The becoming of online students' learning landscapes: The art of balancing studies, work, and private life☆

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ARTICLE INFO

ABSTRACT

How do online students manage to balance studies, jobs, and private life – and yet succeed with their studies? Online studies typically attract students in jobs who seek to formalize their competence. Based on qualitative research design, this article sheds light on the academic learning of online students who attend a full-time program. Our focus narrows down to the inaugural class of online students enrolled in a Business and Administration bachelor's program. Specifically, our inquiry delves into the dynamic relationship between the academic progression of these students and their spatial and temporal activities. The article suggests that understanding this polycontextuality by using the metaphor of learning landscapes can help practitioners and students reflect on what influences their academic learning, which can help online students develop self-management skills. Self-management skills are essential in online education, and to help students develop such skills, educators must be aware of the individual learning landscapes of online students when designing online courses. In addition, our findings provide knowledge on how to on-board students in perennial online educational courses.

1. Introduction

The growth of online education has created a demand for a deeper understanding of how online students effectively manage their academic learning. This article, adopting a qualitative approach, aims to illuminate the concept of polycontextuality in online students' academic learning and how their learning landscapes evolve. Polycontextuality signifies that online students often juggle activities beyond their studies, including work commitments, personal life, and family responsibilities [1,2]. Interestingly, these additional engagements don't necessarily hinder their academic progress. Kolbaek and Snis [3] discovered that online students who navigate between their work and student contexts can effectively manage this duality. Other studies also emphasize the importance of extending contexts when considering online learning communities and personal networks in students' academic development [4–6]. Additionally, managing dual contexts varies based on individual characteristics, content, and the intensity of context elements that students encounter in their daily lives [7].

With the proliferation of mobile technology, the interaction of academic learning with context has become more pronounced. Mobile devices facilitate the interplay between students' various contexts, typically seen in virtual classrooms and learning resources accessible through digital platforms on laptops and mobile phones. Consequently, online students' contextual dynamics should be considered when developing online learning resources, as they significantly impact success.

Given the diversity of online students, their interpretation and use of learning resources differ, influenced by their contextual challenges [8, 9]. To navigate multiple trajectories across contexts in their daily lives, online students develop adaptive s 2kills to address individual challenges and needs during their educational journey [10]. Thus, understanding the interplay between online students' polycontextuality and its implications for managing academic learning is crucial, aligning with their reasons for choosing the flexibility of online education. In an increasingly complex world with higher mobility, online studies offer the flexibility that traditional on-campus studies often cannot match, making them an attractive choice for many students [7,11].

Moreover, the intricacies of modern life present online students with formidable challenges in harmonizing their academic pursuits, professional commitments, and personal lives. Drawing from the insights of

Noyes [12] and Greene [13], our study employs the concept of poly-contextuality to depict the multifaceted terrains and realities that students must navigate to achieve success [12,13]. This encompasses spatiotemporal dimensions, including structures, relationships, human and non-human elements, and objects that influence how students strategize and oversee their learning [14–16].

To shed light on the growing mobility and the vast array of spatial and temporal opportunities that coexist, shaping the formation of new paths and configurations for online students, this study adopts the concept of "throwntogetherness" [17]. Throwntogetherness refers to the 'contemporaneous existence of a plurality of trajectories', which we propose as a valuable lens to elucidate the polycontextuality giving rise to a multitude of possibilities and challenges that students must confront and manage during their online education journey. This concept encapsulates the difficulties associated with determining the resources online students require to harmonize their academic studies, work commitments, and personal life. It also underscores the complexity of tailoring online resources to cater to the unique needs of individual students.

This reflects the aim of this study, which is to explore online students' learning landscapes to gain knowledge on their interaction with the learning resources. Thus, our research question is: What learning resources do online students need to address challenging situations during their studies? utilizing qualitative interview data collected from both students and educators, our investigation centres on the inaugural year of students' participation in an online bachelor program, with the intention of examining this inquiry. In terms of theoretical underpinning, our research seeks to augment existing insights regarding the polycontextuality of online students' learning and its implications for their academic management and, consequently, the controlled educational environment [12,13,18].

2. Theoretical approach

Literature reviews on online teaching and learning suggest that the research can be categorised into three main thematic areas: learners, courses and instructors, and organisations [19]. To contextualize our investigation regarding the development of first-year online students' learning landscape, our theoretical foundation draws upon the literature concerning learners, which aligns with the trajectory of numerous subsequent studies that have emphasised characteristics of online learners and their engagement [20]. Additionally, our research delves into the domains of course design and development, which have received relatively less attention. Consequently, our study connects with the existing body of literature addressing online courses and instructors, both of which form integral components of the learners' environment [20].

2.1. The teacher-controlled environment in online education

The term "online education" within higher education encompasses a spectrum of ways in which technology augments students' learning experiences, ranging from a supplementary role alongside traditional on-campus activities to a fully virtual educational model [21]. In addition, online education leverages a plethora of digital platforms to provide learning resources, ushering in a transformation in the role of educators, shifting them from being traditional classroom instructors to taking on more intricate roles as co-creators and facilitators [22,23]. Current research underscores that ongoing teacher engagement, combined with well-structured online courses featuring interactive content and adaptable deadlines, serves as a catalyst for effective online learning [24]. These factors are intricately linked to the teacher-controlled environment in the realm of online education. In this study, we build our argumentation on the definition of online education provided by Singh and Thurman [[25], p. 302]:

Online education is defined as education being delivered in an online environment using the internet for teaching and learning. This includes online learning on the part of the students that is not dependent on their physical or virtual co-location. The teaching content is delivered online, and the instructors develop teaching modules that enhance learning and interactivity in the synchronous or asynchronous environment.

It is in this manner that online education is provided within a teacher-controlled environment, offering students the opportunity to learn either in real-time or at their own pace. Recent studies indicate that online education can also be delivered in a blended manner [20]. 'Synchronous education' occurs in real-time through webinars and chat rooms, while 'asynchronous education' refers to courses that allow students to engage at their convenience from any location, enabling flexibility in learning [26–28]. Additionally, 'bisynchronous education' combines elements of both asynchronous and synchronous online interactions [20]. In the context of this study, 'online education' is used to describe fully virtual education that incorporates all three forms of interaction, with an emphasis on asynchronous delivery.

The literature indicates that students benefit most from asynchronous education when they possess the skills to self-regulate their academic learning [5,29,30]. Self-management is recognised as a crucial metacognitive skill that promotes students' autonomy, involving the ability to plan and execute their studies [31,32]. It also involves goal-setting and monitoring of time and resources that impact goal achievement [33,34]. In essence, self-management encompasses the development of skills necessary for effective planning and execution of academic learning.

Online students who are adept at self-management may find greater value in the flexibility afforded by asynchronous education, as it enables them to independently plan and execute their studies. However, given the considerable diversity among online learners [11], students with less self-regulation skills may encounter challenges in purely asynchronous online courses. This is supported by research suggesting that a combination of synchronous and asynchronous learning activities provides support for students who have not yet developed the ability to self-organize their academic learning [35].

2.2. The polyconstextuality of online students' learning landscapes

In research on online education, the 'context' framing learning often denotes the controllable physical and interpersonal aspects, that is, digital platforms, virtual classrooms, the pedagogical design, the degree of interactivity, learning resources, and subject characteristics [3,36,37]. This teacher-controlled environment is directed at supporting the academic learning of students [38–40]. However, Noyes [12] and Greene [13] have elucidated the polycontextual nature of learning through the metaphor of learning landscapes. Noyes [12] employed the concept of a learning landscape to represent the various sociocultural layers that influence the development of primary education mathematics learners. Similarly, Greene [13] utilised this metaphor, emphasizing that comprehending the intricacies of learning requires consideration of broader contextual elements. She highlighted the individual's inner landscape as a crucial focal point for the learning process.

Noyes and Greene's discussions on the polycontextual nature of learning align with the notions of space and time presented by Massey [17]. Being a student involves responding to sudden, transient challenges within the student's context. This underscores the importance of understanding how students confront challenges and how their transitions between different contexts play a role in this process. Massey introduced the concept of 'throwntogetherness' to illustrate the spatial and temporal complexities and conflicts that arise during such moments, leading to new trajectories and configurations [17]. Considering the increased permeability between the contexts in which online students learn [7], the concept of throwntogetherness underscores the spatial,

temporal, and relational aspects of learning. Although there is extensive literature on bidirectional interactions in learning contexts [20], the heightened permeability between contexts necessitates a deeper understanding of how spatial and temporal possibilities and conflicts encountered by online students across contexts affect their digital interactions [4]. This knowledge gains significance in light of increased student mobility, which diminishes teacher control and underscores the importance of students becoming self-managers of their academic learning.

Traditionally, the development of self-management skills in students has been associated with teacher-controlled environments [18,41]. Self-management among students pertains to their individual capacity to address learning challenges and organize their behavior based on their perceptions of what is required to navigate their learning journey. Furthermore, the degree to which online students believe they are effectively managing their academic learning is indicative of their confidence in accomplishing the tasks inherent in an online course [42], which necessitates the ability to also manage their emotions [43].

3. Context of the study

The educational program under consideration is hosted at UiT The Arctic University of Norway (UIT), recognised as the northernmost university globally. UIT is a medium-sized research institution with around 15,500 students and a staff of 3300 (source: https://en.uit.no/om#engelsk). It is a multi-campus university spanning across Northern Norway, with primary campuses situated in Tromsø, Alta, Narvik, and Harstad. A significant portion of UIT's research and study programs align with the unique characteristics of Arctic Norway, and the teaching approach is research-oriented. Among its eight faculties, the university offers a diverse array of study programs, with a minority being conducted online.

In August 2021, UiT introduced its first-ever online bachelor's program in Business and Administration. Notably, it was the first Norwegian university to provide such a program free of charge. This initiative effectively met a market demand, as evidenced by the 1951 applicants from across the country for the online program, which had an admission capacity of approximately 330 students. The administration and delivery of the online bachelor's program are managed by staff at Campus Alta. Initially derived from a traditional classroom-based program at the Alta campus, the online program followed a flipped-classroom model in which lectures were live-streamed and recorded [11]. Starting in 2021, the program's curriculum was adapted to align with the pedagogical requirements of online students, with teachers enjoying a substantial degree of flexibility in the development of course materials and content.

4. Research design

This article discusses the initial year of a three-year research initiative spanning from 2021 to 2024, which focuses on monitoring students who are enrolled in a full-time online Bachelor's program in Business and Administration. The article relies on qualitative data obtained during the project's first year, coinciding with the students' inaugural academic year. We have gathered information from first-year students and teachers through qualitative interviews to address the following research question: To answer our research question, *what learning resources do online students need to address challenging situations during their studies?*

Our methodological approach is a fusion of inductive and deductive strategies. We initiated the process inductively by conducting interviews with students and teachers in January 2022 to gather insights on their experiences during the first semester. This led us to derive empirical generalisations and the formulation of key concepts. Subsequently, we connected these findings with the existing literature on online education and students' learning environments, thus ascending the ladder of abstraction, as outlined by Phillips [44]. Following this, we

Table 1
Students interviewed in the first year (autumn semester 2021 / spring semester 2022) of the online bachelor educational course: Sex; age; educational level; experience with online studies; job situation; times interviewed.

Student	Sex	Age at the start of the bachelor program	Education level at the start of the bachelor program	Life situations at the start of the bachelor program	The job situation in autumn 2021 / spring 2022	Experiences with online studies before beginning the bachelor program	Times interviewed
A	M	33	High school from 2005 (incomplete)	Single / no children	100 % autumn /spring	None	2
B	F	26	Bachelor's degree from 2019	Cohabiting / no children	None	None	2
C	M	29	Bachelor's degree from 2021	Part-time cohabiting / no children	50 % autumn / 100 % spring	Through former studies which were digitalised during the COVID pandemic	2
D	F	36	Master's degree from 2008	Cohabiting/children living at home	80 % autumn / 100 % spring	None	2
E	F	30	Master's degree from 2016	Cohabiting/children living at home	None	Experience from working as a teacher during the COVID pandemic	2
F	F	43	Bachelor's degree from 2002	Cohabiting/children living at home	0 % autumns / 100 % spring	None	2
G	F	40	One-year university online course	Cohabiting/children living at home	100 % autumn/spring	Former online student	2
H	M	30	Master's degree from 2018	Cohabiting / no children	50 % autumn / 100 % spring	Former online student	2
I	F	50	Four years of university study from 1990	Cohabiting/children living at home	85 % autumn /no information about spring	None	1
J	M	37	Bachelor's degree, parts of a one-year university course from 2005	Cohabiting/children living at home	100 % autumn/ spring	None	2
K	F	30	High school from 2010, certificate of apprenticeship from 2018	Single / children living at home	100 % autumn/ no information about spring	None	1
11 informants	**4 M, 7 F**	**35 on average**	**7 had a former bachelor's or master's degree**	**9 had cohabitants; 7 had children living at home**	**9 had jobs**	**7 had no experience with online studies**	**20 interviews**

Table 2

Teachers interviewed about the first year (autumn semester 2021 / spring semester 2022) of the online bachelor educational course: Informants' Campus affiliation; Subjects; Semester.

Informants	Informants' Campus affiliation	Subject	Semester
1	Campus Alta	Business Economic Analysis	Autumn 2021
1	Campus Alta	Mathematics for Economists	Autumn 2021
1	Campus Alta	Marketing	Autumns 2021
1	Campus Alta	Basic Accounting and Analysis	Spring 2022
1	Campus Alta	Microeconomics	Spring 2022
2	Campus Tromsø	Examen Philosophicum (Ex.phil)	Spring 2022
7 informants	*2 campuses*	*6 subjects*	*2 semester*

deduced predictions from the theoretical framework and explored them empirically through subsequent interviews with students and teachers in August/ September 2022. This interactive method of marrying empirical data and theory guided our research process. It is an abductive strategy, whereas the concepts and theory were constructed using an interpretive approach [45,46].

4.1. Data on first-year students' learning landscapes

We collected interview data by conducting qualitative, semi-structured interviews with first-year students in the online bachelor program. The participants were intentionally selected to take part in the three-year research project by the authors during the opening webinar for the bachelor's program in August 2021 [47]. Subsequently, further recruitment was carried out through email correspondence and inquiries via the subjects' learning management system (LMS), which included video and text-based communication. The recruitment process led to 11 students (four males and seven females) signing a consent form, thus becoming the informants in our longitudinal study and planning to extend over three years from 2021–2024 of which this article is based on data from their first year.

As we wanted informants' reflections on their experiences with the two semesters of their first year of the educational course, we interviewed them (digitally, using Microsoft Teams) after the end of the autumn and spring semesters. The interviews were based on two interview guides (one for each semester) where we mapped the students' level of education, their motivation to start the educational course, completion time, their expectations about the educational course, and their perceptions about the LMS and how they worked with their studies during the first year, e.g. did they experience challenges, how did they solve them and who did they ask for help. Additionally, a total of 20 interviews were conducted in January 2022 and August/September 2022. These interviews offered a comprehensive insight into how online students' learning environments evolved during their initial year in the

bachelor's programs. When they commenced their educational course, the participants' ages ranged from 26 to 50 years.

The majority of them had prior university experience, lived with a partner, had children at home, and were employed. Only a small minority had prior exposure to online learning before starting the bachelor's program. Except for two individuals, all participants underwent two interview sessions (refer to Table 1).

All interviews were recorded and then transcribed by the researchers (using Word as software). The analysis of the interview data consisted of open and empathetic listening, open coding, and constant comparison to identify core concepts, e.g., time to study, study resources, adopted and developed study strategies, and the (re-)reading of each individual story with a particular emphasis on the content to identify core elements associated with the learning situations of online students [48]. These elements were themed into the following: barriers and possibilities in online academic learning, online students' self-management, and the constituents of online students learning landscapes.

Furthermore, in order to contextualize our study, we have used data (i.e., credit productions) from the cohort that attended the bachelor program in the autumn of 2021 (which the informants were part of). The secondary data was provided by databases managed by UiT (non-public data, but available for employees) and the Norwegian Directorate for Higher Education and Skills (public data).

4.2. Data on teacher-controlled environment

Data pertaining to the teacher-controlled setting was obtained through semi-structured interviews with teachers and from various documents and digital platforms (Table 2). The interviews were based on one interview guide with the following themes: the teaching experience, the number of students per course, the design of LMS, learning resources (asynchronous and synchronous), teacher-student interaction and challenges students meet in the courses. In January and August 2022, we interviewed seven teachers (all males, age 26 – 55 as the first

Table 3

Subjects at the first year of the online bachelor-program in Business and Administration; learning resources semesters autumn 2021 and spring 2022.

	Semester 1, autumn 2021			Semester 2, spring 2022		
	Business Economic analysis	Mathematics for Economists	Marketing	Basic accounting and analysis	Micro-economics	Examen philosophicum
Teachers connected to the subject	1 + 1 learning assistant	1 + 1 learning assistant	1 + 1 learning assistant	1	1	7
Synchronous teaching	10 Webinars, every second weeks	7 Webinars, every third weeks	14 Webinars, each week	9 webinars, each 2–3 weeks	7 webinars, each 4 weeks	Digital supervisions
Asynchronous teaching (digital resources)	Videos, recording of webinars,	Videos, recording of webinars,	Recording of part of the webinars	Videos, recording of webinars	Videos, recording of webinars	Videos
Mandatory work assignment	2	2	2	2	2	6
facilitating student collaboration	Curipod; voluntary through work assignments	Curipod; voluntary through work assignments	Curipod; voluntary through work assignments	Curipod	Curipod	–
Examination system	4-hour individual home exam	4-hour individual home exam	4-hour individual home exam	4-hour individual home exam	6-hour individual home exam	Semester assignment; 5-hour individual home exam

year of the bachelor educational course has no female teachers) associated with the six subjects of the first year of the online bachelor program. All but one interview was conducted in person.

The interviews were analysed using open coding, in line with the data analysis approach applied to the student interviews. They yielded insights into the subjects' learning design and resources (refer to Table 3). Documents elucidating the six subjects offered details on the learning objectives and advantages. Non-personal data were gathered from digital sources, specifically the subjects' LMS (Canvas) and a digital program, Curipod, tailored for student communication with both peers and subject instructors while maintaining anonymity. Canvas supplied insights into the configuration of each subject's virtual classroom, while Curipod furnished information about student interactions amongst themselves and with the teachers. In summary, the data facilitated an in-depth understanding of the teacher-controlled environment within the first year of the bachelor program.

4.3. Weaknesses and strengths

A potential bias in our study is the limited number of informants, who were highly motivated students pursuing completion of the online bachelor program. Some of these students exhibited particularly well-developed learning strategies (as shown in Table 1). Regrettably, due to the study's scope, we were unable to collect quantitative data through widespread surveys that could have shed light on the broader characteristics of the student cohort to which the informants belonged. However, data available from public databases did offer insights into this cohort, such as credit production. In summary, we believe that our data allows for an in-depth exploration of the research question.

The authors, who are associate professors at the same institute and campus offering the online bachelor program, do not teach in the program. While this closeness to the field may potentially affect our objectivity, it also provides us with an in-depth understanding of the teacher-controlled environment. To ensure transparency and gather feedback from the student informants, we established an LMS room where they could join and provide comments on the research. Furthermore, the research was conducted by the two researchers who continuously reflected upon and evaluated whether the questions used were aligned with the research's objectives, thus contributing to validating and strengthening the reliability of the findings [49]. generalizing qualitative research outcomes can be challenging, as it's difficult to guarantee that a different study would yield the same results. However, it can be argued that the results of this study may have value and relevance in various contexts. Therefore, this study could be beneficial to educators who participated in the research, potentially fostering increased awareness and reflection on online learning, virtual classroom design, and the role of online teachers [50].

The research adheres to the ethical research guidelines for data management and data protection outlined by the Norwegian centre for Research Data, which align with international ethical research standards.

5. First-year online students' academic learning

5.1. Six subjects

The online bachelor program consists of 18 subjects, with each subject accounting for 10 credits, totalling 180 credits in all. Table 3 depicts that the first year encompasses six subjects, each serving as a virtual classroom that offers crucial learning resources, including videos, webinars, and assignments. These resources are actively utilised by online students and are integral to their academic learning [51–53].

The pedagogical approaches for first-year subjects were primarily devised independently by individual instructors, with limited coordination among subjects, except for aligning the timing of mandatory assignments and examinations. Most instructors had prior experience in online education, which informed their roles as facilitators in online teaching [22].

Each subject had its designated Canvas room, fostering a bisynchronous mode of learning that combined both asynchronous and synchronous online interactions [19]. The inclusion of pre-recorded videos varied across subjects, with Marketing relying solely on webinars and not utilizing videos. Webinars played a significant role in all subjects with the exception of Examen Philosophicum (Ex.phil). These webinars were recorded and made available in the Canvas rooms for students to access as asynchronous learning resources [41].

Among the six subjects, four (Business Economic Analysis, Mathematics for Economists, Basic Accounting and Analysis, and Microeconomics) emphasised numerical comprehension and memorisation of concepts through regular problem-solving. In contrast, Marketing and Ex.phil focused on reading, writing, and mastering an academic writing style. These subjects required students to engage in reflective thinking, employ concepts and theories from the syllabus, and develop specific academic skills. Our data indicate that students developed preferences for particular subjects.

Across all six subjects, students were required to complete mandatory assignments within specified timeframes before taking their exams. In the case of Ex.phil, as many as six assignments had to be passed.

5.2. Students' progression

The interview data revealed that all participants made a purposeful choice in selecting their educational course, specifically opting for online studies. They held a clear expectation that online studies would offer flexibility, allowing them to balance their coursework with their professional commitments and family responsibilities. Geographic

Table 4

Informants A to K: Considerations as full-time or part-time students; planned subjects; exams passed; credits obtained for semesters of autumn 2021 and spring 2022.

Informant	Consider themselves as full-time (FT) / part-time (PT) student	Subjects planned 1 semester	Passed exams 1 semester	Credits 1 semester	Subjects planned 2 semester	Passed exams 2 semester	Credits 2 semester	Students active after first year
A	PT	3	2	20	4	4	40	X
B	FT	3	3	30	3	3	30	X
C	PT	2	2	20	3	3	30	X
D	PT	3	3	30	3	3	30	X
E	FT	3	3	30	2	1	10	X
F	FT autumn / PT spring	3	3	30	3	3	30	X
G	PT	2	2	20	3	3	30	X
H	PT	3	3	30	3	2	20	X
I	PT	3	3	30	no data	no data	no data	X
J	PT	3	0	0	3	0	0	–
K	PT	3	3	10	0	0	0	–
TOTAL	**Spring 2022: 8 PT; 3 FT**	**31/ 2,8 per student**	**27/ 2,4 per student**	**240/ 21,8 per student**	**27/ 2,7 per student**	**22/ 2,2 per student**	**220 / 22 per student**	**9 of 11 active**

Table 5

Informants A to K: Challenges; coping; first (autumn 2021) and second (spring 2021) semesters.

Informant	1 semester challenges	1 semester coping	2 semester challenges	2 semester coping
A	- Mathematics: the academic scheme with webinars did not suit him - Fell behind with the studies as it was difficult to balance studies, work, and private life - Procrastinated to set aside time for studying - Lack of good study techniques - Failed to pass one exam	- Mathematics: videos/LMS, help from relative - Student collaboration motivated each other to prioritize studies - Conscious of the need to develop better study techniques	- The academic planning in microeconomy with synchronous webinars did not suit him - Periodically difficult to balance studies and work due to health issues	- Help from a relative - Improved study techniques in microeconomy: - Prioritised studies to not fall behind - Clear distinction between work/studies and free time
B	- No challenges beyond finding academic writing somewhat difficult	- Stands by it, works non-stop to improve studies - Meet challenges by first trying to solve them alone, then consulting students, and finally teachers - Family and friends constitute important network for the studies	- Personal health issues and loss of family member made studies hard - Large syllabus in all subjects - Dreaded Ex.phil as it required academic writing skills, but it turned out that she mastered it - High expectations of herself	- Learning is a driving force that kept her going - Awareness to lower her expectations of herself
C	- No particular challenges	- In general faces challenges constructively - Awareness of the importance of devoting time to studies because there is always a bit of stress - Awareness of setting time limits per subject	- Demanding job tasks put pressure on time to invest in studies - Two tough subjects, with less prepared Canvas rooms made it hard to get an overview of the workload at the start of the semester	- Adapted well to the subjects' teaching plans and Canvas room - Prioritised putting effort into subjects that he found most significant for his interests and future choice of career
D	- Challenges related to language (immigrant) - Much was new for her, for instance Canvas - Large syllabus - Was a bit bored with subjects that demanded reading/ writing skills	- Put energy into getting to know the Canvas rooms and having an overview of the learning resources - Followed the teaching plans - Togetherness and (physical) collaboration with other students important for not dropping out	- The Norwegian language, although it improved during the spring semester - Had planned to spend more time studying, but her family came as refugees from her homeland	- Her attitude: she just had to deal with it, kept going - Finding a job motivated her to accelerate her studies and to learn Norwegian
E	- Due to health issues in her nuclear family, the semester became harder than imagined - Health issues forced her to invest less time in the studies than planned - She fell behind with the studies and was on the verge of giving up during the exam rush	- She worked consciously to improve her inner motivation - Just had to "be with it" - A close relative (economist) became an important sparring partner	- Health issue due to pregnancy sickness made it impossible for her to complete the planned study progression	- Prioritised focusing on one of the two subjects she had planned to pass
F	- Dreaded mathematics, but it turned out to go well - Found marketing demanding as it required reading/ writing skills	- Invested a lot of time in her studies - The mathematics teacher's academic plan suited her - Was aware of applying study techniques she learned initially in a university course - Passionate about following webinars live	- Dreaded Ex.phil as it required reading/ writing skills (number skills easier for her) - Many work assignments in Ex.phil - Frustrated by large syllabus in the subjects - Changes in her work situation, from part-time to full-time	- Be positive, just carry on and gain understanding - Invested a lot of time in the studies - Ex.phil turned out to be interesting - Motivating teachers
G	- Two demanding subjects where one required reading/writing skills - Poor self-confidence	- Has a strong will to put effort into studying - Prioritised setting aside time to study - Student collaboration	- Changed work during the semester, which was time consuming - Demanding subjects, whereas one had a less suitable scheme for online students (a subject which is not normal for this semester) - Time pressure made it hard to structure her study satisfactorily, the workloads became concentrated too close to submission deadlines	- The thought of having the bachelor's degree kept her going
H	- Challenging semester due to subject with large syllabus and many obligatory work assignments	- Like to learn and has well-developed learning strategies - Obligatory work assignments helped him organize his studies throughout the semester	- Ex.phil scheme with many work assignments throughout the semester challenged his study strategies, which are flexible to fit his job and leisure interests	- Prioritised subjects in which he had the best chance of passing

Table 5 (*continued*)

Informant	1 semester challenges	1 semester coping	2 semester challenges	2 semester coping
		- Applied learning resources located in the Canvas rooms	- Not able to complete all three planned subjects - Lost some of his motivation	
I	No particular challenges	- Collaborated with students when facing academic challenges - Aware of the importance of trusting herself	No data	No data
J	- Heavy workload from his full-time job made it hard to combine job, studies, and family life - Obligatory work assignments made the online study less flexible than expected	- Opted out of the studies, did not sit for any exams	Same as semester 1	Same as semester 1
K	- Personal health issues and work resulted in spending less time on her studies than planned, passed only one of three planned exams	- Motivated to continue by student collaboration	- Personal health issues	- Opted out of the studies and did not sit for any exams

constraints, preventing attendance at a campus-based course, also influenced their decision to pursue online education. Furthermore, students expressed a desire to enhance their skillsets and advance their career prospects. Hence, the motivation for the online educational course was strong, fuelling their belief in their ability to successfully complete the requirements of the bachelor program [42].

The first year of the bachelor course is known to be challenging for students. Data obtained from the UiT database for the student cohort commencing the online bachelor program in 2021 showed that while 318 students were initially registered as active in the first semester (autumn 2021), the number decreased to 225 active students in the subsequent semester (spring 2022). Nevertheless, most of the participants in this study remained active students after the first year, with only two pausing their studies during the second semester (refer to Table 4). Consequently, the majority successfully completed the tasks required within the teacher-controlled environment during the first year of the online course, which plays a significant role in enhancing students' self-management of their learning [18,41,42].

A notable portion of the participants had prior educational experiences, including some who had earned master's degrees (c.f. Table 1). A few informants possessed credits from previous university studies that counted towards the bachelor program, requiring them to complete fewer than 18 subjects or 180 credits for their bachelor's degree in business and administration. Some already had experience with online studies, suggesting they had developed skills for self-managing their learning [18,35]. Conversely, others had not been students for an extended period and needed training in academic learning.

Data concerning the student cohort that began the online bachelor program in 2021 indicated that those who were active students during the autumn of 2021 (N = 318) and spring of 2022 (N = 225) averaged 14.1 credits in the autumn of 2021 and 18.4 credits in the spring of 2022 (cf. information withdrawn from databases managed by UiT and the Norwegian Directorate for Higher Education). The informants in our study produced more credits than the cohort average, as illustrated in Table 4. This table also presents the number of subjects the informants planned to pass during the first and second semesters and whether they considered themselves full-time or part-time students.

In Table 4, it is evident that the majority successfully achieved the targeted credit production. Nonetheless, four of the participants did not meet their credit goals, and two had temporarily halted their educational course. The table also highlights that most participants identified themselves as part-time students despite their commitment to full-time studies. This classification stemmed from their need to balance work responsibilities alongside their academic pursuits. Those who designated themselves as full-time students typically had no employment obligations. Notably, such designations can change over the course of a year, as seen in the case of Informant-F.

Our research shows that students' assessments of their academic progress extend beyond mere grading. Their evaluations of their academic progress are often highly subjective and closely linked to the effort and time they invest in their studies. These considerations are also predicated on other commitments, such as employment. Therefore, students' mastery of online studies is not solely contingent on achieving high grades but also on their ability to effectively manage their studies in conjunction with other obligations, such as work and family life.

5.3. Students coping with challenges

Table 5 provides insights into the challenges encountered by student informants during the first year and how they coped with these.

Every informant, with the exception of one, encountered challenges during the first year of their educational course. These challenges encompassed various aspects, including work and personal life, as well as difficulties associated with specific subjects. Frequently, these challenges intersected. As an illustration, Informant-H possessed well-established learning strategies that allowed him to excel during the first semester, benefiting from the flexibility offered by the teacher-controlled environment. However, during the subsequent semester, the demanding mandatory assignments in one subject disrupted the strategies that had enabled him to balance his studies with work and leisure activities. To address this challenge in the second semester, he opted to pass only two of the three subjects.

Table 5 illustrates how work and personal or family life both positively and negatively impact students' academic learning. Informant-H and Informant-C serve as notable examples of students with proficient learning strategies who effectively managed their work, studies, and personal lives. Nevertheless, the demanding workloads of specific subjects posed challenges for them, necessitating adjustments in their strategies to handle their studies alongside their employment.

Certain informants navigated challenges through collaboration with peers or by leveraging resources within their work and personal contexts. For instance, Informant-D emphasised the importance of camaraderie with fellow students as a reason for not dropping out. Interview data also indicated that Curipod served as a vital platform for student collaboration, extending to collaborations beyond the platform. In some instances, individuals within their personal networks, like Informant-A and Informant-E, became crucial collaborative partners, helping them surmount challenges. These examples underscore how resources within students' personal networks play a significant role in their academic learning. In the case of Informant-A, the relative became proficient in leveraging the learning resources within the LMS and, through collaboration, transferred this knowledge into a learning resource for the student's individual use. This demonstrates that online students often engage with collaborative partners, including fellow students and
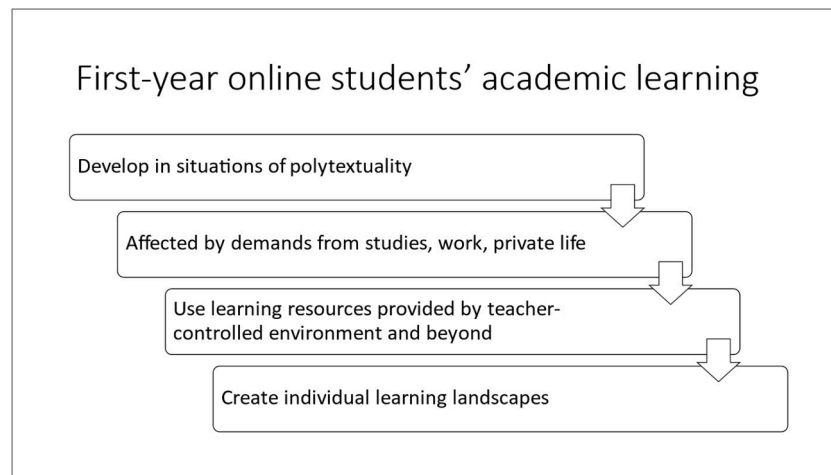
Fig. 1. Findings illustrating first-year online students' academic learning.

individuals connected to various facets of their lives, to master online learning.

Conversely, factors linked to work and personal life also present barriers to academic learning. For instance, Informants-B, -D, -E, and -K recounted health issues that posed challenges to their studies. For two of them, these challenges were so formidable that they had to temporarily suspend their studies (Informants-E and -K). These are circumstances that are nearly impossible to plan for, particularly for students with work commitments.

For some students, it was challenging to learn as they had not studied for a long time. Therefore, some needed to 'learn how to (academically) learn'. This was the case for Informant-A, who was cognisant of his need to develop learning techniques to master the studies – which, in turn, allowed him to balance studies, work, and leisure time in a positive way. Throughout the first year of the educational course, he learned a great deal about how 'he himself learned', as he put it. Informant-G had previously developed effective learning strategies during her prior online studies, enabling her to successfully manage full-time study while also maintaining a full-time job. Despite grappling with self-confidence issues as a student, she possessed an inherent determination to stay motivated and attain her bachelor's degree. This inner drive propelled her to persevere with her studies. This aligns with existing literature, which suggests that online learners, given the reduced peer support, must place more emphasis on managing their own emotions compared to students in traditional campus-based settings [43]. Nonetheless, our study indicates that the informants also had access to peer support, utilizing digital tools to engage with fellow students.

5.4. Summary findings

Based on our identified themes from our interview data (barriers and possibilities in online academic learning, online students' self-management, and the constituents of online students learning landscapes), we can draw the assumption that it is not online learning per se which causes online studies to become onerous for students. According to our findings, all the participants exhibited strong motivation for pursuing online learning, driven by well-defined reasons for choosing it over traditional campus-based studies. Nevertheless, a primary challenge for online students in their academic journey lies in striking a delicate balance among their studies, professional commitments, and personal or family life. This necessitates the identification of an equilibrium that accommodates all these domains, allowing for academic learning through highly personalised solutions and resources. While it is acknowledged that the diversity of students' learning abilities can influence how they manage their academic pursuits, our study underscores that this is merely one facet shaping their capacity for self-

management. Our research highlights that online students' self-management abilities evolve within the context of polycontextuality, indicating that the development of their learning landscapes is not solely a reflection of the efforts of students and instructors. It encompasses dimensions that are often overlooked when designing virtual classrooms (Fig. 1).

6. Discussion

6.1. The becoming of online students' learning landscapes

Our research underscores the significance of the structures and relationships that emerge in response to students' learning requirements. Learning is not an isolated process but a dynamic interaction with the inner and outer world [12,13,37]. The concept of relationality in online learning is also evident in the conceptions of space, time, and knowledge, as posited by Massey [17]. Building upon this, our study suggests that students collaboratively generate resources for their academic learning through their interactions in time and space. The act of co-creation of resources requires effort from students, and in line with previous research on online learning, our findings affirm that facilitating digital interaction plays a pivotal role in fostering online students' co-creation and, by extension, their academic learning [4,6]. For instance, as an integral component of the teacher-controlled environment, Curipod emerged as a significant platform for student interaction, becoming a tool for fostering increased interaction and resource co-creation. Our study also reveals that students establish collaboration platforms beyond the teacher-controlled environment, aligning with existing literature that highlights the importance of fellow students for online students' academic learning and the role of teachers in facilitating such collaborations [6].

Nonetheless, our findings demonstrate that online students' learning landscapes extend beyond the traditional teacher-student interface, challenging conventional notions of the utility of student collaborations [54]. For example, we observed that not all online students opted to engage in organised student collaborations. Some chose to study independently as it aligned with their preferred learning styles, while others studied alone due to time constraints related to work and family responsibilities. Furthermore, our research suggests that online students' collaboration with non-student partners in private and professional contexts can be instrumental for their learning. The fluidity of these collaborations is influenced by the unique circumstances of the subjects, prompting students to seek out learning partners who are accessible and possess relevant skills for mastering specific subjects. These learning partners may not necessarily be fellow students but individuals within the student's network. In addition, some students leverage commercial

online resources to support their academic learning. This illustrates the polycontextuality of online students and how it drives the customization of resources based on individual needs, resource accessibility, and the available time for study. Consequently, our study argues that the academic learning of online students should be comprehended as a non-linear and fluid process, always intertwined with the students' spatial context, not solely tethered to a teacher-controlled environment.

Students' interactions with a diverse array of learning resources can be described as a state of "throwntogetherness," which can be conceptualised as the space for learning, visualised in our study through the learning landscape metaphor [12,13,17]. Managing the simultaneous and fluid activities and resources within this landscape demands substantial efforts, especially for students with work or family commitments. Time plays a critical role here, and some students in our study found it challenging to align their schedules with the teacher-controlled environment's prescribed timelines. This means that time has a significant impact on how students structure their studies in relation to other commitments, as they must schedule their efforts to accommodate parallel activities in various contexts. Furthermore, as students' structures and relationships vary and evolve throughout their three-year educational journey, the way one student organizes their time may not necessarily work for another. These diverse interactions collectively constitute students' learning landscape, making it an individualised and perpetually evolving entity.

Students' relational efforts across space and time to harmonize contextual arrangements necessitate self-management skills [13,14,41]. While some students had developed self-management skills through previous educational experiences, most students lacked prior exposure to online education. Consequently, our study suggests viewing the first-year educational course for online students as an 'onboarding' phase, during which they learn how to interact with virtual classrooms. This phase can be challenging and ambiguous, impacting academic learning in various ways, such as causing confusion among students when courses impose different requirements on them due to variations in virtual classroom design and content. Nevertheless, during the first year, students acquire proficiency in using virtual classrooms, enabling them to balance contextual demands and leverage contextual affordances linked to their external and internal landscapes, contributing to the development of self-management skills [13,18,55].

Our study also highlights the central role of the virtual classroom in the onboarding phase for co-creating students' learning landscapes. For instance, the synchronous mode of learning within virtual classrooms offered more support to relatively inexperienced students during their first year of studies compared to experienced students [18,20,35]. These less self-managed students tended to prioritize participation in synchronous learning activities. However, students with previous educational experiences, such as those who had completed bachelor's and master's degrees, were more inclined to use synchronous activities, like webinars, asynchronously (where webinars were recorded and made available in the Canvas rooms). Contextual commitments can hinder participation in synchronous learning activities, as they clash in both space and time [56]. In alignment with this, and based on our findings, our study underscores the importance of asynchronous learning activities to support online students' needs for time management. This suggests that students' ongoing adaptation to contextual demands and their coping strategies drive the development of their individual learning landscapes.

6.2. Barriers to online students' academic learning

According to our study, online students address challenges by leveraging resources within their learning landscape to accommodate the schedules imposed by their instructors. Drawing inspiration from Massey [17], our research views the learning landscape as perpetually evolving and open to change. The individual trajectories of students converging in physical and virtual spaces can introduce conflicting demands that influence their academic learning, both positively and negatively. Coping with these demands can sometimes lead to reduced focus on their studies, especially when the teacher-controlled environment lacks flexibility. Consequently, perceiving learning as a spatio-temporal occurrence emphasises the volatility of virtual classrooms, which can become hindrances to academic learning when seen as isolated events confined to the teacher-controlled environment [57].

A significant discovery from our study pertains to the facilitation of students' mobility within their learning landscapes. The smoother their transitions between different spaces in their learning landscapes, the more effectively they can integrate resources that support their individual learning [12,13,51]. In line with Gillett-Swan [8], who stresses the importance of considering individual students' and teachers' digital competencies in online education, our research broadens this perspective by demonstrating that individual needs cannot always be rigidly predefined. Thus, they must be addressed in alternative ways to scaffold academic learning [9,17].

Our findings indicate that the teacher-controlled environment plays a pivotal role in influencing students' transitions between contexts, and these transitions are vital for students to effectively manage their studies. Therefore, it is crucial to adapt virtual classrooms to align with students' learning landscapes. This adaptation entails providing students with diverse learning activities in virtual classrooms that cater to their distinct needs. This will have practical implications for the design of virtual classrooms, as they should consider the contextual demands and self-management skills of individual students. We believe this is especially important for the first year of the educational course, or for first-year students, as it can be seen as an onboarding phase where students' needs are closely tied to their ability to self-manage their studies.

In light of these arguments, the concern is that viewing online students' academic learning in certain ways only unveils fragments of the complete picture. Instead of merely questioning what the teacher-controlled environment signifies for students' learning needs, the focus should shift to the spatiality of online students' learning needs, which arises from their historical experiences, negotiations with and adaptations to constraints, and the possibilities presented by their circumstances. This challenges the design of online courses and the role of online teachers as co-creators of students' learning [22,23].

7. Conclusion

We embarked on this journey by attempting to uncover the essential learning resources required by online students to effectively manage the demanding circumstances related to their studies, work commitments, and personal lives. While there isn't a straightforward answer to this question, our research demonstrates that online student learning extends beyond the confines of teacher-controlled spaces, utilizing resources from various contexts to foster learning.

In summary, this qualitative study has shown that viewing online students' learning as an ever-evolving learning landscape can greatly enhance research efforts aiming to comprehend online students' learning in a more holistic manner. It embraces multiple spaces that offer resources for learning. The concept of a learning landscape proves particularly valuable when shaping virtual classrooms, as it prompts an inquiry into the spaces for learning—specifically, the individualised nature of students' learning spaces and how they connect with the teacher-controlled environment.

Our broad perspective on the learning landscape underscores the necessity for a closer examination of the design of online education. It illustrates that online student learning transpires both within and outside of teacher-controlled organised spaces. As such, online education must be designed to enable students to learn at their own pace and develop self-management skills. We must ensure that online students can navigate their academic learning with a teacher-controlled environment that takes into account their diverse needs, effectively

supporting their educational journey.

Our study offers a comprehensive understanding of the development of online students' learning landscapes during the first year of the bachelor program. We believe that our research provides valuable insights that expand the existing knowledge about online students' cultivation of self-management skills and the role of the virtual classroom in this process. For educators and course designers, our study offers suggestions on how to design and implement learning resources that enhance the flexibility required for online students to harmonize their studies with their work and personal life. Nevertheless, given that this study was conducted with a qualitative approach on a limited sample of online students from a single university in northern Norway, a larger sample might yield different results. Therefore, future research should be conducted on a larger scale, employing mixed methods that consider the learner, the course instructor, and the organization. Furthermore, future studies could delve into the intricacies of virtual classroom design, including the complexities of the online teacher's role, to gain deeper insights into online students' interactions within their virtual classrooms and the implications for the development of self-management skills and academic learning.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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