YOUTH'S DESIRE TO LEARN:

The pedagogies of platformised learning communities

Zowi Vermeire

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Het verlangen van jongeren om te leren:
De pedagogieën van geplatformiseerde leergemeenschappen
(met een samenvatting in het Nederlands)

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General introduction

In the play 'Good Game (GG)', texts, choreographies and music by young gamers are used to bring what gaming means to youth alive on stage (Studio 52nd, 2022). Instead of a young person bending over their controller or phone, we now see young people moving and working together to solve problems, talking about how to operate an airplane or how they tried out different identities online. Striking about this performance is that instead of the immobility, the hours passing by in front of a screen, alone, we now see activity, excitement, collaboration. What is normally 'hidden' behind the screen for an onlooker, is now recognised as a rich, vivid world where youth can find one another. boyd (2014) compares this hidden (in the sense that is it out of view neither recognised by caretakers nor the general public) aspect of youth's online activities to the hanging out at the mall of the 1980s. Just like the mall, online spaces offer youth a way to escape from the supervision of their caretakers and educators to experiment with their identity in public spaces (boyd, 2014). These 'hidden' worlds have mostly been acknowledged for their entertainment value, though increasingly, scholars have seen the potential of these online public spaces for learning (Gee, 2004; Ito et al., 2019). These 'hidden' online learning spaces have been argued to provide youth with opportunities that fall outside of formal education's recognition of what learning 'matters'. These typically include access to a teacher or a skill that no one can teach in their direct environment, or the opportunity to find peers with the same interest that classmates or friends nearby do not share (Ito et al., 2019; Säljö, 2010). In this dissertation, like the play, I delve into this 'hidden' online world of learning to describe the richness of all its details. I will do this by listening carefully to youth's experiences to answer the question: how do youth structure, value and recognise learning in online learning communities? In this exploration I will have explicit attention for how they shape and seek out alternative forms of learning online that might challenge formal education.

Though youth's online activities are in popular media often positioned as a distraction from 'meaningful activities', such as homework, there is a large body of literature that argues that online media offer youth ways to learn (Gee, 2017; Ito et al., 2019; Sefton-Green, 2012; Ünlüsoy et al., 2013). It is argued that youth learn online knowledge and skills that could be valuable to their future academic, civic and career opportunities in ways that are still left unacknowledged by formal institutions (Ito et al., 2019). Youth for instance use YouTube to learn science, technology, education and math (STEM) competencies (Gil-Quintana et al., 2020) or use TikTok for reading recommendations (Jerasa & Boffone, 2021). Apart from these examples of literacy and STEM—which relate to learning practices that are generally acknowledged as valuable within formal education—youth also partake in learning online that is disconnected

from what is valued within schools. Examples include writing fan fiction or contributing to a knitting forum (Ito et al., 2019). The lack of formal recognition of these practices can be argued to be problematic (Ito et al., 2013, 2019). Particularly as these practices contribute to developing academic skills, such as writing and literacy skill building through fan fiction writing, or civic skills, such as managing the social skills that come with participating in a collaborative knitting forum (Ito et al., 2019). Moreover, I hypothesize here that youth might engage in activities online that we cannot directly tie to acknowledged skills and information valued by formal education, yet which they themselves perceive as valuable to their own development. In this dissertation, I will look at youth's online learning through an ethnography of youth's informal learning communities. By doing so, I hope to understand how youth structure, value and recognise learning in online learning communities on social media platforms as a way to challenge and inspire policy makers, educators and educational researchers to see youth's online activities in a different light.

I am also interested in the learning that youth do online because these might provide interesting objects of thought for reimagining education. As youth structure, value and recognise their learning in alternative ways online, these might provide ways of learning that appropriate, challenge and push against assumptions about what formal education acknowledges as 'learning'. As such, youth's online learning might be an interesting mirror—offer objects of thought—to hold up in front of formal discourses of learning. This interest stems from critiques of formal education that are entwined with the introduction of digital technologies into youth's lives, especially alienation from school and its disconnect from youth's lives.

In academic literature, 'alienation' has been discussed as an experience of disconnect between school's aims and values and youth's own needs and desires for learning (Hascher & Hadjar, 2018; Lave & McDermott, 2002; McInerney, 2009). This is perceived as problematic as it is a potential cause for lack of motivation and school dropout (Hascher & Hadjar, 2018), but also because it causes youth to no longer see any relevance and purpose of learning in schools for their future lives (Masschelein & Simons, 2013; McInerney, 2009). This alienation critique is perhaps best exemplified by the climate strikes, in which youth see no value to their education if their future on this planet is not guaranteed (Reasons to Strike, 2022). Scholars have furthermore pointed to how such a gap between youth's lives outside and inside the classroom has further widened due to digital media (Pereira et al., 2019; Szymkowiak et al., 2021). They argue that whereas online media offer informal learning (even though youth themselves do frequently not perceive their activities online as learning), formal education does not (sufficiently) include digital media as part of their teaching, leading to a disconnect between

the everyday experiences of youth online and school (Ito et al., 2019; Pereira et al., 2019; Szymkowiak et al., 2021).

These concerns about education are not new, but as discussed by these scholars are intensified by the process of platformisation. Platformisation is a concept used to describe the ways in which digital platforms' commercial, surveillant and normative aims are gaining a pervasive role in various spheres of public life and cultural practices, such as learning and education (van Dijck et al., 2018; Poell et al., 2019). Furthermore, though we could not predict this at the start of this project in February 2019, the COVID-19 pandemic also pushed the digitization of formal education, leading to intensifying concerns of the use of technology within education (see e.g. Fleming, 2021). Though I do not focus on such technologies used within formal education throughout this dissertation, these educational platforms come with their own technological assumptions about what pertains to a 'good education' (Kerssens & van Dijck, 2021; Williamson, 2017). Understanding the commercial platforms (e.g. YouTube), of companies (Google) that also own and create educational platforms (Google Classroom), might help to bring such normative positions into the light, helping us to critically re-evaluate their usage and implementation in formal education.

Theoretical roots
This dissertation is written at the intersections of pedagogy, education and media studies and rooted in a tradition of learning ethnographies, an anthropological approach to research. As such, this dissertation brings perspectives on learning and digital media together from these disciplines. In what follows below, I discuss what perspectives are brought together in this interdisciplinary dissertation.

First, in this thesis I take a cultural-historical perspective on learning. Fundamental to sociohistorical perspectives on learning is work by Vygotsky from the early 20th century, in which he argues that learning is the process through which the social becomes individual, and the individual social (Vygotsky, 1980). Crucial to this conceptualisation of learning is 'qualitative transformation', and the study of those transformations while they are happening (Daniels, 2017; Penuel & Wertsch, 1995). In other words: learning is to make the social one's own by engaging with others, thereby qualitatively transforming ones identity, knowledge and/or perspectives in relation to a sociocultural context (Daniels, 2017; Penuel & Wertsch, 1995). Vygotsky made this argument in response to a focus on cognitive developmentalism by scholars from his time, such as Piaget, in which cognition was often measured based on how children would progress according to certain pre-established stages of development, with little attention for the role of the sociocultural context in which such learning happened (Penuel & Wertsch, 1995). Vygotsky instead focused on how learning happens as a social process

when an individual had social tools and aides, and not as an isolated process (Vygotsky, 1980).

Contemporary scholars using sociohistorical conceptualisations of learning, such as Ito et al. (2019) and Paradise & Rogoff (2009), still argue against a cognitive developmentalist approach, by reasoning that to understand learning one needs to focus on the sociocultural and historical context, not just on the individual. This work is still being expanded by scholars, like Hutchins (1995), who have demonstrated how information processing is distributed across people and technologies. Such approaches move towards notions of embedded or distributed cognition/learning, building upon earlier notions of how the individual and the socio-historical interact when learning happens. In other words, within this dissertation, my understanding of learning is underpinned by these perspectives that perceive learning to be a process of transformation a person experiences due to their existence in the relation with the sociocultural context and its technologies, as 'thinking' is not just limited to their own body but extends into the sociocultural environment including its technologies.

Secondly, I focus on an analysis of how learning is structured, valued and recognised: pedagogy. Though 'pedagogy' is generally a term used for explicitly educational or childrearing environments, this dissertation understands pedagogy as a concept describing a form of power that extends beyond such contexts (Bernstein, 2000; de Haan, 2018; Sefton-Green, 2012). Furthermore, drawing from Bernstein, I understand pedagogies as constantly negotiated and changing in response to socio-material developments, such as for instance the introduction of digital technologies (2000). As such, there are always multiple pedagogies existing simultaneously (Bernstein, 2000; Sefton-Green, 2012). To analyse our data, we have used two interrelated understandings of 'pedagogy'. In the study about platform pedagogies (chapter one), I needed a lens to be able to analyse (the affordances of) social media platforms as environments for learning, and the role they could aim to play in such learning. As such, in this paper pedagogy was understood as a form of power that disciplines and nurtures behaviour with the promise of positive freedom (for a more detailed explanation of this conceptualisation see chapter one). Such a conceptualisation enabled questions such as: what behaviour does a platform aim to encourage in their users by having videos on autoplay? However, to understand how learning was 'steered' within communities, in chapter two to four, conceptualising 'pedagogy' more specifically as how community members would structure, value and recognise learning (Bernstein, 2000; Singh, 2017), helped to analyse how different forms of such pedagogical power - formal, online and platform - together constituted the pedagogies relevant to communities of learners on social media platforms (for a more detailed conceptualisation see chapter four). This conceptualisation

allowed for instance for a description in chapter four of how formal and online pedagogies speak back to one another in online communities and come together in alternative ways to structure, value and recognise learning.

Thirdly, my understanding of media is defined by a performative, socio-technical approach to media informed by work by Loveless and Williamson (2013), Dixon-Román (2017), Hayles (2012), and van Dijck et al. (2018). These scholars argue that digital media perform and do not just reflect, or represent, social structures, also within education (van Dijck et al., 2018; Dixon-Román, 2017; Hayles, 2012). They argue that platforms, digital technologies, are an inextricable part of society both coming themselves with specific norms and values that are part of their infrastructures as well as producing norms and values within society (van Dijck et al., 2018; Dixon-Román, 2017; Loveless & Williamson, 2013). Using Loveless and Williamson, I defend a perspective in which the social and the technological are in a reciprocal relationship: the social determines as much the technological as the technological the social (Loveless & Williamson, 2013). Van Dijck et al. therefore stress the importance of researching the platform itself to understand how digital media produce norms and values, also within education (2018). This performative, socio-technical approach has in part inspired the need for chapter one, to see how a (socio-)material environment can perform pedagogical functions. Taking such an understanding of digital platforms as being performed by the social and performing the social, is furthermore important for this dissertation, as in chapters two to four I aim to understand not just the pedagogies of learning communities in a vacuum, but as entangled with the platform environment in which they operate.

Such attention for the environment is also in line with our ethnographical approach to study the learning that youth do online, as doing an ethnography of learning extends beyond just describing social interactions and relations to how those are produced and shaped by the environment in which they are situated (Hasse, 2014). This dissertation should thus be understood in line of a longer tradition of learning ethnographies that attempt to understand how different sociocultural contexts produce different ideas about what learning matters. Such an approach is rooted in conceptual work by Lave (1991) and Wenger (1999) that have provided the conceptual groundwork for writing about informal learning communities, as well as those scholars who have built on this work to understand online informal learning communities (Bagga-Gupta et al., 2019; Cousin, 2005; Gee, 2017; Haythornthwaite, 2018). Taking an ethnographical approach to online learning communities has meant to make the normal odd and the odd normal of what it means to learn in these communities, describing, observing and talking about their practices in great detail (Hine, 2000), of which we will here present only a small segment of the rich stories each studied community in this dissertation has to tell.

Lastly, this dissertation draws from the field of platform studies and their work on the 'platformisation of education', in which scholars describe the increasing influence of big tech companies on education and learning via their platforms (Decuypere et al., 2021; Kerssens & van Dijck, 2021; Perrotta et al., 2021; Sefton-Green & Pangrazio, 2022; Williamson, 2018). Though mostly focused on an analysis of the digital platforms used within formal education, these scholars raise concerns about the role digital platforms might play in determining youth's learning through their commercial, surveillant and normative aims that we also take to heart in this dissertation (Decuypere et al., 2021; van Dijck et al., 2018; Kerssens & van Dijck, 2021; Perrotta et al., 2021; Sefton-Green & Pangrazio, 2022; Williamson, 2018). A prominent concern they raise regarding formal education that also pertains to informal learning is about algorithmic interference in youth's ability to make their own, conscious choices for their learning (Alegre, 2021; Sefton-Green & Pangrazio, 2022). Scholars worry that platforms increasingly make decisions for youth on what and how they should learn with little space for their own critical reflections and decision making (Alegre, 2021; Sefton-Green & Pangrazio, 2022). As such, in this dissertation we take these concerns to heart and aim to contribute to insights into how youth themselves perceive these platforms to aid or thwart their educational aims.

I am, however, also critical of perspectives in this field in which youth are perceived as addicted 'users' that render youth passive and voiceless on these platforms (Zuboff, 2019). Such perspectives can, by using boyd's work, be considered technologically deterministic, meaning that it makes technology all determining for social processes, implying that technology has a power to impact all people in all situations in the same way (2014). Such thinking can easily turn to moral panics in societal discourse, as it has historically frequently done about youth and 'new' technologies (boyd, 2014) and also currently tends to happen when youth and social media are discussed in popular media, see for instance 'The Social Dilemma' drama-documentary (Orlowski, 2020). Instead, I aim to have a nuanced approach to technology here: it is neither going to solve all issues nor is it causing all issues.

Research questions & method
This book thus poses the question: how do youth structure, value and recognise learning in online learning communities on social media platforms? Furthermore, we are interested in how such alternative pedagogies reflect on the societal assumptions and ideas as to how youth are expected to learn within their formal education. Secondly, we want to understand how these alternative pedagogies that youth create online might be shaped by platform infrastructures. To answer these questions, each chapter speaks to a different question:
1. What pedagogies are introduced by digital platforms?
2. Considering the dynamics social media platforms introduce,

what can be argued about 'new' models and concepts for understanding online learning communities?
3. Can we understand youth's experiences with (creating) online pedagogies in these learning communities not only as destabilising formal pedagogies that are imposed upon them, but also as reimaginations of what it means to learn? And if so, how?

Each chapter in this dissertation highlights a different perspective on the intersections of platforms, learning and pedagogy, together making a part of the experiences of youth online visible and active to the reader's eyes, hopefully provoking questions, ideas and challenges to assumptions about what is recognised as a 'good education'. Each chapter also speaks to a different (combination of) data sources that have all been collected as part of an ethnographic research of six communities, (for specifics see the chapters of this dissertation) on three different platforms that are popular among youth: YouTube, Twitch and TikTok (Ceci, 2022a, 2022b; Twitch, 2021). I carried out 37 interviews with community members that I sampled from the platforms themselves (for details see chapter three and four). I have done many hours of observations of the activities of the communities on the selected platforms (for details see chapter two). Furthermore, I have observed and collected the platforms' terms of service, community guidelines and monetisation guidelines (for details see chapter one).

For this research, we obtained permission from the faculty of Social and Behavioural Sciences ethics committee. Due to the innovative approach of our research, as the data collection took place online and was about youth from over the whole globe, we had to draw from a variety of ethical guidelines in considering our approach, such as those set up by the Association of Internet Researchers and the Norwegian National Research Ethics Committees. Based on those guidelines, we for instance shifted the understanding of the cultural context from a local country to the digital community.

The chapters of this dissertation
In the first chapter, we answer the question: what pedagogies are afforded by YouTube, Twitch and TikTok? Pedagogy as a concept is often associated with parents engaging in childrearing or a teacher in a classroom: taking pedagogy as a lens to look at platforms might be surprising. Nonetheless, pedagogy is not limited to such explicitly educational or nurturing environments (Bernstein, 2000; Haan, 2018). For educational platforms, scholars have already looked at the pedagogical ideas embedded in such structures (Kerssens & van Dijck, 2021; Perrotta et al., 2021), yet for the platforms that youth use in their everyday lives, such a perspective is still lacking, even though it could provide insights into how these spaces expect (young) users to behave

according to their commercial, surveillant and normative aims (Sefton-Green, 2021). Understanding pedagogy as a particular form of power that aims to nurture certain behaviours, we looked at the platforms' affordances and 'missionary documents', such as terms of service, brand identity pages, community guidelines and monetisation guidelines, to understand how these platforms aim to nurture their users to adopt certain behaviours on their platform. The underlying idea is that, like a classroom, a YouTube watch page through its design and underlying norms and ideas build into that design, asks of its users to behave in a particular ways that match YouTube's aims and norms. We could thus see how these platforms aim to nurture surveillant, commercial and normative behaviours in their users. Furthermore, we show how the pedagogical perspective enables to bring to the fore how platforms both implicitly and explicitly attempt to instil normative behaviours for their users.

In the second chapter, we argue that there is a need to re-evaluate critically what a 'learning community' means in the context of social media platforms. Literature on the Web 2.0. argues that digital technologies bring opportunities for learning that challenge traditional ideas on what a learning community is. Simultaneously, platform studies raise concerns about the impact of social media platforms' commercial, surveillant and normative aims on online learning communities. In this chapter, we bring these two strands of literature in conversation with one another by rethinking Gee's concept of affinity space. We used the observational data to do so. Gee responded to the idea of communities of practice (Lave, 1991; Wenger, 1999), with a conceptualisation of community that considered some of the contemporary concerns when digital communities became more prominent, yet he did not take platforms into account. In this chapter, we look at online learning communities to see how platforms might challenge the use of 'affinity spaces'. We analysed our data using a critical discourse analysis. Our results show that affinity spaces apply differently to platforms in three regards: their boundaries, grammar, and social structures. Platforms generate the boundaries of affinity spaces by governing visibility and access to the communities. Platforms challenge the grammar of communities by luring learning communities into hybridising their identities in accordance with popular platform cultures and trends. Platforms introduce hierarchisation into the social structure of affinity spaces that generate creators as experts. Though platforms play a part in the ways in which these communities structure, value and recognise learning, we also saw how these communities appropriate, challenge and resist the platforms' aims for their own educational goals.

In the third chapter, we turn the attention to online 'teachers', asking how youth attribute such roles in these digital communities, with particular attention to the platform context in which they do so. With the introduction of 'new' participatory technologies, scholars argued that

our understanding of teachers would change (Jenkins, 2006; Lankshear & Knobel, 2007; Säljö, 2010). Given recent concerns about the impact of platforms on young people's online learning that we mentioned earlier (Sefton-Green & Pangrazio, 2022), this study revises these earlier assumptions by examining young people's perceptions of who can(not) be a teacher on social media platforms. By conceptualising 'teacher', in line with de Haan (1999), as a community member with an asymmetrical relationship to others based on differential expertise rooted in experience, age or status, we analysed how youth understand what a 'teacher' is in online informal learning communities. We used interview and observational data related to interactions along with analysis of the platform infrastructure, focusing on how these asymmetric relationships shaped youth's understandings of 'teachers. Our results show that 'teachers' in platform-based learning communities are creators that have relatively unique, hierarchical positions in the community, and who are valued for their authenticity as they share their personal learning biographies. We show how such teacher positions are partly enabled by platform structures and cultures, but also how learning communities push against such hierarchisation of the teacher position and expect teachers to share their hierarchical position with chatters or commenters. Moreover, our results show how 'teachers' in platform-based learning communities manage to balance their engagement (and the rewards platforms offer for that engagement) with the educational goals on the platform. We argue that these notions of 'teachers' can be traced back to an ongoing discussion of how teaching and learning change as a result of the constantly evolving socio-material contexts.

In the fourth and final chapter, we aim to understand how young people's perspectives on their online learning experiences on social media platforms are informing and are informed by their critiques of their learning experiences in formal education. This interest stems from concerns about youth's alienation from formal schooling, whereas they go online voluntarily to spend their time, and sometimes money, to learn online. Our critical discourse analysis of the interview data describes whether and how online pedagogies might be based on youth's perspectives on formal learning. Our results showed that youth often considered formal pedagogies alienating. Such pedagogies were perceived as controlling, pressuring to perform, and as out of touch with youth's societal and career interests and ambitions. The online, alternative pedagogies that youth described were in contrast valued for allowing them to take control over their learning, providing them space for experimentation and enabling them to act and learn about societal issues and future careers that matter to them. Defining reimagination, based on Deleuze and Guattari's conceptualisation of 'desire' (1987) and Appadurai's notion of global imaginaries (2000), as a productive, collective, creative force, we interpreted these online pedagogies, informed by critiques of formal pedagogies, as constituting 'reimagined

pedagogies'. These can be understood as youth's perspectives on new global (re-)imaginaries of school. To counter contemporary alienation concerns, we argued in the conclusion of this chapter that policy makers and educators could benefit from using these reimaginations as 'objects of thought' to rethink education.

Now let us start with a journey into the world of youth's online learning communities.

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SECTION 1: PLATFORM PEDAGOGIES

What pedagogies are introduced by digital platforms?

Chapter 1. The pedagogical power of YouTube, Twitch and TikTok: Understanding digital platforms as schools

Z. Vermeire & M.J. de Haan

Abstract

This study asks how social media platforms 'raise' users by looking at how they draw from pedagogy to lure users to their platforms, guide their ambitions and discipline their behaviour. We understand pedagogy as a form of power that nurtures and disciplines people with the promise of growth according to a particular normative framework. To describe such 'pedagogies' of YouTube, Twitch and TikTok, we did a discourse analysis of their watch pages, mission statements and socio-judiciary documents. Our results demonstrate that platforms aim to lure and rear youth by nurturing them to value free expression (YouTube), joyful creativity (TikTok) and collaborative (learning) practices (Twitch). Simultaneously, we found that these pedagogical goals also reciprocally operate as paternalistic forces aiming to curve the learning of youth online to meet commercial and surveillant aims. This study shows how platforms use pedagogic power in their attempts to 'rear' their users in mixed normative spaces that are co-determined by both promises of positive freedoms and the disciplinary forces of commerce, censorship, and surveillance.

1. Zowi Vermeire (ZV) co-designed and executed the data collection, and data analyses. She initiated, conceptualised and wrote the article. M.J. de Haan (MdH) initiated the research project, co-designed and supervised the approach to data collection, and supervised and edited the writing of the article.

Introduction

After their day at school Alex likes to watch history videos on TikTok, an interest they discovered when history TikToks started popping up on their For You page. To get more in-depth information, Alex turns to YouTube, where they regularly watch and like history videos of their favourite creator, who asks to like the video because they believe it helps to get more views. Alex is also creating their first videogame inspired by their favourite game design streamer on Twitch, who is always more than happy to answer Alex' questions. Together, all these platforms help Alex to learn informally in ways that the school does not always offer them. Furthermore, through many smooth user experiences, these platforms have subtly impacted how Alex expects to find, use, and engage with information on digital platforms.

The former paragraph takes inspiration from one of the future scenarios on how technology might impact education by Macgilchrist et al. in what they call a 'post-democratic frame created by large corporations' (2019). Whereas the piece by Macgilchrist et al. calls attention to a current concern on the growing power of big tech companies within education (2019), imaginary Alex exemplifies the lives of youth today who already learn online outside of formal education in such a 'future' scenario. In this paper, we explore how these platforms employ subtle forms of power drawing on a pedagogic register in their aim to draw youth to their platforms and impact their behaviour. In addition, we look at how these platforms employ such power to create a space where youth can experiment with alternative pedagogies to those common within formal educational spaces.

Drawing on Bernstein, we conceptualise pedagogy as a particular form of power and control, that classifies persons and knowledges, and that frames and regulates relations between those who transmit and those that acquire information and/or skills (Bernstein, 2000). However, we pose that pedagogy is not just a disciplining power, controlling youth to learn to behave according to normative aims. The key activity of pedagogy: 'rearing', refers to more meanings such as 'raising', 'towering over' and 'stimulating' (OED Online, 2022), invoking the double nature of this paternalistic form of power. It is both a way to tower over and to control someone (patronising or infantilising them) as well as to nurture and stimulate someone (teaching or coaching someone). In other words, apart from disciplinary, pedagogy can also be understood as a nurturing power encouraging youth to fulfil their potential (de Winter, 2011). To do justice to this double nature of pedagogic power, we use Negri's rethinking of Spinoza to distinguish two 'types' of power: *potentia* and *potestas* (2000). *Potestas* is the power to control, to dominate, to discipline. *Potentia* is the power to be connected to the world and to constitute it. Fostering such power as *potentia* can provide individuals with a sense of positive freedom, described by Berlin as the freedom to be able to do something (2002). Drawing from these theories, we

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understand pedagogy as a (specific) form of power enacted by both disciplining (potestas) and nurturing (potentia) certain behaviours to rear users to fulfil aims that are by someone in power, like a platform, promised as providing positive freedom.

One might question though whether platforms like YouTube, TikTok or Twitch can be considered pedagogic environments, in the sense that they use a pedagogical form of power outside of an explicitly educational environment. Scholars have acknowledged that pedagogy can be understood as a specific form of power that extends beyond formal spaces such as schools (Bernstein, 2000; de Haan, 2018; Depaepe and Smeyers, 2008; Sefton-Green, 2012, 2021). Depaepe and Smeyers have for instance called attention to governments' usage of pedagogic power to encourage and control citizens' behaviour with a promise of positive freedom within a society (2008). To make sure citizens adhere to traffic rules, a government can for instance lock someone up for speeding, which would be a controlling form of judiciary power. However, a government can also employ a pedagogic form of power instead, by for instance using a traffic smiley, rewarding a driver with a sign of approval to reward the driver's ability and willingness to adhere to the norm to drive within speed limits. Rather than enforcing such behaviour, a government would now encourage in drivers their own desire to contribute to the normative aim that the government has in mind by providing them a pat on the back. Social media platforms can also be argued to use such pedagogic power. Platform interfaces, via aspects such as templates and drop-down menus, could for instance be seen as steering users to behave in specific 'good' ways (Sefton-Green, 2021). They are promised that if they behave according the steering of these interfaces, they will be able to fully benefit from the platform's options, similar to how a teacher, parent or classroom would guide and reward learners towards the 'right' answer or behaviour (Sefton-Green, 2021). Platforms might not always use 'strong', that is, highly visible forms of pedagogical power (Bernstein, 2000), but rather use more subtle forms of control (Sefton-Green, 2021). For instance, a teacher correcting a student by asking them to stop speaking to their peer as it is interrupting the learning of others, would be a strong form of control, whereas arranging the desks in a classroom facing the teacher to avoid that behaviour to occur would be a more subtle form of (socio-material) control. YouTube, Twitch and TikTok can then be considered pedagogic environments in the sense that they control and encourage users to grow towards pre-established normative aims, promising them a range of abilities and opportunities on the platform if they do so, like how governments have been argued to use pedagogic power to steer the behaviour of citizens.

Concerns about the pedagogic power of platforms is currently mostly focused on its impact on formal education and the platforms used within that setting, such as Google Classroom (Kerssens and van Dijck, 2021; Macgilchrist et al., 2019; Perrotta et al., 2021; Zuboff, 2019). Scholars have warned for the impact of datafication with its increased potential for surveillance, and the hidden pedagogical values in platforms used within formal education (van Dijck et al., 2018; Perrotta et al., 2021). Such values could be informed by commercial or surveillant aims, which might slip into for instance automated, convenient ways to measure learning in school (van Dijck et al., 2018; Perrotta et al., 2021). Before these concerns gained prominence, scholars in education, in contrast, tended to focus on how young people's experiences with 'new' technologies, outside of school, could create 'new' perspectives or challenges to how learning is organised within formal education. Some claimed that the increased accessibility of information online could challenge forms of learning based on memorisation and the hierarchies between students and teachers (Lankshear and Knobel, 2007; Säljö, 2010). Others claimed that online spaces like YouTube where information could be discussed freely beyond cultural and spatial boundaries, could be supportive of critical and participatory forms of learning (Jenkins et al., 2015; Kellner and Kim, 2010). This research focused on how technology could help to rethink assumptions about how learning should take place. In this paper, we contribute to this ongoing debate on the impact of platforms on education. However, while acknowledging the concerns related to the commercial motives and the problems with surveillant control of platforms in schools, as have recently gained prominence, here we aim for a deeper understanding of the pedagogical workings of these platforms. Our perspective allows for an analysis of how the intricate structures of these platforms nurture users in surveillant and commercial ways, as already argued in platformisation literature, while simultaneously providing youth with a space to experiment with alternative pedagogies that could challenge formal education, in line with the previously mentioned work on how digital technologies challenge traditional pedagogies.

Our contribution to this debate aims to understand *platform pedagogies* outside of formal education. In literature on the impact of technology on schools, such pedagogy-informed approaches are used to analyse how in formal education platforms steer users to perform certain desirable behaviours (Decuypere, 2019; Perrotta et al., 2021). These scholars explicitly study the impact of platforms on the pedagogy of schools by analysing their embedded pedagogical intentions (Perrotta et al., 2021). Through such an analysis, Perrotta et al. for instance argue that Google classroom instils particular pedagogies:

> Google implicitly advocates its own non-neutral view of pedagogy, that is, a normative set of expectations about how teachers teach and students learn, accompanied by technical requirements which govern how additional "educational" functions are integrated into the classroom experience (p. 102, 2021).

These studies often draw from platformisation literature that focuses on the impact of surveillant and commercial discourses of these platforms, like Zuboff (2019). Even though the impact of platformisation does not stop at the border of school, such a pedagogical perspective on the impact of platforms on learning has not been extended to how platforms might impact youth's informal learning. This is remarkable, firstly, given the importance assigned to such contexts for the learning of youth (Erstad, 2012; Haythornthwaite, 2018; Ito et al., 2019; Sefton-Green and Erstad, 2018). Secondly, it is remarkable in relation to the previously mentioned research agenda that looks at how young people's experiences with 'new' technologies, outside of school, could create 'new' perspectives or challenges to how learning can be organised. In addition, as popular platforms such as YouTube and Twitch are owned by companies such as Amazon and Google that have ambitions to expand usage of their products within formal educational settings, such a perspective could help us understand the potential impact of platformisation on youth's expectations for learning on platforms. We might for instance wonder if these social media platforms nurture youth to consider their user interfaces the norm for how one should behave on a platform, which could in turn impact their expectations for how such a platform should work in formal contexts.

To make clear how platforms use pedagogy, we use the school's classroom and student/teacher relationship as a heuristic to speculate on what schools would look like if they would similarly rear their students as platforms. Such a speculative approach allows for a critical evaluation of how schools and platforms use such power to rear youth. Building upon earlier work on the pedagogic power of platforms (see e.g. Sefton-Green, 2021), we analyse *specific* pedagogies of platforms, and ask, while making use of this imagination: what if YouTube, Twitch and TikTok were schools? We believe such contrasting imagination also eases interpretation given the familiarity of this school-based discourse in contrast with learning 'in the wild'.

To do this, we did a discourse analysis of platform affordances, seeing pedagogy as a particular form of power, focusing on options the interface provides to users. That is, on the expected usage, and not on the actual usage. Affordance theory is particularly suitable here as it pays explicit attention to how an environment, in this case a platform, similarly as a classroom, can set up certain expectations for how people are to behave within that space (Bucher and Helmond, 2018). We acknowledge that users can challenge such expected usage, but we focus here on understanding what expectations platform interfaces set as a foundation for how youth might learn within such a space. In discussing the implications of our analyses, we focus on youth because we are particularly interested in exploring platforms' potential impact on those users who still attend formal education as their online experiences might nurture expectations when it comes to the technology they use within

their education. Nonetheless, we acknowledge that our results extend beyond 'youth' as users of various ages use these platforms, even though TikTok for instance aims at younger users in their design. Just as classrooms, digital platforms can be described as agents that produce and perform the social structures of our everyday life (van Dijck et al., 2018; Jewitt, 2008; Leander and Burriss, 2020). As such, these platforms are not static but constantly change in relation to demands from users, as well as those of policy makers, legislation, advertisers etcetera (Bucher and Helmond, 2018; van Dijck et al., 2018). Their current forms reflect a history of user engagement, as well as adjustment to and interaction with such legal and commercial demands. Relatedly, the environments of platforms are embedded in wider policies and strategies, which often have the intend to collect, process and monetize data of users (van Dijck et al., 2018; Gillespie, 2010), which might impact platforms' afforded pedagogies. We use affordance theory while understanding, from a sociotechnical perspective, that the social and technology are in a reciprocal relation with one another (Loveless and Williamson, 2013).

Method
In this paper we ask: what pedagogies are afforded on YouTube, Twitch and TikTok? To answer this question, we did a (Foucauldian) discourse analysis of the watch pages and 'missionary documents' of YouTube, Twitch and TikTok.

To be able to look more precisely at platforms' pedagogies, we selected three platforms that are popular among youth (13-24 years old): YouTube, Twitch and TikTok. First, the, what we call 'missionary documents', comprising of the platforms' mission statements and formal guidelines were analysed. The mission statements are Twitch's brand identity page, YouTube's 'About' page and TikTok's 'About' page. As part of the formal guidelines, we included community guidelines, monetisation policies and terms of use of each platform. As these pages and what is included within terms of use or community guidelines can differ per platform, we have included the names, and if possible, Internet archive links of pages that are included to create a complete and consistent data set across platforms in a supplement to this paper. Second, we analysed the watch pages of each platform (watch page on YouTube, livestream viewing/chatting page on Twitch and For You page on TikTok), as these are likely the most visited pages. We chose to focus on those parts of the platforms that draw subtly from pedagogic power, instead of pages that explicitly focus on educational aims, such as a Creator Academy, to particularly understand the use of such a power in the everyday use of these platforms.

An analysis of just the 'surface' of the platform by looking only at the watch pages would be a simplification of the platforms included in this

study and not do justice to the various ways in which users are steered by platforms (Bucher and Helmond, 2018). By including an analysis of the missionary documents, we could capture the elements that provide insight into the underlying motives of these platforms for their interface design such as their business models and the socio-juridical contexts in which they operate (van Dijck et al., 2018; Light et al., 2018). The *formal guidelines* provide insight into how platforms practically attempt to steer behaviour, whereas the *mission statements* provide insight into the 'pedagogic ideal' these platforms proclaim to aim for. Even though users might not consult these missionary documents, these do regulate, for instance, how content is presented on the platform and how users engage with it. Thereby, sometimes unknowingly to the user, they steer the behaviour taking place on webpages that users visit more frequently. Creators, for instance, implement community guidelines in their videos. Everyday users watch these videos or are confronted with community guidelines if their comment that violates the guidelines gets deleted.

We did a discourse analysis of the missionary documents and watch pages. For the discourse analysis of the watch pages, we specifically used a discourse *interface* analysis. We used this approach instead of a walkthrough method (Light et al., 2018) or infrastructure or platform analysis (Plantin et al., 2018). The infrastructure and platform analysis approaches address how infrastructures and platforms are entwined in relations of power more generally, while we are interested in platform *specific* pedagogies. Though the differences between the walkthrough method and discourse interface analysis are subtle, the first attends to describing the mechanisms and cultural references to understand potential user experiences (Light et al., 2018), whereas a discourse interface analysis looks at how digital platforms' features function as a productive power by looking at its affordances (Stanfill, 2015), which fits our aim to analyse expected usage from an understanding of pedagogy as a particular form of power.

Procedure
At the end of 2020 and beginning of 2021, we captured and stored the webpages comprising the watch pages and missionary documents of YouTube, Twitch and TikTok. We captured and analysed these pages while logged out, unless this made it impossible to view the page, in which case it is mentioned. The YouTube and Twitch watch pages and the missionary documents of all selected platforms were captured on a pc, whereas TikTok's For You page was captured on a smartphone while signed in, as it is foremostly an app. YouTube and Twitch can be used in light or dark mode, we have used light mode for YouTube and dark mode for Twitch.

We had permission from the Faculty Ethics Assessment Committee to conduct this research. All the webpages included in this study are publicly accessible, even the TikTok For You page can be accessed in a

browser. All the stored pages did not include information of individual users. Example images from the watch pages included here are from a YouTube video created by a Dutch public broadcasting agency and from videos/streams watched by a 1.000 to a million viewers, due to which these can be considered public information (see NESH, 2019), nonetheless, we partly anonymised the screen shots from YouTube, TikTok and Twitch.

Analysis
Using discourse interface analyses, we examined what practices the platform encourages while discouraging others (without claiming this reveals actual usage) (Stanfill, 2015). For instance, accepting all cookies on a website is often encouraged by giving this button a bright colour while having the one to 'manage preferences' a more muted tone (see e.g. websites of The Guardian, Twitch.tv and Amazon). For doing a discourse interface analysis of digital environments, three types of affordances are distinguished: functional, sensory, and cognitive (Stanfill, 2015). Per type of affordance, we used the following questions:
1. Functional: What does the page allow users to do?
2. Sensory: What aspects of the page draw users' sensory attention? And how?
3. Cognitive: What texts and symbols on the page self-describe information about its usage?

Though these affordances are interrelated, separating them in our analysis enabled us to structurally include all ways in which these platforms draw attention to some components over others to steer behaviour. After we distinguished the affordances, we analysed their pedagogy: what/how do these watch pages encourage and discipline users through their affordances?

We did a critical discourse analysis of the mission statements by looking at what normative message was textually and visually central, to distinguish what norms platforms themselves promote as their pedagogic ideal. To analyse the formal guidelines of each platform, we first coded, using NVivo, all expressions that could be seen as an implicit and/or explicit steering of user behaviour and what/how behaviour and identities were encouraged and/or disciplined. For instance, we would code a statement like 'we expect streamers to value the bond with their community' as 'value community' in the category expected user behaviour: 'how to be'. If behaviour that goes against this norm is then explained to result in the expulsion from the platform, we would then code this as disciplined behaviour in the category 'punishment' as 'expulsion'. Subsequently, we analysed these categorisations to describe the platforms' pedagogies: what/how do these formal guidelines encourage and discipline users to grow into certain normative aims?

Results

In what follows below, we will present the results per platform, starting with the results of the analysis of their 'missionary' documents, as this provides insight into the normative aims they wish their users to grow towards. Afterwards, we will share the results of the analysis of the watch page's affordances to see how these 'rear' users towards such specific normative aims. In conclusion, we will combine the results from these two data sets in a description of the platform as a school. Before delving into these platform specific results, we will share the general results per data source as well as introduce how the results of each data source will be presented.

A large part of the 'missionary documents' are focused on setting up rules, rewards (e.g. monetisation) and punishments against inappropriate behaviour to remain a space that can be safely used by a variety of users of different ages, backgrounds etcetera. Simultaneously, these are aimed at keeping the content of the platform within lawful practices. Topics such as privacy, transparency and law are thus recurring themes, as platforms mention these to, for instance, adhere to GDPR or DMCA regulations. However, per platform we focused on how these each differently use such and other rules to encourage and discipline behaviour, instead of delving into how platforms inform users of their privacy rights. For each platform we present:
1. the results of the analyses of mission pages by asking the question: 'what normative message is presented in the platform's brand identity on their mission page?' We assume this will provide insight into the platforms' ideals when it comes to encouraging and disciplining behaviour;
2. the results of the analyses of the formal guidelines by asking the question: 'how do these formal guidelines encourage and discipline users?' We assume this will provide insight into the platforms' practical applications of these ambitions.

Despite most readers likely being familiar with the interfaces of these platforms, in this paper we draw attention particularly to the subtle pedagogical workings of these interfaces. We will discuss the interfaces of each platform, but some similarities were apparent across platforms. On all these platforms, a checkmark (see e.g. figure 3, box B) next to a channel's name indicates that the creator is verified/partnered, oft differentiating between content of monetised and non-monetised creators. Such differentiation could be understood as encouraging the user to value the platforms' judgement of a creator, as a checkmark signals the platforms' normative stamp of approval, being called 'partners' (YouTube, Twitch), 'Affiliates' (Twitch), or 'verified' (TikTok). A report function is available to all logged in users but is on each platform hidden behind three dots. Users are therefore not encouraged to report. Simultaneously, the existence of this function creates the

appearance that users should take responsibility for reporting content and creating a safe space. Per platform we will discuss each watch page's specific affordances through the lens of pedagogy, meaning we look at how these encourage and discipline behaviour to foster certain pre-established norms among their users, like how classroom-design encourages the norm that the teacher should be listened to.

After presenting the latter results based on our analyses of the missionary documents and watch pages, we use the heuristic of schooling to situate these results, e.g. as classrooms and teacher-student relationships. We do this by imagining the watch pages of these platforms as the classrooms, the videos/streams as lessons, the monetised creators as teachers, the platform mission as the school mission and the formal guidelines as the underlying rules and expectations the school sets up for students. We partake in this imagining by asking the following question: what kind of schools would YouTube, Twitch and TikTok be?

YouTube — express yourself freely
Missionary documents
According to their mission webpage, the freedom of expression, the freedom of information, the freedom of opportunity and the freedom to belong are the four freedoms YouTube considers fundamental. The video on this page also reinstates this norm visually and textually by, for instance, showing protestors.

This norm of free expression and information can also be found as a recurring theme throughout YouTube's formal guidelines. This comes to the fore in, for instance, the community guidelines, which state that YouTube is a space where people come to express their opinion, and in the monetisation guidelines, which state that they will not tell their user what to create. However, when we look closer at how they aim to ensure free expression within the formal guidelines, their mission becomes complicated. On the one hand, community guidelines discipline and encourage behaviour based on a mission of free expression, such as punishing the spread of false information that supresses voters, which would inhibit viewers' democratic free expression even outside of YouTube. On the other hand, the monetisation guidelines state that creators interested in receiving monetary rewards need to 'self-certify' how 'advertiser-friendly' their content is, apart from fulfilling other requirements (e.g. certain number of subscribers). This leads to situations in which the community guidelines explicitly mention that YouTube thinks it important that mental health issues can be discussed, while simultaneously stating in monetisation guidelines that ads should be turned off for content that addresses topics such as suicide, self-harm and eating disorders. This could encourage creators who are monetised, want to be monetised, or rely on monetisation, to avoid topics

that could be controversial to advertisers. Though creators are the only ones eligible for monetisation, which is also the only explicit reward available to users, such ad-friendly requirements can also affect what type of content users encounter on YouTube. Overall, YouTube's 'missionary documents' proclaim a commitment to rear users into valuing free expression and information, while more subtly only rewarding creators for embodying this norm when it also fits a less explicitly proclaimed norm of advertiser-friendliness, also rearing them to consider their content in light of commercial aims.
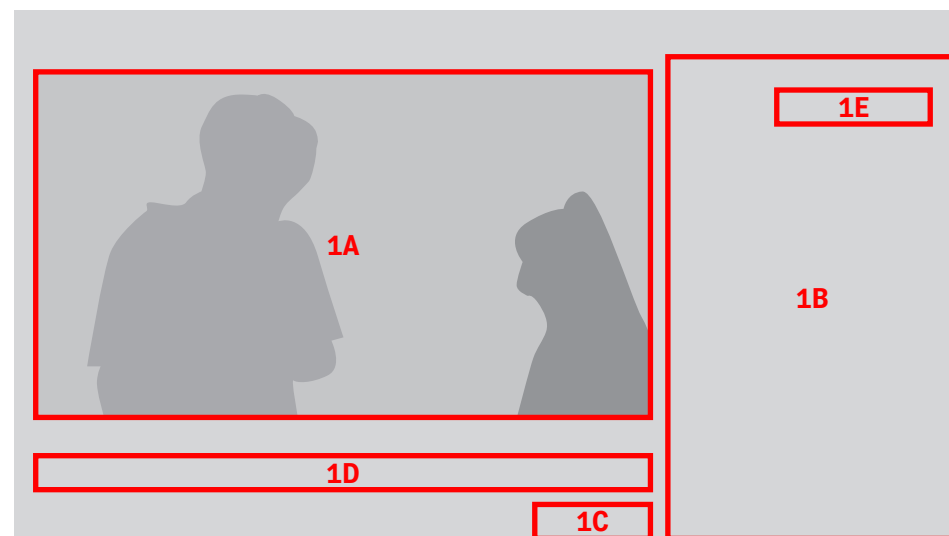
YouTube – watch page

Figure 1: Watch Page YouTube

If YouTube's watch page would be in line with their norm of free expression and information, such behaviour would be expected to be encouraged and disciplined on the watch page. However, though YouTube has many *functional* affordances, such as watching videos, (dis)liking, commenting etcetera, its *sensory* affordances focus mostly on watching videos. Firstly, due to the position of the central video that automatically starts playing (1A). Secondly, the list of recommended videos (1B) further calls upon the user to watch more videos, as it shows small snapshots of these *recommended* videos in a largely 'sterile', white environment. Furthermore, the watch page's cognitive affordances seem to recurringly refer to a quantified judgement of videos. The watch page for instance refers to the number of views of the watched and recommended videos, the number of subscribers, as well as which buttons (thumbs up/down) they can use, if logged in, to express their opinion (1D). To have these numbers prominently displayed seems to implicitly ask of the viewer to take these into account when judging videos. If they like the video and have judged it based on these quantified numbers, they are invited to also subscribe via the bright red button (1C). In contrast to these aspects of watching, judging, subscribing, the comment function is hidden from view until a user decides to scroll. The pedagogy of YouTube's watch page encourages everyday users to mostly passively watch videos, which does adhere to their value of freedom of information, though such information might in the background be impacted by monetisation policies. However, when to value such information, users are encouraged to value these, not based on a form of free expression in comments, but via a seemingly more superficial judgement based on views, checkmarks and (dis)likes.

YouTube-school
If YouTube would be a school, students would be encouraged to learn to freely express themselves and learn from a wide range of information available through the free expression of teachers. The school explicitly presents itself in its mission as encouraging and disciplining students to reach their full potential by using such free expression and access to information. Notwithstanding appearances, the school is however not an encouraging environment for free expression or access to information, as it does not equally reward all forms of free expression. First, though the classroom affords students attending lessons the possibility to comment, the classroom encourages students more so to sit, listen and consume many lessons rather than voice their opinion about the material through comments. Secondly, the school creates a hierarchy between students by only offering rewards to those students who use their free expression to create 'lessons' to work towards a teacher position. The school will not reward a student for their free expression through comments or for their viewing hours, though providers of lessons might encourage these actions to become monetised, as they need subscribers and views to get paid. Thirdly, the school rewards particularly those lessons that cover

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topics that please commercial sponsors of the school, while excluding more controversial topics from such rewards. Due to this, combined with the incentive for students with their own classes to create popular content, non-controversial and popular topics are more frequently taught. It is hard to find teachers or even peers willing to teach on controversial and less popular topics. Overall, if YouTube would be a school, students can freely belong, express themselves, and access information, but popular and marketable expressions are most visible and rewarded.

Twitch — build and participate in community practices
Missionary documents
On Twitch's 'new' brand identity webpage, its closest equivalent to a mission page, the platform expresses the value it places on the Twitch community and individual communities of streamers.

Twitch's mission for encouraging users to build and sustain communities is also a recurring theme in its formal guidelines. In the community guidelines Twitch for instance encourages users to participate in a friendly manner to create a 'positive experience for our global community.' Twitch also holds streamers responsible for community building and participation in these guidelines by both explicitly positioning them as role models as well as expecting them to take disciplinary actions against those who misbehave in their chat. More indirectly, streamers are also encouraged to reward participation. For instance, in the 'Bits acceptable use policy' ('Bits' is digital content that can be purchased from Twitch to for example celebrate certain moments in stream) within the formal guidelines, Twitch asks streamers to 'acknowledge chat messages that include Bits, whether via overlays or other forms'. Another example from the monetisation guidelines is how at a certain 'level' of being monetised, a streamer gains access to the ability to reward active users with a moderation role (and matching badge) in their stream, as such providing users with a potential reward, as well as encouragement for continued participation with a streamer. Twitch thus also uses streamers to discipline and encourage their users to participate in the ongoing practice of their community. As outlined in the monetisation guidelines, to become monetised as a streamer, apart from having no recent violations of terms of service or community guidelines, one needs to stream long periods of time, with a consistent, increasingly large audience. Advertiser-friendliness is not explicitly mentioned. So quantified numbers of participation are rewarded rather than the content of these forms of participation if these do not violate community guidelines. In sum, Twitch's 'missionary documents' aim at encouraging and disciplining (safe) community participation by having streamers 'rear' their viewers into increased participation in their ongoing practices and calling out misbehaviour. Yet simultaneously they also encourage streamers through rewards to encourage the quantity of

interactions or 'special' forms of participation, like bits, that cost money, whereas the focus on the content of participation is mostly geared at making users adhere to community guidelines and terms of service. As such, Twitch seems to focus on encouraging users to aim for building and participating in the ongoing practices of large, 'safe' communities, rather than nurturing the quality of participation.

Twitch — watch page
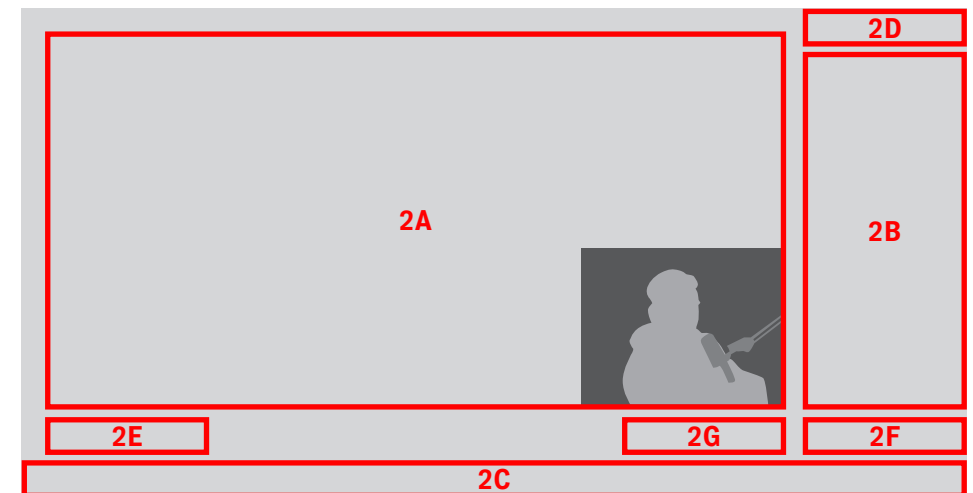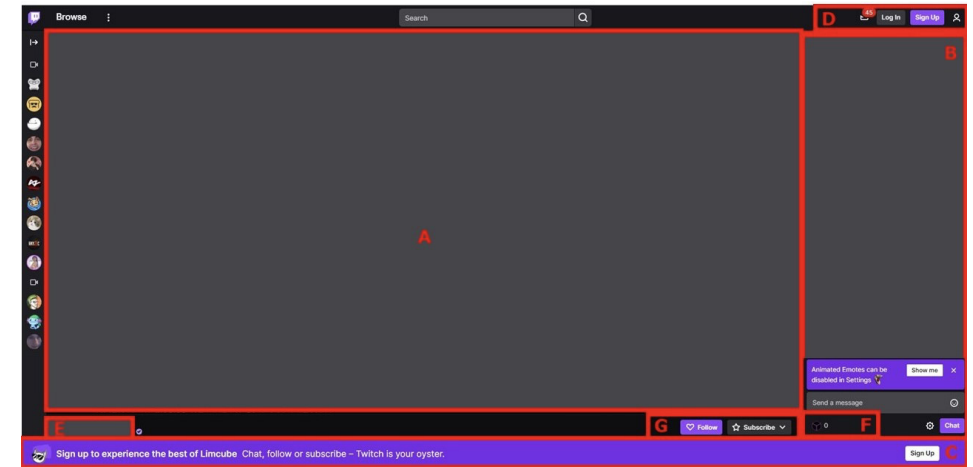
Figure 2: Watch Page Twitch

If Twitch's watch page's affordances are in line with their norms as expressed in their mission, one would expect it to be geared at encouraging users to build and participate in communities. Twitch indeed has many *functional* affordances mostly geared at allowing the user to participate with the livestream, such as the chat box and follow button. When it comes to *sensory* affordances these seem to also be designed to draw users' attention to options for participation with the streamer and their activities. The stream (2A) and chat (2B) draw attention by creating

sound and by moving. All the purple boxes, designed to stand out in a largely grey environment, explain their intended usage, also *cognitively affording* options for increased involvement with the stream, see for instance 2B, 2C, 2D and 2G. When logged in, Twitch affords more options for participation. A recurring animation will for instance appear of channel points (2F) accumulating as a reward for the time that the user spends watching. In exchange for these channel points, users can ask the streamer to perform an activity, determined by the streamer. Also, in line with their 'missionary documents,' Twitch allows streamers to control some of the afforded functions for participation. Twitch's watch page also shows a form of quantified judgement such as views, which, though initially hidden behind 2C, are depicted in bright red. The pedagogy of Twitch's watch page thus encourages users to watch and participate with a streamer and through doing so nurtures them towards valuing ongoing participation in the community and its practices.

Twitch-school
If Twitch would be a school, it would encourage and discipline students to grow into valuing community membership and participation in their ongoing practices. On Twitch regular students can create live lessons. If students succeed in building and sustaining a community, they can earn money for their lessons as a reward, and eventually become a teacher. Becoming a teacher comes with the responsibility of disciplining students if they transgress school rules as well as the ability to reward students in class with extra roles for their participation in learning activities. They reward 'good' students, that is, the ones who actively participate, with positions of power within the classroom. They give them for instance the opportunity to also discipline fellow students when they do not stick to the rules (a moderator role), like a prefect. Twitch school has an intricate reward system which distinguishes several types of students and corresponding rewards: those that aspire to be a teacher, but also those that rather chat or even those who simply view a lesson by awarding them (channel) points for simply being in class. Though 'just viewing' is rewarded, the focus lies on encouraging participation throughout various roles and rewards, which is in line with the mission of Twitch school: to build and encourage participation in communities. However, this aim comes under pressure as the school rewards their teachers and aspiring teachers for increasing the quantity of forms of participation, rather than on the quality. This sometimes creates classes where there are too many students all engaging at the same time, making it impossible for both the teacher and fellow students to participate in ongoing practices. In such classes, the school's encouragement of teachers to grow their communities and number of participants results in that a student can only listen to the teacher, rendering all other forms of participation meaningless, inhibiting community building. Overall, if Twitch would be a school its pedagogies would aim to nurture students to participate in the ongoing practices of communities to grow into valuing

specific normative communities' practices and aims. They use teachers and students that are successful in building and sustaining such communities to encourage such participation.

TikTok — create joy through remixing: be a maker
Missionary documents
TikTok's about webpage aims at establishing TikTok as a joyful space. TikTok's mission: 'to inspire creativity and bring joy.' The TikTok videos shown on this about page are in line with this mission, showing joyful imagery.

TikTok encourages joyful creatorship in its formal guidelines too. In the community guidelines, TikTok for instance explicitly links reasons for imposing community guidelines on their users to this mission: 'we update our Community Guidelines from time to time to evolve with community behavior, mitigate emerging risks, and keep TikTok a safe place for creativity and joy.' This focus on joyful creatorship to ensure safety within the formal guidelines could however also be interpreted as a disciplinary discourse, justifying actions against content that does not fit the 'joyful' mission of TikTok. As such, turning from an encouragement to become a joyful creator, to one that could become constricting. For instance, serious content, on health, actuality, or history, can be 'safe' but not joyful. Their creative and joyful discourse could also impact what content creators feel encouraged to create, and what regular users can expect to see on their For You. Though it is their mission to encourage creativity, only since 2020 this has been met with an opportunity for a reward: monetisation. The monetisation policy is only explained in a newsroom article (which we decided to include to be able to compare TikTok's monetisation policy to those of YouTube and Twitch) which celebrates particularly creative and innovative creators that have succeeded in forming commercial collaborations with companies outside of TikTok. Such monetisation can be read as a means to not only encourage joyful, creative content, but also as a way for TikTok to gain more control over content production by, while outlining their monetisation requirements, giving specific examples of creators, 'joy-sparkers', that adhere to their mission in combination with them being labelled as 'successful' due to commercial collaborations. In result, creators interested in creating different content might fear disciplinary actions like removal if their content is not 'joyful' or interesting for commercial collaborations. Overall, TikTok's 'missionary documents' encourage becoming a joyful creator, while its commercial interest and focus on joy could constrict creative content creation and in result what videos viewers might see on TikTok.
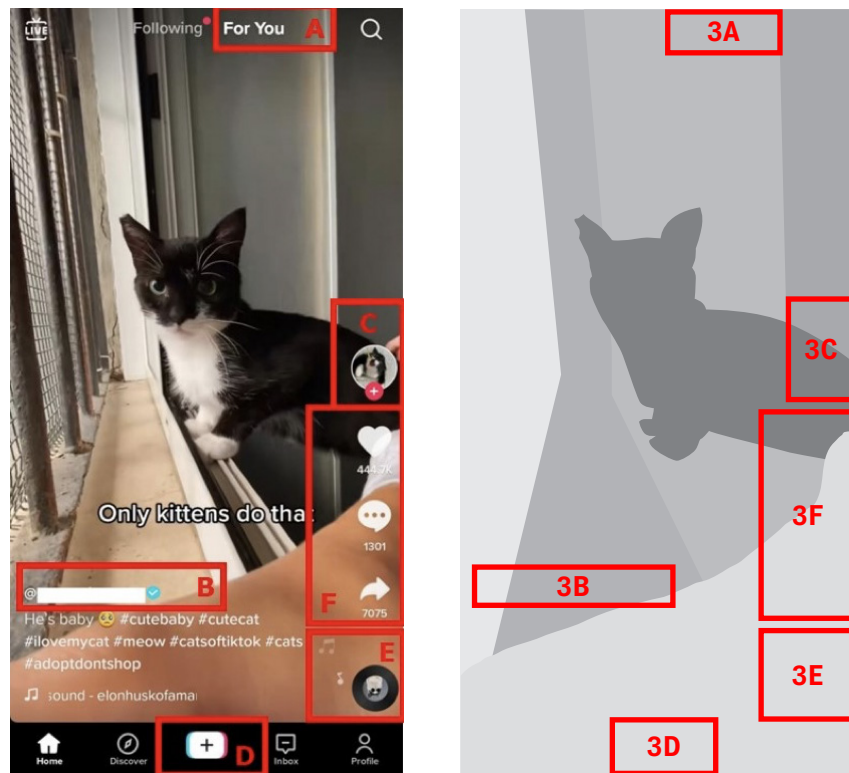
TikTok — watch page

Figure 3: For You Page TikTok

On its For You page, the emphasis of TikTok's normative aim of joyful creatorship becomes more specifically aimed at stimulating watching and creating videos selected for the individual user through creative remixing of various components of existing videos. TikTok's watch page's *functional* affordances provide the user for instance with mostly options to watch content or create their own by using viewed videos as inspiration that are self-described as selected for the user (a *cognitive* affordance), see 'For You' in 3A. In terms of watching videos, the *sensory* affordances of TikTok also mostly call attention to the video, due to its movement and sound, and the simplicity with which a new video can be swiped up. Interestingly though, if the user is on the For You page for a certain amount of time, it will show a video that encourages the viewer to lay down their phone, calling attention to the option to close TikTok. In terms of creating videos, after the blue check mark (3B) and pink plus button, for following (3C), there are several buttons (3D, 3E), that seem to be designed to draw attention, which lead towards pages on which the user can create videos. There is for instance the spinning record (3E) with music notes coming from it, drawing attention due to its movement. Clicking on this record button shows a page with a pulsating pink button stating, 'Use this sound', asking users to become a creative remixer.

Additionally, users are asked to judge videos based on how the cognitive affordances self-describe videos based on a quantified judgement: likes, comments and shares (3F). In sum, the pedagogy of the For You page nurtures in users to want to watch videos (to a certain limit) self-described as selected for them ('For You'), judge these based on their popularity, eventually becoming a creator themselves by using components of videos as inspiration: remix it.

TikTok-school
If TikTok would be a school it would nurture students to aim for joyful creatorship, in accordance with the school's mission. Its classroom, tailored to the individual student, the 'For You' page, is built to nurture students into watching an endless amount of short, pre-recorded lessons that are created by fellow students (creators) and creating their own lessons by remixing those lessons. The classroom also encourages students to take a break when they consumed many lessons in one sitting. Some of the students make it as a teacher and get paid for some of their lessons. TikTok-school only rewards students who create lessons, students who comment or just watch are not rewarded. Also, students feel encouraged to create lessons focused on topics that are joyful or interesting for commercial collaborations, as the school celebrates students who do this. Creating lessons on topics that are not joyful, such as particular references to violence or societal criticism, is not invited by the school and students who do, fear they reduce their eligibility for monetary compensation for their lessons as they do not seem to fit the 'joyful' mould. These lessons are therefore harder to find. Overall, if TikTok would be a school its pedagogies would be determined by the aim to be a creative, inspirational school for aspiring creators, simultaneously (aspiring) teachers feel inclined to create joyful lessons that are interesting for commercial collaborations, which also impacts what lessons are most likely taught at TikTok school.

Discussion
In line with Alex' experience, our results tell the story of how YouTube, Twitch and TikTok might already function as schools in perhaps the most traditional, Greek meaning of the word: a place that rears youth in their spare time. Using pedagogy as a particular form of subtle power, consisting of *potestas* and *potentia*, to analyse the discourses embedded in these platforms' 'missionary documents' and watch pages allows the complexity of how platforms attempt to rear their users according to pre-established norms to shine through in three ways that we will further illustrate below.

Firstly, our use of the language of schooling as a heuristic to explain how platforms use pedagogic power as *potestas* and *potentia*, might partly illustrate why youth are drawn to these platforms and what formal education might learn from this. As our results demonstrate, statements

in the 'missionary' documents of these platforms do not only make juridical statements on what is copyright infringement, but also try to foster in youth a belief in the norms of the platform by offering them the promise of a platform for their free expression (YouTube), their ongoing participation in community practices (Twitch), and their joyful creatorship (TikTok). In doing so, these platforms offer a promise of providing them with the positive freedom to shape their own learning trajectories choosing from a wide range of free expressions (YouTube), communities (Twitch) and joyfully creative videos (TikTok). These alternative pedagogies might explain the appeal of these platforms to youth, something previous scholars have also pointed to (Säljö, 2010; Sefton-Green and Erstad, 2018; Ünlüsoy et al., 2013). Awareness of how these platforms employ pedagogic power, could be valuable to take into consideration in attempts that are made in Europe, such as with the GDPR, to limit the power of platforms via policy makers and what effects policies might have on their pedagogies.

Secondly, a pedagogical lens allows for a discussion of how YouTube, Twitch and TikTok's strategic self-description as a 'platform' to appease various parties, from commercial, to policy makers to everyday users (Gillespie, 2010), also works through in how they attempt to paternalistically shape their users. By opening up pedagogy as a power including both potestas *and* potentia, nuance can be brought to how the impact of platforms on education is conceptualised in platformisation literature like Zuboff's (2019), and Perrotta et al. (2021). Using pedagogy as a discursive lens enables a description of the complexity of how digital platforms raise users, by allowing for the tensions to shine through that arise between the multiple aims that these platforms incorporate in their interfaces and missionary documents. Though envisioning their users as expressive opinion makers, YouTube rears users more so as passive consumers by focusing on continued watching of popular, advertiser-friendly content than as active opinion makers. Providing them, in some ways, with a quite traditional pedagogy of sitting still and watching what the 'teacher' tells them. Though Twitch aims to raise users to value exactly the participation that YouTube does not encourage, it rears users to value the number of connections and interactions, rather than the quality of those connections. TikTok rears users to take their interest as inspiration to fuel their creativity, but risks a similar tension between commercialisation and creativity as YouTube with its disciplinary discourse of 'joy', which might explain previous censorship concerns on TikTok as raised by Abidin (2021). In other words, using a pedagogical perspective allows for an understanding of how users are not only 'used' for their data, but how they are also reared to come to inhibit some of the norms through the promises of positive freedoms such behaviour supposedly enables. Moreover, our analysis of platform *specific* pedagogies based on a detailed analysis of their socio-material environments and their potential

impact on individual users provides a new and unique perspective on platforms.

Thirdly, this perspective of pedagogy might partly explain how youth want their formal educational platforms to work like, as this might be created by platforms' rearing practices. Social media platforms' success in drawing in youth implies that young people who spent significant time on these platforms might bring expectations of how to use platforms in a formal school context based on how a particular social media platform has reared them to use digital technologies. By engaging youth on these platforms and rearing them to see YouTube, Twitch, TikTok as the 'norm', the companies behind these platforms could potentially also create a want for their platforms being used in educational spaces as a familiar experience, as users are simply trained to be able to use these platforms and recognise their 'pedagogies'. Previous research has also 'given in' to such appeals of platforms like Twitch for educational purposes (see e.g. Jones and Cuthrell, 2011; Pozo-Sánchez et al., 2021). As such, platforms' rearing workings might 'prepare' users for a want for their platform in formal education.

There are some limitations to our approach. The formal guidelines of YouTube were far more extensive than the formal guidelines of TikTok which could have impacted what comes to the fore in the analysis. Also, YouTube's monetisation policy is more extensive on what a user has to do to become eligible for monetisation than TikTok's. As such, it is easier to see and analyse the connection between monetisation of content and commercial aims, even though TikTok might do the same but not detail this in their guidelines. Though we did not see this in our data, Twitch could for instance also rate content on advertiser friendliness but simply not detail this in their monetisation policy due to which it escapes our analysis. Similarly, as with the algorithm, some processes remain hidden to different extends for each platform, creating perhaps differences that are not there in practice.

In sum, platforms encourage pedagogies that schools do not, cannot or do not want to offer currently, and as such they can be hold up as potential resources for pedagogical reform. In line with such thinking, it would be interesting to develop and test prototypes to achieve similar alternative pedagogies in which youth can experience such positive freedoms within their own learning trajectories, but with explicit attention for educational goals. Simultaneously, it remains important to submit such resources to constant critical reflection, especially when reclaiming such pedagogies within democratic control and formal pedagogical design to avoid the pitfall of preferring smooth experiences over critical evaluation of subtle pedagogical power rearing users towards surveillant and commercial aims. Particularly, as we might also want to nurture critical reflection on platforms pedagogical workings in youth themselves.

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SECTION 2:
'NEW' MODELS AND CONCEPTS

Considering the dynamics social media platforms introduce, what can be argued about 'new' models and concepts for understanding online learning communities?

Chapter 2. Platformised Affinity Spaces: Learning communities on YouTube, Twitch and TikTok

Z. Vermeire, M.J. de Haan, J. Sefton-Green, & S.F. Akkerman

Abstract

Online, informal learning communities bring youth opportunities for learning that schools cannot offer. Yet, there are concerns about the impact of digital platforms' manipulations on learning communities. We argue for a re-evaluation of what a 'learning community' means in this platform context. We do this by reconsidering Gee's 'affinity spaces' and asking: 'how can we understand learning communities in the current sociotechnical context?'. We observed and analysed interactions of six learning communities on YouTube, Twitch and TikTok. Our results show that in today's platformised online context, the applicability of Gee's 'affinity spaces' is challenged in three ways. First, platforms re-introduce a discussion about affinity spaces' boundaries through their visibility regimes that play a part in accessing learning communities. Secondly, platforms challenge the communities' grammar; to keep focus on their interest, they need to engage with interests provided by platform cultures. Thirdly, a more fixated hierarchisation, informed by platforms' focus on creators, is introduced into learning communities' social structures. We introduce the term 'platformised affinity space' to describe platform dynamics in online learning communities. In conclusion, when looking at online learning communities it is important to acknowledge platform dynamics, and communities' appropriation and resistance of such dynamics to achieve their goals.

2. ZV co-designed and executed the data collection, and data analyses. She initiated, conceptualised and wrote the article. MdH and J. Sefton-Green (JSG) initiated the research project. MdH co-designed and supervised the approach to data collection and analyses, and supervised and edited the writing of the article. JSG supervised the approach to data analyses, and supervised and edited the writing of the article. S.F. Akkerman (SFA) supervised the approach to data collection.

Introduction

In this paper, we want to achieve a better understanding of the role social media platforms might play in youth's online learning communities. We do so by exploring whether the perceived threats platforms pose for youth's learning asks for a critical re-evaluation of conceptualisations of the notion of a 'learning community'. We will do this by first reviewing the literature on 'learning communities' in the digital age (and how this has stirred up a debate on its relationship with formal schooling) after which we turn to a reconsideration of the concept of Gee's 'affinity space' as a specific conceptualisation of learning community in the digital age. This interest stems from concerns about the detrimental effects of platforms, which can be defined as technological infrastructures designed to gather and process user data for the commercial, surveillant and normative aims of tech companies, on youth and learning (van Dijck et al., 2018). Recent popular media, such as the Netflix documentary-drama hybrid 'The Social Dilemma' (Orlowski, 2020), and academic work, such as Shoshana Zuboff's book on 'Surveillance Capitalism' (2019), argue that these platforms manipulate youth to make them addicted users in ways that amplify bias, radicalising and dividing youth. In media studies as well as in studies of education and learning there is a growing concern that automated manipulation of behaviour by platforms are detrimental for youth's agency and potential for critical thinking (Alegre, 2021; Koopman, 2019; Sefton-Green & Pangrazio, 2022). We wonder how such insights and concerns translate to the ways in which learning communities operate online. How could platforms' manipulations for instance implicate youth's agency for learning in such communities? Studies so far have mostly theorised these concerns, while calling for more empirical research to see whether the agency of youth and their critical perspectives are really under such a threat on digital platforms both in and beyond explicitly educational environments (Sefton-Green & Pangrazio, 2022; Williamson et al., 2022). In this paper, we partly respond to this call by conducting observations of informal learning communities to understand whether, considering such concerns, we need to critically reassess the conceptualisation of 'learning community' for the platform context.

The relationship between youth, learning communities and digital technology has been explored before in academic literature separately from the specific focus on platforms (boyd, 2014; Deng et al., 2016; Ito et al., 2019; Jenkins, 2006; Lankshear & Knobel, 2007). Such literature called attention to how – in response to the rise of 'Web 2.0' and its participatory and networked technologies – the opportunities offered by such digital technologies to youth to learn beyond the boundaries of school with others online, could challenge how schools organised learning activities (Jenkins, 2006; Lankshear & Knobel, 2007; Säljö, 2010). Youth can for instance learn a language that nobody speaks or teaches in their own town via an online expert or access resources online

that are not available to them at home or in a library near home. These technologies were therefore argued to expand people's social networks in ways not possible before such technologies existed (Rainie & Wellman, 2012) . Simultaneously, it has been argued that these informal, 'networked', online learning communities challenge traditional institutions for learning (Akkerman & Leijen, 2010; Säljö, 2010). For instance, such networks were argued to challenge the monopoly on knowledge held by school (Säljö, 2010). In contrast to such claims, the connected learning paradigm attempted to connect these opportunities for learning online to academic, civic and professional opportunities (Ito et al., 2019). Rather than perceiving digital technology as a 'threat' to schools, and their public values, these scholars explored the benefits of informal learning communities online for youth and their futures (Ito et al., 2019). However, these scholars did not take the specific concerns on platforms, as discussed in above, into account. We want to understand youth's informal learning communities, both in terms of opportunities and challenges, in this platform context.

We take the idea of 'affinity space' to rethink 'learning communities' in the platform context. 'Affinity space' is a concept introduced by James Paul Gee as a commentary on the idea of 'communities of practice' (2005). Communities of practice are generally defined as a collective of people who learn about a shared interest or problem by interacting with one another regularly over a longer period of time (Wenger et al., 2002). Partly informed by the rise of digital communities, there have been some critiques on the concept of communities of practice though (Angouri, 2015). Gee introduced the idea of 'affinity space' as such a critique, stating the idea of 'community' consistently requires a determination of boundaries around for instance who is a member, who 'belongs' and who does not belong, or in what physical space they meet, yet often such boundaries are difficult to instil (Gee, 2005). As a solution to this problem Gee suggests to focus on what interactions, values, thoughts and practices constitute relations between people to create a community around a shared affinity, which he refers to as the 'grammar' of that community (2005). Gee shifts the focus to what binds various people within a community, and argues that for instance novice and expert relations become more fluid than originally discussed in the 'communities of practice' literature (2005).

Gee's work on affinity spaces stems from discussions on emerging informal learning communities mentioned earlier (see e.g. Rainie & Wellman, 2012; Ünlüsoy et al., 2013), and so has not directly focused on current concerns on the impact of platforms on learning. Accordingly, Gee has not explicitly addressed the implications of platform contexts in which many of the current online learning communities operate. Whether and how learning communities can still function similarly on platforms that are designed to gather and process user data for the commercial,

surveillant and normative aims of technological companies deserves further attention. Given rising concerns about platforms' manipulations of user behaviour, we may also reconsider the applicability of the notion of affinity spaces. The aim of this study is to question how we can better understand learning communities in a platformised context. To that end we consider whether the concept of 'affinity space' is still sufficient to describe learning communities in this context, and, if not, how do we need to re-evaluate this concept to capture how learning communities interact and exist on platforms.

Method
To answer our question, 'how can we understand learning communities in a platformised context?' we used the observational data that has been collected in a larger ethnographic research of six online informal learning communities on the social media platforms YouTube, Twitch and TikTok. In this paper the 'platformised context' refers, based on work by van Dijck et al., 2018, to how these online communities operate in an internet space that is largely determined by a few digital platforms whose interest it is to collect and process user data for surveillant, commercial and normative aims for a few big tech companies.

Selection criteria communities
To consider differences in how platforms might shape communities as well as similarities across platforms, even though representativeness was neither the aim nor possible, we have implemented various sampling criteria, aiming to capture a diverse set of learning communities on platforms. We first selected the platforms, then the communities and lastly creators, which are those people who create streams on Twitch, and videos on TikTok, and YouTube.

Platform selection
To be able to compare the different workings of specific platforms as well as to capture how commonalities between platforms might come to the fore in the learning communities, we included three platforms. To maximise the chance that we had data about young users, the criteria for platforms were that these are popular among youth. Publicly available data by the platforms themselves and additional research on the user bases of YouTube, Twitch and TikTok shows that these are popular platforms among youth who are between 13 and 25 years old (Ceci, 2022a, 2022b; Hoekstra et al., 2022; Twitch, 2021).

Community selection
To have explicit and visible interactions of how members perceive to be learning in these communities, we selected communities in which learning, though in different degrees, is made explicit as (a part of) the aim of the community. Furthermore, to be able to compare how different workings of specific platforms as well as commonalities between platforms might

come to the fore in learning communities, we looked at two communities per platform. We thus selected, an e-commerce community and a LGBTQI+ vlogging community on YouTube, an info-security and a speedrunning community on Twitch, and a history and a sustainability community on TikTok.

Creator selection
Within each community, we took a sample of creators based on a match with the community's main interest and whether the creators were embedded and recognisable in the wider community, by for instance having a collaborative video with another creator of the same community. We selected on YouTube and Twitch two to three creators per community. On TikTok we selected creators who were members of an interest-related 'house', which are collaborative accounts of creators on TikTok, e.g., 'history house'. As such, we cannot and do not want to claim full representativeness, as we only looked at these communities via one platform and via selected creators, even though these communities extend beyond these platforms and creators.

Procedure
To observe these communities, we looked at the community's grammar by observing interactions, understanding content (videos/livestreams) and responses (comments/chat) as the vehicles for interaction. On YouTube, we focused on the interactions on the watch page, on Twitch on the livestream page, and on TikTok on the For You page.

To observe the communities, we used an observation schedule to capture the grammar of the community by collecting interactions about learning, community aims and values, and explicit discussion about the platform. We screen recorded these interactions to keep a consistent data set of interactions. We also recorded the number of views, likes, shares and comments if such numbers were afforded by the platforms, to monitor how certain interactions were received within the community. We took two weeks for observation on each platform as a baseline to start from, to see if we could obtain an understanding of these communities' 'grammar' on the platform. Though we used the same observation schedule for each platform, the way in which the platform worked, made observations per platform different. As both YouTube and TikTok work asynchronously, it is not possible to observe live interaction, like on Twitch. However, we can still observe interactions on these platforms, even though members do not immediately respond to one another. We gathered such data especially around the time of a video being posted by a creator on the platform, as we assumed that commentors, and in the case of TikTok, also creators, interact with one another mostly at those moments.

We observed on YouTube the text in the 'about' page and videos and comments that were posted during a two-week observation period by the

selected creators. In addition, we observed an additional five popular videos and related comments, as often only one or two videos were posted in those two weeks. On TikTok, we observed the home pages of all included channels and videos and comments that were posted on those channels during a two-week observation period. On Twitch we observed the livestreams, including video and chat, of the channels. For most channels we observed livestreams taking place in also a two-week observation period, though as the included streamers streamed sometimes for four hours four times a week or sometimes streamed at the same time, we had to pick which streams to observe. In such cases, we asked streamers which of their streams would be most exemplary of their everyday practice and observed those. One Twitch channel was an exception as it was an event-based channel that only had one weekend long event every couple of months. For that channel we observed an event that took place during the days from Friday morning till Sunday evening. We asked community leaders which of the parts of that weekend long stream were most exemplary for the identity of the community. In total, we observed on YouTube 22 videos and on TikTok 70 videos. We observed approximately 48 hours of livestreams on Twitch.

Ethics and privacy
For this research, we have permission from the Faculty of Social and Behavioural sciences Ethics Review Board of Utrecht University (FERB) and worked in line with their requirements.[1]

On Twitch we asked the selected channels for permission to join certain streams as the live nature and intimacy of the streams might make it appear as a more private space than people who interact with a YouTube or TikTok video. Streamers implemented a bot, meaning an automated command activated in chat, like '!study', that would provide information about the research if the command was typed in chat, which moderators and the streamer would do to inform that research was taking place, apart from also announcing it in their discord and title of the stream. As such, people participating in these streams were made aware that there was a researcher observing them, who also had a recognisable username 'researcher_zowiez0' and a profile page with more information about the research. They were also given the opportunity to have their chat messages excluded from the analysis by filling in a form shared in chat by the automated command. During our observations on Twitch, we interfered minimally, only asking for clarification when certain interactions were unclear due to for instance the usage of abbreviations. On YouTube and TikTok, apart from members who were interviewed, users did likely not know observations were taking place as we left very few traces, like comments or videos, to make users aware of our presence, though channel owners were informed observation would take place on their channel. For anonymisation purposes we have paraphrased English comments and translated Dutch (the native language of two authors

here) YouTube and TikTok comments to stick to their original wording as closely as possible while also avoiding that googling a comment might result in identification of a specific commentator. If interactions are translated from Dutch to English this is indicated by '(T)'.

Analysis
To answer our research question, we analysed six online learning communities. We draw on Gee's argument that 'portals offer access' (p. 220), that is provide the socio-material affordances, to an affinity space, and that 'portals' are strong generators of the grammar of an affinity space (2005). A portal can be a game (element), a (characteristic of a) forum. As an example, one can find various portals to access the affinity space of Dungeons and Dragons (D&D), ranging from a rulebook about the game, the game itself, an online forum, podcasts, etcetera. In this case, the platforms in our study are such portals that, according to this idea, generate the grammar of the affinity space. Using these concepts as a lens allows us to look at platforms' specific ways in which the identity of the affinity as well as social relations and interactions are formed in relation to the socio-material infrastructure of the platform.

In our analysis, we focused mostly on the grammar of the affinity space when we could understand it as 'learning' interactions. As we are also interested in ways to learn that are not generally acknowledged as learning within schools, we took a broad conceptualisation of what such 'learning' interactions could be. We understood 'learning' to be those interactions in which the community or a member indicated transformation, meaningful movement, towards a particular purpose (Akkerman & Bakker, 2021). As we were interested in analysing 'learning' related to the affinity, the particular purpose of the transformation had to be part of acquiring an understanding of the affinity space's grammar. We then focused our analysis on moments of appropriation and resistance of how the platform aimed to generate the affinity space and its (learning) interactions and relations. We applied a critical discourse analysis (Fairclough, 2013) as this approach helps to recognise how the different powers of platform and affinity space come to the fore in the interactions between community members. We position this critical discourse perspective within a wider tradition of digital ethnography (Hjorth et al., 2016; Pink et al., 2015) and ethnographies of learning (Azevedo, 2013; Paradise & De Haan, 2009), in an attempt to provide a rich description of the social structures for learning of these affinity spaces as situated in their digital environment. More concretely, this entails that we perceive the platform as also constituting that social structure for learning. To obtain a rich description of the platform as a social structure, we look at the interaction between the community members' perceived power of the platform as embedded both in its infrastructure and in the history of usage and traditions. We hence understand the platform environment not simply as a technological

backdrop for learning but also an environment that carries structures and norms about behaviours and practices with it, arising from the interaction between environment and usage history. This means that in some ways we can speak of affinity spaces at the level of the platform. That is, affinities might exist at the level of a learning community about e-commerce on YouTube, or learning community about LGBTQI+ vlogging on YouTube, but also at the level of the platform YouTube. People who frequently engage with YouTube or TikTok might be able to connect with one another over shared experiences, and a shared grammar, which is tied to the platform. We refer to this as the 'platform culture' to distinguish it from the affinities that exist at the level of 'communities'. As we also acknowledge that these two levels are inherently existing in entanglement with one another, we also bring these levels together to see how in a platform environment, these levels together shape the identities, social relationships and interactions of the affinity spaces in perhaps platform specific ways. To see how platforms as portals generate the affinity- and platform culture, we looked at how the platforms' normative, commercial and surveillant workings play a role in the social relationships and interactions between members of these communities.

Results
Below we describe three themes that exemplify recurring patterns in our data on how according to our observations, platforms generate the grammar of their affinity space. We will share these themes based on our analysis of the interactions within the six affinity spaces, which we will firstly introduce below, after which we will present the themes.

Community introductions
Before delving into the results per platform, we introduce the communities by describing their affinity and how they relate to that affinity on the observed platform.

E-commerce https://www.youtube.com/@JoshuaKaats/featured
The e-commerce community centres around an affinity for e-commerce knowledge and skills. Members relate to their affinity on YouTube by sharing personal stories of how to become a successful online entrepreneur, showing off luxury lifestyles, and providing tutorials and information.

LGBTQI+ vlogging https://www.youtube.com/@JessieMaya
The LGBTQI+ vlogging community centres around everyday life experiences of LGBTQI+ people. Members relate to their affinity on YouTube by vlogging or commenting directly about being LGBTQI+ and the life experiences that come with that, or by other types of more common types of vlog content on YouTube, about for instance shopping, make-up, fashion, and other everyday activities.

Infosec https://www.twitch.tv/d0nutptr
The information security (short: infosec) community shared affinity is about (developing tools to) test and strengthen online security of information. They relate to their affinity on Twitch through meeting in livestreams via chat and video in which streamers show relevant skills and information to infosec, and programming more widely.

Speedrun https://www.twitch.tv/j3nnalive/about
Speedrunning is about the shared affinity for completing games as quickly as possible. The speedrun community relates to their affinity on Twitch through either streams in which speedrunners hone their skill or by watching competitions and marathons in which speedrunners show their skill.

History https://www.tiktok.com/@thebullmoose5845
The history community has a shared affinity for learning about history and sharing historical knowledge. Members relate to their affinity on TikTok by making, watching, and commenting on short videos with historical information.

Sustainability https://www.tiktok.com/@ecotokcollective
The sustainability community has the shared affinity for advocating for sustainable behaviour, policy and practices. They relate to their affinity on TikTok by making, watching, and commenting on videos with sustainability information and climate activism.

Platform's regimes of visibility generate boundaries for affinity spaces

Our results showed that an important way in which platforms as portals generate the grammar of affinity spaces, is through what we call 'regimes of visibility': the ways in which platform algorithms are experienced by participants as governing the visibility of their interactions and therefore the boundaries of their affinity space. To describe how affinity spaces appropriate and resist such regimes, we zoom in on one particularly illustrative example from the LGBTQI+ vlogging community, a video from the channel 'Jessie Maya'.

Jessie is a popular Dutch YouTuber who vlogs about topics ranging from fashion, food, make-up to anti-gay commercials and being a transwoman. In her video 'REACTING TO TRANSGENDER UPDATES AFTER 6 YEARS…' (T), which at the moment of observation had received 234,137 views and 1057 comments, Jessie reflects on her previous 'transgender updates' video series. Jessie's introductory text of the video is telling of the community's experience with YouTube (T):

> Transgender will be in the title, and often YouTube intercepts that or it doesn't get into the algorithm […] This video will probably be demonetised as well […]

Jessie describes here that YouTube does not offer the same visibility and rewards (monetisation) for her content that explicitly deals with her trans identity such as this video, as other content she has made. She experiences YouTube as controlling whether her content is seen by others based on its topic, which could play a part in her affinity space's potential popularity, growth or decline on the platform. YouTube here is hence experienced as controlling the visibility of her community. As was evident from our data, such regimes of visibility might also play a role in the learning trajectories of members of an affinity space. We often found that comments by members described that they found the LGBTQI+ community by accident. An example of such a comment, underneath one of Alice Olsthoorn's videos (T):

> I once started following you when you decorated pumps with glitter but these videos [on calling out transphobic comments] are the ones I stayed for, the way you can put people in their place in a peaceful, civilised manner.

This might indicate that the content that is related to the core affinity of the LGBTQI+ vlogging community might not be as visible as content that is further removed from their shared affinity. In other words, community members experience that the boundaries, access points and potential growth of their community are managed (and thus limited in this case) by the platform's regimes of visibility.

However, the LGBTQI+ vlogging community does not simply abide by YouTube's regimes of visibility and the boundaries it imposes on their affinity. They also attempt to resist and appropriate such boundaries. As we will demonstrate below, the LGBTQI+ community in response to YouTube's 'regimes of visibility', resists these regimes by employing interactions that they perceive to generate the visibility on the platform that they want. After mentioning the ways in which YouTube thwarts her videos, Jessie shares the following (T):

> the last time you all succeeded, because you did a thumbs up, because you spammed comments.

A quarter of all comments answer her call, such as this comment with 910 likes:

> okay let's do this again, put this shit back into the algorithm!

Or this one (T):

> YT is sooo lame, your content is so important, not just for trans babies who watch you but also to create more awareness among the cis people.

Jessie and her commentors attempt to 'curate' YouTube's algorithm to obtain visibility by posting comments, which they believe aids in gaining visibility on the platform.

In sum, the latter results show that YouTube is experienced as playing a part in how visible and potentially popular some affinity spaces can become on their platform. Such experiences are also clearly seen on

TikTok. Our data shows how in particular underneath activist videos from the sustainability community, commentors attempt to engage in similar forms of 'curation' by commenting 'boost' (trying to raise attention) or 'comment for the algo' to 'curate' the TikTok algorithm into letting their message be more visible and expand the boundaries of their affinity space. Moreover, another common comment from our observations of TikTok is: 'comment to stay on this side of TikTok'. Such a comment again indicates a sense of 'algorithmic curation' but this time a member appropriates it to see more content produced by their community. Sometimes this even works the other way around, where commentors want to let the creator know whether the video is on the 'right side' of TikTok's algorithm: 'target audience reached'. This comment expresses to the creator that they have reached the 'right side of TikTok': the community of people they want to address. Such experienced appropriating and resisting the algorithm to support own and other's access to the community, reflects an experience of control over the algorithm and therefore over the visibility of their interactions, and the boundary of their community. Simultaneously, it shows the potential decentring of their affinity; and how they try to maintain access and interaction with an affinity space through playing with what might help to 'curate' the algorithm. Though portals by definition generate access and thus growth, and could create boundaries around affinity spaces, platforms as portals are experienced as introducing regimes of visibility, rooted in platforms' commercial, normative and surveillant workings, to see and thus access an affinity space. Yet, members also engage in interactions of perceived algorithmic 'curation' to 'fight' for the existence and visibility of their community.

Platform cultures generate competitive hybridisation
As our data shows, a second way in which platforms generate the grammar of affinity spaces, is through specific platform cultures. Such platform cultures give rise to what we will refer to as 'hybridised affinities' that draw on distinct affinity spaces by combining affinities from both those spaces in created videos. We will argue, by discussing two examples that are exemplary of how this theme is recurring in our data, that such dynamics can be understood both as a conformity with platform cultures as well as a resistance of such cultures.

The example video and interactions that we discuss below come from a video by EcoTok, a house of sustainability creators. The video had 39.8k likes, 436 comments and 2598 shares at the moment of observation. The video goes as follows:
> We see a person standing on a canoe pushing themselves forward through a rice field. A textual overlay states: 'We can't drink fossil fuels.' When it disappears a new overlay states, while the camera turns to overlook the rice fields 180 degrees away from the person on the boat: 'So why do we prioritize them over

water?' A new overlay then states, while the camera returns to the person on the boat: 'Help us stop the Line 3 Pipeline in Minnesota.' The camera then moves away from the person in the other direction, showing first the text: 'Link in our bio.' and then '[adult swim]', using the actual squared brackets as the logo has these.

The VANO 3000 – VANO 300 sound accompanies this video, which is a sound that was originally used by Adult Swim, a television network, to make short videos with their logo. This video employs a, for a TikTok-user recognisable, trend of mimicking with video, text, and sound the Adult Swim videos. This time, however, it is not an 'ad' for Adult Swim but a remix of its aesthetics to deliver a different message: they call attention to a petition against an oil pipeline. This video adopts and 'borrows' an aspect of a different affinity space, as this sound and aesthetics that they mimic is originally not used for sustainability content. Other examples of 'borrowing' from other affinity spaces are for instance the creator nosebled, whose bio says: 'that one dancing history chick'. This creator makes videos in which she frequently combines dancing with textual overlays that share historical events. Some of the comments express appreciation for how nosebled combines dancing with history: 'I'm a fan of learning facts while a person dances #innovativeeducation'. And: 'I'm just realizing how absurd it is that tiktok used to be cringe cause it was just people dancing.' By using dancing to transfer historical knowledge, nosebled creates a hybridised affinity that speaks both to the (larger) dance affinity space on TikTok, to which the latter comment also refers, as well as to history afficionados. TikTok as a portal for the history and sustainability communities thus generates affinity spaces in which affinities can hybridise and overlap.

Platform cultures could thus be understood as enabling and encouraging the hybridisation of affinities within affinity spaces. On the one hand this can be interpreted as platform cultures encouraging a 'dilution' of one's affinity as part of a popularity contest for views: speaking to two affinity spaces might help creators to generate more attention on the platform. On the other hand, the hybridising of affinities can also be understood as a creative resistance against platform cultures that might make space for one affinity, but not the other. By hybridising their affinity, an affinity space can then aim to enforce space on the platform for their affinity. We can also see this on YouTube, where the trans creators draw on larger platform trends such as so-called 'reaction videos' to still talk about their own affinity, yet within a way that speaks to the larger platform culture of 'acceptable' content. Another example is how in the e-commerce community conservative gender ideologies are sometimes wrapped up in inspirational and motivational videos. However, there are also examples of more direct resistance to how the platform culture, particularly the reward system, works by turning away from it, or expressing clear mocking of a larger platform culture. For instance,

during our observations of infosec streamer Ash_f0×, they had a subscriber goal on top of their stream for doing a 'hot tub stream'. Ash_f0× explained that this was a joke on stream, in response to so many hot tub streams suddenly appearing on Twitch. However, after realising that some of their viewers might not interpret it as a joke, and they did not want to be seen as encouraging people to subscribe to them, they put the subgoal down. Twitch's reward system and how other streamers use hybridised affinities to generate more views and subscribers on Twitch, was appropriated and ridiculed by this streamer, clearly distancing themselves from such practices. In sum, platforms generate specific interactions based on their larger platform culture, which affinity spaces use to create their content, hybridising it with other affinity spaces, to potentially gain more visibility on the platform, such as by using a trend. Each platform that an affinity space uses to reach their aims, can thus differently generate the interactions related to that affinity as befitting the portal and the affinity.

Platform hierarchies generate an hierarchisation of expertise

Furthermore, our observations showed that platforms intervene in how relations between 'old timers' or experts, and 'newbies' or novices take shape. Platforms push towards a hierarchization of expertise relationships in which creators are foregrounded and other users, such as viewers and commentors, pushed to the background. We will illustrate this by discussing comments from TikTok and YouTube affinity spaces that are indicative of the idolisation of creators that is widely present in our data. Subsequently, we will also discuss how the ethical hacking community negotiates such practices.

First, it is key to realise how creators have a focal presence on the social media platforms included in this study. YouTube, Twitch and TikTok are designed so that videos and streams are placed central on the page where the user watches these videos. Comments and chats are initially hidden or happening to the side of the video or stream. As such, the focus lies on streams and videos, that are created by creators. Furthermore, platforms reward mostly creators: only on Twitch can users who do not create video material obtain rewards such as channel points for viewing or badges for participation in a community. Only creators can gain a partnership with YouTube as symbolised by a small red symbol next to one's channel name. Only creators can gain a 'verified channel' on TikTok as symbolised by a small blue checkmark next to one's channel's name. Only creators on Twitch can become Twitch affiliates or partners, as also symbolised by a specific badge. When observing these platforms, it quickly became clear who matters the most from the perspective of the platform. In many of the observed comments users also paid respect, thankfulness, admiration towards creators, which reflects a relationship between leaders and followers, resonating elements of fandom culture rather than the more egalitarian expert-novice relationships described

for the Web 2.0 affinity spaces. For instance, underneath the video by Jessie Maya mentioned in the first theme: 'I have learnt so much about transgenders and the whole community because of you', and another underneath the history video by nosebled:

> 'You're my fave creator everr, I legit always learn new stuff and the dance TALENT!!'.

We concluded that within these affinity spaces, based on the design and observed interactions, the platform portal, including the platform culture, affords a hierarchy in which creators are generally positioned as the educators and experts, whereas commentators are there to learn from them.

The communities on Twitch negotiate such hierarchisation though. We take an illustrative example from the infosec community: a segment from an exchange within a stream by d0nut's titled 'Resync 'n Chill (working on HTTP client -!study) – Rust'. This stream had around 34 viewers at the observed moment, and it took place approximately one hour and 50 minutes into the stream. The viewer sees d0nut's screen and activities thereon and in a corner a live webcam video of d0nut. Next to this screen, viewers can interact with one another and d0nut via a chat box. In this moment, d0nut is trying to solve an issue they are working on with chat while another conversation unfolds on how to begin with programming. We have presented this conversation below in a way that makes it easier to follow, but this is not how it happens on stream, where chat and streamer 'talk' simultaneously. People in chat are represented by C and a number instead of their username, '@' is a way to say one is responding to a specific person in chat.

> C1: 'I actually want to learn to program, but everyone says it is very difficult' [...]
> C3: '@[C1] Getting started is easy. Eventually, you get to choose where you want to go. Some routes are easier. Other routes are harder.'
> C6: '@[C1] programming is more fun than difficult. It is hard from time to time, but like with any skill, it gets easier and easier soon after.'
> C7: 'what about masscan'
> C7: 'are there full network stacks written in rust?'
> D0nut: *reads out above chat by C3* 'Absolutely agree, it can totally be easy. [...], but uh [following animation pops up of C3 following]. Oh [C3] thank you for the follow. Yeah, but you hm it totally be easy, uh, uhm. I just say, start the right way. Don't learn programming to learn programming, have a project, have a task, have a thing that you need done and programming is the way you get to that result. That way you are not even worry about it, you are actually just looking things up so you can get it out of your way and get your task or goal accomplished, [...] Uhm dot dot dot, reads aloud above chat by C6 Yup, yeah, it is. [...] [C6] is absolutely right

After this moment d0nut replies to C7s suggestions by showing examples on their screen. C3 asks for help with a project they want to start, like one d0nut recommends doing to start with programming, d0nut and chat all help C3 with suggestions and advice on how to achieve this project. This example shows that though the streamer takes a central position in guiding the conversation, sometimes chat and sometimes the streamer has the position of information provider. Everyone helps one another, regardless of experience. In this example, we can also see how d0nut seamlessly appropriates functionalities of Twitch and their usage by the community into the conversation with chat: 'Oh [C3] thank you for the follow.' This reading out of chat messages by the streamer is a form of recognition for, in this case, C3's contribution. The person in chat obtains the opportunity to then also express their appreciation for being included in the stream, by 'following' (an interactional act). In these ways, the monetisation rewards that come with reaching a certain number of followers or subscribers on Twitch are by these communities used to not create hierarchies but aid their collaborative practices. D0nut for instance emphasizes the purpose of community for donations in their 'about' section:

> Donations help me give back to the community

Another example is how the Benelux Speedrunners Gathering (BSG) Marathon channel uses donations they receive during their marathons to support charities, in their bio:

> 'BSG's donations support MIND, 100% of your donations will go straight to them.'

During speedrun streams such collaboration and exchange between distinct roles of expertise is also present, for instance during a Minecraft run, streamer Buggy expresses that they do not know what a particular building is, and chat tries to help her. At another time Buggy explains a particular speedrun trick, taking the position of expert. These examples show how the speedrun and infosec community encourages everyone to collaborate regardless of their experience. To sum up in the words of the bio of the info-security streamer Ash_f0×:

> 'My personal goal is to learn something new every stream, together with my viewers. [...] Nobody will be judged here based on a "stupid" question, so...just ask!'

In sum, we have seen that the platform infrastructures are geared towards a hierarchisation between members of affinity spaces, generally positioning creators as the 'experts'. However, our data shows that affinity spaces can resist such hierarchisations and appropriate and resist such structures to create more fluid relations of expertise, to match with collaborative cultures, in line with those that have been claimed by Gee as typical for affinity spaces.

Discussion

Based on these results, in this discussion we will first describe the three ways in which affinity spaces in a platformised context are different from Gee's affinity spaces, putting forward the term 'platformised affinity spaces'. Afterwards, we will discuss the broader implications of our results for assumptions about youth and online learning communities in platform literature, and literature on the affordances of Web 2.0 for learning.

First, our results show that platforms challenge (again) the concept of boundaries of online learning communities, due to the specific ways in which platforms govern the visibility of, and access to content. Our results re-introduce a discussion of boundaries, due to this platform context, into Gee's 'affinity spaces'. Such a re-introduction might be considered surprising as Gee introduced the concept of 'affinity space' exactly to address the issues that come with earlier conceptualisations of 'learning community' that required a demarcation of boundaries. Gee's work was in line with studies that argued that the boundaries around access to resources and experts, and who has and who has not knowledge and expertise, would become more permeable due to the networked affordances of Web 2.0 (Rainie & Wellman, 2012; Ünlüsoy et al., 2013). However, our results show that platforms re-introduce the need for discussing boundaries around communities in terms of access to connections as platforms inform whether and how youth might be able to access their learning communities. 'Platformised affinity spaces' are thus characterised by portals that generate the boundaries around an affinity space by governing the visibility, access and reach of the affinity space. Secondly, the platformised context can be understood to challenge the 'grammar' of these affinity spaces. Whereas in the Web 2.0 technologies, the 'grammar' was seen as 'given' from the interests of learners, in a platformised context the affinities need to actively engage with platform cultures, economics and dynamics to keep existing on these platforms. In other words, the grammar of a 'platformised affinity space' is co-defined by the engagement with the platform's culture and regimes of visibility. Thirdly, our results show that the social structures of learning relations in affinity spaces on platforms are not as fluid as Gee proposed for affinity spaces. We have seen how platforms through their reward system introduce relatively fixed hierarchising dynamics, that (though not all communities adopt those hierarchies), position creators as experts on these platforms. Though Gee perceived expertise, in line with literature on Web 2.0 technology, as dispersed in the network and more distributed among community members (Lankshear & Knobel, 2007; Säljö, 2010), it can be argued that platforms afford a social structure of affinity spaces that generate relatively fixed 'expert' roles. The social structure of a 'platformised affinity space' is thus informed by platform dynamics pulling positions of expertise and status towards creators. Given the impact of platform dynamics such as the above, we introduce the term 'platformised affinity spaces' to allow for the analysis of online learning

communities with specific attention for how platform infrastructures and cultures shape their boundaries, grammar, and social structures, without claiming that those are exhaustive to describe how platform dynamics define affinity spaces.

Conclusion

We now want to briefly broaden the focus from Gee's affinity space and take the insights from this study to look critically at the assumptions about online learning communities of both platform studies, and research on learning in the context of the affordances of Web 2.0. As introduced previously, within platform studies there is an assumed concern that platforms manipulate behaviour, datafying identities, to an extend that we can worry about whether it takes away freedom of thought (Alegre, 2021), critical thinking (Sefton-Green & Pangrazio, 2022), and agency (Koopman, 2019), which are skills academics argue are key to educating youth to become critical citizens in democratic societies and participate in communities (Sefton-Green & Pangrazio, 2022). Our results show, however, that youth both appropriate and resist the dynamics that platforms generate within their affinity spaces, so arguing that they have no agency in their online learning communities could be considered reductive of youth's experiences. Youth experiences in these communities demonstrate a power to appropriate and resist these platforms to make space for the (pedagogies of) their communities by not only having an imagined idea of how the algorithm works, as described by Bucher (2017), but by also actively curating these algorithms to achieve the aims of their online learning communities. By discussing youth as data subjects manipulated and controlled by platforms, they are rendered as passive objects, or as Zuboff describes, 'addicted users'. Simultaneously, we can also be critical about a lack of attention to platform 'manipulation' in literature about online learning communities in the context of the affordances of Web 2.0. Cousin (2005) and Ünlüsoy et al. (2021) for instance demonstrated how Web 2.0 afforded access to seemingly infinite connections to resources and experts, connections that sometimes seemed coincidental. In our results, we also see that access to affinity spaces is sometimes experienced as random or coincidental on these platforms. If we interpret this 'coincidentally' through the lens of platformisation literature, such coincidence could be the result of manipulation by the platform predicting for a young person what they should learn based on collected data about their interactions (Alegre, 2021; van Dijck et al., 2018; Koopman, 2019; Sefton-Green & Pangrazio, 2022). Such 'manipulation' is not necessarily 'bad', as for instance youth that are initially interested in only dancing, might still be 'manipulated' to see a history dancing video by the platform, perhaps resulting in a broadening of their interests. However, in line with platformisation literature, it does raise concerns about the power of platforms over what affinity spaces are offered to youth for learning, and which ones are not. All in all, based on our results we argue for nuance: online learning communities are in part determined by the dynamics that social media platforms introduce, while simultaneously we have seen that these learning communities can also resist and push back against such platform dynamics to achieve their own learning goals.

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Chapter 3. Personal, accessible, engaging creators for informal learning: Understanding 'teachers' on social media platforms

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Abstract

With the introduction of 'new' digital participatory technologies, scholars argued our understanding of teachers would change. Considering recent concerns about the impact of platforms' manipulations of youth's learning online, this study revisits these earlier assumptions by researching youth's perceptions on who can(not) be a teacher on social media platforms. Conceptualising 'teacher', in line with de Haan (1999), as a community member with an asymmetrical relation to others based on differential expertise rooted in experience, age or status, we analysed how youth understand 'teachers' in online informal learning communities. We have conducted an ethnography of six online informal learning communities on YouTube, Twitch and TikTok, conducting 37 interviews, and observations of community interactions and platform infrastructures. Our results show that youth recognise 'teachers' by both using platforms' forms of recognition, such as valuing whether a 'teacher' can engage a large audience and creating their own forms of recognition for 'teachers' such as valuing those who share their personal learning trajectories and distribute their hierarchical position as a creator to chatters and commentors. We argue that such characteristics of what a 'teacher' should be in online learning communities are interesting objects of thought to evaluate teacher identities in formal education.

3. ZV co-designed and executed the data collection, and data analyses. She initiated, conceptualised and wrote the article. MdH and JSG initiated the research project. MdH co-designed and supervised the approach to data collection and analyses and supervised and edited the writing of the article. JSG supervised the approach to data analyses and edited the writing of the article.

Introduction

In this paper, we want to achieve a better understanding of who youth perceive as 'teachers' online and why they value such 'teachers'. We do so because we wonder whether the relatively 'new' context of digital platforms might result in, for youth, alternative understandings of who a 'teacher' is and what characteristics 'teachers' should have. This interest is rooted in academic and societal concerns on how digital platforms might 'manipulate' users into understandings of 'teachers' that are informed by commercial and surveillant aims, rather than educational ones. Recently, popular media for instance reported a widespread concern on how young men would look up to Andrew Tate as a teacher on TikTok, a misogynistic social media influencer who was held in Romania on suspicion of human trafficking and rape (Kleijer, 2023; Williams, 2022). Researchers share these concerns about how platforms as infrastructures aimed at the processing, collecting and sharing of user data for commercial aims might manipulate users' learning through personalised algorithmic sorting of content (Alegre, 2021; van Dijck et al., 2018; Koopman, 2019; Sefton-Green & Pangrazio, 2022). Though this literature does not focus on a discussion of teachers, in this paper we pose the question whether youth's ideas on who can(not) be a teacher are informed by these perceived manipulations by platforms that could also play a role in who is put in a position of being heard and pushed towards these youth through such algorithmic sorting. We wonder: who can(not) be a teacher in this context? And what characteristics play a role in recognising and valuing 'teachers' on social media platforms?

In this research, we take a bottom-up perspective of what characteristics 'teachers' have to include alternative conceptualisations valued by youth that are not associated with formal education. For instance, previous research has described online influencers as not referring to themselves as educators or teachers, even though they do provide advice and information (Hendry et al., 2022). For this reason, we need a conceptualisation of a 'teacher' that works for contexts in which teaching relations are not always made explicit. As an inspiration for such a conceptualisation, we take de Haan's definition of 'teaching' that aims to describe characteristics of interactive learning situations outside formal education that are broad enough to cover a variety of cultural practices in which teaching relations are also not always explicitly referred to as teaching (1999). She argued that common to such informal learning situations is that there is 1) some form of asymmetry in knowledge or expertise, and 2) some level of interaction between the 'teacher' and the 'learner'. Both characteristics need to function as a challenge for the learner to enhance their expertise (1999). Who then is the 'teacher' in that relation depends on who, based on knowledge, age or status in the community can aid, 'teach', this newcomer or learner (1999). Though such asymmetry might evoke the idea that there is a relation in which a learner is lacking what the teacher is 'having', we do

not focus on 'lack' here. Rather, we perceive this asymmetry as inspiring a desire to learn from others that differ from oneself; a desire that is rooted in productivity, rather than in lack (Deleuze & Guattari, 1987). We refer to these expert community members with an asymmetrical position to learners as 'teachers'. We acknowledge the inherent paradox here that people within *informal* communities might not themselves use such a *formal* term to refer to these 'teachers'.

We focus on how 'teachers' are recognised on social media platforms in youth's online informal learning communities. We do so, first, because both the fields of online informal learning research (see e.g. Ito et al., 2019; Jenkins et al., 2015; Lankshear & Knobel, 2007) and platform studies, pay limited attention to how informal teaching-learning relations develop in social media platform contexts. Whereas informal learning studies do not take the particular technological workings of platforms into account (see e.g. Ito et al., 2019), the limited work on learning in platform studies focuses mostly on formal education (see e.g. van Dijck et al., 2018; Williamson, 2017; Williamson, 2018; Williamson et al., 2022), even though youth have been argued to learn also in online informal contexts for decades (Ito et al., 2019; Jenkins, 2006; Jenkins et al., 2015; Lankshear & Knobel, 2007). Moreover, platform literature calls for more empirical work on youth's (informal) learning on platforms to understand whether concerns on the manipulation of their learning are grounded in practices of youth on such platforms (Sefton-Green & Pangrazio, 2022; Williamson et al., 2022). Secondly, the changing understanding of what a 'teacher' is in response to 'new' interactive learning situations that are enabled by technological developments has been an ongoing discussion (see e.g. Gil-Quintana et al., 2020; Lankshear & Knobel, 2007; Säljö, 2010).

In response to the rise of the so-called Web 2.0, the 'participatory and networked web', there has been an ongoing debate about how these technologies might change the role and position of the 'teacher'. Several characteristics of the 'teacher' recurringly came to the fore in this debate: their hierarchy, their ways to distribute knowledge, and their qualifications (Akkerman & Leijen, 2010; Lankshear & Knobel, 2007; Säljö, 2010). For instance, due to the participatory web, where everyone could access and participate in knowledge creation and discussion, the hierarchical position of the teacher as the main source of information would be challenged (Säljö, 2010). Another example is how Dron and Anderson argued, based on Web 2.0's participatory technologies, that in online contexts youth can learn from collective interactions, and not just from individuals (2014). Knowledge is then created in interaction with a group or technology that uses behaviour from multiple people to provide information: learning from the 'wisdom of the crowd'. A good case might be Wikipedia; the 'teacher-student' relationship is no longer just one-on-one or one-to-mass, but can be mass-to-mass, or mass-to-one (2014).

However, the discussion about education and technologies has now shifted from focusing on the Web 2.0 to concerns about platforms' commercial, surveillant and normative aims role in youth's learning (van Dijck et al., 2018; Williamson, 2018). As such, the debate about what constitutes a 'teacher' is in need of further exploration in response to changing (perspectives on) technology and learning. Hendry et al. are one of the few to address this changing role of 'teachers' in response to platforms by postulating individual influencers in the pedagogical role of the teacher (2022). They describe this 'influencer-teacher' as an individual who engages in a relatable pedagogical connection with their followers by drawing from a performance of intimacy (2022). This idea of intimacy originates in work that discussed influencers as a 'new' type of celebrity that uses platform affordances to directly interact with their audiences to create an intimate experience with their followers, which was not available to celebrities in traditional media (Abidin, 2018). Subsequently, recognition for these 'influencer-teachers' lies with this discourse of intimacy to create a relatable experience, rather than for instance their formal accreditation as experts (Hendry et al., 2022). Thus, platforms seem to bring on different changes than Web 2.0, such as shifting Dron and Anderson's idea of the teacher as a 'distant crowd' (2014) to an intimate relation with an individual. Furthermore, 'influencer-teachers' disregarding formal accreditation echoes the earlier debate on participatory technologies opening up the hierarchical position of the 'teacher'. In this paper, we wish to explore these changing conceptualisations in response to current technological developments of who can(not) be a teacher and their hierarchical position, knowledge distribution practices, and qualifications. Fuelling the need for this exploration is a more general concern about how platforms might encourage particular teacher identities and practices. All in all, in this paper we hope to bring concerns raised in platform literature together with literature on changes brought on by Web 2.0 to further our understanding of 'teachers', by looking at how youth in informal learning communities reflect on and engage with such 'teachers' on platforms.

Method
Goal of the study and general approach
We aim to describe how youth might differently understand 'teachers' in informal learning communities on digital platforms, by engaging critically with our understanding of a 'teacher'. We do so based on our hypothesis that contemporary platforms bring changes to youth's understanding of how to recognise 'teachers'. We expect that these extend beyond earlier re-conceptualisations that were developed in response to the participatory Web 2.0. To come to such an understanding, we aimed to capture (learning) interactions that reflect an asymmetrical relation between community members in which the asymmetry is taken up as a challenge to enhance one's expertise. To do this, we have conducted observations of informal learning communities' interactions and platform

infrastructures, and semi-structured interviews with 37 community members.

Data selection
To select participants for interviews and communities for observation, we first selected the platforms, then two communities per platform, and then participants from these communities. We did not aim to generalise these results to all communities or platforms, nor to be representative of all communities and platforms. However, given the goal of our study to map learning communities on platforms where youth are active, and collect data on how such communities perceive 'teachers', we have specified criteria to reach this goal.

Platform selection
We selected YouTube, Twitch and TikTok as these are platforms on which young people, aged 13 to 25, have been argued to be active (Ceci, 2022a, 2022b; Twitch, 2021).

Community selection
To be able to discuss with community members who they perceived as people they learnt from, 'teachers', we have selected communities that have learning as an aim, though they might diverge in how explicitly learning is their aim. Based on these criteria we selected an LGBTQI+ vlogging and an e-commerce community on YouTube, a speedrunning and an information security (infosec) community on Twitch, and a sustainability and a history community on TikTok. All six communities stated in their interactions, such as channel biographies or videos, that they aimed at learning by for instance stating that they wished to share knowledge or teach about an interest.

Participant selection
Participants for interviews had to be self-ascribed active members of the community. We aimed at interviewing four to six participants per community. We aimed to include community members with a variety of levels of engagement, ranging from 'heavyweight' members, who are actively engaged in the community, having many ties to various members and a reputation within the community, potentially being perceived as 'teachers' themselves by community members, to 'lightweight' members who leave only few comments or chat messages (Haythornthwaite, 2018).

Procedure
Interviews
We conducted semi-structured interviews using a topic list (see appendices). In these interviews, we focus on the data acquired by asking participants about their role models, community leaders and learning interactions. Potential participants were approached via a direct message or signup sheet via the selected or adjacent platforms used by

the community. A few were also approached through snowballing if this first method proved difficult to find further participants.

Observation
We observed all communities for two weeks as a baseline to see if we could get a coherent understanding of how learning interactions would take place within these communities. To understand who can(not) be 'teachers' and their characteristics in these communities, we used an observation schedule (see appendices) to capture (learning) interactions, focusing on those learning interactions in which asymmetrical relations between members of a community came to the fore. In this observation schedule we also captured interactions that explicitly reflected on the platforms' perceived impact on their community. In addition to these interactions captured in the observation schedule, we paid attention to the platform infrastructure itself, its features and design, during the observations, which could be relevant for encouraging asymmetrical relations. We did this based on the assumption that certain socio-material infrastructures, in the same way a classroom with desks facing a teacher, might induce particular teacher identities. Apart from observing the community engagement with the platform, we observed the materiality of these platforms as playing a role in how teaching-learning behaviour and identities were shaped, e.g. how the platform visually positions commentors, creators and viewers on a watch page, in line with earlier work that argues for inclusion of the materiality of an environment into an ethnography (Hasse, 2014). We screen recorded the learning interactions within these platform infrastructures. We recorded on Twitch streams and chat, and on TikTok and YouTube videos and comments.

Though we used the observation schedule for all communities, the approach to the observation differed per platform as each platform works differently. Considering how YouTube works asynchronously via videos, we observed mostly videos soon after being posted as we speculated that activity would then be highest, and people would be more likely to respond to one another in comments. We assumed such interactions would give insight into potential asymmetrical relations between creators and commentors. As such, we observed and recorded for two weeks new uploaded videos and associated comments of two to three YouTube channels per community. However, as only one or two new videos were uploaded during our observations, we added five popular videos per channel to obtain an understanding of how in interactions asymmetrical roles were constituted, resulting in recording and observing 22 videos and associated comments in total on YouTube. Similarly, as TikTok also works asynchronously, we observed and recorded 70 videos, and associated comments, of accounts that were part of a collaborative account (a 'house') centred on the interest of the community and posted during a two-week observation period. On Twitch we observed and recorded livestreams and associated chats per community during an

observation period of two weeks until we had a clear understanding of how these communities constituted asymmetrical relations. The exception was one event-based channel on Twitch, 'BSG Marathon', which we observed in a weekend that an event took place. We observed and recorded approximately 48 hours of livestreams on Twitch.

Ethics and privacy[4]
For the interviews we asked for informed consent from all participants and also from their caretaker(s) if they were younger than 16. To allow participants the opportunity to recognise themselves in later research, participants were provided with the possibility to pick their own pseudonym, use their real (user)name or have the researchers pick a pseudonym for them. If choosing to use a real (user)name, we informed them of the risks both in the consent form and in contact moments preceding the interview. For the observations on YouTube and TikTok we took a 'fly on the wall' approach by not interfering in interactions. Presence of the researchers was only noticeable by a few comments publicly calling for participants for interviews. We took this approach as we, based on explorative observations and conversations with community members, estimated that the selected communities on YouTube and TikTok were experienced as a public space. Nonetheless, we sent the owners of the channels that we selected for observation a message informing them about the research and giving them a time limit to opt out. To foster anonymity of commentors on TikTok and YouTube, we have carefully paraphrased English comments, and translated Dutch comments to English, indicated by '(T)', while sticking closely to the original meaning. However, we estimated users might experience Twitch as a more private space due to the live nature and intimacy of the streams. As such, we asked streamers for permission to observe and to implement measures, such as sharing an automated message in chat with information about the research, to inform viewers and participants in chat that we were observing them. People in chat could fill in a form, shared also in chat, which offered them the possibility to have their messages excluded from the analysis of the collected data. The researchers would interfere minimally, only sharing information about the research or asking questions when interactions would be unclear.

Analysis
As we will explain in more detail below, understanding pedagogy as a 'lens', as a nurturing and disciplining power structuring, recognising and valuing learning with the promise of positive freedom (Bernstein, 2000; Singh, 2017), we did a critical discourse analysis (Fairclough, 2013) of

4. This research is part of a larger digital ethnographical study for which we have permission from the faculty ethics board of Utrecht University. We have worked in line with their high ethical standards (see https://web.archive.org/web/20220524093137/https://ferb.sites.uu.nl/relevant-documents/).

the observational and interview data. In this analysis, we aimed to answer the following questions:
1. Who can(not) be recognised as a 'teacher'?
2. What are valued characteristics for being recognised as a 'teacher'?
3. How are such qualifications also informed by platforms?

Observations
In our observations, we looked at who in (learning) interactions were in an asymmetrical position with each other and what characteristics of such person(s) were stated as mattering for such a position. We looked at our observations through this lens from three angles to gain a rich description of how the community understood what a 'teacher' is and how platform infrastructures might have informed such understandings. The first angle focused on the learning interactions between community members. As such, this angle focuses on textually and verbally expressed learning interactions among and between commentors/chatters and creators, and who in such interactions is put in the position of the 'teacher' and why. For instance, if underneath a video multiple commentors stated: 'Your open sharing of your story has really helped me learn', we would identify the person referred to, 'You', as the 'teacher' and use the qualifications associated with this position, 'open sharing of your story', as data to understand how community members identified (the characteristics of) 'teachers' . The second angle focuses on explicit verbal and textual expressions related to the platform. Though these did not necessarily discuss asymmetrical relations, we used this data to interpret whether the asymmetrical relations in the (learning) interactions could be informed by how the platform was perceived to impact the community by such commentors. For instance, if multiple commentors would say: 'YouTube keeps recommending your videos', we could interpret how YouTube's recommendation system is perceived to play a role in who these commentors see. This potentially impacts who can(not) be perceived as a 'teacher'. The third angle specifically focuses on the platform infrastructure, its features and design, and how we could interpret this environment as playing a part in identifying 'teachers', such as 'badges' that are displayed behind usernames.

Interviews
To understand who community members perceived as 'teachers' and what characteristics they attributed to them, we asked who they perceived as role models, leaders or asked from whom they had learned. We also asked community members what their perception was on how the platform impacted the community, using that data to interpret how the platform infrastructure could play a part in who they perceived as 'teachers'. We then coded all expressions referring to 'teachers' in NVivo. Subsequently, based on how community members acknowledged the structuring, recognition and value of learning in their community, we

defined how they attributed 'teaching positions' and on what characteristics such attribution was based, while paying attention to how such acknowledgements could be interpreted as being informed by the platform's presence in their reflections on the platform.

Results
Three themes arose from our data collection on how youth understand 'teachers' in informal learning communities on social media platforms. In each theme, though we recognise that these do not exist in a vacuum, for clarity, we will first provide examples from our data to illustrate how the community understands 'teachers' to then look how platforms could have played a part in such an understanding. Finally, we will discuss how this dynamic between the community and platform informs a particular understanding of a 'teacher' for each respective theme. For information about age, country of residence, and educational level of individual participants see the appendices.

Community introductions
To introduce the communities included in this research, we decided to let the communities introduce themselves by adding from each community creators' descriptions of their activities on the platform; for TikTok we included the introductions of the 'houses'. For clarification, we have added one sentence on the learning goal of the communities as apparent from our data.

LGBTQI+ vlogging on YouTube
Learning goal: knowledge about LGBTQI+ identities
    Jessie Maya ^{https://www.youtube.com/@JessieMaya}
    (T) I make videos about, among other things, makeup and clothing […] vlogs […] and I show you everything about the plastic surgery I do.

    Alice Olsthoorn ^{https://www.youtube.com/@AliceOlsthoorn}
    (T) At my page you can find songs, story times and a sort of vlogs. From time to time I also talk about what it is like to be transgender. Kisses (:

E-commerce on YouTube
Learning goal: becoming an e-commerce entrepreneur
    Jia Ruan ^{https://www.youtube.com/@JiaRuanOfficial}
    Stay Limitless

    Joshua Kaats ^{https://www.youtube.com/@JoshuaKaats/featured}
    (T) I'm here to help you to create an online income so you can experience the freedom you want. E-commerce advice […], Digital Nomad Lifestyle, Entrepreneurship.

Speedrunning on Twitch
Learning goal: being the fastest at a game
    BSG_Marathon ^{https://www.twitch.tv/bsg_marathon}
    We are a group of passionate gamers that is always pursuing the next level. We organise monthly weekend marathons, known as Benelux Speedrunner Gathering, offering a wide variety of games and categories. We aim to create enjoyable content for our viewers whilst demonstrating some kick-ass gaming.

    Thebuggy9000 ^{https://www.twitch.tv/j3nnalive}
    hi im buggy […] who speedruns minecraft and plays bedwars slightly better than average

Info-security (infosec) on Twitch
Learning goal: ability to protect and test information security systems
    DOnut ^{https://www.twitch.tv/d0nutptr}
    I'm a bug hunter, security engineer, and rust programming enthusiast who's found vulnerabilities in Uber, Duckduckgo, The Department of Defense, and many more! Join me as I build tools for hackers, find vulns, and cover all things tech!

    Ash_F0× ^{https://www.twitch.tv/ash_f0×}
    At the Moment I'm trying to get my foot into the Cybersecurity Field. I want to use this stream to learn together with the community and give something back.

Sustainability on TikTok
Learning goal: awareness about sustainability issues and practices
    EcoTok ^{https://www.tiktok.com/@ecotokcollective}
    educate + inspire, the environmentalist of tiktok

History on TikTok
Learning goal: gaining historical knowledge
    Historyhouse ^{https://www.tiktok.com/@nosebled}
    @historyhouse we be teaching

Communities distributing their hierarchical teaching position, and platforms' 'creator-teachers'
As we will further illustrate below, communities value creators as 'teachers' who redistribute their hierarchical teaching positionality to the community via chat/comments. The platform infrastructure could inform this hierarchy that positions creators as 'teachers', while their infrastructure simultaneously also affords redistribution of the 'teaching position' to commentors/chat.

In the infosec stream by Ash_f0×, that we take as an illustrative example here, we can see how the creator, in this case the streamer, is

understood to be the 'teacher', yet the streamer also redistributes their teaching position to the chat. This example is taken from a stream called 'Rust directory bruteforcer | Today: extensions and more' in the category: 'Science and Technology'. At the moment that we will describe below at around 58 minutes into the stream, around 35 viewers are watching the stream. Ash_f0× is working on a project that they share information on in the stream; they are in an asymmetrical relation to chat by having the information about this project and displaying their (development) of a skill. The following example shows how this asymmetrical relation switches to a person in the chat (PC) and Google. At this moment during the stream, Ash_f0× talks about a particular approach to their coding, when PC comes in with a different suggestion 'HEAD', than Ash_f0×' approach 'GET', PC says: 'Do you need to do a GET request [what Ash_f0× is considering]? Is HEAD not sufficient enough?' In response, Ash_f0× considers this option and googles 'head request' to read the information on Google, that the viewer can see in the stream, on how it works. PC provides extra information on how this might help Ash_f0×, and Ash_f0× starts to talk about how this might work for what they want to achieve, to which PC responses affirmatively: 'Exactly'. Ash_f0× then compliments PC and says: 'I didn't know 'bout that, well today we learned.' We see here how initially Ash_f0× was demonstrating how to work on a particular coding project, being in an asymmetrical position to the chat who listens to Ash_f0× who is the one having the information in this interaction: Ash_f0× is in the hierarchical position of the 'teacher'. When PC provides a suggestion, Ash_f0× distributes this asymmetrical role to PC, so that PC becomes the 'teacher', combined with the information provided through Google. In other words, though a streamer is the 'teacher' they can choose to redistribute this 'teaching' role. Moreover, though in this case it is one person, PC, taking up this hierarchical, 'teaching' position based on the knowledge they have that Ash_f0× needs, frequently several people in the chat take up such a position together providing the streamer with the information they need to learn how to approach a project. As such, the hierarchal teaching position is not just distributed to the individual participants in the interaction, but also to a wider community collectively acting as a 'teacher' to teach Ash_f0× how to create the program they are working on over the course of several streams. This is also evident from Ash_f0×' communication about learning about their project on stream: 'today we learned'. In bigger communities especially, the chat taking up such a position collectively as a 'teacher' can be interpreted as learning from a more distant mass: the 'wisdom of the crowd', rather than an individual like PC. Also, the turn to Google, can be understood as re-distributing the hierarchical position of the individual streamer to the crowd, by providing authority to the knowledge of an even bigger group of people that Google sorts for the user. These communities move from personal, individual 'teachers' to also recognising the wider community, and sometimes even the mass as a 'teacher'.

This latter example is a consistently recurring type of interaction on streams in the communities we observed on Twitch. Though most explicitly and frequently present in Ash_f0×' stream, as they do 'learn with me' type of streams, even in the stream by d0nut, a more experienced member and streamer of the infosec community, such interactions are quite common. Also, in the speedrun community, the streamer is initially the 'teacher' but can commonly be seen to redistribute their 'teacher' position to the wider online crowd. In the interviews with participants active on Twitch, it also becomes apparent that creators are first thought of as the ones with the hierarchical position to 'teach'. Yet participants also often immediately nuanced such statements by also ascribing value to how the whole community 'teaches': 'Nah, I feel like it's just, we all just on the same level' (Carl T .) or 'there is not really a huge hierarchy or something' (Mark). In our observations of the communities on YouTube and TikTok, we also saw how, after sharing their own information, 'teachers' on these platforms would for instance call upon their viewers to share their perspectives. For instance, Jessie Maya says at the end of one of her videos (T): 'Go and talk to each other [in the comments] underneath this video. I think that if you need the support that you can find it below with one another.' In the comments we saw examples of interactions in which commentors assumed asymmetrical relations, such as commentors explaining what 'cisgender' means in the LGBTQI+ community on YouTube or answering questions on historical events displayed in a TikTok. Also in these communities, instances can thus be found of the 'teacher' redistributing their asymmetrical position to the community, who accept such a call.

When we turn our attention to the platform infrastructure and members' reflections on the platform, YouTube, Twitch and TikTok, it can be argued that platforms afford a focus on creators as 'teachers.' Creator content is centralised in all platforms: chat and comments are tied to specific streams and/or videos, which are made by specific creators whose names are often clearly displayed for all viewers to see. Furthermore, platforms recognise most visibly creators as valuable 'partners' through badges, as only creators can gain 'verified' badges that are listed next to the creator's channel name. Taking this infrastructure together with how in interviews members would only (YouTube and TikTok) or mostly (Twitch) mention creators as 'teachers,' our data demonstrate a by the platform induced focus on perceiving creators as 'teachers'. There were differences among platforms, for instance, some members from Twitch communities called people in chat also 'teachers'. Such a difference between platforms might be informed by specific platform affordances: e.g. on Twitch people in chat are also eligible for badges (moderator/VIP), in contrast with YouTube and TikTok, that do not have similar rewards implemented for commentors.

In sum, based on how participants perceived creators as 'teachers', and how we observed platforms' infrastructures focusing on creators, informal learning communities mostly put individual creators in the hierarchical position of being 'the teacher'. Simultaneously, such 'teachers' redistribute their position as a 'teacher' with their community in the chat/comments sections of these platforms and draw on the 'wisdom of the crowd'. Such a combination of practices shows how platform technologies afford different hierarchical organisations of teacher roles, some of which typically associated with Web 2.0 technologies.

Community qualifications for teachers vs. platforms' lack of qualifications

As we will illustrate below, an important characteristic of being a 'teacher' that comes to the fore in observations of interactions within these communities is to be able share one's own personal learning biography in an authentic way. However, this form of qualification also brings some uncertainty on who is trustworthy as a 'teacher,' that is, who has an authentic interest in 'teaching' and who provides accurate information? Though one might expect the moderation policies of platforms to be able to aid youth in recognising trustworthy 'teachers,' participants find moderation policies by particularly TikTok and YouTube unhelpful and claim that those can even thwart the educational aims of their communities.

As an illustrative example of qualifying as a 'teacher' based on the authentic sharing of one's learning biography, we look at the comment section of a video by the Dutch YouTube channel Jessie Maya. The video titled 'Reacting to ANTI GAY commercials #2 | JessieMaya' (T) had at the moment of observation 229.374 views, 8.4k likes, 129 dislikes and 538 comments. In this video Jessie and a friend, Jeroen, who often appears on her channel, react critically and with humour to videos which are expressing negative attitudes towards LGBTQI+ people. In reacting to these videos, Jessie shares her own experiences, for instance how security once barred her from using both the men's and the women's toilets in an entertainment park. Near the end of the video Jeroen expresses a statement that positions Jessie and him in an asymmetrical relation to (some of) their viewers based on their learning biographies (T):

> 'I find it quite difficult [these anti-gay commercials], because we are of course at a point that we can say 'I don't fucking care', but for younger kids that is of course a lot tougher.'

Here Jeroen positions himself in the role of the teacher by the wording he uses to explain that although Jessie and he can laugh about the anti-gay commercials, this might not be easy for the 'younger kids'. By using the term 'younger' for them and 'at a point' for himself, Jeroen models himself as aspirational, due to being older and having learnt how to no longer be personally offended by these commercials. Throughout this

video, Jessie and Jeroen set themselves up as 'teachers' by sharing their reflections and experiences as part of their personal learning trajectories on how to deal with prejudice and discrimination as a member of the LGBTQI+ community. Comments posted underneath this video also position Jessie as a 'teacher' because of her personal learning trajectory (T):

> I have so much respect for Jessie who just dares to show herself without giving a fuck, even if she got so much hate, she still wanted to learn us more about the process and how people might feel. Love you

This commentor's respect for Jessie originates in that Jessie dares to 'show herself without giving a fuck': authentically sharing her first-hand experiences of being trans, without letting the opinions of others interfere, as a resource for learning. In the interviews, recognising 'teachers' because of their authenticity, evident from sharing their personal learning biographies often comes to the fore, for instance, Ronald (T):

> 'Jessie told everything about her transition and just about the whole community, so I've learnt a lot from that.'

Here Ronald shares that they learnt from Jessie because she shared her own learning biography of being in transition. All in all, sharing one's personal, authentic learning biography was a recurring characteristic valued by communities to recognise 'teachers'; from being a successful online entrepreneur sharing their personal trajectory toward success in a video on YouTube, to a speedrunner practicing a run talking about their progress and failures.

Although the platform allowed and affords this vision on who is acknowledged as a teacher, there are at the same time complications with this norm which can be understood as the result of the community's interaction with platform dynamics. Though one might expect the moderation policies of platforms to be able to aid youth in recognising 'qualified' 'teachers', our data shows that participants find that moderation policies by particularly TikTok and also YouTube thwart educational content. In the history TikTok community, members for instance reflect on the unclear moderation of TikTok which complicates 'teaching' sensitive historical information. Paul's expression about TikTok is illustrative of this:

> So, either TikTok has a very bad team of moderators, or the TikTok algorithm ban bot or something, does a very terrible job of actually filtering the guidelines. [...] even though you put a disclaimer that you're talking about WW2, you can't say Hitler.

TikTok is by Paul experienced as judging content quite randomly and not contextually, by not considering a historical educational context for the mentioning of 'Hitler'. They thus experience TikTok to judge content sloppily on accuracy or educational value, even though TikTok's community guidelines do state exceptions for educational purposes.

Furthermore, YouTube and TikTok's recommendation systems are not experienced by participants in aiding recognition of trustworthy 'teachers' as they on occasion found that platforms recommended content and 'teachers' that provided inaccurate or misleading information. Perhaps most striking is how a creator admired as a teacher by some of our participants from the e-commerce community, Jia Ruan, was by BOOS, a YouTube channel of the public broadcaster BNNVARA in the Netherlands, exposed as not offering the e-commerce course that some of their viewers bought and spreading conspiracy theories related to COVID-19.

In sum, platforms open up the position of the 'teacher' without embedding, in the experience of our participants, proper forms of qualification for 'teachers' through their moderation and recommendation policies. In response it seems, community members have created their own alternative forms of qualification by relying on 'teachers' authentic sharing of their own learning biographies or interest.

Community's entertaining teachers and platforms' rewards
As we will explain below, partly informed by reward opportunities enabled by the platforms, 'teachers' are valued within communities because of their ability to translate their interest to a broad audience by using accessible and engaging ways to transfer knowledge to attract new members to the community. However, if teachers are (too) successful in drawing in an audience to transfer information, such 'teacher' qualities afforded by the platform can also conflate with communities' educational aims according to community members. As we will show below, a 'teacher' needs to be able to balance attracting (new) community members, by knowing how to use the platform to reach an audience, and the community's educational aims.

We zoom in on the EcoTok community, where they value 'teachers' who can make sustainability accessible and engaging for TikTok users. In our interview with Daisy, they, for instance, say about the creators of sustainability content that they are:

> speaking in a way more enjoyable that everybody can see, from a child to a young man, from educated people to non-educated, so that is a great thing from Eco Tik Tok that everybody can understand and can, uhm, engage actions in their daily lives.

Daisy here refers to how 'teachers' in the sustainability community on TikTok address their audiences in an enjoyable way that 'everybody can see,' engaging a broad audience, that also extends beyond the traditional framework of formal education. Also in our observations, 'teachers' were characterised by successfully making sustainability themes accessible and engaging, such as the creator traaashboyyy. Traaashboyyy's videos have a familiar set up every time: we see the

creator pick up litter, counting the amount of litter they pick up towards their goal of picking up 50.000 pieces of rubbish, and sharing environmental facts about pollution and littering while doing so. Various comments underneath traaashboyyy's videos say that traaashboyyy's videos have inspired them to pick up rubbish, such as:

> 'You inspire me daily! We need more 'trash boys' on this planet, continue the good work [real name creator]! 🥰'

These echo what was also expressed by interview participants like Daisy: 'teachers' are recognised within this community by lowering the threshold to participate in sustainability activities, by making it accessible and engaging to, seemingly, anyone. We also interviewed Emma (2), a creator within the EcoTok house. Her explanation of what makes someone a 'teacher' within the EcoTok community also speaks to how 'teachers' perceive themselves to be creating accessibility to their 'lessons' as an important part of why they are a 'teacher', when comparing teachers online to those in formal education:

> it's hard to ask that because not all educators are entertainers and not all educational things can be entertaining, right like, that's just life. […] I think having more of those people make things like science more accessible, make it more interesting for people, bring down the barrier to entry.

Emma(2) argues it is important for a 'teacher' to make information about sustainability accessible and engaging by using entertainment, which they themselves attempt to do by using TikTok. They also explain this combination of having scientific knowledge and being able to translate that knowledge into an entertaining and engaging format is part of how they recruit new members for EcoTok. Similar understandings of 'teachers' as people who make their interest accessible and engaging to a broad audience were present in other communities, as for instance most more experienced community members that we interviewed indicated that these platforms formed an accessible entry point for newcomers to their community.

Participants' reflections on platforms indicate that platforms could be interpreted to introduce this dynamic for 'teachers' to be able to package their interest in an accessible and engaging manner for a broad audience. As Kass, a community leader in the history community, says:

> I mean that's also, that's another thing, in that 15 seconds you need to figure out how you can grab the interest of something, to get them to go, and find their own motivation and interest in that topic, uh, to learn more about it, eh, go back to it

Kass here refers to how TikTok requires creators to be able to grab viewers' attention, to be able to get them engaged in history within a short amount of time. Creators all refer to how people seeing their content matters to them, as they depend on the platform pushing their content to such people. To be able to have their interest seen by others,

they thus need to find ways to use these platforms to make their interest accessible and engaging.

Based on the interviews, we can also understand that if 'teachers' are successful in being engaging and accessible, the rewards platforms enable for such 'successful teachers' can put pressure on the educational goals of the community. This is evident in the interviews with members from the speedrun community and EcoTok community showing tension between how platforms afford large audiences to successfully engage with 'teachers' and the community's educational aims. Speedrunners would for instance indicate to prefer smaller streamers over large streamers that are successful in the eyes of Twitch, as large streams reduce the potential for meaningful (learning) interactions, Carl . T:

> for a small streamer and speed runner, it's more like you help everyone and yourself. But for a larger speed streamer it's more like you can't help everyone, you have to mostly like yourself, because there's too many people to do it with.

Bigger streamers, are, in this community, not recognised as 'teachers' per se, as they have become too engaging. The audience that the platform can afford them disappears in relation to their accessibility for learning. Another example is how in the sustainability community normative, educational aims are under pressure due to the opportunities for commercial collaboration that a 'teacher' gains access to via a social media platform when being successful in engaging an audience. Emma(2) says the following about brand deals that some of the sustainability TikTokkers make in our interview with them:

> I feel like a lot of videos I see on sustainability TikTok, […] it's like someone saying, "Oh like capitalism is destroying us and we can never be free unless we revolt" and then: "check out this eco-friendly toothbrush" laughs.

This tension is apparent in most communities across observations and interviews. Both members and platforms require 'teachers' to be accessible and engaging, yet platforms are also perceived to attach certain platform dynamics to such accessibility and engagement in ways that can conflate with the educational aims of the community. This results in an understanding of 'teachers' who know how to make accessible and engaging content by using the platform successfully for engagement, while simultaneously consistently guarding a balance between gaining such engagement and their educational aims.

Discussion
In this discussion, we explore how youth understand 'teachers' and their characteristics in the relatively 'new' context of social media platforms. We want to do this by situating our results in the broader discussion about the interaction between technology, learning and teaching by returning to literature on Web 2.0's participatory cultures and literature from platform studies. Afterwards, we will argue how these results constitute 'alternative' understandings of 'teachers' that can be used as objects of thought to re-evaluate teaching practices in formal education.

The understandings of 'teachers' from our results can be situated in an ongoing discussion about technology, internet culture and norms about what it means to learn and teach in the current socio-technical context. In our results we can see for instance how ideas rooted in Web 2.0 literature on the participatory cultures afforded by Web 2.0 technology and ideas on increasing individualisation, commercialisation and surveillance from platform literature co-exist alongside one another in the pedagogies of these communities. For instance, 'teachers' within these communities are valued for redistributing their 'teaching' position towards chat and comments, which can sometimes gain such massive characteristics that it could turn into a crowd functioning as a 'teacher'. This perhaps speaks to the perceived potential of crowds as 'teachers' from Web 2.0 literature (Dron & Anderson, 2014). Speedrunners on Twitch for instance rely on the wisdom of the massive speedrun crowd about games to be able to 'run a game' successfully. While acknowledging the potential of the crowd as a 'teacher', we can also see how platforms might have informed a push towards acknowledging mostly individual creators as 'teachers'. Such a focus on individual creators is in line with literature that positions individual influencers in pedagogical roles (Hendry et al., 2022). Another example is the arguments found in studies on the participatory cultures of digital technologies. Here, the position of the 'teacher' became more accessible as there was no longer gatekeeping by formal (educational) institutions (Lankshear & Knobel, 2007). On the one hand, our results show that platforms still enable anyone to gain an audience online and become a 'teacher', as long as they are perceived to qualify for such a position based on their personal learning trajectories rather than formal qualifications. On the other hand, our results show that platforms are not credentialling 'teachers' in ways that aid youth in recognising who to trust as a 'teacher' as content moderating policies do not always respect the educational values of these communities. Such concerns about who to trust as a 'teacher' online might also be informed by questions on whether 'teachers' are genuine in their interests or simply there for the rewards offered by platforms as explained in the final theme of our results. In sum, we can see how within learning communities on YouTube, Twitch and TikTok who can(not) be 'teachers' and what their characteristics are, is negotiated in an entanglement of platform dynamics. Simultaneously teacher identities associated with Web 2.0 technologies are still enabled by platforms and valued by online learning communities. Such entanglement must be understood within a vision in which multiple pedagogies are always existing and negotiated in relation to one another playing a part in how learning is structured, valued and recognised in response to

constantly changing socio-material contexts (Bernstein, 2000). More specifically, earlier conceptualisations as for instance present in literature on Web 2.0. are consistently updated in response to technological developments, such as the platformisation of (online) public spaces (van Dijck et al., 2018), while still carrying along its history. In addition, it is likely that platforms also draw from earlier discourses on participatory cultures to draw in youth (see chapter one).

Conclusion

As discussed in our introduction, part of the question around teachers in online informal learning communities stemmed from the idea that the affordances of online spaces could and would radically change what youth might expect from their teachers, now that they have opportunities to find teachers outside of the confines of formal education (Lankshear & Knobel, 2007; Säljö, 2010). As such, we want to situate our results in the context of discussions about formal education here: how do our results reflect an alternative understanding of the 'teacher' than the characteristics that are valued and recognised of a 'teacher' in formal education? The appreciation that is apparent in our results for a 'teacher' who is approachable, and engaging with a personal approach to the topic they are 'teaching' matches with work on what teaching practices work in the eyes of both students and teachers in formal education (Brekelmans et al., 1992; Wubbels et al., 2012). Cooperative interpersonal skills, related to being friendly and understanding, and control skills, related to control and discipline, are both important to make someone an 'ideal teacher' in formal education (Brekelmans et al., 1992). In our results, we saw how such 'dominance' or control for online 'teachers' is partly set up by the platform for creators: they are given a central stage where students are guided by the platform (see also chapter one). In our results, we have seen how 'teachers' exercise control over their community by for instance being the one to be able to distribute their asymmetrical position actively to their community. Our results show that 'teachers' in these communities are valued because they know how to balance their position between such control and still being engaging and accessible. This echoes previous research on how influencers and their followers engage in interpersonal connections by balancing intimacy and influencers' celebrity-like status (Hendry et al., 2022). In formal education, it is argued, teachers mostly develop control over their students, but not necessarily those cooperative, interpersonal skills to be friendly and understanding of student experiences (Brekelmans et al., 1992). Brekelmans et al. speculated that such a lack of development might be due to a vicious circle in which as a teacher becomes more experienced, they perceive their teaching duties as more of a routine work, lose some of their enthusiasm, which motivates students less, which then also motivates the teacher less (Brekelmans et al., 1992; Wubbels et al., 2012). Considering global and ongoing concerns about teacher shortages and increasing work pressures on

teachers (see e.g. Meijer, 2021; Sutcher et al., 2019), we speculate that such tendencies of turning towards control rather than cooperation with classrooms have not declined over the last years. Youth value engagement, accessibility, and personal stories and this might further indicate the need to educate teachers to develop skills to balance control and interpersonal connections. Our results might be used to again put the pressure on the need for relatable teaching experiences for youth in formal education by offering an alternative understanding of the teacher.

In conclusion, we can argue that teachers who authentically share their own learning trajectory, actively redistribute their position as an expert to the classroom and try to find ways to engage their students through making knowledge engaging and accessible for the student become highly attractive to online learning communities on social media platforms. As such, these 'teacher' characterisations are thus interesting objects of thought to evaluate what crucial elements of a teacher identity are in the eyes of youth who are engaged in alternative, online pedagogies.

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SECTION 3: REIMAGINATIONS

Can we understand youth's experiences with (creating) online pedagogies in these learning communities not only as destabilising formal pedagogies that are imposed upon them, but also as reimaginations of what it means to learn? And if so, how?

Chapter 4. The desire to learn: The alienation and reimagination of education on YouTube, Twitch and TikTok

Z. Vermeire, M.J. de Haan, J. Sefton-Green & S.F. Akkerman

Abstract

This paper aims to understand how youth's perspectives on their informal, online learning experiences might be informed by their critiques of formal education. While such critiques can be seen as alienation from formal schooling, to obtain a better understanding of youth's desires for learning, we move beyond an alienation perspective by examining youth's perspectives on their online learning as 'reimaginations'. Six online informal learning communities were approached on YouTube, Twitch and TikTok; 37 community members were interviewed. Results show that youth perceive formal education as controlling, enforcing a pressure to perform, and as disconnected from what youth think matters and qualifies expertise. In the alternative pedagogies youth stress the importance of having control, finding space for experimentation, and being enabled to act on societal issues. Using Deleuze and Guattari's conceptualisation of 'desire' as a productive, creative force, and Appadurai's notion of global imaginaries, we claim that these online pedagogies, informed by youth's critique of formal pedagogies, can be interpreted as 'reimagined pedagogies' operating as collective voices for global (re-)imaginaries of school. We conclude that portraying such desires for learning from youth's informal learning communities is important for educators and policy makers to address concerns related to alienation from school.

5. ZV co-designed and executed the data collection, and data analyses. She initiated, conceptualised and wrote the article. MdH and JSG initiated the research project. MdH co-designed and supervised the approach to data collection and analyses and supervised and edited the writing of the article. JSG supervised the approach to data analyses and edited the writing of the article. SFA supervised the approach to data collection.

Introduction

> How can we study or work for a future, which is being destroyed in front of our eyes? [...] Why should we spend the time and effort on an education, when our governments are not listening to the finest scientists? (*Reasons to Strike*, 2022)

Inspired by Greta Thunberg, young people across the globe have joined her school strike for climate action. They question the need for an education: why go to school if governments do not take sufficient climate action to ensure a future in which to use that education? Another example of how youth question their education in this day and age, is that with increasing costs of tuition fees and growing student debts, young people doubt the value of a university degree (Carrns, 2021; Singletary, 2020). Youth critiquing their education is not a new development (Porfilio & Carr, 2010), and education has always been a negotiated practice (Levinson et al., 1996; Rooy, 2018). However, a relatively recent development is the access to online spaces to voice such critiques and organise learning with resources and educators outside of the schooling offered to them in their direct, local environment. Understanding 'pedagogy' as how learning is structured, recognised and valued (Bernstein, 2000; Singh, 2017), we are interested in this paper in how youth reflect on their experiences with such alternative online pedagogies, and how these reflections could be understood as being informed by their (critical) reflections on schooling.

In academic literature, youth's concerns about the value of a formal education for their (future) lives is frequently described as 'alienation' (Lave & McDermott, 2002; McInerney, 2009). While within psychological literature alienation is often perceived as a psychological trait or individual deficit (Hascher & Hadjar, 2018; McInerney, 2009), critical studies in education argue that alienation is a result of how through practices of formal schooling normative, ideological frameworks are reproduced (Lave & McDermott, 2002; McInerney, 2009). This strand of literature is rooted in Marx' theory on alienated labour, in which workers no longer see the purpose of their (divided and devising) labour (Lave & McDermott, 2002). Likewise, literature on alienated learning perceives alienation as a process through which youth no longer see value, purpose or societal relevance in their learning (Lave & McDermott, 2002). Instead of youth being able to determine what learning is meaningful to them, youth who experience alienation are forced to adopt existing normative frameworks for their learning (Lave & McDermott, 2002). In result, such youth no longer see 'real-world' significance for their learning (Wrigley et al., 2012) or how it helps them with their development as a democratic citizen (Down et al., 2019). Students who experience alienation might therefore become critical of their formal education and wonder 'why do I even have to learn math if climate change is so imminent that my future is uncertain?'.

Chapter 4.
The desire to learn:

We chose to focus on online informal learning communities as places where their critiques of education might be manifest for three reasons. Firstly, an existing body of literature comparing formal and informal learning settings demonstrates that learning also happens outside of the boundaries of formal schooling in such informal learning communities (Paradise & Rogoff, 2009). Secondly, it has been argued for some time now that *online* informal learning communities offer youth with opportunities to learn differently from how they are used to learn within schools (Ito et al., 2019; Lankshear & Knobel, 2007; Säljö, 2010). Such studies for instance raise questions on why students need to reproduce knowledge by rote in exams in school, while they normally have Google in their pocket (Säljö, 2010). Such research inadvertently also sketches experiences of a disconnect, a form of alienation, between the technological realities of youth's everyday lives and how school organises learning (Green & Bigum, 1993). It is assumed that, given that online informal learning communities are positioned within 'new' technological realities, in such online communities 'alternative', pedagogies are enabled that might circumvent such alienation in ways schools might not be able to. Thirdly, youth's informal learning practices have frequently been analysed as forms of resistance to schooling that can be productive of 'new' educational realities (Porfilio & Carr, 2010; Tuck & Yang, 2011). Recently, such an argument has also been developed in respect of *online* informal practices (Wright, 2021). Wright for instance describes how youth use acronyms on TikTok to critique their school experience, such as school standing for 's̲ix c̲ruel h̲ours o̲f o̲ur l̲ives' or math for 'm̲ental a̲buse t̲o h̲umans' (2021). Considering these claims, we take the position that rather than disregarding online practices by youth as trivial teenage behaviour, such expressions of dissent and learning should be seen as ways to understand how to aid students in their education (Wright, 2021). In line with this perspective, we want to explore whether the tensions between online and formal pedagogies, might provide interesting objects of thought to inspire educators, educational researchers and policy makers to consider online spaces as objects of thought to think critically about the role education plays in youth's learning more generally.

As we have stated, we are interested in how youth structure, value and recognise learning within informal learning communities; we understand this power over ways to learn as *pedagogies*. 'Pedagogy' extends beyond the school, as a particular nurturing form of power that structures, values and recognises learning (Bernstein, 2000; Singh, 2017). Given that students, and other stake holders, can resist formal pedagogies (Giroux, 1983), and that 'new' pedagogies are created constantly, we are dealing with multiple co-existing pedagogies that through new social and material configurations constantly are (re-)created within and beyond schools (Bernstein, 2000; Singh, 2017). School as a formal institution with specific associated practices and norms is simply one such a social and material configuration that has a particular way to structure, value

and recognise learning (Ladwig & Sefton-Green, 2018), which we will refer to here as 'formal pedagogies'. Such social and material configurations can also be emergent technologies that might for instance create 'new' modes of relating to knowledge (Säljö, 2010) or new pedagogies. Here we will refer to such informal pedagogies induced by emergent technologies as 'online pedagogies' (even though they are offline in other contexts). This perspective on pedagogy allows us to understand how youth themselves are dealing with multiple ways to structure, value and recognise learning and how they negotiate such ideas. As researchers, we take this pedagogical lens to understand the negotiated status of the various pedagogies in which youth operate online and within schools in order to inspire educators to confront some of the contemporary issues facing formal education today, especially how to tackle youth's alienation with schooling.

Additionally, we wish to explore whether we can understand the destabilising of formal pedagogies by creating alternative online pedagogies, as a form of 'reimagination'. We do so as we hypothesize that youth do more than just resist formal pedagogies online but also encounter and create alternative pedagogies through their engagement with 'new' social and material configurations offered by their online, informal learning communities. Drawing on Deleuze and Guattari's concepts of de- and (re-)territorialisation, we understand the creation of alternative pedagogies as forms of reimagination (1987). Territorialisation as a conservative force can then be understood as how schools reproduce stratified normative structures for learning, for instance how teachers are perceived as experts within a particular field. Deterritorialisation, as a destabilising force, can be understood as resistance to such pedagogies, for instance challenging teachers as experts by drawing on online experts. Reterritorialisation can be understood as 'new' ways to structure and stratify pedagogies in online, informal learning communities, for instance related to how expertise is re-evaluated and re-distributed amongst stakeholders in the field. As we speak of online communities here, we want to also emphasise this collective context in our conceptualisation of reimagination. Though 'imagination' is often perceived as an individual creative force (Rizvi, 2006), we want to further emphasise imagination as a social act that creates social imaginaries through which one can be controlled, but also can create counter narratives (Appadurai, 2000). Moreover, drawing on Deleuze and Guattari's conceptualisation of 'desire' as a creative force (1987), we want to emphasize the productive, creative force embedded in such reimaginations, focusing on what is produced by such creativity, rather than describing it in terms of what is lacking. In line with such thinking, we understand reimagination as a de-/reterritorialising form of desire: as an experimental, productive, social, positive force that can increase the power of individual bodies through connections with others to create such narratives. In this paper, we ask: can we understand youth's

experiences with (creating) online pedagogies, not only as destabilizing formal pedagogies that are imposed upon them, but as reimaginations of what it means to learn? And if so, how?

Approaching youth's pedagogies
The study is part of a larger ethnographic study on youth who are active in online, informal, learning communities, or understanding them as 'communities of practice' (Lave, 1991; Paradise & Rogoff, 2009). For this study we draw on semi-structured interviews with 37 young people (13-25 years old).[6]

Selection procedure
To sample participants, we first selected social media platforms that are popular among youth. On these social media platforms, we sampled communities, then community leaders of these communities, and, finally, participants from the community leaders' followers.

Selection of platforms
We selected YouTube, Twitch and TikTok as these are popular platforms among youth. Though exact numbers on how many 13–25-year-olds use these platforms are not publicly available, these platforms are used frequently by youth (See e.g. Ceci, 2022a, 2022b; Hoekstra et al., 2022; Twitch, 2021).

Selection of communities
We selected communities centred around a shared interest. This is a common characteristic of informal learning spaces (Gee, 2017) because, it is argued the participation makes learning inherently meaningful through an ongoing process of becoming part of a community (Paradise & Rogoff, 2009). To avoid moving too far and staying too close to the field of formal pedagogies, we selected two communities per platform, one that had learning as a core part of their main interest and aim, and one that had learning as a less central part of their main interest and aim, according to the goals of that community as expressed by the 'members'. Based on these criteria, we selected three communities with learning as their core aim: an e-commerce community on YouTube, an infosec community on Twitch, and a history community on TikTok and three communities where learning was less explicitly the core aim of the community in comparison to the other selected community: a LGBTQI+ vlogging community on YouTube, a speedrunning community on Twitch, and a sustainability community on TikTok.

Selection of participants
Since the communities on the selected platforms are vast and extend the

6. For this research, we have permission from the Ethics Review Board of the social and behavioural sciences faculty of Utrecht University and worked in line with their requirements (see https://ferb.sites.uu.nl/)

boundaries of the selected platforms, taking a representative sample from a delimited population is not possible. Based on our sampling strategy, we cannot claim absolute representativeness for all the communities, which is also neither the goal given our research aim nor possible. Nonetheless, we implemented criteria to attempt to achieve a broad representation of these communities. The first criterion is that participants needed to be 'members' of the community. Participants struggled with the term 'membership' though. Previous research has also argued that 'membership' is often more fluid in these types of communities online (Gee, 2017). As such, instead of asking participants to self-identify as a member, we asked participants whether they were watching and/or interacting with the content of community leaders within the community. Community leaders had to be creators of video content and 'heavyweight' members on these platforms:

> Frequent, embedded members, with ties and commitment to others in the group, have a strong concern for their reputation in the network, the continuation of the initiative and how the community operates. (Haythornthwaite, 2018, p. 27)

Secondly, participants had to be 13 to 25 years old, allowing for slightly older creators to participate, as well as focussing on those youth still in formal education or recently finishing formal education. Thirdly, we wanted to include both peripheral and core members of these communities, as such we aimed for a mix of community leaders, long term members and more casual members to represent the diverse ways in which youth engage with these communities (Lave, 1991). We did not ask participants to provide data on gender for the purposes of this research. We refer to participants as 'they' in the results, unless their pronouns were explicitly and publicly shared. To offer participants the possibility to recognise themselves in published research, while taking protection of the privacy of our participants seriously, we offered participants to remain anonymous via a pseudonym. Most chose pseudonyms themselves, some used user- or real names, others we chose for them. Community leaders who were not interviewed are mentioned by their publicly accessible usernames.

Approaching participants
We contacted 'regular members' and community leaders in three manners: via a direct message to them or their manager asking them to participate, via an online form shared within the community where participants could sign up or through snowballing. We shared messages and forms via YouTube, Twitch, TikTok and adjacent platforms these communities used. We conducted all interviews via a live video call, except for the interviews with Agus and Daruk which we conducted via chat. Interviews were semi-structured, and a topic list was used (see appendices). We first asked participants to reflect on their online learning experiences, then on their experiences with formal education and at the end asked participants to explicitly compare those contexts, though sometimes

participants would mention these topics themselves in a different order. We used NVivo to organise participant expressions into a comparative dataset to answer our research questions. Participants tended to experience the interviews as valuable to themselves, expressing having gained new insights due to the interview or thanking us for the interview, for instance Vani (20, U.S.): 'this was really entertaining, helped me learn a lot too. So, thank you for your time as well.' This could indicate that participants tended to become more reflective of their own practices online throughout the interview. Such reflection on their own online practices as learning, might be valuable for youth to feel recognised in their online activities, also indicated by participants expressing gratefulness for the fact that we 'found them.' Dutch citations (the native language of three authors) are translated to English in keeping as closely to the original wording as possible, indicated by '(T)'.

Analysing youth's perspectives on online and formal pedagogies
Based on Fairclough (2013), we employed a critical discourse analysis in which we looked at if and how youth's learning experiences online are destabilising formal pedagogies by creating (alternative) online pedagogies and how and whether these experiences were rooted in experiences of alienation. We started with the comparisons youth themselves explicitly made between their experiences online and pedagogies youth associated explicitly with school. An example of an explicit comparison would be 'Online you can pick your own teachers, whereas at school you are stuck with the one you get.' Subsequently, we looked at when school discourses and community discourses were implicitly opposed. For instance, when a participant first talks about creating their own learning trajectory online while later in the interview, they critique the school's syllabus.

In line with a Foucauldian perspective, in particular Fairclough's interpretation of critical discourse analysis (2013), we looked at empirical data through the lens of power as a determining factor for how people communicate. Such a perspective enables us to look at how formal pedagogies and online pedagogies are present in youth's communication as forms of nurturing power that organise and value their learning. By doing so, critical discourse analysis provides space for an analysis of how young people reproduce and resist such power relations that instil a normative framework on their learning (Singh, 2017). We took a 'bottom up' understanding of what constitutes formal or online pedagogies, considering respectively all that youth explicitly label as belonging to school, (e.g. teachers, classes) as 'formal pedagogic discourses'; and all that youth label as online ways to structure, value and recognise learning 'online pedagogic discourses'. As such, we focus on what youth themselves consider formal or informal-online education, which limits our results to youth's reflections on their experiences, and thus do not make any claims of how such reflections represent either what happens in

school or in online communities. In our analysis, we labelled pedagogic experiences 'alienating' when a participant expressed a disconnect between their desires for learning and the structure, value and recognition a pedagogy placed on their learning.

Introducing our participants and communities
General information on interviewed youth
Despite the fact that participants from these communities were socially, and culturally diverse, participants from the same community would share an interest, values and aims that adhered to their community as will become apparent in the thematic results below. The age of participants for instance varied from 14 to 24 years old (n=37, mean=19, SD = 2.4). Educational level of participants from all communities across all platforms also varied from, for example, vocational education, university dropouts to middle/high school students to students in the applied sciences. Participants' current country of residence varied as well ranging from the Netherlands to Brazil, to the United States, to Finland, to South-Africa, to India. For specific participant information on these and other factors, see the table in the appendices.

Community introductions
In the following, we will introduce each community based on its dominant aims, norms, and practices, which we take from participants' expressions about the community and the videos the community leaders produce. We introduce these communities here as these contextualise the experiences of participants shared in the results. Additionally, it demonstrates how these are informal learning communities. We added a hyperlink to the heading of each introduction with an example from this community to aid in the understanding of these communities.

YouTube – E-commerce https://www.youtube.com/@JoshuaKaats/featured
The e-commerce community aims to educate and motivate around a shared interest in becoming an online entrepreneur in areas such as online marketing. On YouTube, the main practice revolves around community leaders sharing their (luxury) lifestyle and story, and explaining skills related to becoming an online entrepreneur, often with the additional aim of selling their own online courses.

YouTube – LGBTQI+ vlogging https://www.youtube.com/@AliceOlsthoorn
The LGBTQI+ vlogging community aims to entertain their audiences with vlog content such as shop vlogs, make up tutorials, eating vlogs and reaction videos. Some of these video's centre on the aim to educate their audiences about LGBTQI+ identities and sexual health. Their main practices on YouTube revolve around viewing and discussing LGBTQI+ vlogging content, often with humour.

Twitch – Infosec ^{https://www.twitch.tv/d0nutptr}
The infosec community on Twitch aims to teach and share information-security (infosec) knowledge online. Infosec concerns itself with the tools and processes for protecting and testing the protection of digital information. Their main practices on Twitch revolve around real-time programming and chatting about infosec and other topics.

Twitch – Speedrun ^{https://www.twitch.tv/bsg_marathon}
The speedrun community on Twitch aims to entertain and socialise around the shared interest in gaming and speedrunning. Speedrunning is the activity of trying to complete a game as quickly as possible by 'running it.' The main practices on Twitch channels are tournaments or speedrunners practicing.

TikTok – History ^{https://www.tiktok.com/@sapphiclemon/video/68493418560027856133?q=slavic%20 caesar%20history&t=1679925003838}
The history community on TikTok aims to entertain and educate TikTok users with historical knowledge. They hope to encourage their peers to become interested in history. Their main practices are sharing, discussing, and delivering humourful commentaries about history via short videos on TikTok.

TikTok – Sustainability ^{https://www.tiktok.com/@ecotokcollective}
The sustainability community on TikTok aims to educate and activate users around a shared interest in sustainability issues. Their main practices range from creating and interacting with videos in which members call upon viewers to sign petitions to informative videos on recycling and marine ecosystems.

Online pedagogies as critiques of formal pedagogies
We organized our findings in four thematic areas. Each theme embodies a particular way online pedagogies can be seen as criticising or resisting the limitations that formal pedagogies put upon youths learning that was recurringly present in how youth reflected upon their online learning experiences in response to their evaluations of formal schooling. Within each theme we address how such critiques of youth on their formal education can be interpreted as alienating experiences with formal schooling, informing alternative online pedagogies. In our presentation of the results below, we will focus on one or two interviews per theme that were particularly illustrative of how the theme resonated across interviews.

Agency online versus school-controlled learning
Participants from the e-com, infosec and history community note that participation in their communities provides them with agency to organise their own learning. In contrast, they criticised how formal pedagogies 'controlled' their learning. Albony Cal (14, India), from the infosec

community, for example, makes the following comparison between school and online:

> you have to follow a certain syllabus when you're learning in school you know. Online you can just learn what you want to learn, and what you're interested in. (…) Like if I don't want to learn history, I will not learn it. But in school you have to do it, because, you know, there are exams.

Albony experiences syllabi as controlling their learning, and exams as the purpose for their learning. In contrast, Albony feels in control over their learning online, understanding different aims, which comes to the fore when Albony explains how they discovered their interest in infosec:

> I wanted to hack my neighbours Wi-Fi to get free internet (…). So, I started searching about hacking, but then I found about (…) ethical hacking and, you know, you can build a career in it.

Albony's wish for free Wi-Fi evolves into something else, which becomes apparent in response to a question about ethical hacking: 'I want to, you know, secure the internet, help other people. I'm really into it to learn new things'. Whereas school stands for Albony for control and unclear purposes, in the context of infosec Albony feels a sense of control and is aware of a clear aim for their learning. Albony continues to talk about how they use streamers and YouTube to learn and develop their own approach to doing infosec. f3b4def45dd6295 (21, infosec, the Netherlands) also describes that in their experience creating their own learning goals and path using online resources, worked better for them than a laid-out path and goals for learning by school. Participants' descriptions of their experiences with online learning in comparison to their experiences with formal education, like Albony's and f3b4def45dd6295's, illustrate how for them formal education's control alienates them from their own purpose of what and how they (want to) learn. In line with this, their descriptions of their online learning experiences can be understood in terms of a pedagogic discourse that legitimates an experience of being in control over their learning.

Participants from the e-commerce, speedrun, infosec and history community shared, in line with Albony and f3b4def45dd6295, similar experiences of agency online whereas they evaluated school as controlling, and as lacking a—for them—clear purpose. This results in a sense of alienation in which they experience formal pedagogies' control over their learning as disconnected from their own learning goals. Our data hence shows that youth, perhaps informed by this perceived lack of control within schools, describe experiences of communities online as providing them with the resources to regain such control over their learning. However, simultaneously, participants from the e-commerce and history communities still implicitly held the assumption that control within school is also important, for instance, to teach their peers (and themselves) to see the value and need for learning about their interest in history. Participants from the history community were for instance

frustrated with how little their peers knew of history and expressed how they wish their formal education would do a better job at teaching them.

'Real world' accreditation online versus 'out of context' testing in school

As we will further explain below, participants from the infosec and e-commerce community question the value of accreditation systems of formal education for their fields, because they perceive these as having, in part, lost their relevance for demonstrating the skills and knowledge needed to succeed in their field.

Participants from the infosec community argued that formal education accreditation systems cannot keep up with the developments in their field. Our interview with d0nut (25, U.S., infosec) is particularly illustrative of this theme. D0nut is a community leader within the infosec community on Twitch, works in the infosec sector and did not finish their university degree. D0nut argues their field moves towards less formal degrees: 'I think uh tech in general is moving towards less degrees weirdly enough. (…) Infosec especially is like very anti degree in a weird way.' Participants explain this move towards less degrees as rooted in how formal exams, according to them, do not test the actual skill needed to perform in infosec, but rather knowledge about the skill. D0nut:

> infosec seems to prioritise practical things. So, […] would you want to test a developer by them doing a multiple-choice question or would you want them to sit down and write code and do something? […] that's why (…) in the community people do like or like OSCP [Offensive Security Certified Professional] that have [ ] practical examination.

The OSCP certification that d0nut mentions here, requires their 'students' to demonstrate their infosec abilities by doing practical penetration tests of security systems. Such a certification, created by the wider infosec community, is thus valued because it asks of 'students' to demonstrate the skill they would need to perform in this field. In addition, when we ask d0nut to compare online learning with schooling, they express another critique on school testing, which can be extended to school learning more generally, and forms both a contrast with OSCP testing and the infosec working context:

> if I'm doing my job, I can always like google something or look something up on my phone, like I'm not restricted by that. But if I'm in class and the teacher is lecturing uhm, […] and something they said didn't make a lot of sense and I want to look it up. Like I get it, like kids get distracted with phones […]. I really can't fault them too much for that but […] it feels very silly.

Being cut off from the resources one needs in examinations is what seems to cause d0nut to feel a sense of disconnect between their practices as an expert in the field, and how formal education prepares for and tests their skills for such a job.

The critique within the e-commerce and infosec community that the accreditation practices of school, and in line with this the school context more generally is divorced from the 'real world' practices, must be understood also against 'new' opportunities for careers online that formal education cannot keep up with, due to which formal degrees seemingly become less relevant. Rosa (17, the Netherlands, e-commerce) (T):

> 'Teachers at our school are all older and old-fashioned […] this [e-commerce] is the new way of working or to earn money.'

Though this critique is most common within the infosec and e-commerce communities, participants from other communities also echo these doubts about the value of formal degrees. Vani (22, U.S.), who has a sustainable business, for instance shares that they aim for a degree 'to keep my family at bay', but would not pursue a formal degree if they would be 'racking up debt' as they believe their sustainable business, for which they argue to rely on online resources for learning, can provide her with a successful future life, not initially their degree in Marine Science. Nonetheless, participants do acknowledge that this might be specific to their field, arguing that the role of formal accreditation might still be important for fields other than their own.

The social relevance of online communities versus the 'ignorance' of school

As we will illustrate below, participants from the sustainability and LGBTQI+ vlogging communities describe their learning experiences online as relevant for the societal issues they care about. In part they attribute this relevance to how online spaces enable access to a wider audience for these issues, which creates the (perceived) possibility to advocate for positive change in these communities, for instance, towards less discrimination, or a more sustainable world. However, according to them school pays insufficient attention to the societal issues they care about.

Our interview with Jamie de Vries (19, the Netherlands) is indicative for this tension between formal and online pedagogies; they explain, when we asked them why they watch LGBTQI+ vlogging content, that it helps them to 'educate themselves' about 'what matters' (T):

> She doesn't only concern herself with what is funny, but also with what matters and I think it's kind of nice to then also educate myself in those areas because I don't know a lot about it.

We asked them for an example to clarify how they then 'educate themselves' (T):

> Well, that I for instance used to use a lot of [slurs] (.) […] Well, that's something I no longer do, because that's not entirely, that I also kind of owe [my standard], because I also don't like it when people call me faggot.

Such a description of placing value on a learning experience revolving around becoming more inclusive and finding a particular position in a societal issue that matters to them, are common among participants from

this community. In contrast, Jamie, and others, described school as divorced from the societal issues that they think matter: 'I think actually that I've learnt more societal stuff from YouTube […] and that school is really a bit detached from this.' All participants from this community perceive school as not paying sufficient attention to educating youth on the diversity of gender identities and sexualities. When discussing social media though, they describe to value how these spaces enable them to obtain and spread knowledge about gender identities and sexualities in their own and others' lives. In result, they experience a disconnect between what is to them important to learn and act on, and school's perceived disregard for these topics, while they do think school should teach this. As such, they simultaneously also implicitly accept and acknowledge the value of the normative role education could play in youth's lives, yet they feel this normative role of education currently mismatches with what they think matters.

The sustainability community experiences a similar disconnect. Emma (2) (22, U.S.):
> 'as a student, you're sort of in a weird place where you are learning about all these things, you're not really doing anything.'

Emma (2) explains that they started to create content on TikTok, because TikTok offers them the tools to reach people with their activism beyond their educational level and direct environment, whereas they feel school insufficiently teaches them about sustainability and more particularly does not enable them to act on the knowledge that they receive. Such sentiments are echoed by other participants. Participants descriptions of learning within the TikTok sustainability and the YouTube vlogging LGBTQI+ community hence describe a tension between an online pedagogy offering them ways to reach out and act on societal issues they care about, and a formal pedagogy that in comparison feels, to them, disconnected from these societal issues, resulting in a sense of alienation.

Online spaces for experimentation versus school's pressure to perform

Participants from the Twitch communities, infosec and speedrunning, describe formal pedagogies as creating a pressure to perform by leaving no room for mistakes and experimentation. Simultaneously, they describe their communities as offering a safe space for experimentation by perceiving performance as a collaborative practice. For instance, Ezra (15, U.S.) speedruns, even though at first, they thought: 'there's no way someone like me could do that.' However, their attitude changed quickly by engaging with the speedrun community: 'Oh, this doesn't look that complicated or hard. And I was like, I could probably try this myself.' The sense of safety and possibility for Ezra to start to experiment with something they first thought intimidating stands in stark contrast with their evaluation of formal education:

within school, it's a lot of like, there's this idea that if you're not good at these core subjects, that means that you're just not smart in general. And I feel like that kind of impacts and hurts a lot of students like myself included, because I was always really bad at math. And my teachers would, actually it was just because I was like dumb, when there were other aspects that I was doing really well. And it was just like that one class I wasn't good at.

They describe a performative culture at school where they feel unsafe to experiment as they feel like one individual mistake defines one as 'dumb'. This description stands in stark contrast with Ezra's descriptions of their experiences in the speedrun community, which they describe as providing a safe space for experimentation and making mistakes by placing the pressure to perform on the general community:

in these online communities, it's very well known that certain runners are just better at some categories. And certain runners are just like not good at categories. And like, you know, people don't make a big deal out of it or be like you're not as good of a runner because you choose this way instead of the other way

Though engaging in learning in an environment that might at first seem highly performative, as it is about being the fastest, it is at school where Ezra experiences a performance culture in which the grading system fixes you within a category without offering a place to experiment to proof otherwise. In contrast, online Ezra is allowed to explore where their strengths lie, to build towards performing in an area that fits them.

For others from the speedrunning community this also translates to skills beyond speedrunning. Carl . T (17, Luxembourg) and Mark (19, Netherlands), for instance, reflect on how Twitch's anonymity in chat allows for experimentation for building social skills, not being afraid of failure. DOnut describes how in their stream they help people to regain that sense of safety for experimentation apart from the anonymity that is afforded by the platform. DOnut starts by explaining how these people express their negative attitude towards learning: 'they hate learning because they had bad experiences.' DOnut tries to again get these people interested in learning in the following manner:

if something doesn't make sense, like you can always have the opportunity to re-explain it and people are behind a pseudonym so, it's not like you know, you get picked on for not understanding the second or third explanation you know, you can always ask. You can google something really quick.

These communities recognise and value learning by offering a space for experimentation while also making learning a communal effort in which mistakes and exploration are part of finding one's personal way to learn. Members do not consistently have to perform well to come along in these communities, they are allowed to slip up, experiment and see how it goes. As long as they are interested and wish to contribute to the community,

they can explore how they can best perform and be a part of that community.

Youth's reimaginations of education
In what follows below, we will raise the question whether, in terms of Deleuze and Guattari, youth's experiences with (creating) online pedagogies can be seen as destabilising the formal pedagogies that are imposed on their learning and can be interpreted as 'reimaginations of education'. Whereas earlier approaches have seen 'alternative' pedagogies as a product of digital technologies (Ito et al., 2019; Lankshear & Knobel, 2007), we argue that such pedagogies must be understood as a product of the challenges online pedagogies pose for formal pedagogies.

How can we understand online pedagogies as destabilisations of formal pedagogies as well as reimaginations of education? In our introduction, we defined reimagination as an experimental, productive, social, positive force: a desire that is able to increase the power of individual bodies through connections with others to create collective, social narratives. Considering the formal pedagogies, what mostly comes to the fore in our results is how youth critique school as restricting such desires (for learning) to an extent that it feels like it is missing, best summarised by Kellan Ringus' (21, U.S., history) statement: 'The desire is missing in education.' But what if we look at these critiques through the lens of 'reimagination'? Can we then also see collective, social narratives arise that reimagine education? Our data section consisted of four themes. The first theme can be interpreted as re-imagining pedagogy by giving learners more control over their learning trajectories; a theme that has been developed extensively in relation with Web 2.0 technology (Ito et al., 2019; Jenkins, 2006; Lankshear & Knobel, 2007; Säljö, 2010). In the second theme, the destabilisation of acknowledgement for formal accreditation could be interpreted as reimagining pedagogy by creating alternative ideas on how to value, assess and accredit learning, in the light of a wider discussion on what skills to value considering 'new' opportunities for careers that youth encounter in online spaces. In the third theme, youth's expressions indicate how online pedagogies in which youth feel empowered to act on societal issues they find important in part due to the ability to reach a wider audience via social media, work destabilising on formal pedagogies that are perceived as alienating due to their perceived inability to provide learners with ways to act on their concerns and make a change. We could understand this posed challenge to formal pedagogies as a reimagined pedagogy of embedding learning in engagement with societal issues youth care about. The fourth theme could be interpreted as reimagining pedagogy by elevating the, alienating, pressure to perform, by making learning a communal effort and mistakes and exploration part of finding one's personal way to learn. Even if part of these themes have been addressed in the literature on the innovative

forces of new technologies for learning (see e.g. Gee, 2017; Ito et al., 2019; Lankshear & Knobel, 2007) our study is unique in the sense that it is based on youth's own evaluations of what is valuable and meaningful for their learning. Moreover, whereas this earlier research discussed these themes as if produced by 'new' technologies on their own, we here demonstrate that reimagined pedagogies within such 'new' socio-material contexts are constituted by an ongoing process of engagement with how formal pedagogies impose boundaries on youth's learning, and thus do not come into being irrespective of such 'traditional', institutional cadres on learning. Likewise, youth's critiques rooted in alienation exist only in entanglement with online, 'alternative' pedagogies to produce these reimagined pedagogies.

Conclusion
In this concluding section, we will first investigate how we can draw from the latter reimaginations to inspire educational practices. Lastly, we will consider how these online pedagogies youth defend, can be read as collective forces for new *global* (re-)imaginaries of school, considering that these participants live across the globe.

Rather than arguing that school is no longer needed in the digital age, which is also not what youth themselves argue in our results, we hope our results can function as a heuristic for reimagining how learning can be valued, recognised and structured to potentially confront youth's experiences of alienation in formal education. Taking inspiration from the speedrunners, we can for instance attempt to confront formal education's performative culture by creating opportunities for experimentation, with support and without judgement while addressing youth's need to experience learning as a collective performance. Such a reimagination is in line with critical studies on alienation, that argue formal education's measurements makes learners who experience alienation, worry about individual performances in comparison to others, rather than on what people could learn if they collaborated (Lave & McDermott, 2002). Paying more attention to collective performance, might be a manner to move beyond such alienated learning experiences. Another example, taking inspiration from the LGBTQI+ vloggers and sustainability TikTokkers, could be aiming to implement (more) 'community-engaged learning', in which school learning is designed with the aim to critically co-produce knowledge with communities that are in practice working on the topic that one learns about (see e.g. Cachelin & Nicolosi, 2022). Students' learning would then be structured in the context of responding to urgent societal issues. This result is in line with earlier work that attempts to confront alienation by arguing for fostering critical consciousness among students by involving them in discussions about societal issues (McInerney, 2009). The idea is that by making such discussion an integral part of education, students can feel more empowered and knowledgeable about the issues they face in everyday life

and see value in potential contributions education can make to face such issues (McInerney, 2009). As such, these reimagined pedagogies might help scientists, educators and policy makers to critically re-evaluate mainstream pedagogies and confront some of the underlying themes that result in experiencing alienation within schools. Further research is needed to gain insight into whether these reimagined pedagogies could indeed help to confront alienated learning in schools.

Our results also show that critiques of school within online spaces and experiences of alienation, transgress national boundaries. We saw similarities across youth's reflections on alienated learning in formal education, even though participants are part of distinct educational systems in different parts of the world. Ezra from the U.S. and Bradley from the Netherlands both experience a pressure to perform within formal education. Aliza from South-Africa and Ronald from the Netherlands both experience that school does not sufficiently allow them to learn about the topics that matter to their everyday lives. These critiques partly reflect a longer history of critiques on formal educational discourses. However, it could also be the result of contemporary educational policies with a global reach (Beech, 2009; McInerney, 2009). Alternatively, their online communities through which they engage with youth from across the globe might also facilitate a common social imaginary of what 'school' is and responses to such a social imaginary. Due to social media's 'spreadability' and 'reach' (boyd, 2010), such narratives can be shared and spread more easily. Such social imaginaries seem to be indicative of a narrative of schooling, a social imaginary, which is collective and global, which speaks to how Appadurai describes how in times of globalisation imagination is a collective act, resulting in people creating and sharing social imaginaries that extend beyond local boundaries. Similarly, it has been argued that such online spaces play a part in creating global narratives on what it means to be young (Kontopodis et al., 2017). Such opportunities to compare national educational systems among youth online, could further fuel alienation from (national) school learning as well as be collective forces for new global imaginaries of school. Therefore, it becomes even more pressing to take youth's critiques of pedagogy seriously online and use them as resources to critically reimagine education within international educational policy and research.

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GENERAL DISCUSSION

Youth's desire to learn: →

General discussion

> Knowledge emerges only through invention and re-invention, through the restless, impatient, continuing, hopeful inquiry human beings pursue in the world, with the world, and with each other (Freire, 1970, p. 72)

In line with Freire's statement about re-invention, I have explored in this dissertation how youth understand and reinvent what 'good' learning is for them. I have shown how their alternative pedagogies inquire and challenge ideas on what is valuable learning. The question central for this research was 'how do youth structure, value and recognise learning in online communities on social media platforms?' This question stemmed from an interest in exploring: first, how youth (alternatively) structure, value and recognise learning online that might speak back to societal assumptions and ideas on how youth are expected to learn within their formal education; and, secondly, how such pedagogies might be informed by the current sociotechnical context of platforms, their infrastructure, affordances, and design. As detailed in the introduction, we carried out this research to further develop arguments of literature that argued youth would encounter 'new' and different forms of learning online, offering them an alternative space to shape their own learning outside of the boundaries of formal education (Gee, 2004; Lankshear & Knobel, 2007; Säljö, 2010; Sefton-Green & Erstad, 2018). Simultaneously, we saw a need to include an analysis of the potential impact platforms and platformisation could have on these alternative pedagogies based on concerns raised in literature about social media platforms. This literature argued that platforms might shape youth's online learning to meet their commercial, surveillant and normative aims, rather than necessarily serving youth's learning interests (van Dijck et al., 2018; Sefton-Green, 2021; Sefton-Green & Pangrazio, 2022). All in all, we set out to understand how youth structure, value and recognise learning in online learning communities, hypothesising that their online pedagogies might respond to and be informed by both platform pedagogies, and formal pedagogies derived from school.

Each chapter in this dissertation spoke to a different question that worked towards answering the general research question – to understand youth's online (alternative) pedagogies and how they might be shaped and reflect on the power of social media platforms and formal education. In the first chapter we tried to answer the question 'what pedagogies are introduced by social media platforms?' in order to understand how the platforms' aim to 'rear' youth to behave in particular manners through their affordances and 'missionary documents' – that is, their community guidelines, mission pages, monetisation policies, and terms of service. We demonstrated that platforms do indeed aim to play a role in nurturing and disciplining certain behaviours in their users, which could potentially inform how users actually use their platform for

learning. In the second and third chapters we looked at 'new' models and conceptualisations of pedagogies that youth shape online in this platform environment to understand the interaction between youth's online, 'alternative' pedagogies and the platforms. In the second chapter, we saw how youth appropriated and resisted platform pedagogies for their own educational aims to shape what we called 'platformised learning communities'. In the third chapter, we demonstrated how understandings of who can(not) be a 'teacher' in online learning communities on these platforms are informed by the hierarchisation, recommendation, moderation, and reward structures found in platforms. However, 'teachers' do also need to engage in practices that appropriate and resist these structures for the educational goals of their community. Lastly, in our final chapter we looked at how these alternative pedagogies are not only engaging the pedagogies of platforms and online learning communities, but also speak back to and appropriate formal pedagogies to fundamentally 'reimagine' what it means to learn. We saw how multiple pedagogies exist in entanglement with one another in the online learning communities of youth and how these informed youth's online pedagogies. These pedagogies can be understood as structuring, valuing, and recognising learning by providing control, alternative qualifications, the tools to enact societal change, and room for experimentation and failure, all by appropriating and resisting both formal and platform pedagogies.

In what follows below, I will in more detail answer the main research question by bringing the results of the chapters of this thesis together in three discussion points that each address a different perspective related to how youth structure and recognise learning in online communities on social media platforms. The first point I raise, mostly tuning into the results of chapters one, two and three, is how the pedagogical perspective I developed in this dissertation, is able to explain what draws youth to social media platforms and is valuable for recognising how platforms play an active part in guiding youth's online learning. Secondly, based on the study on 'new' models and conceptualisations for online learning communities (chapters two and three), I argue that youth take agency within the boundaries of the platform and actively take control in structuring, valuing and recognising their learning, apart from sometimes being pushed into a more passive role of the user. I make this argument partly in reaction to concerns raised in platform studies about youth's agency for learning online. The third point I raise in this discussion chapter, is that despite the literature on how platforms do not respect communal values and draw users for their commercial motives (van Dijck et al., 2018), youth still succeed in forming learning communities. After this discussion, I will briefly touch upon some of the lessons I have learnt from doing an online ethnography. In conclusion, I will summarise the results of this dissertation and highlight some implications of this research for formal education. As befitting a dissertation about learning, in some ways this

discussion thus represents, or, rather, 'performs', my own learning trajectory.

Platforms' active, pedagogical role in youth's learning
As I will discuss in more detail below, throughout the chapters, we have demonstrated that how youth structure, value and recognise learning in communities on social media platforms is partly informed by how platforms can be understood to play not just a performative role in youth's learning, but also a pedagogical one. In the introduction, we introduced the idea of digital platforms not just reflecting, or representing, social structures - including educational institutions – but actively performing, and co-creating, 'new' social structures (van Dijck et al., 2018; Hayles, 2012). Therefore we stressed the importance of researching the platform 'itself', in line with arguments by media scholars, to understand how digital media *performs* education (Bucher & Helmond, 2018; van Dijck et al., 2018). What we have shown throughout this dissertation though is that it is not just important to recognise this performative power of platforms, but also their pedagogical power. As explained in more detail in chapter one, we understood pedagogical power beyond the boundaries of explicitly educational or childrearing environments (Bernstein, 2000; de Haan, 2018; Depaepe & Smeyers, 2008; Sefton-Green, 2012). Drawing from theories by Bernstein (2000), de Haan (2018), Negri (2000), Sefton-Green (2012), and de Winter (2011), we conceptualised pedagogy as a (specific) form of power enacted by both disciplining (*potestas*) and nurturing (*potentia*). These frame behaviours to rear users to fulfil aims predefined by those in power. We argued that schools and platforms can be understood as pedagogic environments because they control and encourage youth to behave in ways that adhere to their norms and promise them opportunities above and beyond their own environment. As I will further explain below, in the chapters of this dissertation we have subsequently demonstrated empirically that platforms exercise pedagogical power.

In chapter one we demonstrated how YouTube, Twitch and TikTok can all be understood to have pedagogies embedded in how their affordances and 'missionary documents' aim to 'rear' their users. Afterwards in chapters two and three, we showed how platform pedagogies are appropriated and negotiated when communities structure, value and recognise their learning through our discussion of changing perspectives on learning communities and teachers. Throughout chapters one to three we can thus see that YouTube, Twitch and TikTok exercise pedagogical power over how youth structure, value and recognise learning in online communities by disciplining and nurturing certain behaviours with the promise of opportunities, such as platform rewards or an audience for their activism. For example, in chapter one we described how YouTube is characterised by a pedagogy that nurtures freedom of expression, while also encouraging content creators to keep their content 'advertiser-

friendly' if they want to be eligible for platform rewards. Rather than exerting 'direct' or demanding forms of power, such pedagogical strategies use nurturing and encouragement based on so called 'positive' values as rewards or as the opportunity to have access to a wider range of free expressions or an audience for their own free expression. Although, in chapter one we describe how the platform *aims* to nurture certain behaviours through its pedagogical power, we can see how these platform pedagogies are put to practice in the pedagogies of the communities that we describe in chapter two to four. They structure their learning interactions in ways that speak to these platform aims. For instance, in chapter one we describe how TikTok nurtures joyful creativity on their platform. Connecting these results to chapter two, we can see how such a pedagogy of encouraging joyful creativity could inform how the platformised learning community of history TikTokkers hybridises its serious historical content with more joyful affinities on TikTok, such as dancing. Another example is how Twitch encourages community building and growth, and how we can find throughout chapter two and three evidence that communities consistently emphasise learning collaboratively and communally in the pedagogies of the Twitch communities. As such, platform pedagogies can also be found in the pedagogies of the learning communities of youth. In sum, this dissertation shows that platforms actively exercise pedagogical power over how youth structure, value and recognise learning online through nurturing and disciplining their behaviours according to the platforms' normative aims, even though learning communities also take agency to resist such pedagogies (see point two below).

Apart from bringing a complex, empirical understanding of the pedagogies that youth adopt, negotiate, and challenge online, I want to argue this pedagogical perspective on social media platforms is an important conceptual addition to both platform studies and educational research. In platform studies there is mostly attention for the *potestas* of platforms, or in other words: how platforms control, manipulate and govern learning in ways that might impact how (freely) youth can structure, value and recognise learning on platforms (see e.g. van Dijck et al., 2018; Sefton-Green & Pangrazio, 2022; Zuboff, 2019). The pedagogical perspective, however, as an analytical tool might help platform studies to also analyse what draws youth to these platforms in terms of *potentia*: the promised positive freedoms and subtle, familiar forms of pedagogical power. For educational research, the pedagogical perspective is not new, such a perspective has been used previously to analyse digital platforms that are used in formal education (see e.g. Perrotta et al., 2021). In this dissertation, we however demonstrate that expanding that perspective to the social and material dynamics of social media platforms can be fruitful to understand how youth learn outside such formal contexts. Moreover, as explained in chapter one, expanding this perspective to social media platforms might provide insight into what

pedagogies youth expect to be embedded in platforms that are developed for formal education. In sum, this dissertation shows that using a pedagogical perspective enables a complex analysis of the constant conversations between not only platform and community pedagogies, but even, as we show in chapter four, the formal pedagogies that make up youth's online experiences with learning.

Towards active learners with agency
I have argued for an understanding of platforms as active, pedagogical tools above, but this does not mean I understand users to be passive entities entirely controlled by platform pedagogies. Based on the previous chapters, I instead argue here that youth, as learners, have agency in structuring, valuing, and recognising learning based on their own desires on these platforms. I have shown they create alternative pedagogies that draw from their own educational aims as well as these platform pedagogies. In chapter one, we argued that platforms employ a form of power (*potentia*) that aims to nurture in their users a form of positive power: the power to do things. This *potentia* does not reduce users to a passive role, but also encourages action. Platforms do thus not only aim to push users into passive roles. We used this pedagogical lens in chapter two to examine how youth also actively push back against the disciplinary powers of platforms by appropriating platforms' algorithmic workings. So even when platforms do use forms of power that push users into passive roles, youth still find ways to actively appropriate those powers for their own goals. They used tactics perceived to aid in achieving the aims of their community and thus create new or alternative pedagogies beyond simply adopting these platform pedagogies. Though youth are not fully aware of how the algorithm works, they experience and can appropriate their idea of how the algorithm works in a kind of 'algorithmic imagination' and through a form of 'algorithmic curatorship' create their own alternative pedagogies. In chapter three, we see how youth recognise 'teachers' by using platforms' own modes of recognition. These include valuing whether a 'teacher' can engage a large audience and creating their own forms of recognition for 'teachers' such as valuing those who share their personal learning trajectories and distribute their hierarchical position as a creator to chatters and commentors. In the final chapter, we see how youth create their own online alternative pedagogies based on their own desires for learning, considering not platforms, but formal education as limiting their desire for learning. On these social media platforms, youth thus create alternative pedagogies that allow them to be agents in their own learning despite and because of platform pedagogies.

Such a perspective on youth possessing agency in their learning online, stands in stark contrast with concerns raised in platform studies about youth's agency for learning online (Koopman, 2019; Sefton-Green & Pangrazio, 2022). That existing literature raises these concerns is

understandable, as users are limited to the boundaries that platforms impose on their usage. Critical perspectives are needed on how users are used by platforms for benefits that are not shaped with education in mind, but rather with normative, surveillant and commercial aims (Alegre, 2021; van Dijck et al., 2018). Platforms for instance often refuse transparency and access to their algorithmic procedures, profiting from users who have no clear idea how their content is used for adverts or how exactly rewards are attributed to users (van Dijck et al., 2018). We have seen this in chapter two and three where youth expressed frustration with unclear recommendations and moderation. Our examples included cases where creators on TikTok shared that they find it unclear what makes a video 'do well' on TikTok, which interferes with the educational aims of their learning communities. In this dissertation, I therefore acknowledge that there are power imbalances that position youth as (passive) users vis a vis the power of platforms that govern their visibility and reward systems. However, youth also actively resist and appropriate such mechanisms for the educational aims of their community as also demonstrated in chapters two and three.

What I would like to add in terms of concerns about rendering youth passive vis a vis the power of digital platforms, is to suggest that we can also be concerned about the way in which youth are sometimes reduced to such a passive role in research. The most striking example is how Zuboff draws a parallel between social media users and drug addiction, by emphasising the use of the term 'users' by social media platforms (Zuboff, 2019) which seeps into public discourse through a documentary like the 'Social Dilemma' (Orlowski, 2020). Such a move towards users as passive is also surprising within platform studies as it falls within the field of media studies. Within media studies there has been a long ongoing, nuanced discussion about the activity of viewers, and users of a medium (Sobchack, 1992). To argue that within media studies users are generally considered as 'passive' would be reductive of this long line of work within media studies. Unsurprisingly, there are also more nuanced perspectives within platform studies that acknowledge a lack of attention to how users resist and appropriate the ways in which platforms govern user behaviours (van Dijck et al., 2018). The results of this dissertation thus hopefully aid public debate by not reducing youth in platform studies to mere 'passive users'. Instead, it shows how youth's engagement with platforms is more complicated and navigates between passive and active roles, by appro-priating and resisting platform pedagogies for their learning communities. In other words, when looking at the results from this dissertation about how youth structure, recognise and value learning on platforms, youth can also be understood as active learners with the agency to find ways to push against the pedagogical and paternalistic power of platforms (see also Petre et al., 2019). It thus becomes important for future research to acknowledge the perceived control and agency that youth experience over platforms online

to create alternative pedagogies, and the ways in which platforms might still inform such pedagogies.

Valuing community and collaboration for learning
Throughout this dissertation, I have shown based on youth's own reflections that they structure their learning through collaboration and community. They also value learning with and through collaboration and community. The communities in which the value put on community and collaboration was most evident, were those on Twitch. In chapter one, we saw how Twitch as a platform actively aims to nurture community through rewards, such as badges rewarding active participation in chat. In chapter two and three, we can see how the speedrun and infosec communities structure learning collaboratively and actively work towards including both streamers and people in the chat in (learning) interactions. In chapter four, we showed how members of Twitch communities value learning via community and collaboration, rather than learning in a manner that is individually measured and judged. In the Twitch communities the value placed on collaboration was most evidently found, but also participants from communities on YouTube and TikTok would almost all express how they valued finding a community online with peers who shared their interests. In the TikTok history community participants expressed for instance that they valued being part of such an international history community to help them learn about biases in their own local curricula. Furthermore, the drive among creators to create communities in the shape of 'houses', collaborative accounts, such as the history and EcoTok houses discussed in this dissertation, shows that even though TikTok might not initiate such communities, youth still use the platform to create them. Another example is how in the YouTube e-commerce community participants expressed that they valued how learning with a community about different careers than those in formal education and seeing others who had done so before them, gave them confidence in aspiring to a different career path. In sum, the empirical work in this thesis finds ample illustrations of learning communities existing on these platforms, although we also acknowledge that the sociocultural conceptualisation of learning that underpins this dissertation enables such analytical insights.

I believe that continuing this line of research on online learning communities (Angouri, 2015; Gee, 2005) while emphasising that youth create and value online communities on digital platforms is important. Most earlier work that has studied online communities does not consider the dynamics platforms might introduce into how such communities structure, recognise and value learning. Where platform studies does focus on these dynamics, it tends to discuss 'community' mostly in the context of arguing that platforms use this term to attract users while actually focusing on the benefits they can offer to individuals and not at communal or public values (van Dijck et al., 2018). We have also seen

examples of this in our work. In chapter three for instance, we show that platform rewards accessible for individual creators, such as commercial opportunities, can put pressure on communal educational aims. However, as we have explained above, what we also see across our research is that collaborative, learning communities do exist on these platforms, either in resistance to platform workings and/or by being supported by platform dynamics. Our results thus add to this 'older' literature on online communities that these communities engage in practices particular to platforms. To work on how platforms challenge public values (van Dijck et al., 2018; Zuboff, 2019) our research adds that communities with communal values exist on these platforms and are able to push back, appropriate and negotiate platform dynamics to make space for structuring, valuing and recognising learning as part of a community, in ways that traditional public institutions, such as school do not. Though based on this dissertation I cannot give any conclusions to how proliferate these types of communities are online, we have demonstrated that they succeed within the boundaries that these platforms instil. In other words, sometimes platforms might use the word 'community' and truly support communities for learning, and other times they might not. What is needed is, however, to remain aware of the nuances of how learning communities can still claim space for themselves on these platforms and are to some extent able to 'freely' structure, value and recognise learning on social media platforms.

Digital ethnography

The lessons learnt from engaging in the complexity of navigating six communities during a digital ethnography can never be done full justice in this dissertation as it would require another one to discuss all the ethics, practices, and theoretical underpinnings. Here, I choose to share two lessons that I learnt from conducting this ethnography in the hopes that it might help others who aspire to do similar research.

By conducting this research, I learnt that approaching youth via their online communities, rather than via formal education, is valuable for three reasons. Firstly, starting from the online setting gave me the opportunity to focus more so on the communities themselves without having the normative, offline practices of a formal educational setting interfere with discussions about 'learning'. What I could not take away was, however, my own background and reasons for approaching them which is firmly embedded in a formal discourse. I attempted to diminish the focus on that role by trying to use language that would indicate some familiarity with their community or internet culture, as to not present myself as purely someone who is an 'academic'. In the speedrun community my call for participation was for instance accompanied by examples of games I like to play myself. Though I experienced this to be helpful, interference of my own situatedness in the world, as not only an academic, but also my broader identity, will inadvertently have played a part in this research

(Haraway, 1988). Secondly, approaching youth via their online communities allowed me to focus on interviewing multiple people with different roles and ages from the same online community, whereas that might have proved difficult when not starting from those communities but having to search within a school for youth participating in the same online community. Thirdly, approaching communities online allowed the global nature of such communities to come to the fore. This would have been difficult if sticking to offline local communities as a starting point. Speaking to participants from communities that live across the globe provided interesting, unexpected results such as the implications we discuss in chapter four for conversations between formal and online pedagogies constituting critiques and reimaginations of education that extend beyond national boundaries.

Though based on the experiences within this study I would recommend to therefore ask youth to participate in research by going directly to the online communities, I learnt that this approach is also challenging. One of the challenges is gaining the trust of potential participants, and, if they were under sixteen years old, the trust of their parents, which proved difficult. I imagine that if a fourteen-year-old receives a 'dm' on Instagram from a foreign researcher or from a university they are not familiar with, they might simply delete the message fearing 'stranger danger' or spam. What I experienced as helpful was using internet culture discourse – language and social cues that are commonly used online – and interests listed on participants' profiles to make the messages to approach them more personal to avoid being seen as spam.

The second lesson I would like to share relates to ethics in the context of a digital ethnography. As explained in chapters two to three, we carefully assessed the extent to which Twitch, YouTube and TikTok could be experienced as public spaces by participants to assess whether we could do observations without announcing such observations to commentors. During the research, creators on Twitch, although initially surprised and questioning the need for their approval, gave back to us that they appreciated how carefully we explained and included them as part in the ethical decision-making in observations of 'their' community. We were able to make this distinction in assessing the experience of being open and public during community interactions because of extensive exploration and observation on the platforms before documenting or recording any data. By doing so we risked in this explorative phase encountering valuable information that we could not use for the research yet starting with the research without a proper understanding of the experienced publicity would have risked participants' privacy being violated. As such, we chose the protection of participants over data. Based on these experiences, we would recommend researchers to, if possible, always contact community leaders, even if platforms are public. Furthermore, we would recommend implementing sufficient time for

observation without documenting data so to not risk collecting data about a community that might at first seem public yet is not experienced as such without the consent of members.

Conclusion

In sum, how do youth structure, value and recognise learning online? By doing an ethnography of six learning communities on social media platforms and looking at these communities through the lens of pedagogy, this dissertation reveals the online learning cultures of youth that frequently remain 'hidden' behind a screen. What is original about this research is how our ethnographic approach has allowed the complexity of how youth structure, value and recognise learning online to come to the fore. What I demonstrate throughout this dissertation is that these online pedagogies are constituted in an ongoing discussion about what can be understood as formal, Web 2.0 and platform pedagogies, and speak to what it means to learn in this day and age. The pedagogies discussed in this dissertation can be understood from Basil Bernstein's perspective on pedagogy (2000), as pedagogies that are consistently negotiated, challenged and reimagined in response to the quickly developing socio-material context of platforms. As such, this dissertation can be placed in a longer tradition of work that traces how technologies play a role in determining educational theory, or how learning is structured, valued and recognised in response to socio-material changes (Säljö, 2010; Williamson, 2017).

The first addition that this dissertation makes to existing work is a rich description of the alternative pedagogies that youth create online in the socio-material context of platforms through the ethnographic work we have done. Youth are online neither fully controlled, as sometimes seems to be implied in platform literature (Zuboff, 2019), nor fully in control, but succeed in claiming space for their own learning communities by pursuing their interests online. They experience to learn and teach about their interests, by appropriating these platforms' affordances for their own educational goals. Communities draw from YouTube's platform pedagogy by using its infrastructure for (though in some cases also limited) free expression to teach and advocate for LGBTQI+ inclusion or alternative e-com careers. Twitch communities draw from Twitch' pedagogy of community growth to teach and share knowledge about speedrunning and info-sec. TikTok communities draw from TikTok's creative short videos to inspire, teach, and learn about sustainability and history. On these platforms they have to structure and value their learning in ways that balances attention for their interests and what 'works' for the platform. This results in structuring learning by for instance hybridising their community's interest or engaging in 'algorithmic curation' to fight for access to and existence of their communities. 'Teachers' similarly use and push back against platform pedagogies for their education. They do so by for instance appropriating

their hierarchical position to subsequently redistribute it to the community or by persistently valuing information provision above these platforms' opportunities for rewards and out-of-context moderation. In sum, youth's online pedagogies demonstrate both platforms' power over their learning as well as how youth actively and creatively appropriate that power for their own goals.

The second insight this dissertation offers to existing work is an expanded understanding of how these online pedagogies can be read in a longer tradition of how discourses about how 'new' technologies and the 'new learning' they inspire, speak back to formal education. As we elaborated in the chapters of this dissertation, literature on Web 2.0 technologies described how 'new' technologies enabled people to connect with others in unprecedented manners by transgressing local and cultural boundaries (Rainie & Wellman, 2012). Simultaneously, they provided access to participation in information creation and sharing beyond traditional gatekeeping institutions, democratising access to producing content and knowledge for an audience (Jenkins, 2006). In response to these developments, literature on learning and the Web 2.0 argued that learning would be structured and valued in more participatory and networked manners, distributing expertise and knowledge in the network, allowing everyone to participate without traditional gatekeeping practices by formal institutions (Akkerman & Leijen, 2010; Haythornthwaite, 2018; Jenkins, 2006; Lankshear & Knobel, 2007; Rainie & Wellman, 2012; Ünlüsoy et al., 2013). In chapters two to four we demonstrated how communities indeed structure, value and recognise learning that falls outside of formal educational boundaries in ways that have been discussed in this earlier literature. These online spaces are for instance experienced to enable access to 'teachers' that teach different(ly about) topics than teachers in formal education. In addition, in this dissertation we studied the interplay between formal and online pedagogies with specific attention for recurring and contemporary issues in formal education such as performance pressure and the lack of space for experimentation. We furthermore add to this longer discussion on the ways in which technologies reflect on formal discourses of schooling. First, online learning communities do still engage in pedagogies that speak back to those earlier ideas about the Web 2.0: still allowing for alternative pedagogies to arise in learning communities that speak back to the control formal education has over what is considered valuable. Although I do also acknowledge how social media platforms introduce powers that take away some of the more democratic, networked and participatory aspects of Web 2.0. Secondly, this dissertation shows that these alternative pedagogies do not simply speak back to formal pedagogies, but are actively co-constituted by formal, online and platform pedagogies. As such, this research can also be read in a longer tradition of arguing for a need to see youth as 'whole persons' who learn across contexts (Akkerman & Van Eijck, 2013). We

add that the ways in which youth learn are constantly co-determined by various pedagogies existing in cooperation, confrontation and co-creation online and at school, with which youth engage daily.

Based on our conclusion, we want to propose three '#challenges' for formal education:
1. Making space for youth's desires for learning within schools
2. Being cautious in the development and implementation of digital platforms in education based on assumptions about 'what works' for youth on social media platforms
3. Using youth's online learning experiences as an inspiration to reimagine education.

The first challenge is to make space for youth's learning desires. I partly agree with work done within the connected learning paradigm that there is a need for bridging youth's online learning and their learning within schools, in which there is acknowledgement for how their online experiences could contribute to academic, civic and economic opportunities (Ito et al., 2019). I want to add that there also needs to be space for those online learning activities that might not directly be perceived as 'useful' (in the sense of offering academic, civic, and economic skills), but also listen to youth's activities that seem to be a waste of time better spent on homework, and understand how they learn from those activities, such as speedrunning. I do not wish to imply that every aspect of youth's online activities needs to be part of formal curricula, and this is also not the desire of participants. However, listening to youth's online voice on learning, might help to understand a new generation's own desires for learning as situated in their perspectives on what they might need for their own future. Moreover, to fuel the desire for learning of youth in school, it might be worthwhile to critically look at the powers at work in formal education in terms of *potestas* (power to control/discipline) and *potentia* (power of opportunity, to do). As this dissertation shows, youth are capable of structuring, valuing and recognising their own learning within preestablished boundaries by platforms. This raises the question: How can we stimulate youth to take up such an active role over their learning in schools through *potentia* and nurturing positive freedom?

Our second challenge relates to the current development and implementation of platforms for formal education. Much debate has focused on concerns about the attention to personalised learning and use of black boxed data analytics to make choices and judgements about learning trajectories promising efficiency to the educational sector rooted in behaviourist understandings (van Dijck et al., 2018; Perrotta et al., 2021; Tsai et al., 2020). Though it is understandable that such promises offered by digital platforms are attractive in a time of teacher shortages, based on this dissertation I would advocate for a more critical

pedagogical perspective on the development and implementation of digital platforms in formal education. Scholars from platform studies emphasise how platform environments might seem neutral but carry normative ideas about what is a valuable education with them often rooted in such behaviourism (Kerssens & van Dijck, 2021; Perrotta et al., 2021; Williamson, 2018). These arguments are echoed by my findings on how social media platforms carry normative, pedagogical power. However, in such behaviourist approaches to developing platforms for learning, learning is perceived as a managed, monitored, controlled, personalised process (van Dijck et al., 2018; Williamson, 2017). However, as this dissertation demonstrates, particularly chapter four, youth work around this governance of platforms by for instance appropriating platform reward systems for their own communal educational purposes. As such, the insights of this dissertation rooted in youth's voices and desires for learning might aid in developing these platforms in ways that move beyond behaviouristic understandings of learning.

Our third challenge for formal education is to experiment with interpreting youth's online learning experiences as reimaginations of education and using them as 'objects of thought' for formal education. In this dissertation we have shown that youth's experiences online can be used to reimagine education and offer youth opportunities to take control over their learning, pursue 'new', alternative careers, enact societal change, and make space for experimentation. In sum, this research offers objects for thought for formal education in ways that speak to youth's desires for learning by connecting learning to what they feel matters for their (future) lives. However, this should not be interpreted as asking educators to blindly adapt and mimic the online opportunities for learning. Instead, I would advocate for a nuanced approach that takes both legitimate concerns and opportunities for technology into account, rather than falling into a moral panic or blind optimism. Such a nuanced approach is valuable as it allows for acknowledgement of the multiple pedagogies that youth experience in their daily lives and how these could be recognised, and sometimes used, by formal education to acknowledge youth as whole persons that exist and learn beyond school. 'New' technologies will inadvertently keep challenging formal education, and so when it comes to questions surrounding the embedding, use or banning these technologies in education, we ask educators and policy makers to listen to youth's own desires. This dissertation suggests a need to be open to youth's re-imaginative, restless, impatient and hopeful inquiries about their education online rather than repressing desires and miss what the evidence is telling us about how they wish to shape their own futures.

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HET VERLANGEN VAN JONGEREN OM TE LEREN:

De pedagogieën van geplatformiseerde leergemeenschappen

Het doel van dit proefschrift is te begrijpen hoe jongeren hun leren structureren, waarderen en erkennen in leergemeenschappen op sociale media platformen. Dit doel komt voort uit mijn interesse voor hoe jongeren hun leren online mogelijk anders vormgeven dan in het formeel onderwijs. Voortbouwend op eerder onderzoek, dat heeft aangetoond dat er in het formeel onderwijs te weinig aandacht is voor het online leren van jongeren buiten school, richt dit proefschrift zich op een beter begrip van dit online leren. Door te onderzoeken hoe jongeren online leren, hoop ik inspirerende alternatieve vormen van leren te ontdekken. Misschien kunnen die het formeel onderwijs inspireren om kritisch te kijken naar de onderliggende aannames van hun eigen onderwijspraktijk. Door een antwoord te vinden op de vraag hoe jongeren online hun leren structureren, waarderen en erkennen, hoop ik in dit proefschrift bij te dragen aan een beter begrip van het leren van de toekomst.

Dit interdisciplinaire proefschrift borduurt voornamelijk voort op twee wetenschappelijke onderzoeksrichtingen. Allereerst vertrekt dit proefschrift vanuit bestaand onderzoek dat heeft omschreven hoe technologie een rol speelt in ideeën over welk leren ertoe doet. Dit type onderzoek heeft eerder vooral verkend hoe het zogenoemde Web 2.0 door zijn participatieve en genetwerkte technologie 'nieuwe' alternatieve mogelijkheden creëerde voor jongeren om te leren. Wetenschappers omschreven binnen deze onderzoeksrichting vaak hoe die 'nieuwe' vormen van leren het formeel onderwijs in een ander daglicht zouden plaatsen. Online krijgen jongeren bijvoorbeeld de mogelijkheid om hun netwerk uit te breiden op een manier die hun lokale omgeving overstijgt. Dit geeft hen toegang tot bronnen en experts die eerder onbereikbaar waren. Door bredere toegang tot kennis en expertise dacht men dat jongeren hun docenten zouden kunnen gaan uitdagen, ofwel de noodzaak zouden bevragen van het uit het hoofd leren van kennis. Bovendien kunnen ze makkelijker informatie maken en online delen met een potentieel groter publiek, en zo participeren in processen die eerder niet voor hen toegankelijk waren. Denk hier bijvoorbeeld aan YouTubers die op jonge leeftijd een groot publiek bereiken. Zo kan iemand online opeens

zelf expert of leraar worden. De literatuur binnen deze onderzoeksrichting bespreekt dus hoe de mogelijkheden van online omgevingen vastomlijnde ideeën over hoe je zou moeten leren uitdagen.

De tweede wetenschappelijke onderzoeksrichting waar dit proefschrift op voortbouwt, is platform studies. In deze studies houden wetenschappers zich bezig met kritische reflecties en analyses van de impact van digitale platformen op de maatschappij, waaronder ook het onderwijs. Zo analyseren ze de aannames die educatieve platformen hebben over welk leren ertoe doet. Ze kijken bijvoorbeeld naar Google Classroom en hoe het gebruik daarvan het leren van jongeren vormt alsmede de onderwijspraktijk van docenten. De wetenschappers binnen platform studies zijn daarnaast zeer kritisch op de toenemende invloed van bedrijven als Google, Amazon en Facebook op het onderwijs en hoe zij een stempel drukken op het leren van jongeren.

Ik gebruik de twee genoemde wetenschappelijke onderzoeksrichtingen om te kijken naar het online leren van jongeren. Dit stelt mij in staat om op genuanceerde wijze te omschrijven hoe jongeren hun leren mogelijk anders vormgeven online dan op school door ook aandacht te hebben voor hoe die online omgeving gevormd wordt door platforminfrastructuren.

Dit proefschrift bestaat uit vier hoofdstukken die ik hieronder zal toelichten. In deze toelichting zal ik soms in de 'wij-vorm' spreken omdat deze hoofdstukken meerdere auteurs hebben. Elk hoofdstuk staat in dienst van het beantwoorden van de hoofdvraag: hoe structureren, waarderen en erkennen jongeren hun leren in leergemeenschappen op sociale mediaplatformen? Daarnaast beantwoorden de vier hoofdstukken tezamen de volgende deelvragen:

1. Welke pedagogieën worden door digitale platformen geïntroduceerd?
2. Gezien de dynamieken die sociale media platformen introduceren, welke 'nieuwe' modellen en concepten zijn er wellicht nodig om online leergemeenschappen te begrijpen?
3. Hoe kunnen online pedagogieën, geïnformeerd door de kritiek van jongeren op formele pedagogieën, begrepen worden als 'nieuwe' verbeeldingen van onderwijs?

Om deze vragen te beantwoorden, maak ik in al deze hoofdstukken gebruik van de data die ik heb verzameld met een digitale etnografie van zes gemeenschappen op YouTube, Twitch en TikTok; telkens twee per platform. Deze gemeenschappen heb ik onderzocht met behulp van interviews en observaties. Ik nam 37 interviews af, ongeveer zes per gemeenschap. Daarnaast heb ik de platformen en de gemeenschapsinteracties geobserveerd. Van de platformen observeerde en analyseerde ik het design, de socio-juridische documenten en de merkpagina's. Van de gemeenschapsinteracties observeerde en

analyseerde ik de video's, *streams*, *comments* en *chats*. In totaal heb ik 22 video's en de bijbehorende *comments* op YouTube geobserveerd, evenals zeventig video's en bijbehorende *comments* op TikTok. Ik observeerde ongeveer 48 uur aan *livestreams*, de *videostream* én de *chat*, op Twitch.

Het eerste hoofdstuk behandelt deelvraag één door vanuit een pedagogisch perspectief naar sociale mediaplatformen te kijken. Dit hoofdstuk focust zich op de rol van platformen in het online leren van jongeren. Hierin keken we hoe deze platformen, als leeromgeving, invloed proberen uit te oefenen op het gedrag van jongeren. Hiermee konden we in latere hoofdstukken deze 'platformpedagogieën' herkennen in de uitspraken van jongeren. Om deze 'platformpedagogieën' van YouTube, Twitch en TikTok te beschrijven, hebben we een discoursanalyse uitgevoerd van hun *interfaces*, ofwel de *watch pages* van YouTube en Twitch, en de *For You* page van TikTok. Daarnaast hebben we hun 'missie documenten', ofwel hun servicevoorwaarden, gemeenschapsrichtlijnen, monetisatie richtlijnen en missie- en merkpagina's, geanalyseerd.

Uit onze resultaten blijkt dat platformen jongeren proberen aan te trekken door hen een podium te beloven voor hun vrije expressie (YouTube), vreugdevolle creativiteit (TikTok) en samenwerking (Twitch). Tegelijkertijd hebben we ontdekt dat deze platformen deze pedagogische doelen ook gebruiken om het leren van jongeren online te sturen, zodat het overeenkomt met hun commerciële en surveillerende doelen. Dit creëert spanningen tussen de verschillende, soms tegenstrijdige, doelen van deze platformen en hoe zij daarmee het gedrag van jongeren proberen te sturen. Door ons pedagogisch perspectief op deze platformsturing kunnen we omschrijven hoe YouTube vrijheid van meningsuiting bevordert en tegelijkertijd contentmakers beloont die zich houden aan advertentievriendelijke richtlijnen die die vrijheid kunnen beperken. Het laat zien hoe Twitch de groei van gemeenschappen meer beloont dan betekenisvolle interacties en hoe TikTok's vreugdevolle creativiteitsdoelstelling ook sturend kan werken met betrekking tot serieuzere onderwerpen.

Dit eerste hoofdstuk toont dus aan dat platformen (als leeromgeving) gebruikers enerzijds aantrekken door gebruik te maken van een pedagogisch discourse gericht op bijvoorbeeld de mogelijkheid voor vrijheid van expressie en het ontwikkelen van creativiteit. En anderzijds laat het zien dat platformen ook het gedrag van jongeren proberen te vormen en disciplineren op een manier die overeenkomt met hun eigen commerciële en surveillerende doelstellingen. Met andere woorden, door vanuit een pedagogisch perspectief te kijken naar de sociaal-materiële omgeving van YouTube, Twitch en TikTok wordt een uniek beeld geschetst van de rol die platformen proberen te spelen bij het structureren, waarderen en erkennen van het leren van jongeren.

In het tweede hoofdstuk richten we ons op deelvraag twee en onderzoeken we hoe de pedagogieën van online leergemeenschappen bestaande conceptualisaties van leergemeenschappen op de proef stellen. We zijn met name geïnteresseerd in hoe conceptualisaties van leergemeenschappen veranderen in de context van digitale platformen. Daarbij houden we rekening met de zorgen die er zijn over hoe platformen het leren van jongeren kunnen manipuleren, bijvoorbeeld door algoritmisch content voor te sorteren.

Als vertrekpunt voor het heroverwegen van eerdere conceptualisaties van leergemeenschappen gebruiken we James Paul Gee's concept van een 'affinity space'. We nemen specifiek deze conceptualisatie van een leergemeenschap omdat Gee deze heeft ontwikkeld om te kunnen beschrijven hoe oudere ideeën over leergemeenschappen niet meer goed toepasbaar zouden zijn voor het bestuderen van online leergemeenschappen. Gee introduceerde het begrip 'affinity space' omdat hij vindt dat de eerdere definities van leergemeenschappen te veel focusten op de fysieke locatie van de gemeenschap of over het bepalen van wanneer iemand lid was van de gemeenschap. Hij vindt dat de aan de gemeenschap gekoppelde locatie en lidmaatschap veel meer fluïde waren geworden in de onlinegemeenschappen van het Web 2.0. Door het Web 2.0 verschoof de focus van locatie en lidmaatschap naar de verbindingen en het netwerk. Gee trok vervolgens de toepasbaarheid van eerdere conceptualisaties van leergemeenschappen in twijfel. Hij introduceerde het begrip 'affinity space' om, in plaats van de fysieke locatie en lidmaatschap, de relaties tussen mensen rondom een bepaalde interesse centraal te stellen. Aangezien we denken dat digitale sociale media platformen opnieuw vragen oproepen over de toepasbaarheid van de conceptualisering van een leergemeenschap, stellen we in dit hoofdstuk de vraag: 'hoe kunnen we leergemeenschappen begrijpen in de huidige socio-technische context?' Om deze vraag te beantwoorden hebben we de interacties van de gemeenschappen op de platformen geobserveerd en geanalyseerd door te kijken naar hoe zij hun leren structureren, waarderen en erkennen.

Onze resultaten laten zien dat de huidige online platformcontext de toepasbaarheid van Gee's 'affinity space' op drie manieren op de proef stelt. Ten eerste brengen platformen opnieuw een discussie op gang over de grenzen van 'affinity spaces', omdat platformen volgens jongeren controle uitoefenen over de toegang tot hun leergemeenschappen. Ten tweede dagen platformen de aard van sociale relaties en interacties van de gemeenschappen opnieuw uit; om de focus op hun gedeelde interesse te houden, moet de gemeenschap rekening houden met de verwachtingen van de platformcultuur over wat voor soort content aantrekkelijk is op het platform. Ten derde introduceert de focus van platformen op de contentmakers een meer vaste hiërarchie in de sociale structuren van leergemeenschappen door met name de aandacht op 'creators' te richten.

Om deze platformdynamieken in online leergemeenschappen te beschrijven, introduceren we de term 'platformised affinity space'. We concluderen dat om online leergemeenschappen te begrijpen, het belangrijk is om de rol van platformdynamieken te erkennen. Daarnaast is het belangrijk om te erkennen hoe jongeren deze dynamieken toe-eigenen voor hun eigen leerdoelen en zich soms ook verzetten tegen deze platformdynamieken.

Het derde hoofdstuk behandelt net als hoofdstuk twee deelvraag twee met specifiek aandacht voor de vraag hoe modellen en concepten over leraren veranderen door de dynamieken die sociale media platformen introduceren. Eerder hebben wetenschappers al gesteld dat de introductie van 'nieuwe' participatieve technologieën ons begrip van leraren zou veranderen (Jenkins, 2006; Lankshear & Knobel, 2007; Säljö, 2010). Dit hoofdstuk onderzoekt hoe de opkomst van platformen opnieuw vragen oproept over de veranderende positie en praktijk van de leraar.

We hanteren hier een brede conceptualisatie van het begrip 'leraar', in lijn met de Haan (1999), waarbij we leraren zien als leden van een gemeenschap met een asymmetrische relatie tot anderen op basis van differentiële expertise, geworteld in ervaring, leeftijd of status. We kozen voor deze brede conceptualisatie omdat in de informele, online gemeenschappen, 'leraren' niet altijd zo genoemd worden.

We hebben vervolgens geanalyseerd aan welke karakteristieken en eigenschappen een 'leraar' zou moeten voldoen volgens jongeren in deze informele onlinegemeenschappen. Dit deden we zowel via interviews als observaties. Uit onze resultaten blijkt hoe leergemeenschappen zowel gebruikmaken van de platformkenmerken en -cultuur van YouTube, Twitch en TikTok over wie (niet) 'leraar' kan zijn en wat leraren typeert, als deze uitdagen en manipuleren. Onze resultaten laten zien dat jongeren 'leraren' erkennen op manieren die voortkomen uit de platformen, ideeën over veranderende docentposities uit Web 2.0 literatuur en de leerdoelen van hun eigen gemeenschappen. Ze waarderen bijvoorbeeld 'leraren' die een groot publiek kunnen bereiken, in lijn met de platformlogica die ervanuit gaat dat hoe groter het bereik is van bepaalde inhoud hoe beter het is. Daarnaast waarderen ze ook 'leraren' die hun persoonlijke leertrajecten delen en hun hiërarchische positie als contentmaker delen met *chatters* en *commenters*, wat resoneert met eerdere ideeën over 'leraren' uit Web 2.0 literatuur. Wij stellen dat dergelijke kenmerken van wat een 'leraar' zou moeten zijn in online leergemeenschappen een inspiratiebron kunnen zijn om de leraar in het formeel onderwijs in een ander licht te zien. De concepten en praktijken die jongeren in online leergemeenschappen ontwikkelen, kunnen bijdragen aan een breder begrip van leraren en de manieren waarop zij hun expertise kunnen delen.

In het vierde hoofdstuk behandelen we deelvraag drie door de eigen leerervaringen van jongeren in kaart te brengen en te onderzoeken hoe

deze leerervaringen in onlinegemeenschappen de formele pedagogiek uitdagen. We doen dit gedeeltelijk als reactie op kritieken op het formeel onderwijs, waarin gesteld wordt dat het formeel onderwijs jongeren vervreemdt van hun eigen leerproces terwijl jongeren online omgevingen juist vrijwillig opzoeken om te leren. Ons doel in dit hoofdstuk is om te omschrijven hoe jongeren reflecteren op hun leren in online leergemeenschappen, en hoe deze reflecties zich verhouden tot hun observaties van het formeel onderwijs. We willen daarbij kijken of deze verschillende vormen van leren leiden tot wrijving en of de 'alternatieven' die jongeren noemen voor het formeel onderwijs wellicht geïnterpreteerd kunnen worden als 'nieuwe' ideeën over wat waardevol leren is.

We analyseerden de interviews om alternatieve pedagogieën die in deze gesprekken naar voren kwamen, te identificeren. Daarnaast analyseerden we de kritieken die jongeren uitten op het formeel onderwijs. We maakten gebruik van kritische discoursanalyse om te begrijpen of, en hoe, online pedagogieën formele pedagogieën uitdagen en of, en hoe, dit kan leiden tot het ontstaan van 'nieuwe' alternatieve pedagogieën.

Uit onze resultaten blijkt dat jongeren het formeel onderwijs als controlerend ervaren. Ze ervaren prestatiedruk en voelen een mismatch tussen hun eigen ambities en wat de school van hen verwacht. Jongeren waarderen daarentegen de controle die zij online zelf hebben om hun eigen leertrajecten vorm te geven, bijvoorbeeld door hun eigen 'leraar' te kiezen. Daarnaast waarderen ze de ruimte om te experimenteren en fouten te maken in hun leerproces. Daarbij zien ze leren als een collectief proces waarbij iedereen op eigen kracht een steentje bijdraagt aan de voortgang van de gehele gemeenschap. Bovendien waarderen ze de mogelijkheid om online hun eigen maatschappelijke en professionele ambities na te streven, iets dat zij zeggen te missen in het formeel onderwijs. Hierbij maken jongeren gebruik van het brede publiek dat ze online kunnen bereiken, om een verschil te kunnen maken op onderwerpen die er voor hen toe doen, zoals klimaatverandering. Ook creëren jongeren online alternatieve vormen van kwalificatie, die zich bijvoorbeeld richten op het testen van de actuele praktijk van beroepen waarvan de kennis zo snel verandert dat jongeren ervaren dat het formeel onderwijs achterblijft, zoals ethisch hacker. Deze mogelijkheden worden ook gefaciliteerd door de platformstructuren waarop het online leren plaatsvindt. Platformen geven jongeren bijvoorbeeld een publiek voor hun pogingen om maatschappelijke verandering teweeg te brengen of toegang tot actuele specialistische kennis om een carrière te volgen waar de school ze niet op kan voorbereiden.

Ter afsluiting van deze hoofdstukken, licht ik in de algemene discussie van dit proefschrift toe hoe ik, middels de etnografie van de zes gemeenschappen, heb kunnen beschrijven hoe jongeren in onlinegemeenschappen hun leren vormgeven in interactie met sociale

mediaplatformen en het formeel onderwijs. Daarmee plaats ik dit proefschrift in een langere traditie van onderwijstheorie waarbij er gekeken wordt naar hoe leren gestructureerd, gewaardeerd en erkend wordt in interactie met 'nieuwe' technologieën en sociaalmaatschappelijke veranderingen. Ik zal hier twee inzichten samenvatten die dit onderzoek toevoegt aan deze traditie.

Allereerst voegt dit onderzoek toe hoe meerdere pedagogieën het leren van jongeren online vormgeven. Zo spelen platformen een rol in het vormgeven van hun leren door specifieke dynamieken te introduceren op basis van hun commerciële, surveillerende en normatieve doelen. Dit betekent echter niet dat platformpedagogieën het leren van jongeren volledig bepalen. Dit onderzoek laat ook zien dat jongeren zich platforminfrastructuren toe-eigenen om hun eigen leerdoelen te behalen en hun eigen online pedagogieën nastreven in hun leergemeenschappen. Daarnaast heeft het onderzoek laten zien dat 'Web 2.0 pedagogieën' ook nog steeds een rol in deze online, platform pedagogieën spelen en dat deze zich ook vormen in interactie met formele pedagogieën. Jongeren bewegen zich dus tussen verschillende pedagogieën en bijbehorende leeromgevingen, die onderhevig zijn aan de dynamiek tussen informeel en formeel leren, online en offline leren. Dit proefschrift roept dan ook op tot het benaderen van het leerproces van jongeren vanuit een holistisch perspectief, waarin leren niet alleen wordt geassocieerd met school. Hiervoor is het van belang om aandacht te hebben voor hoe meerdere actoren bepalen hoe jongeren hun leren structureren, waarderen en erkennen in de huidige socio-technische context.

Het tweede inzicht dat dit proefschrift toevoegt is dat jongeren in online omgevingen actieve deelnemers zijn in het vormgeven van hun eigen leerproces. Dit is van belang omdat in discussies over jongeren en sociale media zij vaak als passief worden afgeschilderd, zowel door sommige wetenschappers die platformen bestuderen als door populaire media. Deze studie laat zien dat jongeren in staat zijn, en ruimtes vinden om, manieren van leren vorm te geven die hun aanspreken. Dit resultaat is dan ook een belangrijk argument om jongeren de ruimte te geven hun eigen leerverlangens te verkennen en vorm te geven, wellicht niet slechts op deze commerciële platformen. Dit is dan ook niet een oproep om school af te schaffen, dat is ook niet wat jongeren zelf aangeven te willen. Het is echter wel een oproep om op school ruimte te maken voor de leerverlangens van jongeren.

Op basis van hoe jongeren hun wensen met betrekking tot online leren uitdrukken, stel ik dat er drie uitdagingen zijn voor het formeel onderwijs. Allereerst is het zaak op passende wijze ruimte te maken voor de leerwensen van jongeren binnen scholen, hoewel we ook erkennen dat niet al deze wensen op school vervult hoeven te worden. Deze uitdaging komt voort uit hoe dit proefschrift voortbouwt op de aanbevelingen van

wetenschappelijk onderzoek dat vindt dat er meer verbinding moet zijn tussen het leren dat jongeren zowel online als op school doen. Ik voeg daaraantoe dat het niet enkel zou moeten draaien om de verbinding van het online leren van stof die al erkend wordt op school, zoals geschiedenis. Er zou namelijk ook ruimte moeten zijn om te kijken naar verbinding met de interesses van jongeren online die wellicht niet direct als 'waardevol' worden gezien voor het formeel onderwijs, zoals *speedrunnen*. Online leren zou niet pas erkend moeten worden binnen school wanneer het aansluit bij bestaande ideeën over welk leren ertoe doet.

Uitdaging nummer twee vraagt het formeel onderwijs voorzichtig te zijn met de ontwikkeling en implementatie van digitale platformen in het onderwijs op basis van aannames over 'wat werkt' voor jongeren op sociale mediaplatformen. Hoewel jongeren vrijwillig op sociale media hun tijd (en soms geld) besteden om te leren, zien zij die platformen ook niet als ideale leeromgevingen. Het simpelweg overnemen van de infrastructuren van deze sociale media platformen zonder aandacht voor hoe jongeren ook kritisch zijn op deze omgevingen slaat dus zo de online-ervaring van jongeren plat. De uitdaging wordt om te begrijpen hoe jongeren deze platformen gebruiken voor hun leren en wat daarbij wel en niet voor hen werkt, en om dat complexe begrip te gebruiken voor de ontwikkeling van platformen voor het onderwijs. Uitdaging nummer drie vraagt van het onderwijs om de online, niet-hiërarchische, creatieve en in de gemeenschap verankerde vormen van leren van jongeren te gebruiken als inspiratie voor nieuwe verbeeldingen van onderwijs. Los van het feit dat formeel onderwijs wellicht meer verbinding kan leggen met de online leefwereld van jongeren, kan het misschien ook pogen naar deze pedagogieën te kijken als inspiratie om de eigen pedagogie anders vorm te geven.

English summary

Online, youth have opportunities to shape their learning differently than within formal education. Vermeire is interested in these alternative forms of learning that youth create on social media platforms, as these might question fixated ideas about what constitutes 'good' learning. To research how youth (alternatively) shape their learning online, Vermeire has done an ethnography of six learning communities on YouTube, Twitch and TikTok, including in-depth interviews with community members. In her research, Vermeire acquired an understanding of how youth shape their own learning online and, in doing so, how they resist and appropriate the pedagogical opportunities and limitations that formal education, social media platforms, and online learning communities offer them. Youth for instance describe how they experience YouTube and TikTok as platforms to learn to be active on societal issues that matter to them in a manner that lacks within their formal education. Youth furthermore describe how they discover alternative careers online, for which online learning communities are perceived as more relevant in preparing them than formal education. Additionally, youth feel like they can control social media's algorithms to an extent that they can 'curate' which 'lessons' and 'teachers' they see online, even though those same algorithms are also experienced to thwart their community's educational aims. Vermeire hopes that her in-depth study of how youth shape their learning online offers inspiration to educators and policy makers to move beyond dystopian perspectives on youth and social media and towards reimaginations of educational practices.

Research collaboration: Young people's learning in digital worlds
This dissertation is conducted in the context of the research project *Young people's learning in digital worlds: the alienation and reimagining of education*. This project is a collaboration between Deakin University (Australia) and Utrecht University (UU). M.J. de Haan (UU) and J. Sefton-Green (Deakin) have initiated this project. I was a PhD student on this project at UU. At Deakin University Chris Zomer was the PhD student. Eve Mayes also participated in this research project. The aim of this project was to explore how learning is shaped through digital media, both in and beyond the classroom. Examples of questions we explored together are: 'How do young people learn in digital communities?', 'How does the structure of digital platforms shape learning processes?' and 'How does the use of video games in the classroom changes perceptions of both learning and playing?' Apart from exchanging research ideas and aiding one another in each other's research Chris and I have co-edited a blog:

https://re-imaginingeducation.sites.uu.nl/

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This thesis is written form the perspective that learning is inherently a sociocultural perspective and happens in the relations we have to one another and the world. My own work is no exception to this perspective and could not have been what lays before you, or even be there, without the enduring support and aid from my environment.

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Biography

Zowi Vermeire (Nijmegen, 1991) is an interdisciplinary researcher who seeks to challenge the status quo by researching how the reciprocal relation between media, society and education shapes societal norms and ideas. This interest stems from both her personal as well as academic interests and professional history.

Zowi started her academic career at Amsterdam University College in 2010 by doing an interdisciplinary liberal arts and sciences bachelor in the humanities. In this bachelor she focused on studying film, as well as political and social sciences. She continued her interest in film by pursing a master's degree in film and philosophy at King's College London in 2013. After getting her master's degree in 2014, Zowi broadened her academic interests by doing the research master Media and Performance Studies at Utrecht University, focusing on game studies and philosophy. After six years in academia, in 2016, Zowi wanted to step outside this 'ivory tower' and started to work as a digital media concept developer and researcher at BNNVARA. She for instance conducted viewer research, aided in developing the online transition of Spuiten en Slikken, and the new brand identity for BNNVARA 'Wij zijn voor'. However, the desire to learn more about academic research was never fully gone. In 2019 she left BNNVARA to pursue the PhD of which this book is the result. As a researcher mostly schooled in the humanities with a personal interest in education rooted in a family of educators, this interdisciplinary PhD project was full of learning opportunities: from critical pedagogical theory to conducting a digital ethnography. Noteworthy to mention is, in light of a pressing performance culture also for students in universities, that this was not the first PhD position Zowi applied to. Throughout the years, she applied to around four positions before finding this project, and right now, she is happy she was not accepted for the other projects, as this PhD fitted her interests the best.

Currently, Zowi has started as a postdoc researcher at the liberal arts and sciences department of Utrecht University. She is doing practice-based research on how the university is creating, implementing and maintaining interdisciplinary education. In doing so, she specifically focuses on the policy-perspective on interdisciplinary education. Though one can never know what interests and ambitions the future brings, Zowi hopes to stay within academia to research and teach, but mostly to keep on learning.

Appendices

Chapter 1. Websites

We 'collected' the following webpages of each platform (links to webpages of user agreements from Internet Archive web plugin have been added if these were possible to make, images and videos might not appear on archived material made through this plugin):

- Twitch
  - o Watch page: page on which users watch a stream
  - o Mission page: page introducing the 'new' Twitch brand https://web.archive.org/web/20201007164416/https://brand.twitch.tv/
  - o Formal guidelines: pages included here https://web.archive.org/web/20201021080536/https://www.twitch.tv/p/en-gb/legal/community-guidelines/

- YouTube
  - o Watch page: The page on which users watch a video
  - o Brand page: 'About' page of YouTube https://web.archive.org/web/20201118134743/https://www.youtube.com/intl/en-GB/about/
  - o Formal guidelines:
    - ▫ community guidelines https://web.archive.org/web/20201117142208/https://www.youtube.com/intl/en_us/howyoutubeworks/policies/community-guidelines/#community-guidelines + https://web.archive.org/web/20201117110359/https://support.google.com/youtube/answer/9288567?hl=en
    - ▫ terms of service

- TikTok
  - o Brand page: 'Mission' page of TikTok https://web.archive.org/web/20201027121407if_/https://www.tiktok.com/about?lang=en
  - o Watch page: For You page, the interface on which users watch videos
  - o Formal guidelines:
    - ▫ community guidelines https://web.archive.org/web/20201027150214if_/https://www.tiktok.com/community-guidelines?lang=en
    - ▫ creator fund https://web.archive.org/web/20201117100956if_/https://newsroom.tiktok.com/en-us/introducing-the-200-million-tiktok-creator-fund & https://web.archive.org/web/20201117100746if_/https://newsroom.tiktok.com/en-gb/the-tiktok-creator-fund-is-now-live-across-europe-and-here-is-how-to-apply)
    - ▫ terms of service https://web.archive.org/web/20201027150852if_/https://www.tiktok.com/legal/terms-of-use?lang=en#terms-eea

Chapter 2 & 4. Observation schedule
Questions of observational tool
- Concept: Interest-based community of practice
  - o Aim: to capture the learning community as a community of practice centred on an interest
  - o Moment to capture: Fixating identity statements/performances for the community as a whole (territorialisation)
  - ▫ Fixating activities/performances about community's positions/ positionality
    - 'We are not experts at hacking'
  - ▫ Disciplining activities/performances about fixating identity
    - Comment deleted from chat by moderator

- Concept: Learning
  - o Aim: To capture moments that could indicate learning is taking place
  - o Moment to capture: Moments that surpass the here and now (change)
    - ▫ Change in position/positionality community
      - As a community we became Twitch partners then because...
    - ▫ Change in position/positionality individual member
      - Well-liked comment says that the creator has helped them understand the trans experience better

- Concept: platform affordances
  - o Aim: To capture the affordances of the platform for this community
  - o Moment to capture: Explicit expressions by the community on how they use the platform
    - ▫ Specific features
      - "The emote is based on the Mario burn trick that our streamer demonstrates here."
    - ▫ Platform in general
      - Streamers consistently use the raid function of Twitch at the end of a stream as a means to joke or support other streamers.

Chapter 3 & 4. Topic list
How to read this document
italics needs to be replaced by the specific question that concerns the particular interview, so *community* becomes in the case of interviewing someone active in the sustainability TikTok community, the sustainable TikTok community. These questions are merely guiding questions to cover all the topics of interest related to this research, but are not strictly followed, as the hope is that the interview will be more like a friendly conversation than a strict interview policy.

Before the interview
Approach (definition of community)
Each potential participant will be approached with a personal message via whatever platform they are reachable. This message will be used to invite them to an interview and check their answers to the following questions (if those cannot be answered by looking at their profile):
- Are you active within community on platform?
- I understand online communities as groups of people who are commenting, talking and sometimes, but not necessarily, also creating videos/streams about a shared interest. Taking such a description of a community into account, do you consider yourself part of the community on platform?
- How old are you?
- In which country (or continent if you prefer) do you currently live?

Introduction
- Thank you
- No good or wrong answers
- Audio confirmation, only mention chosen pseudonym
- Brief explanation research
- Allowed to stop/not answer
- Any questions?

Interview
Use of platform – frequency and access history
1. Start of use *platform*
2. Frequency and length of use *platform*
3. Why did you start to use *platform*?

Description of the social network structure of the community
4. Could you describe what is different about *the community* in comparison to other communities on YT/TW/TT? What is specific about this community?
5. Who are the main creators/leaders, according to you, of this community?
6. Are you in touch with others inside *the community*? If so, how? Why?
7. Have you ever collaborated with someone from *the community*? If so, why and how?

Personal motives and impact
8. How did you discover/became part of *the community*?
9. How did your interest in *shared interest of community* develop?
10. What aim do you have for making videos within the *community/ platform*? What aim do you have with watching videos within the *community/platform*, what aim do you think their favourite creators have?
11. Do you (or others) differ in opinion related to your shared interest within this *community*? How did you encounter this difference?

12. What characterizes someone who belongs to this community/
    platform? How do you know this? And how do you relate to this/how
    does it impact you as an individual?

Role models
13. Is there something you have done within *community* that you're proud
    of?/have been acknowledged by the platform?
14. Is there anyone you look up to within *community*? (q)
15. Is there a certain moment or event that marks someone as a person
    to look up to?

The effect of the platform
16. Have you read the community guidelines of YouTube/Twitch/TikTok?
    Why did you (not) read it? If you didn't, how do you know what is
    accepted behaviour on the platform?
17. Which features of YT/TW/TT are the ones you use most often?
    Why those?
18. How do you determine on YT/TW/TT what a video/stream is that you
    would want to watch? Is there anything platform specific?
19. What role does YT/TW/TT play in *community*?

Learning
20. Could you describe whether you have changed in your knowledge
    and/or skills due to your engagement with *community* since you've
    become involved in this *community*? Can you give examples?
21. How has *platform* helped (or not helped) you to learn? How is this
    different from other places that have helped you to learn?
22. [prompt with the main interest of this research: to see how young
    people develop themselves by being active in these kinds of
    communities online and also how this might impact when you
    experience learning elsewhere] How do you look at this? Do you think
    this applies to you? How?
23. How do you think school will work in five years from now on,
    specifically related to the impact of digital media?

External perceptions
24. What do your parents think of your involvement in *community*?
25. What do your friends/peers think of your involvement in *community*?

Conclusion
26. Age
27. Country
28. Educational level
29. How would your classmates describe what kind of student you are in
    school?
30. Anything you haven't told me yet, that you think I should know
    regarding what we've discussed?

31. Anyone else that I could interview?
32. Do you have any questions about your platform use or involvement in
    the community that you'd like answered that I could help you with?
    (You can also contact me at any time, and I'd be happy to help in any
    way I can)

Chapter 3 & 4. Participant table *At time of the interview

Platform	Community*	Role*	Name	Educational level*	Country	Age
TikTok	History	Leader	Kass	Final year high school	U.S.	18
TikTok	History	Member	Zelda	Gymnasium 6	Netherlands	16
TikTok	History	Member	Kripetin	Applied to university	Finland	18
TikTok	History	Leader	Kellan Ringus	College archeology	U.S.	21
TikTok	History	Member	Paul Schäfer	Realschule 10th	Germany	16
TikTok	Environmentalism	Member	Daisy	University	Brazil	22
TikTok	Environmentalism	Member	Nikky van Zee	HBO	Netherlands	21
TikTok	Environmentalism	Member	Emma (1)	Higher education	Belgium	22
TikTok	Environmentalism	Member	Aliza	2nd last year high school	South-Africa	17
TikTok	Environmentalism	Leader	Emma (2)	University	U.S.	22
TikTok	Environmentalism	Member	Vani	College	U.S.	20
Twitch	Infosecurity	Leader	D0nut	Quit university	U.S.	25
Twitch	Infosecurity	Member	Rhoam	HBO	Netherlands	21
Twitch	Infosecurity	Member	Agus	University	India	20
Twitch	Infosecurity	Member	Albony Cal	is in school	India	14
Twitch	Infosecurity	Member	f3b4def45dd6295	Quit university	Netherlands	21
Twitch	Infosecurity	Member	Brigo	Finished high school	Poland	19
Twitch	Speedrunning	Member	Revali	gap year	Norwegian	21
Twitch	Speedrunning	Member	Daruk	Senior level high school	U.S.	18
Twitch	Speedrunning	Member	Mark	HBO	Netherlands	19
Twitch	Speedrunning	Member	Carl . T	10th grade	Luxemburg	17
Twitch	Speedrunning	Member	Sylvie	Second year university	U.K.	19
Twitch	Speedrunning	Member	Ezra	Ninth grade	U.S.	15
YouTube	LGBTQI+ vlog	Member	Link	Mavo	Netherlands	14
YouTube	LGBTQI+ vlog	Member	Purah	HBO	Netherlands	19
YouTube	LGBTQI+ vlog	Member	Sara	University	Netherlands	18
YouTube	LGBTQI+ vlog	Member	Kestra	Mavo	Netherlands	15
YouTube	LGBTQI+ vlog	Member	Ronald	MBO theatre	Netherlands	18
YouTube	LGBTQI+ vlog	Member	Jamie de Vries	Finished gymnasium	Netherlands	19
YouTube	E-commerce	Member	Tygho van der Ploeg	Finished havo	Netherlands	18
YouTube	E-commerce	Member	Rosa	VWO 5	Netherlands	17
YouTube	E-commerce	Member	Kilton	HBO	Netherlands	17
YouTube	E-commerce	Member	Rudi	Havo 5	Netherlands	18
YouTube	E-commerce	Member	Laura	HBO	Netherlands	22
YouTube	E-commerce	Member	Bradley	Havo 5	Netherlands	17
YouTube	E-commerce	Member	Lars	MBO	Netherlands	18
YouTube	E-commerce	Member	Samed Güngör	HBO	Netherlands	21