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Manifestations of non-interest: Exploring the situated nature of students' interest

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ABSTRACT

Widespread initiatives to promote learning in school by connecting to students' long-standing interests are challenged by increasing recognition that actual experiences of interest are always situated. This study examines moments of *non-interest*: moments where students engage with a sustained object of interest, yet no actual experience of interest occurs. Sixty students aged 14–26 years repeatedly used a smartphone application to report on their interest. Within the 747 events that reflected non-interest, five manifestations were identified: resignation before engaging, detachment, disappointment and frustration during engagement, and subsequent regret. Together these manifestations emphasize the dynamic and experiential nature of long-standing interest, and demonstrate how a student's purpose with an object is key in the manifestation of (non-) interest, both in- and outside school.

1. Introduction

Although no one assumes to experience interest *every time* they engage with a long-standing object of interest (e.g., experiencing interest every time one reads a scientific article on a preferred topic), different educational and research practices across the globe appear to reflect an assumption of stability of interest. Stability of interest is implied in educational approaches that aim to involve students' interests in education (Ito et al., 2013; Reber, Canning & Harackiewicz, 2018; Zhang, Basham & Yang, 2020), for example by using the object of interest as a field of application for skills to be learned. In doing so, educators hope to involve students more easily in curricular content, which in turn can benefit their learning (Barron, 2006; Flowerday & Shell, 2015; Hidi & Harackiewicz, 2000; Jansen, Lüdtke & Schroeders, 2016; Renninger & Hidi, 2016). However, by intending to draw into educational contexts the interests that students usually pursue out of education, these approaches appear to assume that interests manifest similarly regardless of context or setting. The assumption of stability of interest also reflects in the use of general, aggregate or categorical measures of interest, for example by asking students how interested they (generally) are in science after an intervention and by using such one-time outcome variable to conclude whether interest has increased, implying that interest will remain elevated and stable over time.

The implicit assumption of stability of interest has been challenged by several scholars. For instance, in describing the four-phase model of interest development, Hidi & Renninger (2006) specify that interest is 'not a predisposition that applies across all activities' (p.112). Yet, as noted by Azevedo (2018), interest literature still lacks a full understanding of how and why interest in a certain object does or does not manifest. Bergin (2016) stressed the need for interest research methods that provide greater nuance and detail. In-depth case studies of life-wide interest pursuits across different contexts have further problematized the implication of stability,

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testifying to notable fluctuations in processes of engagement. For example, Slot, Bronkhorst, Wubbels & Akkerman (2020a) report on a secondary school student who loves to read in her spare time, but did not like it when she had to read a book for school. Similarly, Zimmerman (2012) describes a primary school student who engaged in many science activities out of school, but deliberately distanced herself from in-school science, and Hedges (2019) describes a young man who loved playing sports but not in the context of school, as teachers lacked expert knowledge of his favourite sports. These studies report instances of what we term *non-interest*: moments where one engages with a sustained object of interest (i.e., an object that one recognizes and has a preference to engage with repeatedly over a longer period of time; often referred to as *individual interest*; Hidi & Renninger, 2006), yet no actual experience of interest occurs. The fact that the related object of interest is sustained and engaged with repeatedly over a longer period of time distinguishes moments of non-interest from a simple lack of interest. In situations of non-interest, there are past experiences of interest which fuel anticipation during each instance of engagement with the object.

Aforementioned examples of non-interest illustrate how engaging with a sustained object of interest does not necessarily mean that one experiences interest *in every moment* one is encountered with a topic or activity of interest. This ties in with literature stressing the situated nature of interest, not just for novel objects, but also for sustained objects (Arnold, 1906; Azevedo, 2011; Chesworth, 2019; DiGiacomo, Van Horne, Van Steenis & Penuel, 2018; Knogler, Harackiewicz, Gegenfurtner & Lewalter, 2015; Palmer, 2019; Tsai, Kunter, Lüdtke, Trautwein & Ryan, 2008). By examining moments of non-interest for a wide variety of students we can gain a more comprehensive understanding of interest as an experiential and dynamic construct and advance theory on the situated nature of long-standing interest. We should note that our aim is not to identify how moments of non-interest can be prevented in educational contexts, as continuous interest is impossible to be expected. Rather, we aim to enrich ongoing discussions about involving students' interest in education (e.g., Slot et al., 2020a) and practices aiming to do so.

1.1. Situated nature of interest

Interest is defined as a preferred engagement with a certain topic, activity, event or idea, which displays as a specific relationship between an individual and an object (Krapp, 2002). Any actual form of engagement of an individual with a specific object of interest is always situated in a particular context that mutually constitutes a persons' experience (person-objects-contexts [P-O-Cs] perspective; Akkerman & Bakker, 2019). This highlights the importance of looking at every interest situation in its entirety, including the material and social circumstances, when qualifying interest-related pursuits (Azevedo, 2011; DiGiacomo et al., 2018). Interest research has done so extensively when addressing conditions that can spark interest in a *novel* object (i.e., an emerging situational interest, Hidi & Renninger, 2006). It is documented that, amongst other things, novel elements, computers/technology, meaningful activities and group work can trigger interest in new objects (e.g., Renninger, Bachrach & Hidi, 2018). In in-depth case-studies, scholars have reported on how a similar situatedness is at play when engaging with sustained objects of interest. For example, Hollett and Hein (2019) demonstrate that object-related engagement is highly social and spatial, which they describe as comprising of collectively produced atmospheres. In a similar vein, Azevedo (2006; 2011; 2013) showed that engagement with an object of interest is highly dependant on material circumstances and affordances. Few studies, however, have examined this situated nature systematically on a larger scale over different interests and persons.

1.2. Historicity and purpose

Following the idea of a personal and cross-contextual perspective on interest (Akkerman & Bakker, 2019; Azevedo, 2011; Draijer, Bakker, Slot & Akkerman, 2020), moments of non-interest need to be understood in terms of the historicity of engagement, an individual's purpose for engaging, and the material and social context. An event with a sustained object of interest is never isolated in time, but rather embedded in a series of object-related events. Repeated engagement creates historicity, that is, a history of personal relevance projected onto the object of interest (Draijer et al., 2020). Based on this historicity, the object may come to hold (a) certain idiosyncratic purpose(s) in someone's life that may in turn develop over time (Akkerman & Bakker, 2019; Azevedo, 2011; Slot et al., 2020b). For example, in Barron's (2006) study on middle school students who are interested in working with computers, Stephanie was interested in programming because she likes being creative. She compared programming to making art, and seemed mostly interested in "the expressive potential of the technology" (p.211). By contrast, Craig was mostly interested in how computers work, and in broader technological developments (e.g., also being part of robotics club). His future plans involved learning more about computer hardware and Artificial Intelligence. Hence, Stephanie ascribes a different purpose to working with computers (i.e., expressing herself creatively) than Craig does (i.e., learning something about computer technology). These different purposes, whether implicit or explicit, likely have consequences for experiencing interest: Stephanie may not be interested during a very technically challenging lesson in school as it does not involve artistic expression, whereas Craig may find it fascinating.

The purpose of an object of interest may not be apparent immediately when engaging with a new object, but rather it develops and shifts over time as new events continually redefine what an individual sees and seeks in an object in a given situation. Moreover, an object can have different purposes in parallel or sequentially, or a different purpose may be foregrounded in different settings (Azevedo, 2011; Nolen, 2007; Slot et al., 2020b). For instance, Slot et al. (2020b) describe an adolescent who is interested in cooking and who at some moments aims to try out new recipes, while at other times just enjoys cooking as a social activity to undertake with others. Cooking, for this adolescent, captured both a purpose of experimenting with recipes and a purpose of socializing with others. Such purposes may over time develop without the student being aware of them (Slot et al., 2020b).

1.3. Interest anticipation

When an individual is about to engage with an object of interest, they may (implicitly) anticipate being interested based on preceding events (i.e., historicity), the purpose(s) of the object and expectations of the upcoming situation. For example, the aforementioned Stephanie (Barron, 2006) might anticipate being interested or not when she walks into programming class, depending on the topic that she knows will be covered that day in combination with the purpose that programming has for her (i.e., expressing herself creatively). Whether this anticipation is met when engaging with the object of interest depends on the entire situation (Hedges, 2019), which includes the object in that moment, the individual engaging with it and the material and social setting in which this momentary engagement is situated. For instance, in the abovementioned case of the girl who, despite her interest in reading, dislikes reading in school (Slot et al., 2020a), the girl mentions: "I don't like that I have to read this book for school, because normally I like reading but NOT books that are chosen by school. However, I do like reading before going to bed." (p.7) In this situation she describes how both the obligatory nature of the engagement (i.e., the setting) and the fact that the book is chosen by school instead of hand-picked (i.e., a different object in that moment) manifested in non-interest, even though she normally does like to read before bedtime (i.e., the historicity).

1.4. Current study

Small-scale studies (Hedges, 2019; Slot et al., 2020a; Zimmerman, 2012) already show diverse examples of what we term non-interest and call into question how often this occurs and what variations exist in how non-interest manifests. The current study addresses this gap by systematically examining non-interest on a larger scale across a diversity of persons and objects of interest. We apply a person-centred and across-context perspective (Akkerman & Bakker, 2019), so as to consider life-wide experiences of students. The research question we aim to answer is: To what extent and in what way(s) does non-interest manifest for students? By contributing to a more comprehensive understanding of moments of non-interest, we aim to enrich ongoing discussions about involving students' interests in the educational context (e.g., Slot et al., 2020a).

2. Methods

The current study is part of a larger project (Akkerman, 2017-2023) in which the interests of young people are investigated with a longitudinal, mixed method, experience sampling method (ESM; Hektner, Schmidt & Csikszentmihalyi, 2007) implemented in a smartphone application. ESM is a research methodology in which participants receive repeated signals to answer questions about their situated experiences during or immediately after their occurrence, which makes the method suitable to capture interest experiences without problems of memory (Bergin, 2016). The study was approved by the Ethics Committee of the Faculty of Social and Behavioural Sciences of Utrecht University.

2.1. Participants

The larger project consisted of 284 participants from the six largest secondary and tertiary educational tracks in the Netherlands, covering both (pre-)vocational, general (professional) and (pre-)university education (in Dutch: *mavo, havo, vwo, mbo-4, hbo, wo*). This diverse sample was chosen to capture a large variety of complex interest experiences across different educational settings (i.e., both practically-orientated and academic programs) and life-wide situations (maximum variety sampling; Creswell, 2002). Respondents volunteered to participate and were given financial compensation for taking part in the study. All participants signed an informed consent form and for participants who were younger than 16, a parent or caregiver signed an additional permission form.

For the current study we used the data of a subsample, since the intensive qualitative approach did not allow us to analyse all data (Onwuegbuzie & Leech, 2007). To start, we randomly selected 10 respondents of each educational track, resulting in a subsample of 60 respondents, which is acceptable given earlier qualitative ESM studies in diverse disciplines (e.g., Maloney, 2019; Peterson & Miller, 2004; Slot et al., 2020b). We intended to expand this sample if saturation had not been reached, but this was not deemed necessary (see Section 2.4.3).

The final sample therefore consisted of 60 respondents aged 14–26 ($M = 18.06$, $SD = 3.04$), of which 57% were female. All respondents were enrolled in the penultimate year of their study program during the first and second week of data collection, and most transitioned to the final year preceding the third and fourth week. Students in tertiary education were enrolled in diverse programs, covering a range of disciplines. Most students lived in urban areas in the Netherlands.

2.2. Instrument

This study used a smartphone application named *inTin* (Akkerman and Bakker, 2019). This application allowed respondents to report on their daily interest events. Respondents could add any object of interest into the application and, following from our person-centred perspective, participants were free to give any name to their objects of interest instead of choosing from pre-existing categories, doing justice to the idiosyncratic nature of interest (Akkerman & Bakker, 2019). In addition, respondents were asked to add a list of their social contacts and groups into the application.

During data collection the application sent notifications to the participants, prompting them to report on interests they had experienced in the past two hours (if any). The respondents could select an object of interest from the list of interests that they entered

at the beginning of the wave, and/or add any new (incidental) objects of interest to that list. Any time participants reported to have engaged with an object of interest (even if it was not interesting at that moment), they were asked to answer several questions about this event, which are displayed in [Table 1](#). Together answers revealed contextual information ([Akkerman & Bakker, 2019](#)) as well as indications of what we identify as instances of non-interest (see [Section 2.4.2](#)).

2.3. Procedure

Participants received a 1-hour instruction prior to data collection, during which they discussed what interests were. Following our definition this included anything they preferred to spend time on, including novel objects, even if they did not have time to do so currently. Based on prior research, students were instructed to only add returning daily activities (e.g., eating, make-up) when they also *thought* about these activities (i.e., included a cognitive component; [Hidi & Renninger, 2006](#)) as to prevent reporting all daily activities. Additionally, participants were taught how to use the application, practiced with it and were stimulated to ask questions.

Data collection consisted of four weeks (four times seven days) of reporting, with approximately three to four months between each week (thus respectively taking place in March, June and October 2018 and January 2019). At the beginning of each wave of data collection, respondents were asked to enter all their current objects of interest into the application. During the wave, the application sent a notification to the participants every two waking hours, prompting them to report on interests they had experienced in the past two hours (if any). The students were asked to report *any* events with the objects of interest they previously added, even when they did not find it interesting in that moment. The students could select an object of interest from the list of interests that they entered at the beginning of the wave, and/or add any new objects of interest to that list. Participants were required to respond to notifications at least five times a day. If they did not engage with an object of interest or experience interest in the past two hours, they could indicate this in the application and such report would equally count as one of five required responses per day.

2.4. Analyses

The analyses were done in several steps. First, students' sustained objects of interests were identified. Second, we selected events in which non-interest occurred with a two-step approach. Third, selected events were analysed to see how the non-interest manifested. Each step is elaborated on below.

2.4.1. Sustained objects of interest

Sustained objects of interest were identified by studying whether these objects were pursued over a longer period of time, i.e. were reported in at least 3 out of the 4 waves, leaving some room for interests to temporarily wane and reappear ([Akkerman & Bakker, 2019](#)). As participants could give any name to their objects of interest, variations in the names over time could occur. Therefore, objects were coded as sustained if the keyword in the name was the same over time (e.g., *soccer* and *playing soccer*, accounting for abbreviations or translations) or if similar terms were used interchangeably to reflect the same key content (e.g., *meeting friends* and *chilling*). In case of doubt the event data was used to verify whether different interest names reflected the same key content. Exceptional cases were specific brand names, which were sometimes reported in parallel to the larger categories they belonged to. For example, interest in *Gaming* was sometimes reported in the same wave as interest in a specific game (e.g., *Fortnite*). These names were both coded as sustained if they, when combined, occurred at least three waves (even if, for example, *Fortnite* was reported as a separate interest only once). Another exception was made for study program-related interests if the event data showed that these reflected the same key content (even when not displaying the same keyword). On average, we identified 7 sustained objects of interests for the students during this research period (range 3 – 15).

2.4.2. Occurrences of non-interest

To identify occurrences of non-interest, a two-step approach was used. Firstly, three quantitative indicators were used to signal any events where the level of interest-scale was rated low or lower than average. Second, if an event lit up on one or more of these quantitative indicators, the interest elaboration was analysed to see whether the student indeed described and qualified non-interest.

2.4.2.1. Level of interest. Using the Level of Interest-scale (ranging from 0 to 100, see [Table 1](#)), we used three quantitative ways of

Table 1

Overview of Questions Asked in inTin for Interest-Related Events.

Concept	Question (translated)	Answer type
Social Circumstances	Who did you share this interest with?	Choose from the list of contacts/groups, or <i>Alone</i>
Activity	What took place?	<i>Did something, Talked/Written/Thought, or Watched/Listened/Read</i>
Characterization		
Device Use	How did the activity take place?	<i>With device, or Without device</i>
Level of Interest	How interesting did you think this activity was?	Intuitive horizontal scale from 0 (not interesting) to 100 (very interesting), starting point 50
Experience Description	What did you do?	Open answer
Interest Elaboration	What did you think was or was not interesting about that?	Open answer

selecting potential non-interest events, see Table 2. The first indicator is based on the bullet starting point being set at 50, hence we deemed participants swiping left on the scale a meaningful cut-off point to identify events with potential non-interest. The second and third indicator are relative and will thus select potential non-interest events while doing justice to both intra- and interindividual differences and idiosyncrasy in experiencing interest (Akkerman & Bakker, 2019). As objects of interest were sometimes only engaged with a few times during a wave, the relative indicators are not suitable (nor intended) to identify significant differences between ratings, but solely serve a signalling function.

2.4.2.2. *Interest elaboration.* For every object-related event, respondents provided a detailed description of what they thought was or was not interesting about what they just did (Interest Elaboration, Table 1). For all 1032 events that lit up on one or more of the three quantitative indicators, the elaborations were analysed to see whether the student indeed seemed to experience a degree of non-interest. If the elaboration either explicitly addressed non-interest (e.g., “I did not find ... very interesting” or “it was boring because ...”) or implicitly indicated non-interest (by only giving an explanation, e.g., “I already knew this”), the event was marked as a non-interest event. For 285 events there was no indication of non-interest in the elaboration. This resulted in selecting 747 events (12% of events with sustained objects of interests) that reflected non-interest. Of these, 97% was lower rated lower than 50, 23% was (also) rated lower than average for that object of interest, and 8% was (also) rated lower than average for that wave (respectively indicator 1, 2 and 3; Table 2).

2.4.3. *Qualifications of non-interest*

To study how non-interest manifested, we applied open coding by breaking down and summarizing the data into short codes (Boeije, 2009). We first coded how students themselves qualified their non-interest in their elaborative texts. Second, we examined all other reports with the same object of interest across all weeks (i.e., the historicity). Using these elaborations we identified a) the purpose(s) that the student (explicitly or implicitly) ascribed to the object of interest, b) counterexamples (e.g., events with a similar elaborations but higher rating; Miles & Huberman, 1994) and c) deviations in the social and material context (using the items in Table 1). This information was used to refine our understanding and coding of the non-interest event. Third, we studied the entire wave in which the non-interest event occurred, including events with new interests, to detect any other relevant descriptions. For example, when a participant reported to be tired on a certain day this might provide an extra qualification of a non-interest event on the same day, even when not mentioned in that specific event.

After open coding the non-interest events of half of the participants, we applied axial coding (Boeije, 2009) by re-iteratively grouping together initial open codes for non-interest that were similar in manifestation until exhaustive meaningful categories were reached. This resulted in five manifestations of non-interest. The axial coding was applied to the other half of the participants and some extra open codes were added, but no additional axial codes emerged.

2.4.4. *Quality assurance*

To assure the quality of the analyses, an independent researcher was asked to perform a summative audit conform the procedure described by Akkerman, Admiraal, Brekelmans & Oost (2008). An audit is more comprehensive than computing interrater reliability since it covers not only the outcome (codes) but the entire complex and iterative process of analysis. The independent researcher was provided with all the data and coding, and was asked to assess the visibility, comprehensibility and acceptability of the analyses (Akkerman et al., 2008). He concluded that the coding steps taken were transparent to follow, the decisions were well motivated and supported by the data, and decisions were of high quality conform the standards in the field. A few suggestions for improving the descriptions of the procedure and manifestations were implemented, and the definitions for the disappointment and frustration manifestations were refined.

3. Results

Out of all 9199 interest events, 8% (747 events) reflected non-interest (12% of 6317 events with sustained objects of interest). The number of non-interest events per student ranged from 0 to 60, with an average of 12. Seven students (12% of respondents), of which six female, from a variety of ages and educational tracks did not report non-interest. The 747 events reported by 53 students were spread over 173 sustained objects of interests (42% of the total amount of sustained objects of interest, $n = 416$). In other words, for some sustained objects of interest no non-interest is reported, and non-interest often manifested multiple times ($M = 3.3, SD = 1.8$) for the same object of interest. Occasionally non-interest events also seemed to occur in sequences, sometimes with the student indicating

Table 2
Three Quantitative Indicators Used to Signal Potential Non-Interest.

Indicator	Description	Calculation	Amount of potential non-interest events*
1	Absolute Level of Interest-score below 50	Event rating < 50	989
2	Level of Interest-score lower than average for object of interest	Event rating < $M_{obj} - 2*SD_{obj}$	87
3	Level of Interest-score lower than average for the entire wave (all objects of interest)	Event rating < $M_{wave} - 2*SD_{wave}$	220

Note. Due to overlap of the indicators, the total amount of potential non-interest events identified in this step was $n = 1032$.

an overarching explanation (like sickness or feeling tired), but other times the underlying reason for this was not clear.

3.1. Five manifestations of non-interest

Based on the non-interest events we identified five manifestations of non-interest: resignation, detachment, disappointment, frustration, and regret. We will first describe each manifestation in order of appearance, with resignation before the event, detachment early into the event, disappointment occurring anywhere during engagement, frustration occurring later into the event and regret occurring after the event. Subsequently we describe how multiple manifestations can occur during one event. It should be noted upfront that we do not equate non-interest with, for example, frustration: frustration can occur in parallel with interest. Rather, in these moments of non-interest, frustration characterizes the way in which non-interest manifests.

3.1.1. Resignation

First, we found non-interest events in which the students did not seem to anticipate being interested ($n = 174$; 23%). Rather, the students described starting the event with their object of interest out of routine, obligation, boredom or other external motives (e.g., watching YouTube to wake up). When non-interest occurred, it did not seem to surprise students, rather they resigned to it and explained why they engaged with the object anyway. Some objects of interest are part of a daily or weekly routine and are interacted with out of habit. For example, Clara describes *walking with the dog* multiple times a week. About a third of the time non-interest occurs, and in these moments she often describes doing the same thing every day. For instance, on a Monday in February at 8:15AM she reports: “I walked a large round past the quay with the dog” and elaborates: “I did not find this very interesting because I do this almost every day” (Level of interest: 40). However, despite doing this almost every day, sometimes walking the dog still is interesting when something catches her attention, for example when something unexpected happens, when the weather is exceptionally nice or when she is walking the dog together with a friend.

In other events, resignation occurs when the event is obligatory, for example when Jack reports on engaging with *School* on a Sunday in February at 9:40PM: “I worked on math and also practiced, because I have a resit on Friday”, “I did not find it fun or interesting, it just needed to be done” (Level of interest: 15). As school in general is an obligatory practice, it seems likely that all Jack’s school events would be non-interest events. This, however, is not the case, see for example the events in [Table 3](#). These events illustrate how the obligatory nature of an event does not automatically manifest in non-interest, rather it is the way that the student qualifies their experience when they do not experience interest.

In the cases in which non-interest is attributed to boredom, students describe that they started engaging with an object because they were bored or they did not have anything better to do. Evidently the event was not successful in clearing up the boredom, and the student attributes this to their starting it out of boredom. For example, one student describes engaging with *Social media* on a Sunday in February at 9PM: “I was watching some movies on Instagram and Snapchat”, “I did not find this interesting but I was bored so I started to do this” (Level of interest: 20).

When an object of interest is engaged with out of routine, obligation or boredom, students did not seem to anticipate becoming interested, but they engaged with the object anyway. They resign to the non-interest, and only when something catches the attention of the student, for example when something out of the ordinary happens, interest may arise.

3.1.2. Detachment

The second manifestation of non-interest ($n = 101$; 14%) regards detachment, i.e., low or no engagement of the student due to either feeling tired, ill or experiencing pain, doing another activity in parallel or being preoccupied with thoughts. For example, one student reported *Watching Netflix* on a Monday in June at 8:15AM: “The usual morning rituals although I have quite the hangover from a long weekend at the convention, and am finishing *Inglorious Bastards* in the train”, and elaborates: “Tarantino films are almost always pretty beautiful and enjoyable, but I am a bit too tired at the moment” (Level of interest: 36). Feeling tired, ill or experiencing pain often affected multiple events on a day or week, with possibly multiple associated non-interest events.

Low engagement while doing a parallel activity mostly occurred for listening to music while doing other (less interesting) activities, like studying or housework. For example, Scarlett reports *Listening to music (EDM, pop, pop-rock)* on Sunday in March at 11:03PM: “Listened to music while studying”, “It was on in the background, so it was not very interesting” (Level of interest: 27). This combination of music and studying occurred for more students, often resulting in non-interest unless something about the music

Table 3
Events for Jack’s School Interest.

Day/time	Interest name	Level of Interest	Experience description	Interest Elaboration
March, Thursday, 4PM	Homework / school	75	Tomorrow I have a test for math, which I finished the homework for to practice still	I found it interesting, it’s about probabilities now. I find it interesting to see what formulas are used for this.
March, Sunday, 3PM	Homework / school	75	I’ve been studying for civics and making a summary too.	I find politics interesting, especially seeing the differences between countries and how exactly it works in the Netherlands
February, Wednesday, 12:01PM	School	70	I had Physics in the past hour, this time it was about quantum mechanics	It is quite interesting to see how light behaves as a wave and as a particle.

specifically grabbed their attention (e.g., some new songs). However, they did often describe that listening to music made the other activity, for example doing homework, more fun.

Being preoccupied with thought mostly concerned thinking of or stressing out about other activities that needed to be done, but also thinking about things that the student would rather be doing (e.g., thinking about the vacation that starts next week). For example, one student reports engaging with *Bayesian analyses (Statistics)* on Wednesday in June at 8:07PM: “I worked on my discussion again”, “I like to write a smooth-running story, but I want to finish it quickly since I have more things to do” (Level of interest: 23).

3.1.3. Disappointment

A third manifestation of non-interest concerns events that do not meet their purpose in the eyes of the student, i.e., students report being disappointed, which is by far the most occurring manifestation ($n = 498$; 67%). For example, Nora studies to become a physiotherapist and reports on her internship regularly. Engaging with *Physiotherapy* in this way allows her to learn new things about how to help her clients in the best way possible. In the following event on a Thursday in October at 12:09PM she describes that this purpose is not fulfilled because the object in the moment disappoints: “Training someone with a hip prosthesis”, “Interesting which movements are and are not possible, but not very challenging” (Level of interest: 36).

In events like this the student often names something which they did anticipate beforehand, but is missing in the moment: the topic or activity is not funny, enjoyable, challenging, novel, exciting, captivating or useful enough. This differs per interest and per moment, and relates to the purpose(s) of the object of interest. In other words, the object or situation falls short in the eyes of the participant, and when students realize that the purpose they had anticipated is not met, they are left disappointed. If objects of interest are associated with multiple purposes, these can simultaneously manifest in non-interest. For example, Rosa is studying Educational Sciences and often reports on this. She likes to learn about educational topics and understand them better, and also enjoys using the knowledge she gained in practice. Both these purposes can manifest in non-interest, see [Table 4](#).

A variation of the disappointment manifestation concerns a mismatch between the object at hand and the object of interest. For example, Toby reported on his school lessons in *Geography* regularly, stating that he was very interested in learning about topics like climate change and wind currents. However, other topics were not as interesting to him, for example on Wednesday at 6:18PM he reports: “This chapter is on Brazil but this part I find less interesting”; “This part is less interesting because it is partly about history and economy” (Level of interest: 37). Events like this mostly occurred in situations where the student was not in control of the topic or activity at hand, for example in school or at work but also in structured hobby settings (e.g., a tennis lesson with less interesting elements) or social situations (e.g., we talked only about school, which was not interesting).

3.1.4. Frustration

Fourth, we found non-interest events in which students try to gain something out of the situation, but are not able to, i.e. their lacking ability frustrates them ($n = 58$; 8%). This mostly occurred in situations where something could be learned but the student was unable to understand it, or in situations where something can be achieved, e.g. winning in games, but the student was not able to achieve it. For instance, on a Friday in March at 10:31 AM this student reports that he engaged with *Gaming*: “Clash royale”; “I played a new challenge but didn’t like it because I lost..” (Level of interest: 38). In these events the student has made an effort to get something out of this situation but was unable to, which they attribute on their own lack of abilities. In the educational context this can look something like the following: on a Monday in June at 2:15 PM this student reports working on a *School project*: “Did work preparation”, “Not fun because I don’t know how to do it” (Level of interest: 43).

3.1.5. Regret

The last manifestation of non-interest concerns an event that was successful (enjoyable), but has repercussions that affect the experience, which prompts regret ($n = 15$; 2%). For example, Layla reports *Watching Netflix* daily, sometimes multiple times a day. She has been watching a series called Supergirl, but it has come to an end on this Sunday in June at 11:10AM: “I watched a few new episodes of Supergirl”; “The episodes were very exciting unfortunately now I have to wait until October for new episodes.” (Level of interest: 68, which is lower than average for this object of interest in this wave). In this case, the knowledge that she now has to wait a long time for new episodes reflects on her feelings about the episodes, even though they were as exciting as usual. Other events where repercussions were concerned involved clear regret over starting the activity, for example for this student who went Hiking on a Monday in October at 4PM: “I walked to my internship site to explore the route”; “It’s nice to get some fresh air but now my hands are cold and my feet hurt and I have to go all the way back home.” (Level of interest: 37).

Table 4
Non-Interest Events for Rosa’s Education Interest.

Day/time	Interest name	Level of Interest	Experience description	Interest Elaboration
June, Monday, 10:01AM	Education	40	Reviewed exam material on change in organizations	Repeating the material becomes boring
April, Monday, 10:01AM	Education	35	Wrote an implementation plan	It was not interesting, because it will not be executed

3.2. Multiple manifestations

Multiple manifestations can occur in one event. For example, Lucinda repeatedly reported being interested in watching *Movies*, which she enjoys most when the movie is suspenseful or funny. On this Thursday in October at 12PM she reports: "I watched a movie in German class"; "It is a boring movie and I don't get it at all" (Level of interest: 30). In this event, Lucinda herself expresses both being disappointed ("a boring movie"), and not getting the movie, which points to the manifestation of frustration. Furthermore, when studying other events with this object of interest it stands out that this is the only event where she watches a movie in school, whereas she usually watches movies at home, alone or with family members, possibly also resulting in not anticipating interest (resignation). For about 14% ($n = 103$) of events simultaneous manifestations are observed, either in the student's own qualification or when studying other events with the same object of interest. The most common co-occurrences were anticipated non-interest with a disappointing object ($n = 45$), detachment with a disappointing object ($n = 22$) and anticipated non-interest with detachment ($n = 21$). Examples of each of these are included in Table 5.

4. Discussion

The current study aimed to address the situated nature of interest by investigating instances of non-interest: moments where one engages with a sustained object of interest but no actual interest emerges in the moment. To answer the research question "To what extent and in what way(s) does non-interest manifest for students?" we analysed 747 events for 173 sustained objects of interest. The findings show that non-interest occurs for about 12% of events with sustained objects, which we deem a substantial amount that calls into further question the stability of interest reflected in interest research and practices. The non-interest ratio varies per adolescent, with 12% of students in this study not reporting any non-interest events. Non-interest only occurred for a portion of the objects of interest, evidencing that some objects of interest may be less prone to some manifestations of non-interest (see below). For some objects, non-interest occurred multiple times within the research period, while still remaining an object of interest over time. By studying the entire situation, as well as the purpose and the historicity of engagement, we uncovered five manifestations of non-interest, which each reflect on interest as an experiential, situated and dynamic construct.

4.1. Five manifestations of non-interest

The first manifestation, *resignation*, shows how students do not always anticipate being interested when engaging with their object of interest, for example when they engage with the object out of routine, obligation or boredom. Especially for routinized and obligatory events this seems paradoxical and can call to question why the students report these objects as interests at all. A possible explanation is that objects of interest which are currently engaged with out of routine may have started out *with* anticipation of interest (Akkerman & Bakker, 2019), but have since become habitual everyday events, losing their initial attraction (Akkerman, Vulperhorst & Akkerman, 2020; Draijer et al., 2020). A second explanation could stem from what Dewey (1903) called mediate interest and Arnold (1906) secondary interest, where the engagement itself holds no pleasure but rather leads to a pleasurable outcome. This may be the case for some of the events out of obligation, for example where school or studying is involved.

With regards to the situated nature of interest, resignation demonstrates how anticipation plays a role in interest. Given that non-interest does not occur for every event with the object of interest, this anticipation appears to be not solely based on the object of interest, but on the entire situation (e.g., the reason for engagement and the social conditions) and the historicity of engagement. A lack of interest anticipation may reflect on the threshold for interest: without anticipation, interest may only emerge when something is especially attention-grabbing, for example when something out of the ordinary happens. It is important to note that routinized engagement, just as engagement of an obligatory nature, is not in itself a guarantee for non-interest: our findings demonstrate an abundance of cases where a routinized or obligatory engagement *does* generate interest. Rather, when it is *not* interesting, the student deems the routine or obligation to be a part of this, which demonstrates that not anticipating interest is the default for these moments. Future research could systematically examine interests where routine or obligation is involved and elaborate on their development and purpose, for example by asking students to reflect on the specific circumstances under which resignation occurs. This is especially relevant for obligatory engagements in school as a mandatory practice, and future research can aid educators in understanding how interest can develop in these settings despite the obligatory nature of engagement.

Table 5
Examples of Non-Interest Events with Multiple Manifestations.

Combination	Interest name	Level of Interest	Experience description	Interest Elaboration
Resignation + Disappointment	Reading	36	Read the book Quality assurance in legal practice.	I thought the book very boring and drawn out ¹ , but have to pass this course so I had to keep reading ² even though I did not like it.
Detachment + Disappointment	Running	32	We went running together with Dana.	It was boring and cold ¹ . Moreover we were both a little tired ³ .
Resignation + Detachment	Listening to music (EDM, pop, pop-rock)	30	Listened to music while doing assignments ³ in class.	It wasn't that interesting because it was just songs I always listen to ² .

Note. 1: Disappointment; 2: Resignation; 3: Detachment.

Detachment, the second manifestation of non-interest, concerns moments where students are not wholly present in the current moment, for example because they are tired or sick, or because they are doing or thinking of something else in parallel. These occurrences contribute to discussions about the relation between attention and interest (e.g., Silvia, 2006). The current study shows how interest and attention develop in unison: if there is no attention, interest also cannot emerge. The detachment manifestation furthermore exposes ways in which events interrelate: an interest-related engagement can never be seen in isolation as engagement constitutes a continuous stream of human experience (Dewey, 1986; Roth & Jornet, 2014), and other parallel or sequential events can leave the student distracted or without enough energy to fully engage even when highly interested in the object at hand (Conard & Marsh, 2014). The current study indicates that all objects of interest may be susceptible to this form of non-interest when it concerns feeling tired or ill, whereas some objects are often combined with other activities (e.g., listening to music and doing homework; see also Slot et al., 2020a).

The third and most prevalent manifestation of non-interest that was found, *disappointment*, regards moments where the student anticipates interest but is disappointed, for example when an episode of a TV show is not as funny as they had anticipated it to be. This manifestation indicates that in any interest-related engagement, the student's own effort in regulating their interest is not always enough (Hidi & Renninger, 2006). The object mediates an individual's experience, leaving the student disappointed. The findings also show how *disappointment* entails something different for each object of interest, and possibly for each moment of engagement, as the purposes of these objects or moments are different. For example, in the beforementioned example of Rose, studying Education held multiple purposes (learning something new and using knowledge in practice), and which one was (or which ones were) foregrounded depended on the situation. This indicates that there is no one-size-fits-all roadmap towards interest, rather whether and how interest emerges for someone in a certain situation is highly idiosyncratic (Slot et al., 2020a, 2020b).

The variation of the disappointment manifestation which concerned a mismatch between the object of interest and the object at hand, contributes to existing discussions on the generality and specificity of a topic of interest. Previous studies show how interest in a general topic (e.g., mathematics) can be rated differently than interest in a specific sub-topic (e.g., mathematical proofs; Ainley & Ainley, 2011; Ufer, Rach & Kosiol, 2017). In the current study, allowing students to give any name to their interests, in addition to studying interest in a moment-to-moment fashion, made visible even more specificity and variation in topics of interest. When a mismatch between the object of interest and the object at hand occurs, this may prompt the student to further specify and redefine their interest.

The fourth manifestation of non-interest, *frustration*, concerns moments where one tries to get merit out of an object-related engagement, but is not able to. This can happen especially in situations where a certain goal or form of achievement is involved. Some objects of interest are more susceptible to this than others, for example the objects of interest that involve a set goal or revolve around gaining knowledge or skills (goal setting and progress appreciation sustainment mechanisms; Slot et al., 2020b). This manifestation thus highlights how the purpose of an object of interest can be dominant in determining the value of an event: For engagement with these objects the student may need to experience some degree of progress to be interested. This also aligns with previous studies that demonstrate how interest can be a by-product of knowledge acquisition (Rotgans & Schmidt, 2017).

The fifth manifestation, *regret*, occurs when there are repercussions to an otherwise interesting engagement with an object of interest. Hence, the student reflects on the event from multiple perspectives: from one perspective the experience was interesting, but seen from a secondary perspective it leaves the student with unpleasant consequences, which then reflects on the experience. This manifestation demonstrates how multiple perspectives or multiple interests can conflict in one's life: one event can be experienced in multiple, conflicting ways. This once again impresses the importance of considering the individual as a whole, and not one interest in isolation, when studying interest (Akkerman & Bakker, 2019; Hofer, 2010). Future research could study different ways in which objects of interest can conflict or complement each other in daily life.

The five manifestations can occur together in a situation, for example when one is both disappointed in the object and also a little too tired to focus. This further emphasizes the dynamic nature of interest-related engagements. Together, these five manifestations underscore the idiosyncrasy of interest and the value of taking the situated nature and purpose of sustained objects of interest into account when trying to understand interest. This article also shows how non-interest could be a potential catalyst for continuously redefining the object of interest and making changes to interest-related pursuits. For example, repeatedly experiencing non-interest in certain interest-related situations (but not in others) can prompt one to avoid these situations altogether and to narrow down the interest (Akkerman & Bakker, 2019). Further research into the consequences of repeatedly experiencing non-interest is recommended.

4.2. Limitations and suggestions for future research

The interpretation of these results should be considered in light of several methodological choices. First, the sustainment coding was done by the researchers and not the students themselves, which introduced some complexities in determining which interest names were connected over time. Our cautious approach (using synonymous keywords) could have led to underestimating the number of sustained objects of interest in the data, and may have limited us in uncovering interests that were most dynamic and in the process of being redefined. However, we deemed a cautious approach most fitting to the aim of this study, as we would rather under- than overestimate the number of sustained objects of interest and the phenomenon of non-interest. In addition, this approach allowed us to study a larger number of students in a systematic way.

Second, the used quantitative cut-off points for detecting non-interest (ratings lower than 50, or lower than two standard deviations below the mean) may have limited the non-interest events that we have found. However, using a combination of absolute and relative cut-off points, and finding that for a large portion of the selected events (28%) the qualifications did not reflect non-interest, we feel confident that our initial selection was broad enough.

Lastly, seven students did not report non-interest. The current study was explorative of nature, and therefore the study aim and design were not sufficient to interpret this, but future research could further investigate individual differences in experiencing (a lack of) non-interest. Asking students themselves to reflect on their experiences may provide more information on the circumstances under which non-interest does and does not occur, but also on the reasons why students engage with an interest even when they do not anticipate being interested. In addition, this type of reflection may assist in recognizing the (long-term) consequences of experiencing non-interest repeatedly.

4.3. Implications

The findings of this study have several implications for theory and practice. First, the five manifestations further confirm that interest is highly experiential and dynamic: When engaging with an object of interest, interest cannot be guaranteed. For interest research these results show the importance of studying interest in a moment-to-moment fashion, also for sustained objects of interest (Bergin, 2016; Chesworth, 2019). Studying interest only in aggregate overlooks the dynamics that take place within an interest-related event and over the course of multiple events (i.e., the historicity), whereas these dynamics give a more precise and complete understanding of interest. Theories on interest development would do well to expand on this experientiality in addition to describing processes on the level of objects of interest.

For educational and teaching practice, the five manifestations of non-interest demonstrate that it is difficult to predict whether drawing students' interests into educational contexts will be successful. In some instances, everyday life-wide circumstances may 'get in the way' (e.g., in the detachment manifestation). Other times, the student's historicity and purpose with an object may not line up with the purposes in education (e.g., in the disappointment manifestation, see Lucinda's example above) or educators may lack the expertise for a specific object of interest (Bronkhorst & Akkerman, 2016). Therefore, we suggest designing education in such a way that students themselves can decide whether and how to involve their interests in school (e.g., Akkerman & Van Eijck, 2013; Ramey & Stevens, 2019). This may align with initiatives such as self-sustained learning (Barron, 2006; Yang, 2015), in which the student takes a central role in pursuing expertise development.

For educational policy, our results suggest recognizing that not every interest is meant to be shared in school and not every student can (or should) be interested during every moment of the day. Rather than striving towards continuous interest in every subject course, we propose that policy aims to help students discover their interests and engage with these in their own, idiosyncratic ways, doing justice to individual variations. Giving students a more central role in pursuing interest within their education can, for example, be achieved by giving them more freedom in choosing assignment topics or by offering more space for electives. However, such initiatives should not be designed to prevent non-interest, as from our findings it appears that non-interest is a natural part of interest development dynamics, which should be embraced in the discovery of one's interests.

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