jongeren steeds zekerder worden welk programma het beste 'fit', zoals gesteld in de literatuur (e.g. Cabrera & La Nasa, 2000). Verschillende studies erkennen al dat dit proces niet lineair is en stellen dat jongeren programma's iteratief afwegen over de tijd en dat zij hun intentie om een bepaald programma te gaan volgen kunnen doorbreken over de tijd (e.g. Germeijs & Verschueren, 2006). Deze studies erkennen echter niet dat jongeren en hun interesses zelf ook cyclisch, en in samenhang met de toekomstige programma's die ze overwegen, ontwikkelen. Zo heb ik laten zien dat jongeren, door exploratie van programma's, kunnen ontdekken dat ze meer specifieke, bredere, of eerder

ongerealiseerde interesses hebben en dat ze vervolgens interesses die ze willen gaan volgen in hun toekomst kunnen herdefiniëren, revalueren, of anders kunnen gaan categoriseren en prioriteren.

Het begeleiden van jongeren in hun studiekeuzeproces

In de praktijk kunnen decanen meer gewezen worden op de dynamiek in het studiekeuzeproces waarin jongeren zowel hun programma's als interesses herzien over de tijd, om zo begeleiding voor jongeren te verbeteren. Specifiek kunnen decanen jongeren aanmoedigen om te blijven reflecteren op hun interesses en overwogen programma's. Zo kunnen jongeren bijvoorbeeld aangemoedigd worden om een tijdslijn in te vullen over hun studiekeuzeproces (zie Hoofdstuk 4), zodat zij meer bewust worden van de programma's en interesses die ze overwegen om in de toekomst te volgen. In gesprekken over deze tijdslijn, kunnen de vier interesseoverwegingen gebruikt worden uit Hoofdstuk 3 als leidraad, zodat jongeren hun tijdslijn nog kunnen aanvullen en aangemoedigd worden om te reflecteren waarom ze bepaalde interesses en programma's prefereren boven andere interesses en programma's. Jongeren die meer inzicht krijgen in welke interesses ze willen voortzetten en afstemmen hoe deze voortgezet kunnen worden in een programma, hebben realistischere verwachtingen van een programma en hebben daarmee een kleinere kans om uit te vallen van een programma als ze eenmaal gestart zijn (Holmegaard, Madsen, et al., 2015).

Ook nadat jongeren een voorlopige keuze voor een studie hebben gemaakt is het belangrijk dat decanen hen ondersteunen en laten reflecteren op hun voorlopige keuze. Zo kan een decaan misschien druk bij jongeren wegnemen om te blijven zoeken naar de 'best mogelijke studiekeuze', door uit te leggen dat na aanvang van het programma jongeren nog vele vervolgkeuzes kunnen maken. Tegelijkertijd vond ik dat jongeren een dominant narratief konden creëren nadat ze zich gecommitteerd hadden aan een programma, en daardoor mogelijk niet konden inzien dat een programma toch niet zo goed bij hen paste als eerder gedacht. Door jongeren te blijven vragen om te reflecteren op henzelf en hun toekomst, kunnen decanen jongeren helpen met het formuleren van een ander mogelijk narratief. Decanen hebben daarmee de lastige taak om aan de ene kant jongeren aan te blijven moedigen om te reflecteren op henzelf en de toekomst en tegelijkertijd jongeren ook niet onder druk te zetten om het 'perfect passende programma' te vinden.

Het balanceren van de verhouding tussen brede en smalle programma's

Na de transitie naar een hoger onderwijs programma vond ik verschillen in hoe de interesses van jongeren in brede en smalle programma's ontwikkelden in het eerste jaar van het hoger onderwijs. Hoofdstuk 5 illustreerde dat jongeren in brede programma's meer divergerende interesses ontwikkelden over de tijd, terwijl jongeren in smalle programma's meer convergerende interesses ontwikkelden over de tijd. Programma's kunnen daarmee jongeren doelbewust blootstellen aan meerdere vakgebieden als ze willen dat jongeren breed geïnteresseerde professionals worden of juist aan een specifiek vakgebied als ze willen dat jongeren specialisten worden in hun werkveld.

In Nederland kan ongeveer 15 procent van de programma's gekwalificeerd worden als breed en 85 procent als smal. Men kan zich afvragen of deze verhouding tussen brede en smalle

programma's wenselijk is vanuit zowel maatschappelijk als studentperspectief. Als men meer richting een gelijke verhouding wil gaan tussen brede en smalle programma's, kunnen oplossingen gezocht worden in het verbreden van het curriculum van al bestaande smalle programma's, om zo een wildgroei aan programma's te voorkomen (zie van der Zwaan, 2016). Programma's kunnen verschillende vakgebieden integreren in hun curriculum en vrije keuzeruimte mogelijk maken over verschillende vakgebieden heen, als het combineren van deze vakgebieden ten minste logisch is voor jongeren hun professionele ontwikkeling. Als jongeren meer vrijheid krijgen in het creëren van hun eigen curriculum, is het belangrijk dat programma's jongeren expliciet stimuleren in het combineren van vakgebieden over domeinen heen. Jongeren zullen namelijk deze vrije keuzeruimte minder gebruiken om een breed vakkenpakket te creëren als programma's nog steeds impliciete, dominante normen hebben die een specifiek vakgebied prefereren (zie Ulriksen, 2009).

Vervolgonderzoek

Ten eerste kan vervolgonderzoek achterhalen hoe de interessedivergentie van jongeren ontwikkelt in het hele hoger onderwijs, aangezien jongeren op basis van de interesses die ze aan het einde van het hoger onderwijs hebben een keuze voor een carrière zullen maken (e.g. Holmegaard, Madsen, et al., 2014). Zo valt het te bezien of jongeren in smalle en brede programma's verschillen laten zien in hun interessedivergentie ontwikkeling na hun eerste jaar in het hoger onderwijs, aangezien jongeren in smalle programma's in hun tweede en derde jaar meer vrijheid hebben in het creëren van hun eigen curriculum. Ten tweede kan vervolgonderzoek focussen op de toekomstgerichte keuzes die jongeren maken in het hoger onderwijs. Onderzoek kan daarmee meer inzicht geven in of jongeren ook in het hoger onderwijs een interesse-naar-programma en programma-naar-interesse perspectief blijven afstemmen om vervolgkeuzes te maken. Specifieker kan dit inzicht geven in of de gevonden overwegingen, zoals beschreven in Hoofdstuk 3, meespelen in het bepalen van vrije keuzeruimte en een toekomstige master en of dezelfde commitment switching en preservation mechanismes (zie Hoofdstuk 4) gevonden worden als jongeren overwegen om te stoppen met hun huidige programma en aan een nieuw programma willen beginnen.

Algemene conclusie

Deze dissertatie heeft meer inzicht gegeven in interesse-ontwikkeling door te demonstreren dat interesses van moment-tot-moment ontwikkelen door de geleefde ervaringen van jongeren in hun dagelijks leven. Interesses ontwikkelen met name tijdens het studiekeuzeproces, aangezien jongeren hun interesses moeten afwegen in het licht van mogelijke hoger onderwijs programma's om tot een studiekeuze te komen. Het continu afstemmen van interesses en mogelijke programma's leidde mij ertoe om te suggereren dat theorie nog meer de dynamiek en idiosyncrasie van het studiekeuzeproces moet erkennen dan dat het nu al doet. Vervolgens heb ik enkele praktische suggesties gedaan hoe decanen jongeren kunnen begeleiden in hun studiekeuzeproces. Ten slotte heb ik in deze dissertatie laten zien hoe het curriculum van hoger onderwijs programma's kaders kan scheppen voor jongeren om hun interesses verder in bestaande en nieuwe richtingen te ontwikkelen.

CURRICULUM VITAE

Jonne Vulperhorst was born in 1991 in Lelystad. He received his bachelor degree in Interdisciplinary Social Sciences from Utrecht University in 2013, after which he completed the research master Educational Sciences: Learning in Interaction in 2015.

In 2015, Jonne started working as a PhD-candidate at the Department of Education at Utrecht University and as a educational consultant for Educational Consultancy & Professional Development at Utrecht University. In 2016, Jonne transitioned with his promotor Sanne Akkerman to Leiden University, where he continued combining his work on his PhD with working as an educational consultant at the Leiden University Graduate School of Teaching. In 2018, Jonne transitioned back to Utrecht University and combined working on his PhD with teaching in the bachelor and master programme of Educational Sciences. From 2019 on, Jonne focused solely on writing his dissertation. As part of his PhD, Jonne was a guest researcher at the university of Helsinki and at the university of Copenhagen.

Currently, Jonne is working as an educational consultant for Educational Consultancy & Professional Development at Utrecht University.

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