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The role of school in adolescents' interest in daily life

Esther M. Slot*, Larike H. Bronkhorst, Theo Wubbels, Sanne F. Akkerman

Department of Education, Faculty of Social and Behavioral Sciences, Utrecht University, the Netherlands

ABSTRACT

Questioning adolescents' reported lack of interest in school, this study aims to present a more nuanced understanding than previously described of the role of school in adolescents' interests in daily life. We scrutinized 7240 interest experiences reported by 44 adolescents using an experience sampling smartphone application *inTin*. Our analysis revealed that adolescents referred to school in their interest experiences in three ways, reporting interest *in* school, interest *at* school, and interest *after* school. Adolescents differed in the extent to which their interest experiences reflected these ways. One adolescent did not mention school in her interest experiences at all. We provide directions for adolescents' interest research as well as educational practice, including for teachers to connect to adolescents' interests.

1. Introduction

School is typically *not* seen as the object of interest for adolescents or as a context for developing interest. There are ample studies from all over the world (e.g. U.S., Italy, Senegal, Korea, Japan) reporting that adolescents experience high levels of boredom, low intrinsic motivation and other negative affect when participating in school (see Larson & Verma, 1999). These findings can be considered worrisome, not only because adolescents spend a quarter to a half of their waking hours in school (Larson & Verma, 1999), but also because lack of interest in school has been associated with low academic engagement and achievement over time (Lumby, 2011; Pekrun, Goetz, Daniels, Stupnisky, & Perry, 2010). Research even reports that interest in school tends to decline with age, especially in adolescence (e.g. Barmby, Kind, & Jones, 2008; Frenzel, Goetz, Pekrun, & Watt, 2010; Potvin & Hasni, 2014).

Yet, when examining these results, an alternative explanation could be that these findings are the result of studies focusing on aggregated results in adolescent populations (e.g. adolescents' averaged interest levels), instruments that predefine particular objects (e.g. chemistry, Krapp, 2002) and contexts of interest (e.g. at school, Barron, 2006). By asking adolescents to self-define their interests, report their individual interest experiences throughout daily life and analyzing these from a person-centered perspective (Akkerman & Bakker, 2019), this article aims to shed a different light on the role of school in interest.

1.1. Interest experiences

Historically, interest is defined as a predisposition to re-engage with a particular object, or a psychological state characterized by an affective component of positive emotion and a cognitive component of concentration (Hidi & Renninger, 2006; Renninger & Hidi, 2017, p. 16). Interest is seen as a product of continuous interaction between an individual and his or her environment (Hidi & Renninger, 2006; Krapp, 2002). Typically, interest research has described the development of interest as an ongoing process that starts with the interest being triggered in a particular situation. This so-called situational interest may gradually develop into an interest pursued by the individual (i.e. grow towards an individual interest, Hidi & Renninger, 2006). Persistent engagement with an

* Corresponding author at: Department of Education, Faculty of Social and Behavioral Sciences, Utrecht University, Langeveld Building, Heidelberglaan 1, 3584 CS, Utrecht, the Netherlands.

E-mail address: e.m.slot@uu.nl (E.M. Slot).

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object of interest over time depends on one's experiences with the object of interest, for example the attribution of value or positive feelings towards the object (e.g. Renninger & Hidi, 2017). Whereas situational interest reflects engagement in a specific content at a particular point in time (i.e. a 'fleeting' interest), individual interest refers to a person's predisposition to re-engage with specific content.

Different scholars have questioned characterizing interests by such a dichotomy, both on conceptual (Akkerman & Bakker, 2019; Azevedo, 2011; 2013; 2018; Barron, 2006) and empirical (e.g. Akkerman, Vulperhorst, & Akkerman, 2019; Draijer, Bakker, Slot, & Akkerman, 2020; Knogler, Harackiewicz, Gegenfurtner, & Lewalter, 2015; Tsai, Kunter, Lüdtke, Trautwein, & Ryan, 2008) grounds. Scholars guided by life-wide, ecological approaches on interest have provided new insights into the complex nature of interest, together illustrating how interests are part of everyday life (e.g. Akkerman & Bakker, 2019; Azevedo, 2011; 2013; 2018; Barron, 2006; 2010; Bergin, 2016; Hofer, 2010). Basically, anything in daily life may trigger and sustain interest, being connected to the social, material and cultural opportunities that family, school and peer contexts provide for interest emergence and growth. Accordingly, adolescents' interest experiences, or engagement with a particular object (i.e. being a topic, activity, artefact, event, and/or idea) in a particular situation (Akkerman & Bakker, 2019), materialize in moving throughout their daily lives.

1.2. Interest experiences and school

Whereas experiencing interest in school has been associated with increased levels of motivation and achievement, research has repeatedly shown that adolescents often do not experience school as interesting (Shernoff, Csikszentmihalyi, Schneider, & Shernoff, 2014; Larson & Richards, 1991). This negative trend may be the result of focusing on describing the interests of the adolescent population as a whole (Krapp & Prenzel, 2011; Krapp, 2000, 2002; Ufer, Rach, & Kosiol, 2017) as well as by questioning adolescents about predefined objects in school, typically in terms of school subjects like physics or chemistry or associated topics (Krapp, 2002). Previous research has already shown how adolescents may differ in what they experience as interesting, and how their interests may develop in idiosyncratic ways. A study by Ufer et al. (2017) on adolescents' interest in the object of 'mathematics' has shown that when asking adolescents questions like "to what extent do you like mathematics?", the unique character and structure of a person-object relation remains underexposed. For example, where one adolescent might like solving word problems, another adolescent might be more interested in algebraic computations. Moreover, a study by Krapp and Lewalter (2001) on job-related interests has shown that while the average level of interest decreases over the years, focusing on intraindividual processes showed a positive trend, namely that adolescents all reported to have discovered new areas of interest. Hence, in order to shed a more nuanced light on the role of school in adolescents' interests, it would be useful to center adolescents' interest experiences in daily life (Frenzel et al., 2010; Krapp & Prenzel, 2011; Krapp, 2000, 2002; Ufer et al., 2017; Valsiner, 1992).

In studies adopting a person-centered perspective, adolescents self-report their moment-to-moment interest experiences and self-define the objects of interest they engage in, where objects of interest may refer to anything in a person's life space (e.g. topics, activities, material tools, ideas, or events; Krapp, 2000, 2002). Recent studies have already revealed how valuable it can be to take such a person-centered perspective (Akkerman & Bakker, 2019; Azevedo, 2013; Barron, 2010). For example, Slot, Akkerman, and Wubbels (2019) demonstrated that, when adolescents self-report their objects of interest, school is reflected in 25 % of the objects of interest, indicating that adolescents *are* indeed to some degree interested in school. Also, a study by Akkerman et al. (2019) described the multiple ways in which school interests can be experienced by adolescents, where school was hardly represented as a well-developed, individual interest. Still, little is known on the specific ways school can be related to adolescents' daily interest experiences.

1.3. The role of school in adolescents' interests

School is often considered a practice that may distract adolescents from pursuing their interests (Shernoff et al., 2014), whereas at the same time school is held responsible for supporting adolescents' identity development and interest in learning (e.g. Biesta & Pols, 2012). Indeed, research has found that despite school being difficult, it *can* play a role in triggering and developing interest through aspects of the learning materials (Hidi, 1990; Hofer, 2010; Knogler et al., 2015; Mitchell, 1993; Schiefele, Krapp, & Winteler, 1992; Tsai et al., 2008) as well as by organizing field trips and other co-curricular activities like sports, drama and music. These activities are generally seen as extensions of or complementary to the academic learning program, i.e. the curriculum (Fredricks et al., 2002; Verhoeven, Poorthuis, & Volman, 2019) and in the context of this study is not seen as different from extra-curricular activities. Renninger, Bachrach, & Hidi (2019) recently reported that in order to trigger interest in learning, triggers "related to the self, such as personal relevance, ownership, and character identification, may be more universal than other triggers" (p. 11). This shows the importance of self-identification with the learning content, and that interest is likely to be maintained if learners are aware of their learning process (i.e. what am I working towards and where am I in the process). At the same time, these scholars stressed that triggering interest is more complex than often regarded by researchers, and school should not just 'insert' triggers into the classroom as this will not have the aspired effects.

Co-curricular activities might be likely to provide opportunities for triggering or developing interests. They tend to be similar to the structure of leisure activities as they typically provide more degrees of freedom for adolescents to choose their what, how and why of doing particular activities (Hofer, 2010). Also, they might have a positive impact on adolescents' development of self (Feldman & Matjasko, 2005), for example because they may develop competencies that are related to collaboration, time management, and self-discipline/regulation (Larson, 2000).

Although educational research typically describes school in terms of a curriculum and co-curriculum that is taught by teachers

with a deliberate intention towards validating learning (Bronkhorst & Akkerman, 2016), for adolescents school is about more than that, like socializing with peers (Bergin, 2016). Peer relationships are essential for adolescents: they tend to spend more time with their peers than parents, even outside school, but have most contact with peers during school hours (Kleiber et al., 2014). There is some research that showed that adolescents engage in many school-related activities like arts and athletics because they have strong social goals (i.e. want to be with friends or make friends) (Fredricks et al., 2002). Hence, we expect that in addition to the curricular and co-curricular content, there may be other ways in which school might be reflected in adolescents' interest experiences.

Moreover, research from an ecological perspective has indicated that interests have the potential to extend initial time and place, and may thus be experienced across contexts (e.g. Slot et al., 2019). For example, thought processes initiated at school may extend to other contexts (Bronkhorst & Akkerman, 2016). This has been shown for fieldtrips (Rajala & Akkerman, 2017), schoolwork at home (2014, Hedegaard, 2012) and when interacting with family during dinner (Barron, 2006). In line with this notion of interest experience(s) across-contexts, Phelan, Davidson, and Cao (1991) reported how some adolescents find it difficult to make connections between home and school in terms of who they are and what they like to spend their time on. As a result, adapting to the school demands might be difficult, often resulting in disengagement from school in general. Although research has reported on ways to (re) establish continuity between in- and out-of-school contexts (Akkerman & Bakker, 2011; Bronkhorst & Akkerman, 2016), teachers can find it hard to connect to the unique backgrounds, abilities and expertise that adolescents bring to the classroom.

1.4. Present study

By investigating how school is reflected in adolescents' interest experiences in daily life, we expect that the role of school in interest will become visible in a more extended and nuanced way than previously described. In order to increase our understanding on this matter, we will use an experience sampling method to grasp *all* interest experiences that arise in daily life and which potentially reflect adolescents' idiosyncratic ways of relating their interests to school. The research question we posed, was: *how is school reflected in adolescents' interest experience(s) in daily life?*

2. Method

In this experience sampling method (ESM) study, adolescents reported multiple times per day on their interest experiences in daily life for a total of eight weeks over a course of 10 months, i.e. one school year.

2.1. Participants

Participants of this study were 44 adolescents (60 % girls, 40 % boys) from the higher educational levels of four different schools in the Netherlands, aged 14–16 years in the period of data collection. At the beginning of the study in September 2016, our participants just started grade 10 in the higher secondary educational levels in the Netherlands. All participants took part in our study voluntarily. Informed consent was obtained from all individual participants and their parents before entering the study.

2.2. Instrument

A smartphone application called *'inTin'* (Akkerman & Bakker, 2012–2014) was used as a personalized ESM. ESM has proven to be useful for obtaining empirical data on psychological states, daily activities, and social interactions (Csikszentmihalyi & Larson, 2014), and entails that participants' experiences are measured in a systematic and momentary fashion.

At the start of each data collection period, participants entered all topics and activities that they preferred to spend their time on, as well as added the social contacts they saw regularly or were important to them. Participants received signals on their phones every two hours to answer questions about interests they had just engaged in. If adolescents had engaged in an interest, they reported what they were doing/thinking/talking about, with whom they shared their interest, and why they found it interesting; together we call these elements an *interest event*. If they had not engaged in an interest, they could go to the end of the report immediately. Participants were beeped every two hours during waking hours, up to eight times a day. Interests or social contacts could be added to the list every time. We have included an excerpt of our data in Table 1 to illustrate how such an event is represented in our data. These are four interest events reported by Kirsten (all names used are pseudonyms) on the 9th of September 2016. For a more elaborate description of the instrument we used, see Akkerman and Bakker (2019) or Slot et al. (2019). The study contains four data collection periods with a duration of two weeks spanning one school year (September 2016 – December – March – June 2017). In total, our participants reported 11059 times, of which 7240 interest events[1] completely (i.e. answered all questions), ranging between 63 and 307 interest events per participant across the four data collection periods.

2.3. Procedure

Prior to the first data collection period, participants received a 1.5 -h instruction during which we discussed what interests are (i.e. anything that they enjoy spending time on, including thinking or talking about objects of interest) and how to correctly use the

[1] They reported to *not* have engaged with an interest in the past two hours an additional 3819 times (non-interest event).

Table 1
Data excerpt representing one day of reporting by Kirsten.

Date and time	Interest label	With whom?	What were you doing/thinking/talking about	Why did you find this interesting?
9-09-16 14:43	Biology	Classmates	Teacher explained about the difference between congenital and learned behavior in animals	Understanding the difference between these behaviors. Why they show the behavior and how to trigger it.
9-09-16 17:01	Music	Alone	I tidied up my room with music in the background and looked for new songs on Youtube	Listening to music helps to make tidying up more fun, it makes me enthusiastic and I like discovering and listening to new music on Youtube
9-09-16 19:28	Working	Sharon	Helped customers, sat behind the counter and chatted with Sharon	Knowing what's going on with Sharon, building a relationship with colleagues. Understanding customers, knowing what they want, and keeping everything neat in the store
9-09-16 21:40	Netflix/TV	Alone	I watched the season finale of Arrow on Netflix	How the episodes built up towards this moment. All kinds of mysteries are solved and at the same time new problems arise for the following season.

Note. The data were translated from Dutch to English.

application *inTin*. Participants checked their connectivity, experimented with completing questions in the application and asked any questions they might still have. After practicing, all participants agreed to take part in a pilot study in order to be prepared for the daily task of reporting activities.

Every participant was supported by a 'coach': a research assistant assigned to them at the beginning of the study. Based on daily monitoring of participant progress, these coaches were instructed to adaptively create a sphere of positive encouragement (Good job, you are almost halfway!) and/or assist participants in reporting sufficiently and elaboratively (Do not forget to report your interest events this morning/afternoon/evening: Did you spend time on any interesting topics or activities?).

Participants were offered financial compensation (25 €) for every data collection period if they fulfilled payment criteria as follows: adolescents should fill out (1) at least three reports a day, (2) spread throughout the day (i.e., morning, afternoon, and evening), (3) with clear and elaborative comments *in the case* they experienced interest, and (4) having added at least ten contacts and two different social groups to map their ego-network upfront to their mobile application. Ethical approval for this study was received from the ethical review board of the Faculty of Social and Behavioral Sciences of Utrecht University (FETC15-035).

2.4. Data analysis

To identify 'ways' in which adolescents' interests reflected their potentially idiosyncratic ways of relating to school, we first segmented the data into interest events that involved school in some way. This was done by screening each participant's interest events for references to school, including, but not limited to school, lesson, teacher, classmate, break, field trip, homework test, grade, etc., based on archetypical dimensions of school as postulated by Bronkhorst and Akkerman (2016, p. 22). All interest events containing a reference to school, were selected. Of the in total 7240 interest events, 2002 events referred to school in some way, the percentages between all and experiences referring to school ranging between 0 and 67 % across participants.

After segmentation, the data was analyzed thematically (Braun & Clarke, 2006), sequentially moving from open to axial and eventually selective coding. In the open phase, we coded the selected interest events in terms of *what* interested the participant (i.e. *interest labels* like The Hague trip, Geography, Math, but also gaming), in *which situations* (e.g. class, breaks, homework, co-curricular activities, tests, or leisure activities) and the *role of school* in their interest experiences (e.g., triggering, supporting and/or distracting from interest). In the axial phase, the role of school was foregrounded by comparing and contrasting adolescents' interest experiences, both within and across persons, on references to the object of interest (i.e. the *what*) and the situations in which the object was engaged in (i.e. the *where*), as school can be part of the object (e.g. science) as well as the situation (e.g. being in class). Eventually, this yielded three manifestations of school in the interest experiences of adolescents. In our final, selective coding phase, we compared these manifestations with the literature on school as a practice in daily life in connection to other practices (Bronkhorst & Akkerman, 2016; Hedegaard, 2012) and the literature on object engagement (Akkerman & Bakker, 2019; Barron, 2006; Prenzel, 1992). Below, we will describe the ways in which adolescents referred to school in their interest experiences, following from both the *content* of their interest-related activity (e.g. does it represent the curricular and co-curricular content or other content?) and the *practice* that they are engaging in (e.g. school or another practice?). Of the 2002 events referring to school, 2.3 % could not be coded, as the way in which school was referred to by the adolescent appeared irrelevant to the interest experience at hand. For example, school in these events was referred to as a location, building or artefact in a conversation (e.g. "I drove my bike to school", "I talked to Kay about what we will do after school"). Hence, we arrived with 1921 coded events.

Finally, we identified in what ways each of the adolescents in our sample referred to school in his or her interest experiences, as well as the extent to which they referred to these ways, reporting a bit more extensively on the intra-individual patterns across the data. We looked specifically into the case of Ann, as in her interest experiences no single reference to school was found. The examples from our data presented in the results section were all translated from Dutch to English.

2.5. Quality assurance

In order to ensure the quality of the data analyses in the study, an audit trail was carried out (Akkerman, Admiraal, Brekelmans, & Oost, 2008; De Kleijn & Van Leeuwen, 2018). An independent researcher working in the same research team as the other authors was asked to complete a formative audit. Before carrying out the audit, he was asked to independently segment the school events for one respondent, after which the selected events were compared to what the first author had segmented. Both researchers selected the same events as referring to school. The object of the audit was to check the visibility (transparency), comprehensibility, and acceptability of the results and, if needed, provide feedback on how the quality could be increased. The first author prepared an audit document describing the analysis procedure in detail, a data file with all raw and coded data, as well as a short summary of the introduction and the results section as a whole. The independent researcher concluded that the results are indeed visible, comprehensible and acceptable, and did some minor suggestions for language in and the structure of the results section to increase the clarity of the findings presented.

3. Results

Our analysis revealed that adolescents referred to school in their interest experiences in three ways, reporting (1) interest *in* school, where adolescents showed selective interest in their school's curricular and co-curricular content (i.e. school as the object of interest), (2) interest *at* school, where adolescents showed interest in social and leisure content to enrich their time in school (i.e. school as context for interest), and (3) interest *after* school, where adolescents showed interest in social and leisure content as a way

to recharge from and for school (i.e. school as demanding practice in daily life). Below, we will outline the three ways that school was reflected in interest in daily life, using illustrative examples from our ESM data.

3.1. Interest in curricular and co-curricular content

Of the 44 adolescents involved in this study, 40 adolescents reported interest in the school curricular and co-curricular content (i.e. with school as object of interest). By curricular we mean all content referring to curriculum in adolescents' self-reported objects of interest (e.g. content areas like science, language, and social studies, as well as P.E. and arts), and with co-curriculum we refer to extensions of the academic learning program (e.g. field trips, exchange programs, theatre and sport events, also sometimes referred to as extra-curricular), as well as future orientation activities (e.g. exploring university study programs). Adolescents differed in the content they reported as object of interest or that they experienced as interesting, both in terms of *what* content they reported (e.g. math or English) and of how *specific* the represented content was (e.g. in order of increasing specificity: school, math or histograms). Below, we will discuss our results with regard to this selectivity in content and abstraction level.

3.1.1. Selectivity in reported objects of interest

Adolescents differed in the specific domains or subjects as elements of a school discipline they reported. Michelle, for example, had a predominant interest in arts as a school subject: except for P.E., this was the only school subject she reported as her interest. She oftentimes reported having a preference for freely moving around in or outside the classroom instead of having to pay attention to the teacher (as often is the case in [Dutch] academic classes). For example, when she is shooting a video for her arts project, Michelle stated "it was a fun assignment and meant that we did not have to stay in class". Another example is Sarah, who predominantly reported interest in the STEM domain (i.e. the school subjects chemistry, physics, biology, math) because she likes the type of active learning involved in these classes. In a biology class, she is working with a microscope and states: "it's interesting because you can really see how it works, instead of having it explained to you". In a practicum in chemistry class, where she has to work with substances, Sarah also experienced interest because "you can see for yourself what happens in reality, and that makes it interesting but also easier to learn for me". While adolescents sometimes selected the same objects of interest (e.g. two individuals both report to be interested in chemistry), what they experienced as interesting was never identical. For example, where Dory experienced interest in chemistry because she likes to learn scientific explanations for daily phenomena, Lily found chemistry interesting because of the 'puzzles' that are involved with working in the chemistry domain.

Although adolescents reported interest in learning content related to particular subjects or domains, not every class or homework situation associated with that subject or domain was experienced as equally interesting. For example, Maxine was interested in geography. As can be deducted from Fig. 1, when she is working on a project with classmates, she experienced interest because "It is a fun project, we have to make a travelogue of South-Korea". But in another situation, when she is studying for a test on climate change, she stated that "climate change is interesting, but there are other topics in Geography that I find more interesting". Another adolescent, Ilya reported an interest in theatre; having to perform a show with school at the end of the school year, he sometimes experienced positive emotions: "it went very well, so I am happy!" but not in each situation: "I am so tired, and I have nothing to do in this second act, so it's boring".

The co-curricular content that adolescents mentioned as their object of interest was sometimes experienced as interesting in situations both in- and outside of school. These objects often suggested activities that could be engaged in both in and outside of school, like reading, hockey, doing sports, playing piano/guitar, and travelling. For example, Manuella had an interest in reading. In her leisure time, she reported to be reading Harry Potter, stating that "it's interesting because the leading character is in huge trouble". When reading The Hunger Games for English class, she makes explicit that "it's interesting to read it in English this time". And for her Dutch class, she had to read a Medieval book: "It's interesting, because you have to read really carefully in order to

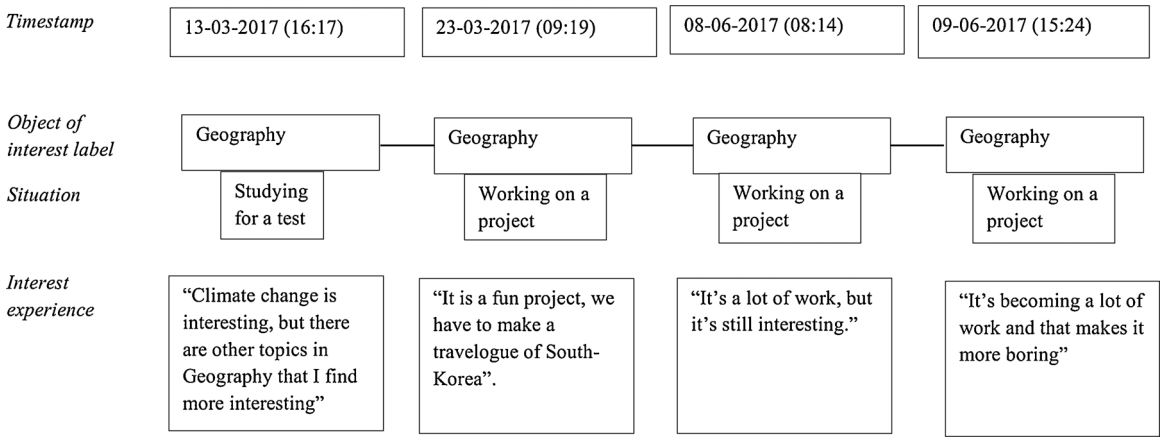

Fig. 1. Example of four interest events related to Maxine's interest in geography.

understand the story". Manuella thus seemed to experience interest in reading in the context of school as different from reading in her leisure time. However, sometimes an adolescent experienced an object in the context of school as less interesting because of the obligatory nature of the practice. Romana had to read a book for school, and she reported: "I don't think the topic is interesting, so I don't like to read this book as much as other books. 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". Hence, we found that adolescents showed selectivity in the curricular and co-curricular content they reported as interesting, not only in terms of subjects/domains but also in and across learning situations and contexts.

3.1.2. Selectivity in reported object-specificity

The curricular and co-curricular content that adolescents reported as their interest also varied in terms of object-specificity, meaning that objects of interest differed in their abstraction level. Although adolescents did refer to school subjects as their interests (e.g. biology, physics, geography, English), we also found they reported interest in school in a categorical sense (e.g. 'going to school' or 'school'), or 'general' activities associated with participation in school (e.g. school breaks, being in class, talking to classmates, joining the adolescent council, doing an exchange program) as well as activities associated with school work (e.g. homework, studying, presenting, making assignments, following instructions, or receiving feedback). Adolescents could also report interest in more specific (subject) content like shooting a video for an arts project, working with a microscope in biology, writing an English poem, learning about world war 2, Maoism, or vectors.

In the following examples, we will illustrate how the different abstraction levels can all represent science content, in this case related to the domain of chemistry. Porter was interested in school in general. He reported in different situations to experience interest in chemistry: "I talked to Fabrice about chemistry; I wanted to know if I understood the assignment correctly". But in other situations, he also reported to be engaged in playing a soccer tournament in school as well as in English, P.E., arts and math classes (i.e. most school subjects were reported as interesting). Hence, the chemistry content Porter reported as interesting seems only one aspect of his broader interest in 'going to school'. In contrast to Porter, Lily reported interest in the school subject chemistry. She reported to be engaged in chemistry four times; three times she is studying for a test and one time she tutors another student. Her interest experience revolved around her preference for the domain of chemistry: "It's my favorite subject and I am also very good at it", and specific aspects of chemistry: "I like puzzling with carbon substances".

Finally, Karen was interested in electrons, which is a topic that is dealt with in chemistry class. When she is studying for a chemistry test, she states "I find it interesting how much possibilities you have with an electron, how you can apply it in different ways, and I like puzzling with them". She reported to experience interest in other chemistry topics three times, always reporting that she likes the novelty of the topic or activity (e.g. thinking of questions that could be posed in the test) or the puzzling with the content at hand (e.g. formulas). Thus, we found that the way that adolescents characterize their interest in curricular and co-curricular content also reflects selectivity.

3.2. Interest at school: enriching time spent in school

In addition to adolescents' interest in the curricular and co-curricular content, i.e. where school is referred to as the object of interest, we found that adolescents also referred to interest *at* school, with school as the broader context where they engaged in their interests. In total, 34 out of 44 adolescents reported interest experiences at school, such as socializing with their peers or engaging in leisure activities. Apparently, adolescents tend to engage in social and leisure interest activities to enrich their time in school.

We found this both in situations where it might be expected (e.g. school breaks, free periods, but also field trips) and in situations where this might be typically regarded as being 'off-task' (e.g. during class or homework). Adolescents referred to socializing with peers in situations where school provided opportunity to spend time and interact with them, like school breaks and class outings or field trips. For example, Michelle was interested in school breaks because she is able to talk to her friends: "It's nice to have a break, not having to follow lessons and being able to talk to friends". And Monty reported during a field trip for biology that he "liked going there together and completing it together with friends". The opportunity to be with friends thus seemed to enrich time spent in school. Adolescents also reported interest in socializing with peers while participating in class, thereby orienting on something other than the curricular content provided in that situation. For example, Anna has an interest in talking to friends and reported multiple times to be chatting during class, stating that "we talked about the weekend, making a lot of jokes" or "it was so much fun, we laughed a lot".

In addition to this, adolescents reported interest in activities that would typically be seen as 'leisure' during class or homework. For example, Maxine reported to be drawing in class: "I have been drawing during global studies. We did not do that much during class, so it was fun to draw instead". Another example is Nathaniel, who is interested in gaming and reports regularly that he is playing games during class because "we were done with our work so instead of being bored we played BBTan". Both examples show how adolescents experience interest in leisure content in a way that enriches their time spent in school. This way of orienting to other content illustrates how adolescents can relate to school in their interest as a context for broader participation, where adolescents are not only interested in learning, but also in leisure and socializing activities that can be associated with being in school.

3.3. Interest after school: recharging from and for school

Finally, adolescents reported to engage in interests *after* finishing school or homework as a way to recharge from and for school, such as leisure activities (e.g. gaming, watching Netflix, listening to music) as well as social activities (e.g. talking about school).

In total, 23 out of 44 adolescents referred to school in interest in this way, reflecting a need to deal with the demands put on them by school (i.e. school as demanding practice in daily life). After time spent in school or on studying, they reported to engage in these activities to process everything that happened (e.g. talking about their day at the dinner table), or to unwind and reload for the next day (e.g. listening to music while cycling home from school).

Adolescents' interest experiences in such situations were typically characterized by a positive state, such as having fun or feeling relaxed. For example, Tina, who reported an interest in watching Netflix, stated in a particular situation that she "watched a fun episode of Breaking Bad to relax after all the homework that I've done. Rewarding myself a bit in this way". This is different from another situation that was not coded as school in interest, where she experienced a similar positive state but without referring to school: "I really like this series; interesting that they can make it so thrilling!" And Porter with his interest in gaming played League of Legends with his friend Jeremy while on a break from learning physics: "a short break to get all that physics out of my head; it's fun to play for a little while after all that studying", whereas in other situations he reported that he likes to play with his friends, in a team, and try to win and become better at the game. Finally, Lynn reported an interest in cycling, where she generally experienced interest in talking to her classmates about school when cycling home: "we had a conversation about school, how our day was and stuff. It's nice to talk about school and support each other in things". Hence, adolescents seemed to engage in social or leisure activities to rejuvenate after a school day or after studying. Both activities can be functional for participating in school, in that these adolescents feel they are better able to concentrate on their learning later on.

3.4. Intra-individual patterns

We started this study to provide a person-centered perspective on the role that school plays in interest experiences in daily life. To this end, we have included Table 2, showing the intra-individual patterns in the ways in which adolescents referred to school in their interest experiences in daily life. In general, we found that adolescents reported interest *in* school most frequently (71 %), followed by interest *at* school (19 %) and interest *after* school (7%). Most of the adolescents in this study (39 out 44) referred to school in their interest activities in multiple ways, i.e. by reporting interest *in* school, *at* school and/or *after* school. These adolescents differed in the extent to which they referred to school in different ways. As can be deducted from Table 2, the extent for referring to interest in school could for example range from 8 to 98 percent of all interest experiences reflecting school. Moreover, a third (17 out of 44) of all adolescents referred to school in all three ways, indicating school played a multifaceted role in their interest experiences in daily life. We found that six adolescents only referred to school in a single way: four adolescents only reported interest in the curricular and co-curricular content (i.e. school as object of interest), and the other two adolescents only reported interest at school as a way to enrich time in school (i.e. school as context for interest).

We deem it important to report a bit more extensively on one of the adolescents in our sample (Ann), as she did not refer to school in her interest experiences *at all*. She reported 154 times in the *inTin* application to not have experienced anything interesting in the past two hours, some of which were at times which very probably were school hours, but also outside of school hours. In total, she reported 71 interest experiences across the four data collection periods, with 27 different objects of interest. The object of interest that she reported most, was 'work', as she works regularly in a supermarket to earn money, but she is also interested in soccer, water skiing, watching Netflix/films, shopping, and going out with friends. All of these interests appeared outside school hours in evenings and weekends and were not placed in the context of school in any of the ways that we described above. Hence, Ann is broadly interested, but according to what she reported as her interest experiences, school appeared to play no role in her interest in daily life.

4. Discussion

In the literature, school is typically *not* seen as the object of interest for adolescents or as a context for developing interest (e.g. Larson & Verma, 1999). In this study, we aimed to present an extended and nuanced understanding of the role of school in adolescents' interest experiences in daily life. Using a person-centered experience sampling method, we asked 44 adolescents to self-report their interest activities in daily life. To illuminate the specific and idiosyncratic ways school can be related to adolescents' interest experiences in daily life, we analyzed the 1921 interest experiences wherein adolescents referred to school in a meaningful way.

School was reflected in these interest experiences in three different ways, together showing the adolescents' interests and the role of school therein to be idiosyncratic. First, we found that most adolescents referred to interest *in* school, though being selective in what curricular and co-curricular content they experience as interesting (i.e. with school as object of interest). Interest in the school curriculum and co-curriculum could be related to a particular school subject, but could also revolve around particular topics or activities within a subject domain. These different abstraction levels largely represent the three dimensions as postulated by Gardner and Tamir (1989) and Häussler and Hoffman (2000) for describing interest in physics and biology: people can show interest in a subject or subject domain, e.g. physics, interest in the activity related to the subject, e.g. calculating, and interest in a topic related to a subject, e.g. robotics. In addition to this, we found that activities sometimes extend a subject or domain, in that an adolescent could also be interested in overarching activities like 'doing homework' or 'going to school'. A methodological consequence for future research that we can derive from this is that when predefining the objects of interest, interests on a more specified or general level than the school-related subjects remain underreported (see also Krapp, 2002; Ufer et al., 2017).

Second, in addition to reporting interest *in* school, adolescents also referred to engaging in interests *at* school that were not related to the content offered by school, as a way to enrich their time in school (i.e. with school as a broader context for interest). This illustrates that while participating in school every day, adolescents also work on other developmental tasks such as acquiring a like-

Table 2
For every participant (n = 44), sex (male, female), the numbers and percentages showing the extent to which each respondent referred to interest in school, interest at school and interest after school in his or her interest experiences, and the number and percentage of school-related interest events compared to non-school related events for each respondent.

Respondent id (and pseudonym)	Sex	Interest in school		Interest at school		Interest after school		Total school-related events	
		N	%	*N*	%	*N*	%	*N*	%
187 (Monty)	m	53	24	21	9	0	0	74	33
193	m	0	0	33	15	0	0	33	15
195	m	3	3	0	0	3	3	6	6
198	f	118	63	1	1	1	1	120	65
199	f	38	15	18	7	14	5	70	27
200	m	34	19	1	1	0	0	35	20
202	f	33	32	4	4	2	2	39	38
203 (Michelle)	f	8	4	23	11	2	1	33	16
205	f	36	29	0	0	0	0	36	29
206	f	28	13	6	3	8	4	42	20
207	f	4	4	13	12	0	0	17	16
208	f	15	10	4	3	1	1	20	14
211 (Karen)	f	54	29	13	7	0	0	67	36
212	m	7	6	2	2	4	3	13	11
213 (Manuella)	f	41	18	0	0	0	0	41	18
217	m	3	3	0	0	2	2	5	5
218	m	6	6	0	0	7	7	13	13
222	f	53	46	0	0	0	0	53	46
225 (Kirsten)	f	24	15	1	1	4	2	29	18
226	m	0	0	26	19	0	0	26	19
227	m	3	2	34	28	0	0	37	30
229	f	48	25	3	2	3	2	54	29
230	f	6	3	11	5	26	12	43	20
240 (Nathaniel)	m	0	0	7	4	5	3	12	7
242 (Porter)	m	50	22	17	7	1	0	68	29
244	m	2	3	1	1	0	0	3	4
246 (Dory)	f	27	36	4	5	0	0	31	41
248 (Tina)	f	6	3	13	7	22	11	41	21
249	m	8	5	0	0	2	1	10	6
250	m	85	43	0	0	2	1	87	44
251	f	107	49	9	4	0	0	116	53
256 (Lily)	f	28	30	4	4	0	0	32	34
258 (Romana)	f	50	35	4	3	6	4	60	42
260	m	42	26	5	3	8	5	55	34
261	f	14	9	8	5	4	3	26	17
262	f	7	5	6	4	2	1	15	10
269 (Anna)	f	68	27	32	13	0	0	100	40
270	m	2	1	3	1	0	0	5	2
272 (Ilya)	m	113	46	12	5	6	2	131	53
275	f	42	67	0	0	0	0	42	67
276 (Maxine)	f	81	34	21	9	0	0	102	43
277	f	36	31	2	2	0	0	38	33
279	f	31	26	10	9	0	0	41	35
284 (Ann)	f	0	0	0	0	0	0	0	0

minded peer group (Bergin, 2016). Spending time with friends in school can be a source of enjoyment, even for adolescents who are disengaged from learning in school (Lumby, 2011).

Third, adolescents reported interest *after* school, referring to the need to recharge from and for school, by spending time on social and leisure activities (i.e. school as demanding practice in daily life). According to Deschenes (2011), leisure time can indeed provide opportunity to 'heal' from the daily 'productive' activities, like school, by engaging in activities that are self-determined (Kleiber, Larson, & Csikszentmihalyi, 2014). More specifically, Iwasaki, Messina, and Hopper (2018) described how a key function of leisure is not only to experience joy, but also to lead a 'composed' life, meaning that leisure time can be useful for self-restoration and

maintaining the balance between engaging in interest activities that are characterized by 'on-task' and 'off-task' behavior. Hence, our study has shown how adolescents use their leisure and social interest activities to restore from and reload for their learning in school. Together, these findings have contributed to gaining a more nuanced understanding of the role that school plays in adolescents' interests in daily life.

Finally, by studying the intra-individual patterns across the 44 adolescents, we found that adolescents reported interest *in* school most frequently (71 % of all interest activities referring to school), followed by interest *at* school (19 %) and interest *after* school (7%). Also, our results showed that 39 out of the 44 adolescents in our study referred to school in interest in multiple ways. In contrast to previous research that has mainly reported a lack of adolescents' interest in school, this study confirms recent work by Akkerman et al. (2019) and Slot et al. (2019), that when adolescents are asked to openly self-report interests, around 27 % of the interest experiences refers to school. However, this study has also shown how adolescents differ in terms of the extent to and the ways in which they refer to school in their interest experiences (see Table 2). Adolescents experienced specific content both in and out of school as interesting and made sense of their time in school or deal with school demands in idiosyncratic ways.

We have empirically shown how school can represent 'many things at once' (Bronkhorst & Akkerman, 2016). Our findings show that although adolescents engage in their interests in idiosyncratic ways, for example visible in how they experience different situations of engaging with an object (e.g. a class could be boring despite one's interest in the overall subject), patterns of interest-based dynamics can be identified across persons. The patterns we found confirm how complex intra-individual processes, such as the role that school plays in interest experiences in daily life, can be understood by studying the dynamic interplay of individuals (i.e. personal preferences for particular content) and their experiences in different situations (i.e. situation-specific aspects like task complexity) (Knogler et al., 2015; Sansone & Smith, 2000; Tsai et al., 2008). In the present study, by taking an open, person-centered perspective and measuring interest experiences *real*-time, we have seen how interests are not static, trait-like entities that sustain no matter the content one engages in, but instead are dynamic, with engagement and sustainment depending on an individual's past and future interest experiences (Slot et al., 2020).

4.1. Limitations and future research

Results of this study have to be interpreted in light of some limitations. First of all, we studied the relation between school and interest for adolescents with higher abilities than average, as our sample consisted of a limited number of individuals from the upper levels of secondary education in the Netherlands. This might have impacted the results because such a group might be more engaged in school in general than adolescents from lower levels (Shernoff et al., 2014). Future research is needed to determine if school is reflected in similar ways in the interest experiences of adolescents from lower educational levels, or adolescents who are sampled via other institutions and organizations (e.g. Church).

The person-centered approach that we used meant that adolescents could self-define their objects of interest, hence were free to choose any label for their interests. Although we found that adolescents' interests had a comparable structure (i.e. formulated in terms of school subjects and activities), some adolescents' interests appeared to be labelled more in terms of broad categories (e.g. school), and other adolescents' interests were labelled more in terms of topics (e.g. electrons). The question rises whether these differences in labelling are related to how their interest can be triggered or supported. Future ESM interest research should be directed at this, for example by having adolescents elaborate on the interests they add to the application (e.g. for me, this interest means…), in combination with follow-up interviews in the school context (i.e. to grasp their momentary experiences of interest).

Because our participants were financially rewarded for reporting a minimum number of times a day, it might be possible that they were over-inclined to report an interest experience, leading to an overestimation of their interest experience in daily life. Our data showed that adolescents added an interest event every two out of three times that they were triggered by the mobile application *inTin*. On the other hand, adolescents differed strongly in the extent they reported an interest event or not, varying between 0 and 70 percent in our sample (e.g. 70 % of the reports in *inTin* were interest events). This is something that needs to be taken into consideration for future studies on interest in daily life.

Although scholars have pointed towards ESM research as a valid approach (e.g. Bergin, 2016) this method in the context of interest is still in its infancy. One of the downfalls of ESM is its reliance on self-reports: are people trustworthy in what they tell us about their experiences in daily life? The moment-to-moment measuring of interest experiences over a longer period of time should add to the trustworthiness of these self-reports. Future studies could benefit from additional measurements like observations (Csikszentmihalyi & Larson, 2014) to gain an even more detailed understanding of how adolescents relate themselves to school in terms of their interest development and what this means for supporting their academic engagement. However, observations are more difficult to organize over a longer period of time and across different contexts.

4.2. Implications for research and practice

Whereas it is often assumed that schools are fully responsible for triggering and maintaining adolescent interest (e.g. Renninger et al., 2019; Shernoff et al., 2014), this study has shown that the role of school in adolescents' interest in daily life is more extended, but also more nuanced than previously reported in interest research. Our findings also indicate that adolescents themselves can actively orient their attention to learning and/or leisure content in and out of school. Although a lot of useful empirical work has been done on connecting in- and out-of-school interests for academic learning purposes (e.g. Reber, Canning, & Harackiewicz, 2018; Walkington & Bernacki, 2015), it seems imperative to focus more on the orientations of the adolescents towards their own learning and development and the connections that they make between in- and out of school in this process. On the other hand, we have also

found indications that for some adolescents, school is not an object of interest, despite the large amount of time they spend there (see also Bergin, 2016). For one adolescent, the role of school was not visible in her reported interest experiences at all. Perhaps, these adolescents do not perceive connections between what school has to offer in terms of opportunities for learning and socializing and their preferred engagements in daily life (Phelan et al., 1991), or are unable to establish social relationships that enhance enjoyment in school (Gorard & Huat See, 2011). It illustrates that adolescents are different in how they relate to school and that re-establishing continuity between contexts in order to prevent disengagement should be a priority for some students (Bronkhorst & Akkerman, 2016).

Our findings suggest careful consideration of 'general' triggers that educational practice can use in order to support interest development in school and connect it to out-of-school settings. Based on our results and in line with Renninger et al. (2019), we would like to stress that simply 'inserting' these triggers into the curriculum does not make sense if the idiosyncratic nature of the interest is not accounted for.

Declaration of Competing Interest

None.

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Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi:https://doi.org/10.1016/j.ijer.2020.101643.

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