



UNIVERSITY OF AMSTERDAM

## **Online and Blended Teaching at the UvA: Teachers' Experiences and Pedagogical Strategies**

*Research team 'Online education during COVID-19'*

Pareja Roblin, N.; Van Dorresteijn, C.; Meij, M.; Cornelissen, F.; Voogt, J.; Volman, M.

*Citation for published version (APA):*

Pareja Roblin, N.; Van Dorresteijn, C.; Meij, M.; Cornelissen, F.; Voogt, J.; Volman, M. (2021). Online and Blended Teaching at the UvA: Teachers' Experiences and Pedagogical Strategies. Research team 'Online education during COVID-19'. University of Amsterdam.



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### **Research team 'Online education during COVID-19'**

Natalie Pareja Roblin

Chevy van Dorresteijn

Monique Meij

Frank Cornelissen

Joke Voogt

Monique Volman

Date

May 18<sup>th</sup>, 2021

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## Executive Summary

### Background and study goals

Due to the COVID-19 pandemic, universities across the globe had to suddenly switch to online education. While this has presented many hurdles, it has also provided opportunities to explore the potential of new forms of (online) education.

Funded by the University's Executive Board, the current study set out to learn from the various online and blended education practices developed at the UvA in March–December 2020. Specifically, this study aims to gain insight into how UvA teachers from various disciplines: 1) experienced online teaching and institutional support during the COVID-19 pandemic; 2) (re)designed their courses for online delivery; 3) facilitated social and cognitive processes in the courses they taught online, and 4) view the role of online (aspects of) education in the future.

### Method

To gain insight into UvA teachers' online teaching practices and experiences during the COVID-19 pandemic, a questionnaire was developed and distributed among the scientific staff ( $N=4,245$ ). The questionnaire consisted of 45 questions divided into seven sections: 1) Background characteristics, 2) Experiences with online education; 3) Course characteristics; 4) Online course design; 5) Online Teaching Strategies; 6) Institutional support; and 7) Views on the future of online education. A total of 1,159 scientific staff members gave their consent to participate in the survey (27% response rate), 1,044 of which taught one or more courses in the period March–December 2020.

### Results

#### *Mix of positive and negative experiences with online teaching*

Teachers rated their experiences with online teaching on average 5.7 on a scale of 1 to 10; however, their experiences varied largely. Some teachers were very positive about the opportunities online education offered them to experiment with new pedagogical strategies and to re-think their course design, while others were rather skeptical about the possibilities of online education and view it as a poor substitute for face-to-face education. Differences between faculties were also large, with teachers in some faculties (e.g., Law, Medicine and Dentistry) being more positive on average than teachers from other faculties (e.g., Amsterdam University College, Economics and Business).

#### *Teachers miss face to face contact with students*

Teachers stated to miss face-to-face contact with their students, which prevented them from getting to know students as well as usual. They also felt that the level of interaction in online education was fairly low and that monitoring students' progress in online courses was more challenging than in face-to-face courses.

#### *Diverse online instructional and assessment strategies*

Next to online lectures and seminars, more than half of the teachers made use of online (individual or group) assignments and online question and answer sessions (Q&A's). This suggests that teachers did not limit themselves to putting their lectures online, but they seem to have looked for alternatives to adjust their course design and teaching in ways that best suit the

intended learning. With regard to online assessment strategies, examinations (e.g., multiple choice exams, oral exams, open book exams) were most frequently used, followed by reports, essays and student presentations. Alternative forms of assessment such as portfolios, lab activities and graded peer feedback were seldomly used.

### *Digital technologies used to meet different instructional purposes*

A range of digital technologies were used by teachers to support different instructional purposes. To *facilitate interactions* with and between students most teachers used videoconferences, email, breakout rooms, announcements and discussion forums. A few teachers also made use of social media technologies, such as WhatsApp and Discord. To *present course content*, teachers relied primarily on presentation software and videoconferences. Notably, digital technologies that may stimulate a more active role of students in knowledge construction (e.g., simulations, educational games, collaborative annotation tools) were less frequently used. Finally, different digital technologies were used to *assess student learning*, ranging from peer-review tools, online quizzes and polls to surveillance software for online examinations. Interestingly, around one quarter of the teachers did not use any digital technology at all to assess student learning.

### *Strategies to support social and cognitive processes in online learning*

To facilitate meaningful online learning experiences teachers need to carefully consider the design, facilitation and guidance of both cognitive and social processes. The orchestration of these activities is also known as teaching presence. Teaching presence involves being explicit about course design and activities, actively supporting student learning and creating opportunities for social interactions. The majority of teachers communicated course goals and activities, provided instructions for completing course assignments and communicated in advance how students could contact them for questions about the course. Most teachers also provided direct support to students by promptly replying to students' questions and providing feedback. Notably, the use of specific strategies to support social interaction was less frequent and varied largely between teachers and faculties. Over half of the teachers provided opportunities for students to get to know each other or organized group assignments. Far less often teachers let students themselves moderate online discussions, asked students to provide feedback on each other's work or created short videos to increase their presence.

### *General satisfaction with the institutional support received*

Teachers were generally satisfied with the institutional support they received while transitioning their courses online, rating it on average 6.7 on a scale of 1 to 10. About half of the teachers used more than one support channel (e.g., consulted "Keep on teaching" pages, requested expert advice from the Teaching and Learning Centre or followed a training or workshop), and some did not use any support at all (18%). Teachers expressed their interest in learning more about effective instructional strategies and in having access to examples of good online education practices.

### *Mixed views about the role of online (aspects of) education in the future*

Almost sixty percent of the teachers agree that online education may be a good complement to face to face education in the future, while a little over twenty percent disagrees. This means that teachers' views are mixed; whereas a majority of teachers is optimistic about the opportunities online aspects of education may bring, there are also several teachers with serious reservations.

### Next steps

This study provides an overview of how teachers at the UvA experienced and addressed online education since the start of the COVID-19 pandemic. In a next step we plan to conduct a more systematic analysis of the qualitative data collected through open questions to gain insight into *why* teachers experienced online teaching in a certain way and the specific aspects of online teaching they valued most (or least). Additional quantitative analyses will also be conducted to explore whether the use of certain pedagogical strategies and digital tools is associated with specific types of learning goals and course characteristics (e.g., group size and discipline). Finally, in a follow-up study we use qualitative approaches to investigate how teachers orchestrate social and cognitive processes across different types of courses – thereby yielding insight into design principles that may contribute to effective online and blended education.

## Introduction

Due to the COVID-19 pandemic, universities across the globe had to suddenly switch to online education. While this has presented many hurdles, it has also provided teachers with the opportunity to revisit their views on teaching, learning and assessment and to explore new forms of (online) education.

Various studies suggest that the commitment of teachers is important for the success of online and blended programs (Bolliger & Wasilik, 2009; Ocak, 2011). Yet, the transition to online and blended education is complex and demanding for teachers as it requires them to reconsider their pedagogical roles and assumptions, their instructional strategies, how they communicate with students, and the design and structure of their courses (Kebritchi et al., 2017; Philipsen et al., 2019).

While research on online and blended education has been growing rapidly in the last decade, most studies have focused primarily on student engagement and on student outcomes in online learning environments (cf. Martin et al., 2020). In contrast, only very few empirical studies focus on online and blended teaching and on teachers' perspectives of online aspects of education (Gerbic, 2011; Halverson et al., 2014).

Funded by the University's Executive Board, the current study set out to learn from the various online and blended education practices developed at the UvA in March–December 2020. Specifically, this study aims to gain insight into how UvA teachers from various disciplines: 1) experienced online teaching and institutional support during the COVID-19 pandemic; 2) (re)designed their courses for online delivery; 3) facilitated social and cognitive processes in the courses they taught online, and 4) view the role of online (aspects of) education in the future.

## Theoretical Framework

The current study builds on the Community of Inquiry (CoI) framework (Garrison et al., 2000), which has been extensively used in research and practice in online higher education (Garrison & Arbaugh, 2007; Garrison, Anderson, & Archer, 2010).

Based on the premise that meaningful educational experiences are best supported in a so-called 'community of inquiry', the CoI framework identifies three core elements that are required to create and sustain a purposeful online learning community (see Figure 1): cognitive presence, social presence and teaching presence (Garrison et al., 2000; Garrison, Cleveland-Innes, & Fung, 2010). *Cognitive presence* refers to the extent to which students are able to construct meaning through sustained communication (Garrison et al., 2000). *Social presence* denotes the degree to which a student feels personally connected with other students and the instructor in an online learning community (Sung & Mayer, 2012). Finally, *teaching presence* refers to the design, facilitation and direction of cognitive and social processes for the purpose of realizing meaningful learning outcomes (Anderson et al., 2001). The CoI framework explicitly acknowledges the overlap and dynamic interplay between the three types of presences, and suggests that teaching presence plays a key "binding" role by orchestrating both cognitive and social processes (Garrison et al., 2010).

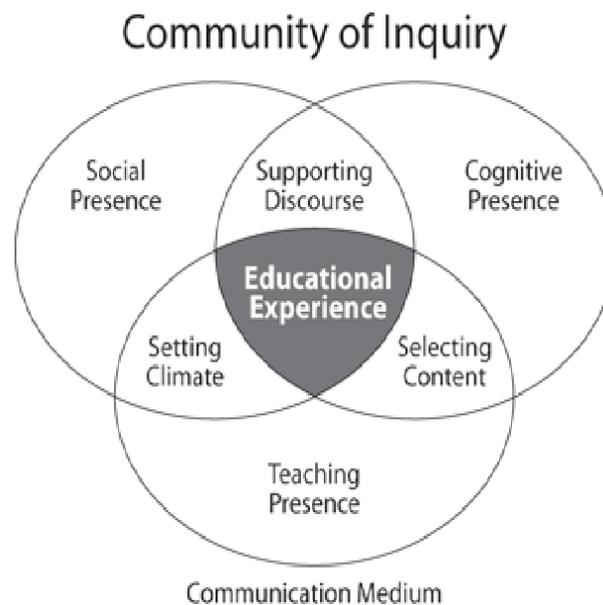


Figure 1. Components of the Community of Inquiry Framework (source: Garrison et al., 2000)

Teaching presence serves three main functions. The first function is the design of the educational experience, and is concerned with instructional planning and organizational issues. It includes activities related to the selection, organization, and primary presentation of course content, as well as the design and development of learning activities and assessments (Garrison et al., 2000). In online environments, instructors must be more explicit and transparent regarding these aspects of the course because the social cues and norms of the traditional classroom are absent (Anderson et al., 2001). The second function of teaching presence is facilitating discourse through monitoring and managing online interaction and collaboration. It includes activities such as reviewing and commenting upon student responses, raising questions and assigning group projects (Anderson et al., 2001). The third function is ensuring that the intended learning outcomes are reached by providing direct support to students. This function underscores teachers' responsibility to "be there" to support student learning by, among others, identifying students' needs, providing access to various learning resources, confirming understanding through various means of assessment, and providing timely feedback (Garrison et al., 2000; Garrison & Arbaugh, 2007).

Although various studies suggest that teaching presence is an important factor influencing student satisfaction, perceived learning and sense of community (Akyol & Garrison, 2008; Caskurlu et al., 2020; Shea et al., 2006), empirical evidence on the specific strategies teachers use to establish and maintain teaching presence in online courses is scarce (Van Dorresteijn et al., 2020).

### — Purpose of the study

Building on the notion of teaching presence, the current study aims to gain insight into how UvA teachers from various disciplines designed and facilitated online learning as they transitioned their courses online due to the COVID-19 pandemic. The following research questions guided the study:

1. How did UvA teachers experience online teaching during the COVID-19 pandemic?
2. Which digital technologies, instructional strategies and assessment methods did UvA teachers use in the courses they taught online during the COVID-19 pandemic?
3. What specific strategies did UvA teachers use to facilitate social and cognitive processes in the courses they taught online?
4. How did UvA teachers experience institutional support for online education and what support would they like to receive in the future?
5. What are teachers' views about the role of online (aspects of) education in the future?

## Method

A questionnaire was developed to gain insight into UvA teachers' online teaching practices and experiences. Item development was based on three validated measures concerned with online teaching in higher education: the Online Faculty Satisfaction Survey (Bolliger & Wasilik, 2009), the Teacher Presence Scale (Shea et al., 2006; Shea et al., 2010), and the Online Engagement Strategies Questionnaire (Bolliger & Martin, 2020). Items addressed teachers' overall satisfaction with online teaching, the pedagogical choices they made as they (re)designed their courses for online delivery, and the strategies they used to facilitate both social and cognitive processes in online courses. In addition, a number of items were included to gather information on teachers' background characteristics (e.g., discipline, position, prior experience with online teaching), course characteristics (e.g., type of course, study year, group size) and experiences with institutional support (e.g., types of support used and desired). Additionally, teachers were asked to answer three open-ended questions: 1) why they were (dis)satisfied with online teaching, 2) how they experienced the institutional support for online teaching, and 3) what aspects of online education they would like to keep in the future and why.

To assess face validity, a first version of the questionnaire was reviewed by experts from key university services responsible for supporting online education (e.g., Teaching and Learning Centre, Educational Innovation/Blended Learning working group), experts in the field of online and blended education, and methodological experts in psychometrics. The questionnaire was then translated into Dutch. Congruence between the English and Dutch versions was verified by a native English speaker and professional translator.

The final version of the questionnaire consisted of 45 questions distributed across seven sections: 1) Background characteristics, 2) Experiences with online education; 3) Course characteristics; 4) Online course design; 5) Online Teaching Strategies; 6) Institutional support; and 7) Views on the future of online education (see Appendix L). In the sections on Course characteristics, Online course design and Online teaching strategies, respondents were asked to think of one of the courses they had taught (mostly) online since March 2020.

The questionnaire was distributed via email on December 7, 2020 to UvA central scientific staff ( $N = 3588$ ), and on December 14, 2020 to teaching staff working at the faculties of Dentistry and Medicine ( $N = 657$ ). The survey remained open until the first week of January 2021. A total of 1,159 scientific staff members gave their consent to participate in the survey (27% response rate), 1,044 of which taught one or more courses in the period March–December 2020. Table 1 presents an overview of the response rate across faculties.

TABLE 1 | Response rate (including partial responses) across faculties

Faculty	Invited	Responses	Taught in 2020	Response rate
Amsterdam University College <sup>1</sup>	49	25	25	51.0%
Faculty of Dentistry <sup>2</sup>	209	36	34	17.2%
Faculty of Economic and Business	340	103	95	30.3%
Faculty of Humanities	715	217	202	30.3%
Faculty of Law	341	78	72	22.9%
Faculty of Medicine <sup>2</sup>	448	94	91	21.0%
Faculty of Science	1123	307	257	27.3%
Faculty of Social and Behavioural Sciences	1020	299	268	29.3%
<i>Total</i>	<i>4245</i>	<i>1159</i>	<i>1044</i>	<i>27.3%</i>

<sup>1</sup> Amsterdam University College (i.e., Liberal Arts and Sciences) is not a faculty, but was treated as a separate entity in this study.

<sup>2</sup> May include personnel from the *Vrije Universiteit* as ACTA and AUMC are a joint organization between the UvA and VU.

Given the explorative nature of the study, descriptive statistics were used to identify emerging patterns and examine possible differences between faculties. Answers to open questions were qualitatively analyzed and primarily used to illustrate the main patterns identified on the quantitative data. More advanced quantitative analyses and a more systematic analysis of the answers to the open-ended questions are yet to be conducted.

## Results

In this section we describe main findings pertaining to teachers' 1) experiences with online teaching and institutional support during the COVID-19 pandemic; 2) online teaching practices; 3) strategies to facilitate social and cognitive processes in online courses; and 4) views about the role of online (aspects of) education in the future. We illustrate these findings with quotes from teachers' answers to open questions. It is important to note that these quotes are only meant to illustrate teachers' experiences, and do not necessarily reflect the views of all teachers who participated in the survey.

### Sample characteristics

Table 2 shows the descriptive characteristics of our sample with regard to language, job position, age cohort, years of experience in higher education and the number of courses taught in the period March–December 2020. The total number of responses may vary per item because of partial responses.

Around half of the staff who completed the survey had a fixed position at the university as associate professor (13%), assistant professor (23%) or professor (13%). About one fifth had a researcher-related position as (post-doc) researcher (5%) or PhD (14%), and 28% had a teacher position. The age of respondents was evenly distributed across the age groups, with around half of the respondents being below 40 years old and about half above 40. The years of experience in higher education was heavily skewed towards more experienced teachers, with half of our sample having more than ten years of experience.

TABLE 2 | Descriptive characteristics of the sample

Sample characteristics	<i>N</i>	%
Language ( <i>N</i> = 1159)		
Dutch	504	43%
English	655	57%
Position ( <i>N</i> = 1154)		
Teacher	326	28%
PhD candidate	160	14%
Researcher	14	1%
Post-doc researcher	49	4%
Associate professor	150	13%
Assistant professor	268	23%
Professor	152	13%
Other	35	3%
Age cohort ( <i>N</i> = 1043)		
Younger than 30 years old	210	20%
31 to 40 years old	276	26%
41 to 50 years old	244	23%
51 to 60 years old	218	21%
Older than 60 years old	95	9%
Experience in higher education ( <i>N</i> = 1043)		
Less than 1 year	96	9%
1 to 5 years	247	24%
6 to 10 years	175	17%
More than 10 years	525	50%
Number of courses taught ( <i>N</i> = 1029)		
Part of a course	37	4%
1 course	147	14%
2 courses	251	24%
3 courses	228	22%
4 courses	159	15%
5 or more courses	207	20%

### Prior experience with teaching and digital technology

Because prior experience with online teaching and with digital technology may influence teachers' online teaching practices (Bolliger & Wasilik, 2009), we asked participants to rate their prior experience with each on a scale of 1 ('no prior experience') to 10 ('large prior experience'). Table 3 shows that respondents rated their prior experience with online teaching relatively low, with roughly 70% of the respondents rating it with a 3 or lower. Conversely, almost two-thirds of the sample rated their experience with digital technology with a 7 or higher.

TABLE 3 | Participants' prior experience with online teaching and digital technologies

On a scale of 1–10, how would you rate your previous experience with...	<i>N</i>	Mean	SD
- Online teaching	1042	2.97	2.43
- Digital technology	1036	6.63	2.17

### Satisfaction with online teaching

To gain a general insight into teachers' experiences with online teaching in the last period, we asked teachers to rate these experiences on a scale from 1 ('negative experience') to 10 ('positive experience'). Table 4 shows that the average overall satisfaction with online teaching was 5.75 ( $SD = 2.05$ ).

TABLE 4 | Teachers' satisfaction with online teaching ( $N = 995$ )

On a scale of 1–10, how would you rate your satisfaction with online teaching?	Mean	SD
<i>Overall</i>	<i>5.71</i>	<i>2.05</i>
<u>By faculty</u>		
Amsterdam University College	4.96	1.93
Faculty of Dentistry	6.27	1.62
Faculty of Economic and Business	5.55	2.25
Faculty of Humanities	5.51	2.13
Faculty of Law	6.25	1.82
Faculty of Medicine	6.43	1.49
Faculty of Science	5.68	2.01
Faculty of Social and Behavioural Sciences	5.57	2.16
<u>By position</u>		
Teacher	5.62	2.03
PhD candidate	6.19	1.96
Researcher	6.00	1.87
Post-doc researcher	4.59	2.14
Associate professor	5.50	2.08
Assistant professor	5.68	2.04
Professor	5.94	2.14
Other	6.30	1.56

*My experiences are very varied. I have had very good experiences and very bad ones. They depend on the content of a course. Not all courses are equally suitable to do online. In addition, it also strongly depends on the technology and the way in which you use it.*

*(Faculty of Social and Behavioural Sciences)*

Teachers' satisfaction varies across faculties (see Appendix A). Particularly, teachers in the faculties of Law, Dentistry, and Medicine were on average relatively positive about their experience with online teaching. These three faculties were also most unanimous in their satisfaction as indicated by the smaller standard deviation. Additionally, the distribution of how teachers rated their experiences with online teaching also varies widely among faculties. Specifically, the size of the group of teachers on the extreme ends (i.e., with very negative or very positive experiences) differs per faculty. In some faculties, most teachers reported an acceptable to positive ( $\geq 6$ ) experience with online teaching (e.g. Law and Medicine), whereas in other faculties there was a relatively large group of teachers who were generally dissatisfied ( $\leq 5$ ) with online teaching (e.g., Amsterdam University College and Economic and Business).

*Online education is clearly second-best. It can be a useful tool -mitigating a bad situation- when a student for some reason cannot be on campus. Overall, online education is hyped and not as effective as the real thing - in person education.*

*(Amsterdam University College)*

Table 4 also shows teacher satisfaction by position. Teachers in the 'Other' category (e.g., educational directors and teaching assistants) were most satisfied with online teaching ( $M = 6.30$ ,  $SD = 1.56$ ), although it has to be noted that this group only consisted of 3% of the sample. Postdocs, albeit also a small group, were least satisfied with online teaching ( $M = 4.59$ ,  $SD = 2.14$ ). From the other groups, PhD candidates ( $M = 6.19$ ,  $SD = 1.96$ ) and full professors ( $M = 5.94$ ,  $SD = 2.14$ ) were most satisfied with online teaching. Further, the standard deviation was rather high for all positions, indicating that in all groups the share of satisfied and dissatisfied teachers was relatively large.

Next, we examined whether there was a correlation between the satisfaction of teachers and their prior experience with online teaching and with digital technologies (see Table 5).

TABLE 5 | Correlations between teachers' satisfaction with online teaching and their prior experience with online teaching and digital technologies

	1	2	3
Overall satisfaction (1)	1.00		
Experience with online teaching (2)	.13	1.00	
Experience with digital technology (3)	.04	.21	1.00

Only negligible to small correlations were found between teachers' satisfaction and previous experience with online teaching ( $r = .13$ ) or digital technology ( $r = .04$ ). This may be partly explained by the small share of teachers (13.5%) who reported to have a fair amount (7 or higher on a ten-point scale) of prior experience with online teaching compared to the large share of teachers (62.5%) who reported to have a fair amount of prior experience with digital technology. Additionally, we found a small positive correlation ( $r = .21$ ) between teachers' previous experience with online teaching and their previous experience with digital technology.

## Interactions in online education

To delve deeper into teachers' experiences with online teaching, we asked respondents to indicate their agreement with a series of statements about interactions with students in online environments on a five-point Likert scale (1 = strongly disagree; 5 = strongly agree).

TABLE 6 | Statements about interaction in online education ( $N = 1004$ )

On a scale of 1–5, to which extent do you agree with the following statements?	Mean	SD
The level of interaction with students in an online course is higher than in a face-to-face course	1.79	0.92
My students are actively involved in online course activities.	3.27	1.02
I miss face-to-face contact with students when teaching online.	4.48	0.87
My students are active in communicating with me regarding online course matters.	3.34	0.98
I am better able to monitor student progress in an online course than in a face-to-face course.	2.14	0.99
The participation level of my students in online discussions is lower than in face-to-face discussions	3.66	1.11
Not meeting my students face-to-face prevents me from knowing them as well as on-site students.	4.31	0.89
I find it more difficult to motivate my students in the online environment than in a face-to-face	3.82	0.99

As shown in Table 6, on average participants strongly agree to miss face-to-face contact with their students and that this prevented them from getting to know students as well as usual. Teachers also indicated that the level of interaction in online environments was fairly low and that monitoring students' progress in an online course was more challenging than in a face-to-face course. Interestingly, teachers' not only felt quite strongly about these statements, they were also quite unanimous about these statements, as indicated by the relatively small standard deviation.

*I barely get to know the students (which is one of the highlights of teaching) — there are no informal talks any longer possible to build a relationship (e.g., in a class break, before or after the class) when everyone could be listening in. Also, most students keep their cameras switched off and few volunteer responses.*

*(Faculty of Economics and Business)*

*It is very difficult to reach your students. As non-verbal communication in a real seminar provides information about if a message came across, I find it very difficult to 'read' the reaction and level of comprehension and involvement of students in an online setting.*

*(Faculty of Social and Behavioural Sciences)*

## Online teaching practices

To gain insight into the pedagogical choices teachers made as they transitioned their courses online, respondents were asked to keep one specific course in mind that they had (mostly) taught online and was most representative of their (online) teaching practice. In the next section we first describe the characteristics of the courses chosen by the teachers, followed by a description of the instructional strategies, assessment methods and digital technologies teachers used in these courses.

### Course characteristics

Table 7 shows that the majority of the courses teachers reported on were taught at a bachelor level (58%) or first-year master level (29%), which also represent the vast majority of the courses offered at the UvA. With respect to the period, most courses took place in the first (35%) or second (30%) block of the academic year 2020-2021 (i.e., were taught between September and December 2020). More than half were 6-ECTS courses (61%), the most common format at the UvA. Lastly, with regard to the group size, many courses were reported to be small (41%; <40 students), although a fair amount of the courses were medium-sized (21%; 40–99 students), large (22%; 100–249) or extra-large (13%; >250).

TABLE 7 | Course characteristics

Course characteristics	<i>N</i>	%
<i>Study year (N = 972)</i>		
Bachelor, first year	198	20%
Bachelor, second year	207	21%
Bachelor, third year	162	17%
Bachelor, fourth year	3	< 1%
Premaster	10	1%
Master, first year	286	29%
Master, second year	33	3%
Master, third year	3	< 1%
Other	70	7%
<i>Block (N = 1388<sup>1</sup>)</i>		
Fourth block, 2019-2020 (February-March 2020)	119	9%
Fifth block, 2019-2020 (April-May 2020)	249	18%
Sixth block, 2019-2020 (June-July 2020)	107	8%
Summer vacation 2019-2020	11	1%
First block, 2020-2021 (September-October 2020)	487	35%
Second block, 2020-2021 (November-December 2020)	415	30%
<i>ECTS<sup>2</sup> (N = 955)</i>		
0	18	2%
1-3	64	7%
4-5	49	5%
6	582	61%
7-11	47	5%
12-29	173	18%

30+		9	1%
Unknown		13	1%
<i>Course size (N = 954)</i>			
Small	(< 40)	393	41%
Medium	(40-99)	205	21%
Large	(100-249)	214	22%
Extra-large	(250+)	127	13%
Unknown		15	2%

<sup>1</sup> Courses could span multiple blocks, resulting in a larger *N*.

<sup>2</sup> ECTS = European Credit Transfer and Accumulation System, 1 ECTS = 28 study hours

### General instructional and assessment strategies

Teachers were asked to indicate which instructional (Figure 2) and assessment (Figure 3) strategies they used in the online course they had in mind. For each question, teachers were allowed to select multiple options. It has to be noted that it is difficult to interpret the meaning of these percentages without a baseline to compare them against. Yet, a couple of observations caught our attention.

First, in addition to online lectures and seminars, more than half of the teachers made use of online (individual or group) assignments and online question and answer sessions (Q&A's). A few teachers (15%) also used other strategies such as one-on-one meetings, poster sessions, knowledge clips, discussion boards, and face-to-face meetings. With respect to differences between faculties (see Appendix B), online lectures were less frequently used by teachers from Dentistry (57%) and Law (64%), whereas almost all teachers from Amsterdam University College (92%) and Science (88%) used these. Similarly, Q&A's were most frequently used by Science teachers (70%) and least by Humanities teachers (41%).

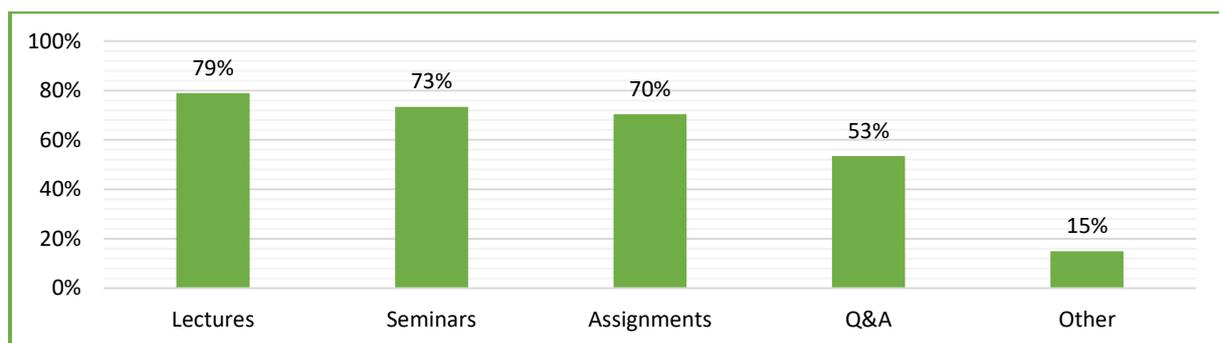


Figure 2. (Online) instructional strategies used by teachers (*N* = 920)

Second, teachers used different online assessment strategies, ranging from presentations, essays and reports, to different types of examinations. Some teachers (22%) also used other assessment strategies, such as field work, role playing, graded peer feedback, and group project assignments. With respect to assessment, there were some noteworthy differences among faculties (see Appendix C). For example, only one in ten teachers at the Law faculty used reports, compared to one in three teachers at the Science faculty. The use of essays as assessment strategy showed an even stronger difference, being implemented by more than half of the teachers from Humanities

(65%) and Amsterdam University College (58%), whereas these were hardly used by teachers from Dentistry (4%) and Medicine (10%). Other online assessment strategies that were particularly used within specific faculties include: portfolios (Amsterdam University College; 17%), lab activities (Science; 17%), quizzes (Dentistry; 39%), multiple choice exams (Dentistry; 35% and Medicine; 32%), exams with open-ended questions only (Law; 49%), open book exams (Science; 24%), oral exams (Law; 28%). It is worth noting that these differences possibly reflect existing practices pre-COVID-19 and may relate to the nature of the discipline.

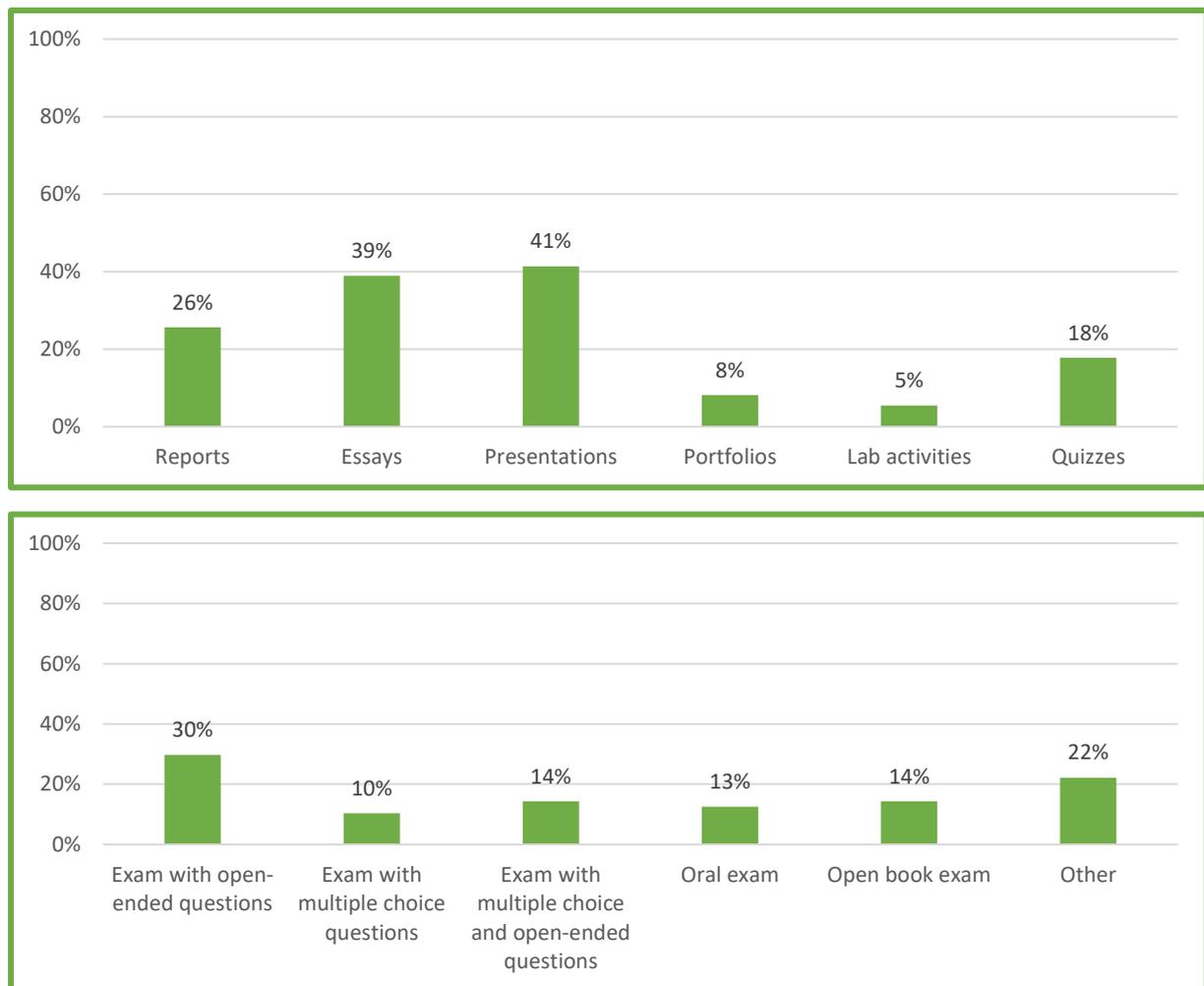


Figure 3. (Online) assessment strategies used by teachers (N = 916)

### Digital technologies used to support student learning and assessment

To ascertain how teachers used the affordances of different technology tools to support student learning and assessment, we asked which digital technologies they used for each of the following instructional purposes: 'present course content' (Figure 4), 'interact with students' (Figure 5), 'facilitate interaction between students' (Figure 6), and 'assess student learning' (Figure 7).

### Digital technologies used to present course content

To present course content, the majority of the teachers relied primarily on presentation software such as PowerPoint and Prezi (82%) or videoconferencing software such as Zoom and Microsoft Teams (84%), with only few teachers making use of simulations (6%) or games (4%). Other technologies used by teachers to present course content included, for example, podcasts, Perusall, a Discord server, and online quizzes (e.g., via Kahoot or Mentimeter).

*I've created polls and short videos, which I wouldn't normally have done, but which I think are a valuable addition. I now have dozens of polls and videos available.*

(Faculty of Science)

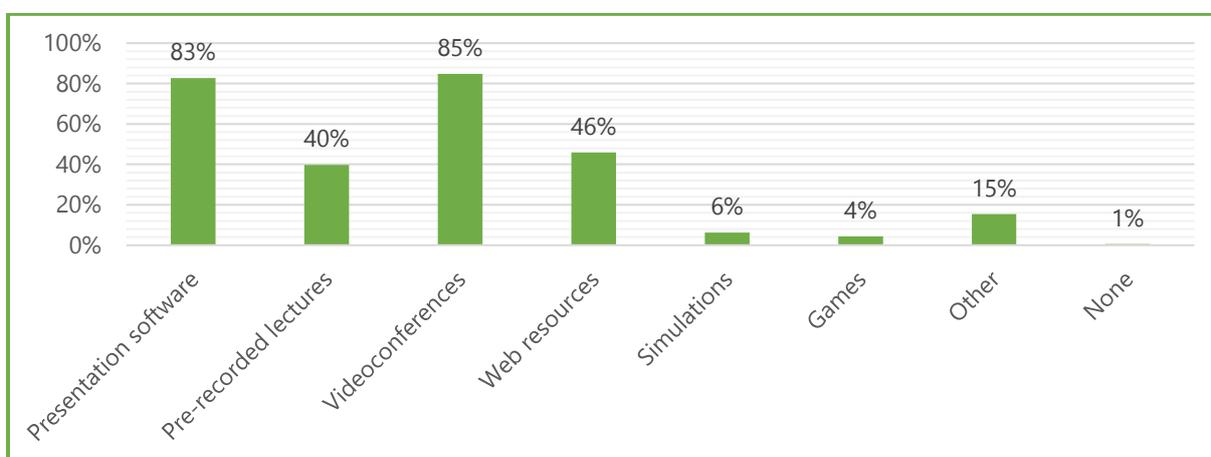


Figure 4. Digital technologies used to present course content ( $N = 916$ )

There are also some noteworthy differences among faculties (see Appendix D). For example, pre-recorded lectures were most often used by teachers at the faculty of Economics and Business (62%) and far less frequently by teachers at Amsterdam University College (29%). Dentistry teachers made relatively little use of videoconferencing software to present course content (61%), compared to at least eighty percent of the teachers from all other faculties. Further, although not heavily used in absolute terms, simulations were most often used by Science teachers (11%) while games were most frequently used by teachers at Economics and Business (8%) and Law (7%) faculties.

### Digital technologies used to facilitate social interactions

All but one teacher indicated to have used at least one digital technology to facilitate social interaction *with* students. The majority of teachers made use of videoconferences (90%), email (75%), breakout rooms (67%)<sup>1</sup> and announcements (57%). Discussion forums and live chats appear to have been used less frequently (36% and 29% respectively). Around 11% of the teachers

<sup>1</sup> Members of the Teaching and Learning Centre pointed out that the percentage of teachers who used breakout rooms is noteworthy as a) these were hardly used pre-COVID and b) many Dutch universities did not make use of this functionality—as they generally did not use Zoom, which for a long time was the only platform with such a functionality.

also made use of other digital technologies to interact with students, such as Slack or Discord servers, YouTube videos, Mentimeter quizzes, and WhatsApp.

*Online teaching challenges me to make my classes more interactive, and I feel I have managed to find new ways of interacting I never had in physical classes.*

*(Faculty of Medicine)*

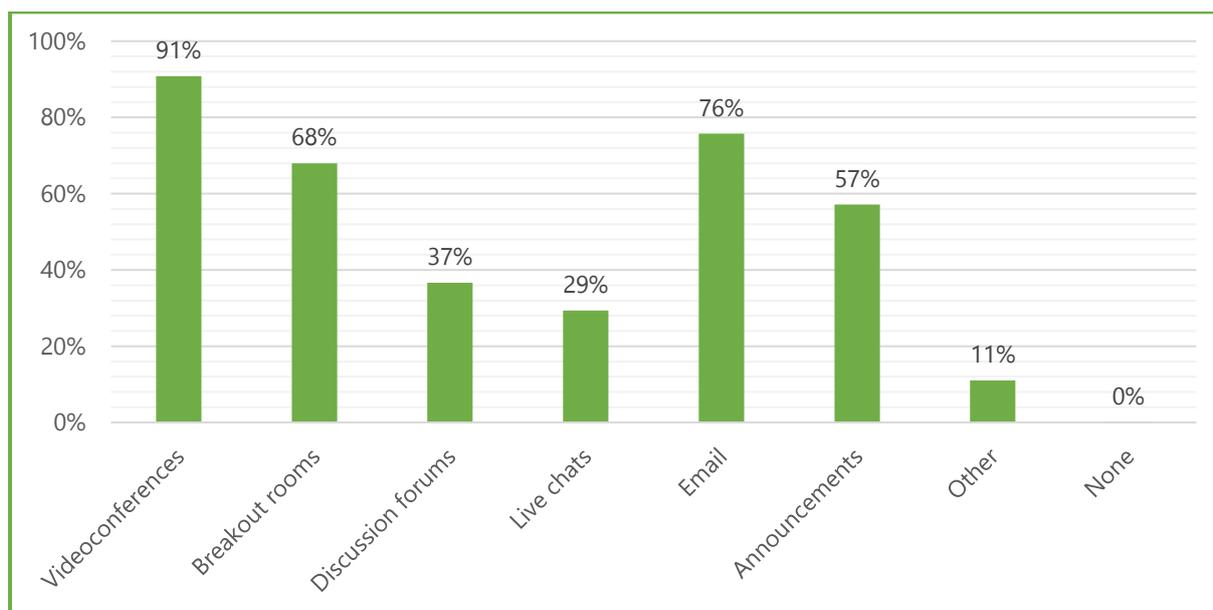


Figure 5. Digital technologies used to interact *with* students ( $N = 915$ )

There were relatively less differences among faculties with regard to the digital technologies used to interact with students (see Appendix E). Some differences pertain to the use of breakout rooms, which were least used by teachers in Economics and Business (48%) and most used by teachers in Behavioural and Social Sciences (78%). Dentistry teachers made least use of discussions forums (17%), but made most use of live chats (35%). Further, Amsterdam University College teachers often used email (88%) and announcements (88%) to interact with students, whereas only one in three teachers of Science made use of these technologies.

*Plenary sessions really benefit from the Chat function - students who prefer not to speak up can send private questions which I can then answer. Using the chat function, my experience is that students speak up more easily and provide input more easily to questions than in on campus education.*

*(Faculty of Social and Behavioural Sciences)*

Interaction *between* students was primarily facilitated through breakout rooms (66%), videoconferences (46%) and discussion forums (40%). Further, around 17% of the teachers also used other digital tools to facilitate student-student interaction, which were similar to the ones used to facilitate teacher-student interaction (e.g., Slack, Discord, WhatsApp) or were specifically intended to facilitate group collaboration (e.g., Google Docs).

*The breakout rooms help with creating connections between students. Normally, students tend to discuss topics with their immediate friends in the classroom but in the breakout rooms they have to discuss a topic with whomever is in their group this time. So that way they are faced with new ideas every time.*

*(Faculty of Law)*

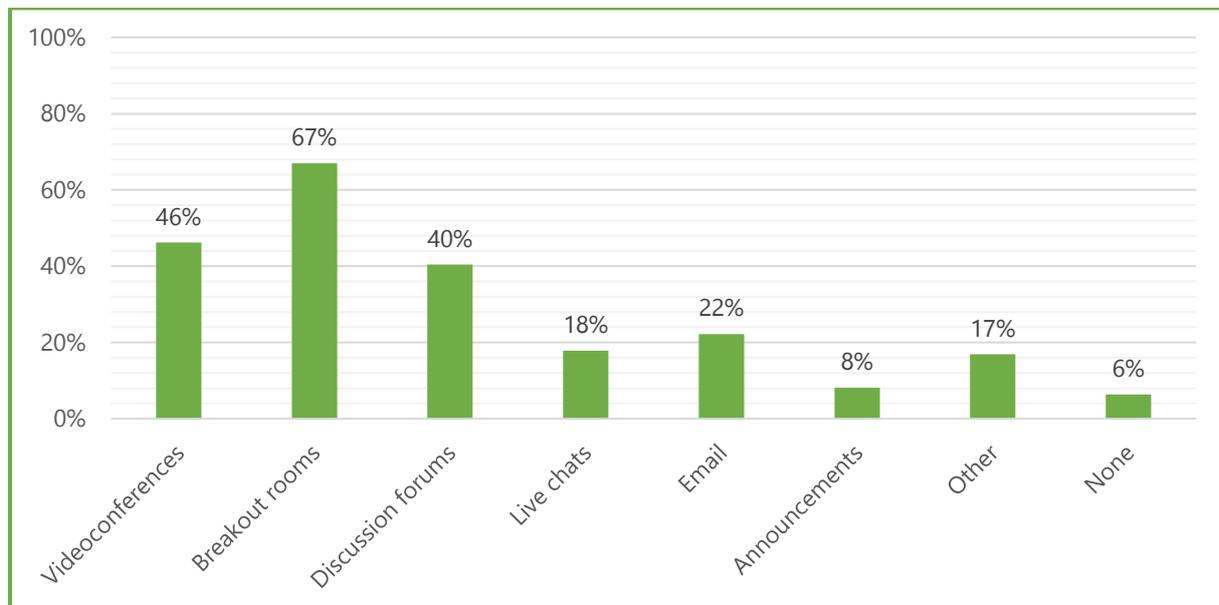


Figure 6. Digital technologies used to facilitate interaction *between* students ( $N = 915$ )

With respect to differences among faculties (see Appendix F), one thing that stands out is that 18% of the teachers from Economics and Business did not use any specific digital technology to facilitate interaction between students, whereas all Dentistry teachers indicated to have used at least one digital technology to facilitate interaction between students. The other differences are very similar to the differences discussed in the previous paragraph about interaction *with* students.

*Canvas is well-equipped for online education. Discussion between students also occurred. Surprisingly, almost five times as many students attended as in face-to-face lectures, only you can't really tell whether they are present or not.*

*(Faculty of Dentistry, translated from Dutch)*

### Digital technologies used to assess student learning

Teachers used a wide diversity of digital technologies to assess student learning, ranging from peer-review tools such as SpeedGrader (32%), to online quizzes (23%) and voting pools (16%) to surveillance software for online examinations (24%). Interestingly, 22% did not use any digital technology at all to assess student learning.

*Experience with online proctoring of exams was often bad. Many technical difficulties, delay of exams or even the obligation to create a new extra exam.*

*(Faculty of Economic and Business)*

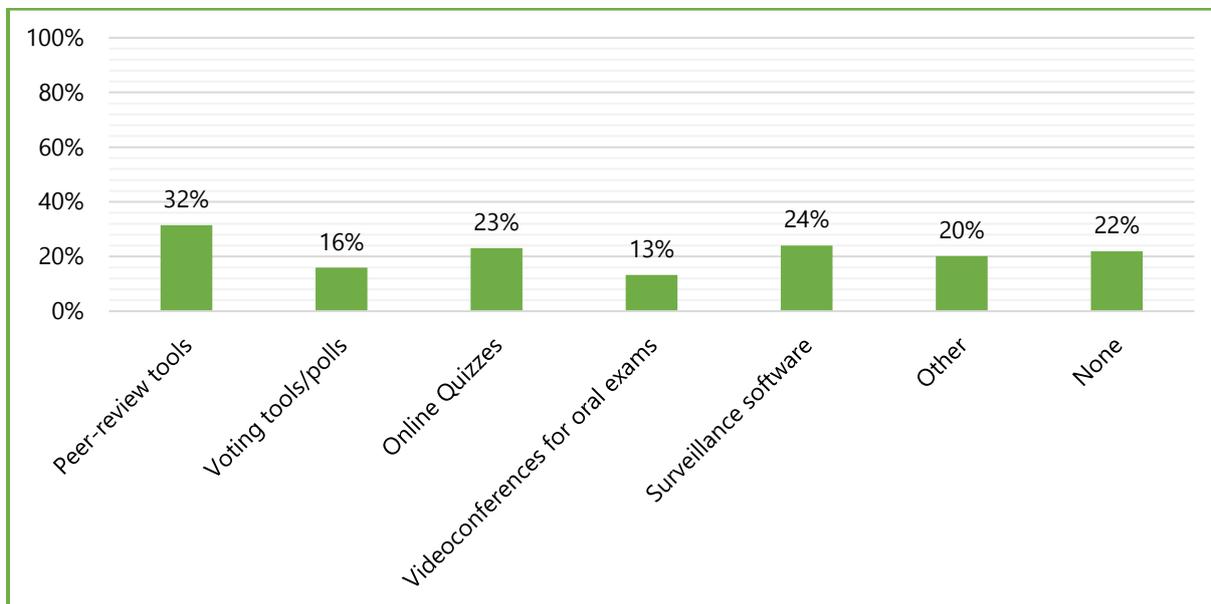


Figure 7. Digital technologies used to assess student learning (N = 911)

Regarding the differences among faculties (see Appendix G), the most noteworthy difference is the heavy use of surveillance software in Economics and Business (63%), which is almost twice as high as in the faculty that is next with regard to the share of teachers who used surveillance software (Dentistry; 35%), and about eight times as high as in Humanities (8%). There were also notable differences between faculties in the number of teachers who did not use any digital technology to assess student learning. For example, one in three teachers (31%) of Humanities did not use any digital technology to assess student learning, compared to only one in eight teachers (12%) of Economics and Business. Finally, another interesting difference concerns the use of voting tools or polls, which were less frequently used for assessment purposes by teachers from Humanities (7%) and Behavioural and Social Sciences (10%), compared to more frequent use by teachers from Medicine (30%) and Economics and Business (28%).

*Online exams and exam review sessions are the worst part of the experience. There is a lot of administrative work to coordinate with Assessments, and numerous students experience technical problems. Teaching-related software is surprisingly buggy.*

*(Faculty of Economics and Business)*

## Strategies to facilitate social and cognitive processes in online learning

To facilitate meaningful online learning experiences teachers need to carefully consider the design, facilitation and guidance of both cognitive and social processes. The orchestration of these activities is also known as teaching presence. To gain insight into how teachers established teaching presence, we asked which pedagogical strategies they used to 1) communicate course goals and activities, 2) provide direct support to student learning, and 3) facilitate social interactions. For each strategy, teachers had to indicate whether they had used it or not for the course they had in mind.

### Strategies to communicate course goals and activities

As shown in Figure 8, three out of four strategies to communicate course goals were used by nearly all of the teachers (> 90%). Establishing 'netiquette' (i.e., providing students with information about appropriate ways of online interaction), was used less often, but was still used by almost half of the teachers (49%).

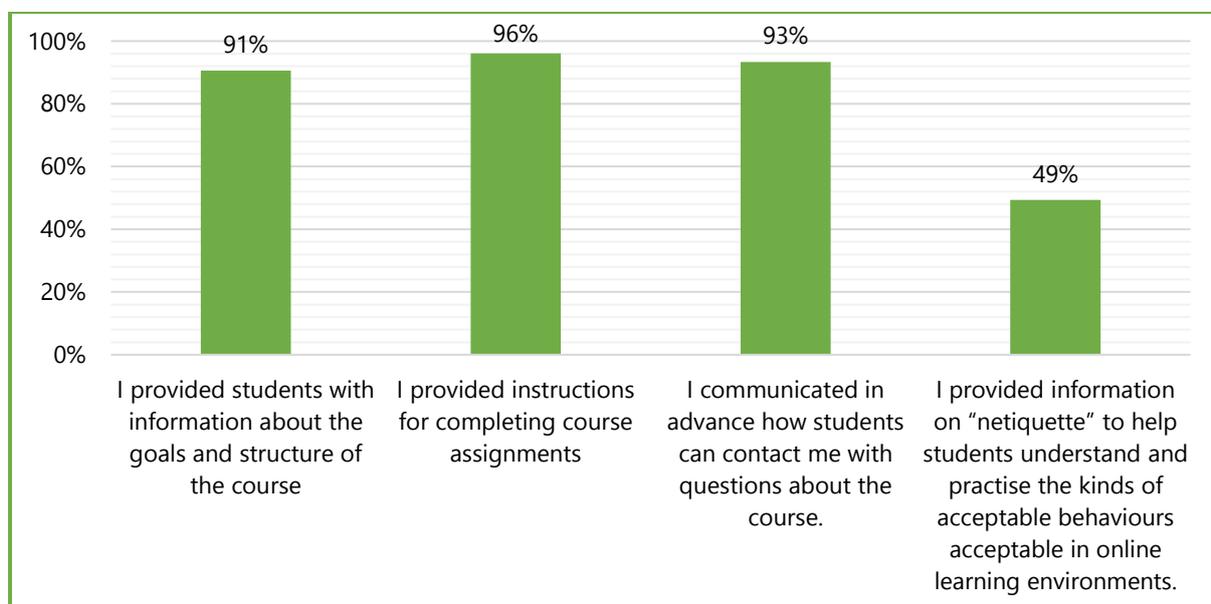


Figure 8. Strategies to communicate course goals and activities ( $N = 901$ )

Regarding faculty differences (see Appendix H), what stands out is the relatively low number of Medicine teachers (74%) who communicated in advance how students could contact them with course-related questions. Further, netiquettes were most often used by teachers from Amsterdam University College (68%) and Social and Behavioural Sciences (58%) and least frequently used by teachers from Science (35%) and Dentistry (40%).

*The biggest lesson is that in zoom you cannot rely on the 'flow' (you cannot go with the flow) but you need to structure and plan your classes very carefully, content wise and time wise, in order to yield a better learning experience.*

(Faculty of Law)

### Strategies to provide direct support to student learning

To support student learning (Figure 9), most teachers promptly replied to students' questions (97%) and provided students with feedback (91%). Six out of ten teachers structured online discussions around specific questions, and an equal number of teachers (61%) reviewed and commented upon students' contributions to online discussions. To help students keep up with the pace of the course, about three quarters (77%) of the teachers posted announcements or sent reminders.

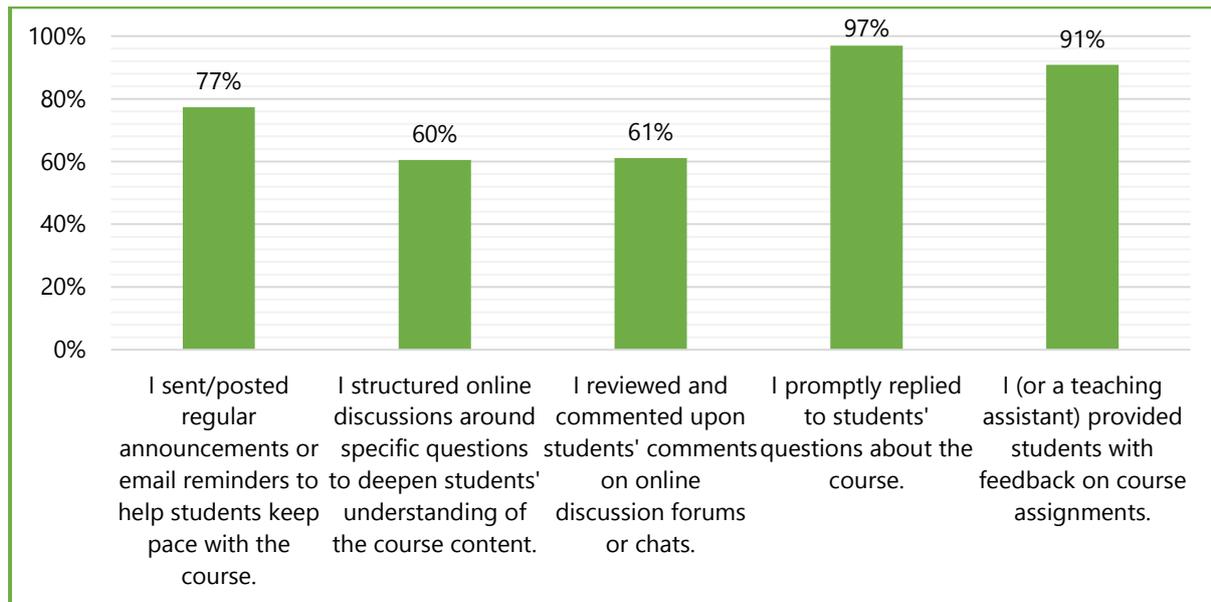


Figure 9. Strategies to support student learning ( $N = 898$ )

With regard to differences among faculties (see Appendix I), regular announcements were mostly posted by teachers from Amsterdam University College (91%), who made least use of the strategy to review and comment upon students' online contributions (41%). The latter may be explained by the less frequent use of online discussion boards within this faculty. Vice versa, Dentistry teachers least frequently posted announcements (65%), but most frequently commented upon students' online contributions (80%). Finally, while almost all Humanities teachers (96%) provided feedback on course assignments to facilitate student learning, less teachers from Dentistry (75%), Economics and Business (77%), and Medicine (77%) did so.

*[In online education], I feel like the grading, giving feedback and communication with students takes up way more time and energy than before, which means a bigger workload for me as a teacher. I also think that students are more result-focused than process-focused, which makes them more anxious about grades and deadlines, as this is probably more prominent in the absence of regular classes where group dynamics are an important aspect.*

*(Faculty of Humanities)*

### Strategies to facilitate social interaction

To facilitate social interaction, the most frequently used strategy was to refer to students by name in online discussions. About two-thirds of the teachers let students work in group assignments (67%), provided opportunities for students to get to know each other (62%), or let students present their work online (61%). Less used strategies include letting students themselves moderate online discussions (24%) and teachers creating short videos to increase their presence (27%).

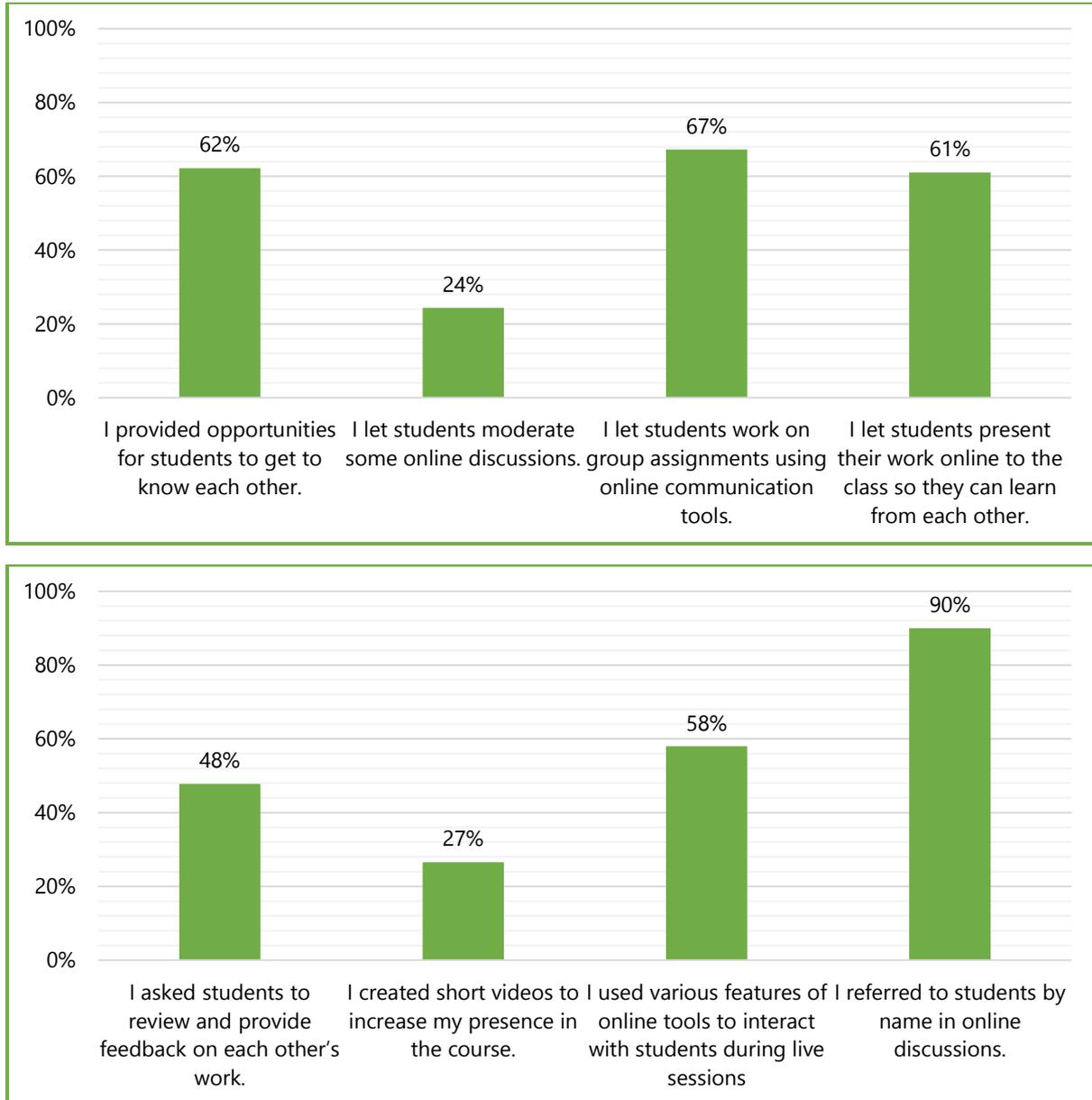


Figure 10. Strategies to facilitate social interaction (N = 892)

*A peer review session I organized with break-out rooms was actually so nice that I wish to continue using the format after the pandemic is over.*

*(Faculty of Humanities)*

The use of these social interaction strategies widely varied across faculties (see Appendix J). For example, providing social opportunities for students to get to know each other was more frequently used by Amsterdam University College teachers (77%) than by Medicine teachers (29%). The number of Dentistry teachers who allowed students to moderate discussions (40%) was far greater than the number of Science teachers (17%) who did so. Further, almost twice as many teachers from Dentistry used peer feedback (60%) as teachers from Economics and Business (29%). Teachers from Economics and Business, on the other hand, made far more use of videos to increase their presence (55%) than Humanities teachers (16%).

*It is more difficult to let everyone speak, it is difficult to let students interact in small groups and give each other feedback. The interaction is not as pleasant because only one person is able to speak at a time. In addition, it doesn't help that some students turn off their camera and there are internet issues (both on my side and on students' side).*

*(Faculty of Humanities, translated from Dutch)*

### Institutional support for online and blended teaching

Teachers were asked to rate the institutional support they received, which support channels they used, and what they would like to know more about in the future. On average, teachers were quite satisfied with the support they received ( $M = 6.74$ ,  $SD = 1.89$ ), where about two-thirds of the teachers rated it 7 or higher. About a quarter (23%) of the teachers were dissatisfied ( $\leq 5$ ) with the support they received.

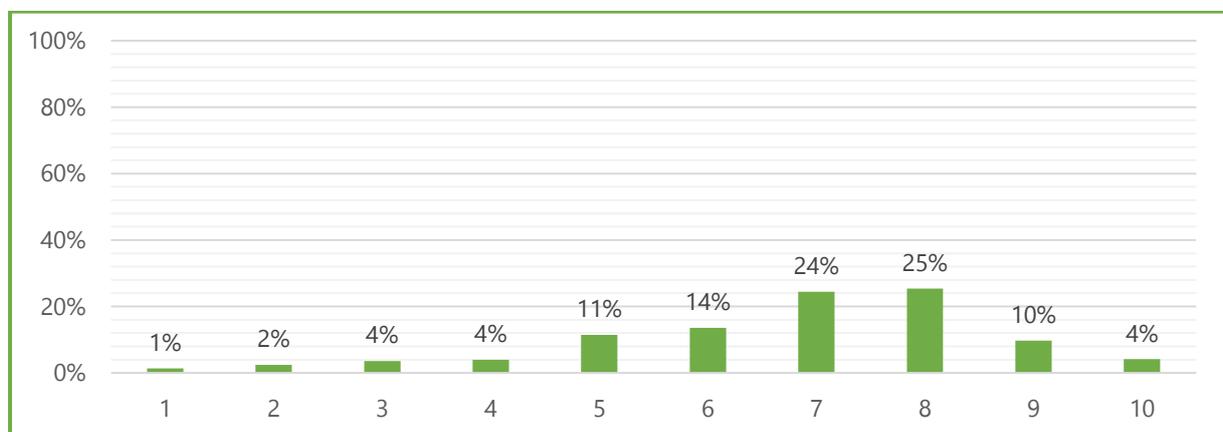


Figure 11. Overall satisfaction of teachers with their support ( $N = 732^2$ )

Interestingly, contrary to the satisfaction with online teaching, there were little to no differences among faculties with respect to the support they received (see Appendix K). The only exception being Amsterdam University College: the average experienced support ( $M = 5.29$ ,  $SD = 2.28$ ) was

<sup>2</sup> Due to a technical error this question was only filled in by 732 teachers

over a full point lower than for all other faculties. It is important to note, however, that this is based on a low number of responses ( $n = 17$ ).

Teachers were also asked to indicate which support channels they used, if any. Teachers were able to select multiple options. On average, teachers used two support channels ( $M = 1.92$ ,  $SD = 1.10$ ). Figure 10 shows that over half of the teachers (55%) consulted the "Keep on teaching" pages of the UvA. About a quarter (23%) directly asked support from the Teaching and Learning Centre (TLC) and one in eight teachers consulted the "Educational Re-design Aid" site. One in three teachers received faculty support, and some teachers also followed a workshop or training organized by the faculty (19%) or central university services (13%). About one in five teachers (21%) used other support channels, mostly advice from colleagues. About 18% of the teachers who completed the survey did not use any support channel.

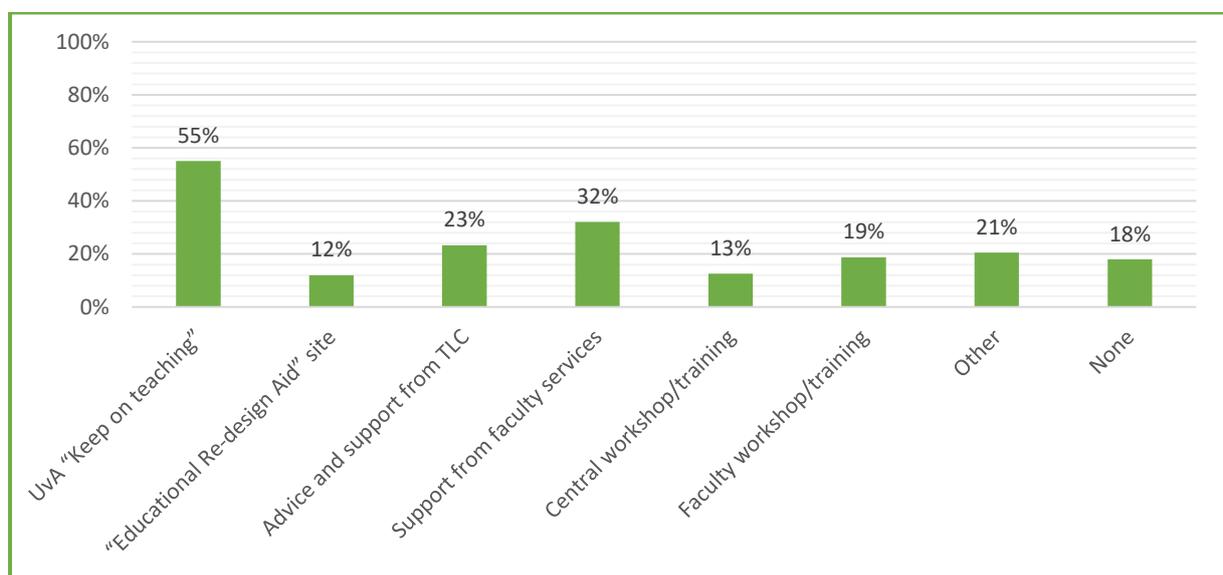


Figure 12. Support channels teachers used

When asked what topics teachers would like to know more about with regard to online education, seventy percent of the teachers indicated to be at least moderately interested in all the topics proposed (Figure 13). Most teachers indicated that they are very or extremely interested to know more about effective instructional strategies for online education (64%) and how to engage and motivate students in online environments (67%). Teachers are relatively less interested in online teacher roles (37%) and the development of online learning communities (40%).

In addition, most teachers are very or extremely interested in having access to good online education practices (64%), students' experiences with online education (79%) and colleagues' experiences with online education (70%). Similarly, seventy percent of the teachers indicated to be at least moderately interested to have access to training, expert advice, and instruction videos (Figure 14).

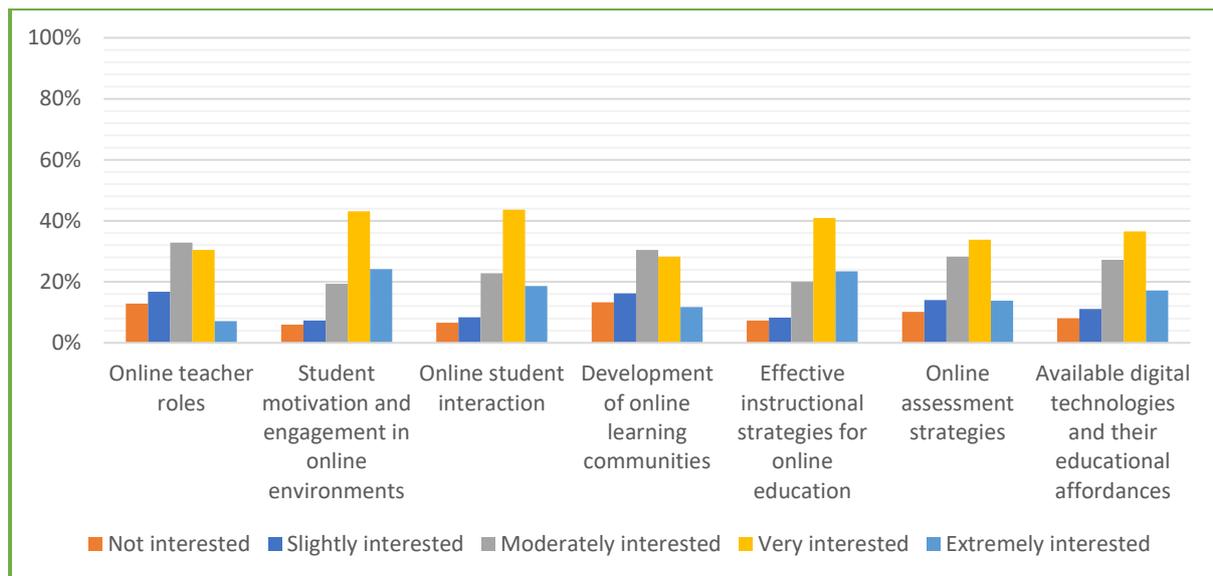


Figure 13. Topics teachers would like to know more about

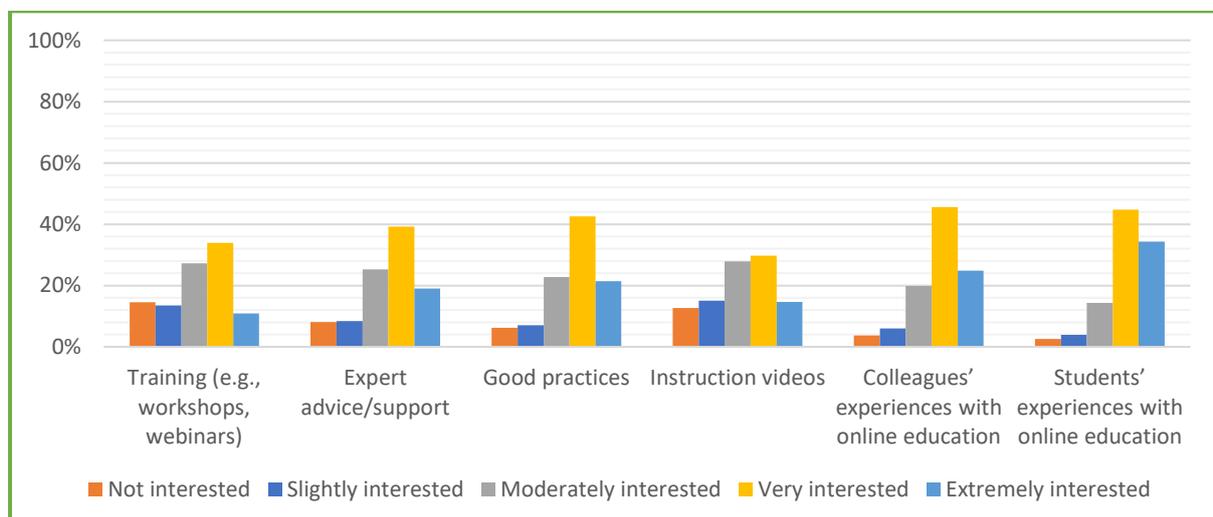


Figure 14. Types of support teachers would like to have access to

### Views about the role of online (aspects of) education in the future

Lastly, teachers were asked to indicate the extent to which they agree with the following statement on a 5 point scale: "I think in the future online education will be a good complement to face-to-face education". Almost sixty percent of the teachers somewhat agreed (39%) or strongly agreed (20%) with this statement. A little over twenty percent somewhat disagreed (13%) or strongly disagreed (8%).

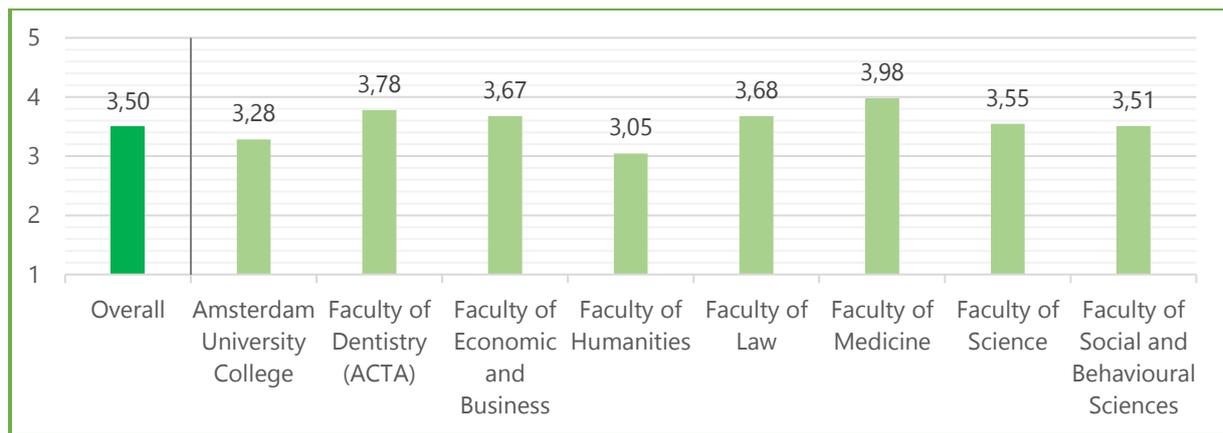


Figure 15. Online education will be a good complement to face-to-face education (mean score)

*I would like to keep and reuse my recorded lectures and tutorials. This was a huge investment and it would be good to use them in the future complementing with additional on-campus training and learning.*

*(Faculty of Economics and Business)*

*I want to use the technologies that we are now developing to connect the learning experience on campus with the outside world, e.g. through linking up with guest speakers or visitors from the labor market or stakeholders of projects in which students are involved. The technologies are great for connecting the inside (campus) with the outside (world), but they should not replace face-to-face teaching.*

*(Faculty of Social and Behavioural Sciences)*

Looking at mean scores between faculties (see Figure 15), particularly teachers from Medicine were most optimistic about the complementary value of online education ( $M = 3.98$ ,  $SD = 0.87$ ). Teachers from Humanities were most skeptical, although on average still moderately agreed with the statement ( $M = 3.05$ ,  $SD = 1.24$ ).

*I would use the interactive elements even more in large-scaled education than I already did. Less frequently I would simply ask a question and see who responds, but [I would like to] use the online tools more often to appeal to everyone.*

*(Faculty of Medicine, translated from Dutch)*

*[I would keep] absolutely nothing. I want to go back into the lecture hall, and work with students in the real world. Personal contact is essential for my education and I cannot get that across behind a screen.*

*(Faculty of Science, translated from Dutch)*

## Conclusion and discussion

This study provides insight into how UvA teachers experienced the forced transition to online teaching due to the COVID-19 pandemic, and into the strategies they used to facilitate social and cognitive processes in the courses they taught online. We also report on how teachers experienced institutional support for online education and their views on the role of online (aspects of) education in the future. Below we synthesize the main findings of our study and discuss them in light of previous research.

### Experiences with online teaching

#### Mix of positive and negative experiences

Teachers rated their experiences with online teaching on average 5.7 on a scale of 1 to 10; however, their experiences varied largely. Some teachers were very positive about the opportunities online education offered them to experiment with new pedagogical strategies and to re-think their course design, while others were rather skeptical about the possibilities of online education and view it as a poor substitute for face-to-face education. Differences between faculties were also large, with teachers in some faculties (e.g., Law, Medicine and Dentistry) being more positive on average than teachers from other faculties (e.g., Amsterdam University College, Economics and Business).

These results echo the findings of other studies that surveyed higher education teachers' experiences with online education during the COVID-19 pandemic both in the Netherlands (e.g., Dragt et al., 2021; Stevens et al., n.d.) and abroad (e.g., Marek et al., 2021; Scherer et al., 2021; Watermeyer et al., 2020) in which high variability in the ways teachers experienced online education was also reported.

#### Teachers miss face-to-face contact with their students

Teachers stated to miss face-to-face contact with their students, which prevented them from getting to know students as well as usual. They also felt that the level of interaction in online education was fairly low and that monitoring students' progress in online courses was more challenging than in face-to-face courses.

Previous studies revealed similar concerns about limited interpersonal contact with students in online education (e.g., Bower, 2001; Bolliger & Wasilik, 2009). Such interpersonal interactions are often experienced as one of the most gratifying aspects of teaching and help teachers to notice whether students are following along or are encountering problems (Boelens et al., 2017; Bower, 2001). Because access to nonverbal cues (e.g., body language, eye contact) is more limited in online environments than in face-to-face teaching, teachers need to renew the repertoire of strategies they typically use to notice student learning and to bond with students (Boelens et al., 2017; Wallace, 2003). Notwithstanding these challenges, research suggests that, when thoughtfully designed, online education experiences can lead to meaningful interactions among teachers and students (e.g., Caskurlu et al., 2021; Weidlich & Bastiaens, 2019).

## Online teaching practices

### Broad range of online instructional and assessment strategies

Next to online lectures and seminars, more than half of the teachers made use of online (individual or group) assignments and online question and answer sessions (Q&A's). This suggests that teachers did not limit themselves to putting their lectures online, but they seem to have looked for alternatives to adjust their course design and teaching in ways that best suit the intended learning.

With regard to online assessment strategies, examinations (e.g., multiple choice exams, oral exams, open book exams) were most frequently used, followed by reports, essays and student presentations. Alternative forms of assessment such as portfolios, lab activities and graded peer feedback were seldomly used. Interestingly, previous studies suggest that such alternative forms of assessment can be particularly effective in online environments because of the opportunities offered by new technologies (Gaytan & McEwen, 2007; Wang, 2010).

### Digital technologies used to meet different instructional purposes

A range of digital technologies were used by teachers to support different instructional purposes. To *facilitate interactions* with and between students most teachers used videoconferences, email, breakout rooms, announcements and discussion forums. A few teachers also made use of social media technologies, such as WhatsApp and Discord. To *present course content*, teachers relied primarily on presentation software and videoconferences. Notably, digital technologies that may stimulate a more active role of students in knowledge construction (e.g., simulations, educational games, collaborative annotation tools) were less frequently used. Finally, different digital technologies were used to *assess student learning*, ranging from peer-review tools, online quizzes and polls to surveillance software for online examinations. Interestingly, around one quarter of the teachers did not use any digital technology at all to assess student learning.

While these findings suggest that digital technologies were used to meet different instructional purposes, the affordances new technologies may offer to facilitate student learning through, for example, experimentation, personalization or collaborative knowledge construction, appear to have not yet been fully exploited. This is understandable considering the circumstances in which teachers had to transition their courses online.

## Strategies to facilitate social and cognitive processes in online learning

To gain insight into how teachers orchestrated the design and facilitation of social and cognitive processes to support student online learning (i.e., teaching presence), we asked which specific strategies they used to 1) communicate course goals and activities; 2) provide direct support to student learning; and 3) facilitate social interactions.

### Strategies to communicate course goals and activities

Previous research suggests that in online environments teachers must be more explicit and transparent regarding their course design because the social cues and norms of the traditional classroom are absent (Anderson et al., 2001). Clear goals, assignment instructions and participation guidelines can positively influence students' online learning experiences (Caskurlu et al., 2021; Shea et al., 2006). Our study reveals that most teachers communicated course goals and activities, provided instructions for completing course assignments and communicated in

advance how students could contact them for questions about the course. Although less often, teachers provided information on how to appropriately communicate online ("netiquette").

### Strategies to provide direct support to student learning

Because in online courses the psychological distance between teachers and students is larger (Wallace, 2003), online teachers need to more actively scaffold and guide student learning (Caskurlu et al., 2021). By structuring, reviewing and commenting upon students' contributions to online discussions, teachers can confirm student understanding, identify misconceptions and clarify questions. Teachers reported to have used different strategies to support students in reaching the intended learning outcomes. For example, the majority of teachers promptly replied to students' questions and provided students with feedback. Less often teachers posted announcements to help students keep up with the pace of the course, structured online discussions around specific questions or reviewed and commented upon students' contributions in online discussions.

### Strategies to facilitate social interactions

Previous research indicates that strategies specifically aimed at supporting social interactions can contribute to the development of a sense of community, which has shown to positively influence student learning and satisfaction (Caskurlu et al., 2021; Richardson et al., 2017). Notably, our findings reveal that the use of strategies to support social interaction was less frequent and varied largely between teachers and faculties. Over half of the teachers who participated in the survey provided opportunities for students to get to know each other or organized group assignments. Far less often teachers let students themselves moderate online discussions, asked students to provide feedback on each other's work or created short videos to increase their presence.

## Institutional support

### General satisfaction with the support received

The importance of providing teachers with adequate institutional support when transitioning to online education has been extensively discussed in the literature (e.g., Scherer et al., 2021; Van Dorresteijn et al., 2020). Our findings suggest that teachers were generally satisfied with the institutional support they received while transitioning their courses online, rating it on average 6.7 on a scale of 1 to 10. About half of the teachers used more than one support channel (e.g., consulted "Keep on teaching" pages, requested expert advice from the Teaching and Learning Centre or followed a training or workshop), and some did not use any support at all (18%). Teachers expressed their interest in learning more about effective instructional strategies and in having access to examples of good online education practices.

### Views on the role of online (aspects of) education in the future

Online education is expected to play an increasingly important role in the future of higher education (Kebritchi et al., 2017; Parker et al., 2011). Almost sixty percent of the teachers agree that online education may be a good complement to face to face education in the future, while a little over twenty percent disagrees. This means that teachers' views are mixed; whereas a majority of teachers is optimistic about the opportunities online aspects of education may bring, there are also several teachers with serious reservations.

## Limitations and further research

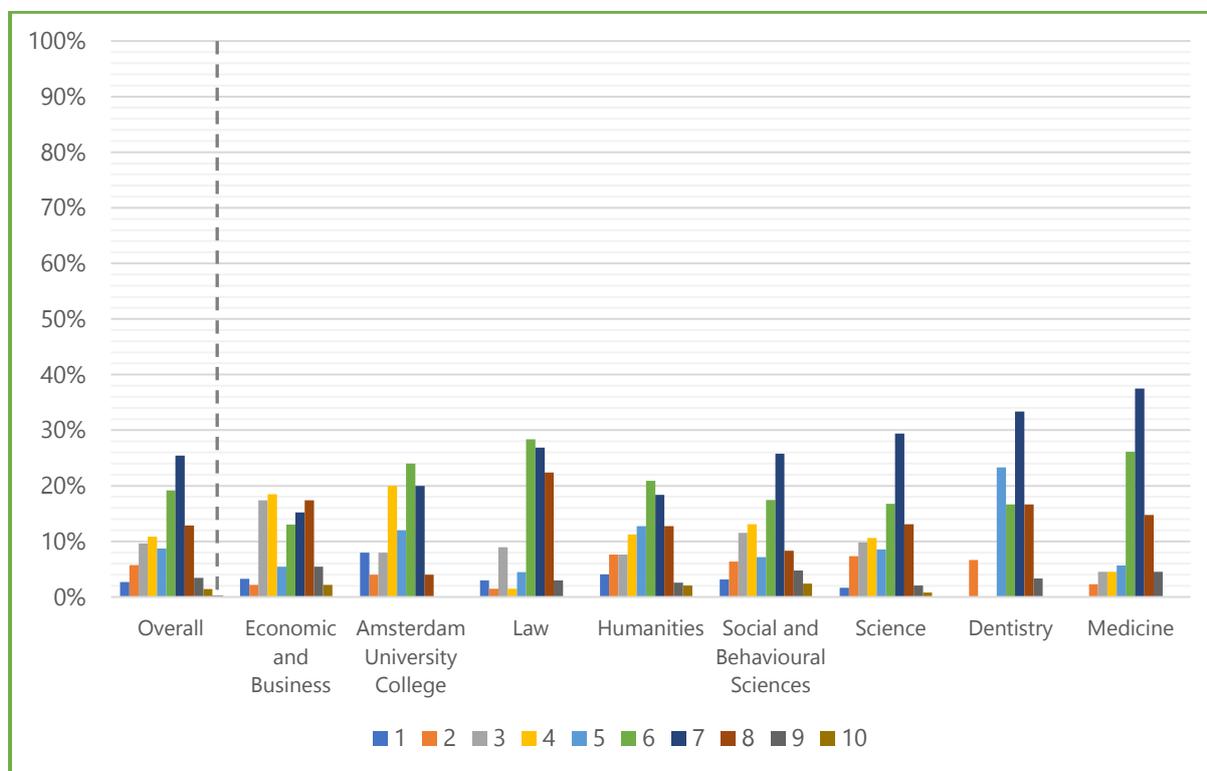
This study provides insight into how teachers at the UvA experienced and addressed online education since the start of the COVID-19 pandemic; however, findings should be interpreted cautiously. While there was an acceptable response rate (27%), it could be that the results present a skewed image due to response bias. Moreover, our findings provide only general insight into the strategies teachers used to support student learning, social interactions and assessment. In a next step we plan to conduct a more systematic analysis of the qualitative data collected through open questions to gain insight into *why* teachers experienced online teaching in a certain way and the specific aspects of online teaching they valued most (or least). Additional quantitative analyses will also be conducted to explore whether the use of certain pedagogical strategies and digital tools is associated with specific types of learning goals and course characteristics (e.g., group size and discipline). Finally, in a follow-up study we use qualitative approaches to investigate how teachers orchestrate social and cognitive processes across different types of courses – thereby yielding insight into design principles that may contribute to effective online and blended education.

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Appendix A: Teacher satisfaction with online teaching per faculty (N = 995)



Appendix B: Online instructional strategies (N = 920)

	All	AUC <sup>1</sup>	ACTA <sup>1</sup>	FEB <sup>1</sup>	FGw <sup>1</sup>	FdR <sup>1</sup>	AMC <sup>1</sup>	FNWI <sup>1</sup>	FMG <sup>1</sup>
Lectures	80%	92%	57%	80%	73%	64%	75%	88%	80%
Seminars	74%	58%	87%	76%	82%	84%	73%	59%	76%
Assignments	71%	83%	61%	54%	74%	61%	63%	77%	72%
Q&A	54%	58%	43%	61%	41%	61%	43%	70%	47%
Other	15%	21%	9%	15%	15%	21%	16%	15%	12%

<sup>1</sup> AUC = Amsterdam University College; ACTA = Faculty of Dentistry; FEB = Faculty of Economic and Business; FGw = Faculty of Humanities; FdR = Faculty of Law; AMC = Faculty of Medicine; FNWI = Faculty of Science; FMG = Faculty of Social and Behavioural Sciences

## Appendix C: Online assessment strategies (N = 916)

	All	AUC <sup>1</sup>	ACTA <sup>1</sup>	FEB <sup>1</sup>	FGw <sup>1</sup>	FdR <sup>1</sup>	AMC <sup>1</sup>	FNWI <sup>1</sup>	FMG <sup>1</sup>
Reports	26%	29%	13%	30%	18%	10%	16%	34%	29%
Essays	39%	58%	4%	24%	65%	44%	10%	19%	51%
Presentations	41%	58%	39%	29%	51%	31%	38%	38%	42%
Portfolios	8%	17%	13%	0%	12%	5%	14%	6%	8%
Lab activities	5%	0%	0%	1%	2%	0%	5%	17%	2%
Quizzes	18%	13%	39%	19%	13%	7%	22%	22%	17%
Exam with open-ended questions	30%	38%	17%	43%	27%	49%	5%	34%	25%
Exam with multiple choice questions	10%	13%	35%	21%	6%	5%	32%	5%	6%
Exam with multiple choice and open-ended questions	14%	17%	4%	19%	10%	7%	15%	21%	11%
Oral exam	13%	8%	0%	7%	12%	28%	2%	16%	12%
Open book exam	14%	13%	4%	2%	13%	18%	2%	24%	13%
Other	22%	33%	30%	11%	22%	8%	19%	27%	23%

<sup>1</sup> AUC = Amsterdam University College; ACTA = Faculty of Dentistry; FEB = Faculty of Economic and Business; FGw = Faculty of Humanities; FdR = Faculty of Law; AMC = Faculty of Medicine; FNWI = Faculty of Science; FMG = Faculty of Social and Behavioural Sciences

## Appendix D: Digital technologies to present course content (N = 916)

	All	AUC <sup>1</sup>	ACTA <sup>1</sup>	FEB <sup>1</sup>	FGw <sup>1</sup>	FdR <sup>1</sup>	AMC <sup>1</sup>	FNWI <sup>1</sup>	FMG <sup>1</sup>
Presentation software	83%	88%	74%	77%	82%	85%	84%	72%	92%
Pre-recorded lectures	40%	29%	48%	62%	30%	43%	30%	34%	46%
Videoconferences	85%	92%	61%	85%	82%	80%	81%	87%	86%
Web resources	46%	54%	48%	40%	55%	34%	41%	37%	52%
Simulations	6%	0%	0%	7%	2%	7%	5%	11%	6%
Games	4%	4%	4%	8%	3%	7%	4%	3%	5%
Other	15%	17%	13%	11%	12%	16%	19%	22%	12%
None	1%	0%	4%	0%	2%	0%	0%	0%	0%

<sup>1</sup> AUC = Amsterdam University College; ACTA = Faculty of Dentistry; FEB = Faculty of Economic and Business; FGw = Faculty of Humanities; FdR = Faculty of Law; AMC = Faculty of Medicine; FNWI = Faculty of Science; FMG = Faculty of Social and Behavioural Sciences

## Appendix E: Digital technologies to interact with students (N = 915)

	All	AUC <sup>1</sup>	ACTA <sup>1</sup>	FEB <sup>1</sup>	FGw <sup>1</sup>	FdR <sup>1</sup>	AMC <sup>1</sup>	FNWI <sup>1</sup>	FMG <sup>1</sup>
Videoconferences	91%	88%	83%	89%	91%	85%	86%	91%	91%
Breakout rooms	68%	75%	74%	48%	69%	70%	59%	62%	78%
Discussion forums	37%	29%	17%	38%	38%	26%	36%	36%	40%
Live chats	29%	17%	35%	31%	27%	30%	44%	29%	26%
Email	76%	88%	52%	73%	87%	79%	35%	74%	80%
Announcements	57%	88%	35%	61%	54%	64%	34%	62%	57%
Other	11%	17%	13%	11%	11%	7%	14%	13%	8%
None	0%	0%	0%	0%	0%	2%	0%	0%	0%

<sup>1</sup> AUC = Amsterdam University College; ACTA = Faculty of Dentistry; FEB = Faculty of Economic and Business; FGw = Faculty of Humanities; FdR = Faculty of Law; AMC = Faculty of Medicine; FNWI = Faculty of Science; FMG = Faculty of Social and Behavioural Sciences

## Appendix F: Digital technologies to facilitate interaction between students (N = 915)

	All	AUC <sup>1</sup>	ACTA <sup>1</sup>	FEB <sup>1</sup>	FGw <sup>1</sup>	FdR <sup>1</sup>	AMC <sup>1</sup>	FNWI <sup>1</sup>	FMG <sup>1</sup>
Videoconferences	46%	54%	52%	33%	48%	36%	48%	44%	50%
Breakout rooms	67%	79%	70%	50%	70%	70%	63%	56%	77%
Discussion forums	40%	17%	17%	39%	44%	44%	35%	41%	41%
Live chats	18%	4%	30%	14%	19%	13%	21%	21%	15%
Email	22%	29%	30%	17%	30%	16%	15%	20%	22%
Announcements	8%	13%	0%	6%	13%	3%	4%	7%	8%
Other	17%	13%	22%	6%	19%	10%	15%	20%	18%
None	6%	13%	0%	18%	4%	8%	9%	5%	3%

<sup>1</sup> AUC = Amsterdam University College; ACTA = Faculty of Dentistry; FEB = Faculty of Economic and Business; FGw = Faculty of Humanities; FdR = Faculty of Law; AMC = Faculty of Medicine; FNWI = Faculty of Science; FMG = Faculty of Social and Behavioural Sciences

## Appendix G: Digital technologies to assess student learning (N = 911)

	All	AUC <sup>1</sup>	ACTA <sup>1</sup>	FEB <sup>1</sup>	FGw <sup>1</sup>	FdR <sup>1</sup>	AMC <sup>1</sup>	FNWI <sup>1</sup>	FMG <sup>1</sup>
Peer-review tools	32%	33%	30%	24%	39%	38%	15%	24%	38%
Voting tools/polls	16%	17%	13%	28%	7%	21%	30%	18%	10%
Online Quizzes	23%	21%	22%	25%	20%	13%	25%	27%	23%
Videoconferences for oral exams	13%	21%	22%	10%	14%	13%	14%	17%	8%
Surveillance software	24%	21%	35%	63%	8%	25%	24%	29%	17%
Other	20%	13%	9%	11%	17%	15%	16%	29%	22%
None	22%	21%	26%	12%	31%	18%	21%	14%	26%

<sup>1</sup> AUC = Amsterdam University College; ACTA = Faculty of Dentistry; FEB = Faculty of Economic and Business; FGw = Faculty of Humanities; FdR = Faculty of Law; AMC = Faculty of Medicine; FNWI = Faculty of Science; FMG = Faculty of Social and Behavioural Sciences

Appendix H: Strategies to communicate course goals and activities (N = 905)

	All	AUC <sup>1</sup>	ACTA <sup>1</sup>	FEB <sup>1</sup>	FGw <sup>1</sup>	FdR <sup>1</sup>	AMC <sup>1</sup>	FNWI <sup>1</sup>	FMG <sup>1</sup>
I provided students with information about the goals and structure of the course.	91%	95%	85%	93%	92%	86%	87%	92%	89%
I provided instructions for completing course assignments.	96%	95%	90%	91%	99%	95%	91%	96%	97%
I communicated in advance how students can contact me with questions about the course.	93%	95%	90%	96%	96%	98%	74%	94%	95%
I provided information on "netiquette" to help students understand and practise the kinds of acceptable behaviours acceptable in online learning environments.	49%	68%	40%	56%	50%	54%	49%	35%	58%

<sup>1</sup> AUC = Amsterdam University College; ACTA = Faculty of Dentistry; FEB = Faculty of Economic and Business; FGw = Faculty of Humanities; FdR = Faculty of Law; AMC = Faculty of Medicine; FNWI = Faculty of Science; FMG = Faculty of Social and Behavioural Sciences

Appendix I: Strategies to support student learning (N = 898)

	All	AUC <sup>1</sup>	ACTA <sup>1</sup>	FEB <sup>1</sup>	FGw <sup>1</sup>	FdR <sup>1</sup>	AMC <sup>1</sup>	FNWI <sup>1</sup>	FMG <sup>1</sup>
I sent/posted regular announcements or email reminders to help students keep pace with the course.	77%	91%	65%	77%	84%	71%	47%	79%	82%
I structured online discussions around specific questions to deepen students' understanding of the course content.	60%	50%	65%	52%	69%	59%	53%	55%	65%
I reviewed and commented upon students' comments on online discussion forums or chats.	61%	41%	80%	70%	61%	51%	66%	66%	55%
I promptly replied to students' questions about the course.	97%	95%	95%	97%	99%	98%	83%	98%	98%
I (or a teaching assistant) provided students with feedback on course assignments.	91%	95%	75%	77%	96%	86%	77%	94%	95%

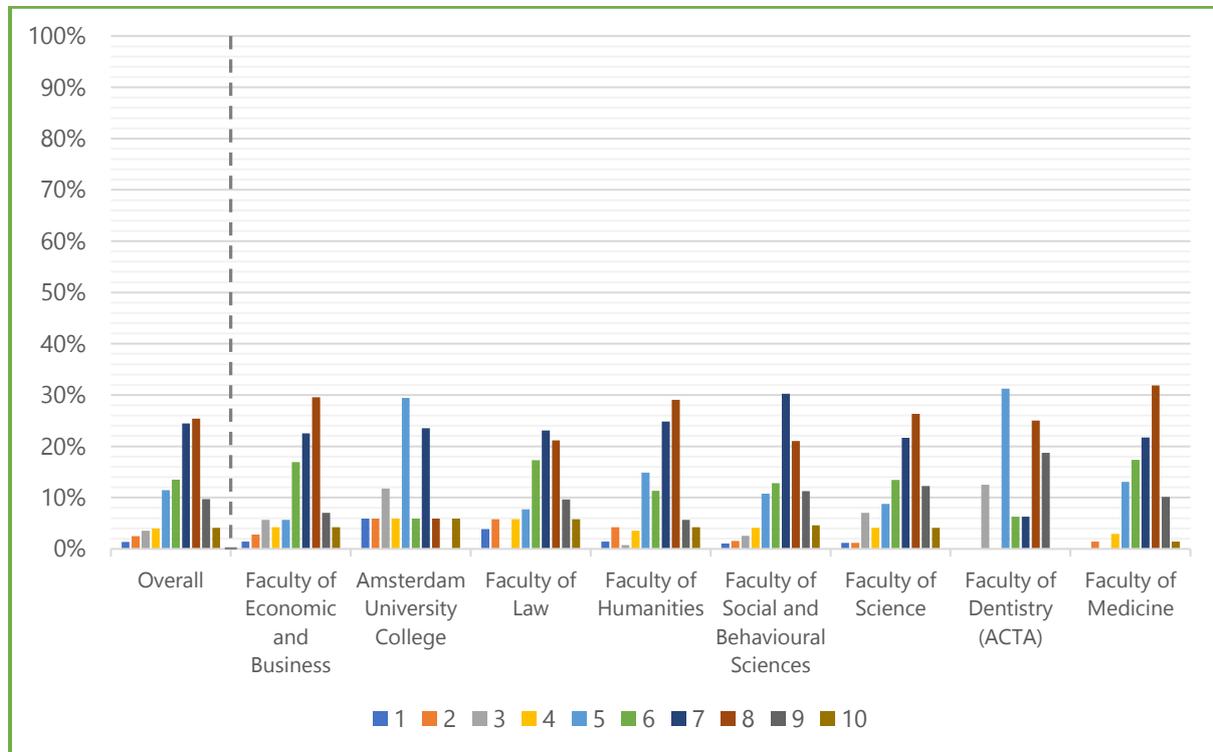
<sup>1</sup> AUC = Amsterdam University College; ACTA = Faculty of Dentistry; FEB = Faculty of Economic and Business; FGw = Faculty of Humanities; FdR = Faculty of Law; AMC = Faculty of Medicine; FNWI = Faculty of Science; FMG = Faculty of Social and Behavioural Sciences

## Appendix J: Strategies to facilitate social interaction (N = 892)

	All	AUC <sup>1</sup>	ACTA <sup>1</sup>	FEB <sup>1</sup>	FGw <sup>1</sup>	FdR <sup>1</sup>	AMC <sup>1</sup>	FNWI <sup>1</sup>	FMG <sup>1</sup>
I provided opportunities for students to get to know each other.	62%	77%	60%	53%	71%	61%	29%	57%	74%
I let students moderate some online discussions.	24%	32%	40%	18%	28%	25%	19%	17%	30%
I let students work on group assignments using online communication tools.	67%	82%	60%	56%	67%	69%	60%	67%	73%
I let students present their work online to the class so they can learn from each other.	61%	77%	70%	42%	71%	58%	66%	50%	67%
I asked students to review and provide feedback on each other's work.	48%	59%	60%	29%	53%	41%	57%	39%	55%
I created short videos to increase my presence in the course.	27%	27%	35%	55%	16%	27%	23%	24%	28%
I used various features of online tools to interact with students during live sessions (e.g. polls, emoticons, whiteboard, chat).	58%	41%	35%	63%	57%	61%	65%	59%	57%
I referred to students by name in online discussions.	90%	95%	85%	77%	96%	90%	87%	88%	93%

<sup>1</sup> AUC = Amsterdam University College; ACTA = Faculty of Dentistry; FEB = Faculty of Economic and Business; FGw = Faculty of Humanities; FdR = Faculty of Law; AMC = Faculty of Medicine; FNWI = Faculty of Science; FMG = Faculty of Social and Behavioural Sciences

Appendix K: Teacher satisfaction with the support per faculty (N = 732)



Appendix L: Survey instrument



## Welcome

Welcome to the Experiences with Online Education Survey!

### Purpose of the study

This study aims to learn from your experiences with online education in the period March – December 2020. Specifically, we would like to gain insight into how you have adjusted your teaching and assessment practices as you transitioned your courses online, and into the (pedagogical) opportunities and challenges you have experienced in this process. The results will contribute to inform further development and improvement of digital and blended (forms of) education at the UvA.

Your participation in this study is **voluntary**. You can stop the survey at any point without providing any reasons for it.

### Your privacy is guaranteed

The data we receive will be processed anonymously and used only for research purposes. Email addresses will only be used to distribute the survey and will be directly removed after data collection is closed. Results will be aggregated and reported at a faculty level and will not be traceable to individual staff members. Further, individual-level information will not be disseminated within the UvA or provided to third parties under any circumstances.

## Study Information

### This Survey

The survey is organized into six sections concerned with your overall experiences with online education, the choices you made as you designed (components of) an online course, and the strategies you used to promote online learning. In addition, a number of items are included to gather information on your background characteristics, the characteristics of the courses you have taught and institutional support. **Completing the survey will take you approximately 15 minutes.**

### Further information

Should you have questions about this study at any given moment, please contact prof. dr. Monique Volman, [m.l.volman@uva.nl](mailto:m.l.volman@uva.nl). Formal complaints about this study can be addressed to Eddie

Brummelman, e.brummelman@uva.nl, member of the Child Development and Education Ethics Review Board.

## Informed Consent

### Consent form

I have read and understand the study information and agree to participate in this study in accordance with the information provided herein. I reserve the right to stop the survey at any point without providing any reason for it.

Yes   No

## Section A. Background Characteristics

For which faculty do you mostly work?

- Faculty of Economic and Business
- Faculty of Humanities
- Faculty of Medicine
- Faculty of Social and Behavioural Sciences
- Faculty of Science
- Faculty of Law
- Faculty of Dentistry (ACTA)
- Amsterdam University College

Wat is your position?

- PhD candidate
- Post-doc researcher
- Researcher
- Teacher
- Assistant professor
- Associate professor
- Professor
- Other

Did you teach in the period March-December 2020?

- No
- Yes



## Section B. Experiences with Online Education

### Experiences with Online Education

We would like to learn how you have experienced online education during the COVID-19 pandemic. Please indicate the extent to which you agree with the statements below.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
The level of interaction with students in an online course is higher than in a face-to-face course.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My students are actively involved in online course activities.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I miss face-to-face contact with students when teaching online.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My students are active in communicating with me regarding online course matters.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am better able to monitor student progress in an online course than in a face-to-face course.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The participation level of my students in online discussions is lower than in face-to-face discussions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Not meeting my students face-to-face prevents me from knowing them as well as on-site students.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I find it more difficult to motivate my students in the online environment than in a face-to-face setting.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I think in the future online education will be a good complement to face-to-face education.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How did you experience online teaching during the COVID-19 pandemic? Please rate on a scale of 1 to 10

Negative experience					Positive experience					
1	2	3	4	5	6	7	8	9	10	

Can you please explain why?



## Section C. Course Characteristics

### Course Characteristics

We would like to gain insight into how you have adjusted your teaching and assessment practices as you transitioned your courses online. Therefore, throughout the rest of this questionnaire we ask you to please ***keep in mind one of the courses you have taught (mostly) online*** since March 2020. You can think, for example, of a course that you have taught before or that is most representative of your teaching practice.

In what faculty was this course offered?

- Faculty of Economic and Business
- Faculty of Humanities
- Faculty of Medicine
- Faculty of Social and Behavioural Sciences
- Faculty of Science
- Faculty of Law
- Faculty of Dentistry (ACTA)
- Amsterdam University College
- The course was offered as part of an interdisciplinary programme

Had you taught this course before the start of the lockdown in March 2020?

- No, this was the first time
- Yes, one time
- Yes, several times

Were you the coordinator for this course?

- No
- Yes

In which block did you teach this course?

- Fourth block, 2019-2020 (February-March 2020)
- Fifth block, 2019-2020 (April-May 2020)
- Sixth block, 2019-2020 (June-July 2020)
- Summer vacation 2019-2020
- First block, 2020-2021 (September-October 2020)
- Second block, 2020-2021 (November-December 2020)

In which study year was this course taught?

- Bachelor, first year
- Bachelor, second year
- Bachelor, third year
- Bachelor, fourth year
- Premaster
- Master, first year
- Master, second year
- Master, third year
- Other, namely:

How many ECTS did this course cover?

How many students were enrolled in this course?

- Less than 10 students
- 10 to 39 students
- 40 to 99 students
- 100 to 249 students
- 250 to 499 students
- 500 to 1000 students
- More than 1000 students
- I do not know

## Section D: Online Course Design

## Online Course Design

The following items pertain to the choices you made while preparing this course for online delivery. If the course was offered partially on campus, please answer the questions below bearing in mind the **online component(s) of the course**.

To what extent did this course address the following types of learning goals based on the Dublin Descriptors?

	Not addressed				Primary focus
	1	2	3	4	5
Knowledge and understanding	<input type="radio"/>				
Applying knowledge and understanding	<input type="radio"/>				
Making judgements	<input type="radio"/>				
Communication	<input type="radio"/>				
Learning skills	<input type="radio"/>				

What type of online **instructional strategies** did you use in this course? (*Multiple options possible*)

- Online lectures
- Online guest lectures
- Online (interactive) seminars
- Online assignments (individual or group)
- Online Question & Answer (Q&A) sessions
- Other, namely:

How did you **assess** student learning in this course? (*Multiple answers possible*)

- Reports
- Essays
- (Online) Student presentations
- Portfolios
- Lab activities
- Quizzes
- Exam with multiple choice questions
- Exam with open-ended questions

- Exam with multiple choice and open-ended questions
- Oral exam
- Open book exam
- Other, namely:

What digital technologies did you use to **present course content**? (*Multiple answers possible*)

- Presentation software (e.g., PowerPoint, Prezi)
- Pre-recorded lectures
- Videoconferences (e.g., via Zoom or MS Teams)
- Web resources (e.g., YouTube videos, blogs, websites)
- Simulations
- Games
- Other, namely:
- None

What digital technologies did you use to **interact with your students** online? (*Multiple answers possible*)

- Videoconferences (e.g., via Zoom or MS Teams)
- Breakout rooms (e.g., via Zoom)
- Discussion forums
- Live chats
- Email
- Announcements
- Other, namely:
- None

What digital technologies did you use to **facilitate interaction between students**? (*Multiple answers possible*)

- Videoconferences (e.g., via Zoom or MS Teams)
- Breakout rooms (e.g., via Zoom)
- Discussion forums
- Live chats
- Email

- Announcements
- Other, namely:
- None

What digital technologies did you use to **assess student learning**? (*Multiple answers possible*)

- Peer-review tools (e.g., SpeedGrader)
- Voting tools/polls
- Online Quizzes
- Videoconferences for oral exams (e.g., via Zoom or MS Teams)
- Surveillance software (e.g., proctoring or Zoom)
- Other, namely:
- None

Can you indicate roughly what percentage of student-teacher contact hours took place online or in hybrid form (i.e., part of the students online and part of the students on campus)?

0 10 20 30 40 50 60 70 80 90 100

## Section E: Online teaching strategies

### Online Teaching Strategies

The following items pertain to the various strategies you have used to facilitate online student learning. If the course was offered partially on campus, we would like to ask you to answer the statements below for the **online component(s) of the course**.

Please indicate whether each of the statements below apply to the course you have in mind.

*Strategies to communicate course goals and activities...*

	Yes	No
I provided students with information about the goals and structure of the course (e.g., through an introductory video or a videoconference).	<input type="radio"/>	<input type="radio"/>
I provided instructions for completing course assignments (e.g., goals of the assignment, tasks, deadlines, assessment criteria).	<input type="radio"/>	<input type="radio"/>
I communicated in advance how students can contact me with questions about the course.	<input type="radio"/>	<input type="radio"/>

	Yes	No
I provided information on “netiquette” to help students understand and practise the kinds of acceptable behaviours acceptable in online learning environments.	<input type="radio"/>	<input type="radio"/>

*Strategies to support student learning...*

	Yes	No
I sent/posted regular announcements or email reminders to help students keep pace with the course.	<input type="radio"/>	<input type="radio"/>
I structured online discussions around specific questions to deepen students' understanding of the course content.	<input type="radio"/>	<input type="radio"/>
I reviewed and commented upon students' comments on online discussion forums or chats.	<input type="radio"/>	<input type="radio"/>
I promptly replied to students' questions about the course.	<input type="radio"/>	<input type="radio"/>
I (or a teaching assistant) provided students with feedback on course assignments.	<input type="radio"/>	<input type="radio"/>

*Strategies to facilitate social interaction...*

	Yes	No
I provided opportunities for students to get to know each other.	<input type="radio"/>	<input type="radio"/>
I let students moderate some online discussions.	<input type="radio"/>	<input type="radio"/>
I let students work on group assignments using online communication tools.	<input type="radio"/>	<input type="radio"/>
I let students present their work online to the class so they can learn from each other.	<input type="radio"/>	<input type="radio"/>
I asked students to review and provide feedback on each other's work.	<input type="radio"/>	<input type="radio"/>
I created short videos to increase my presence in the course.	<input type="radio"/>	<input type="radio"/>
I used various features of online tools to interact with students during live sessions (e.g. polls, emoticons, whiteboard, chat).	<input type="radio"/>	<input type="radio"/>
I referred to students by name in online discussions.	<input type="radio"/>	<input type="radio"/>

## **Section F: Institutional support**

### **Institutional Support**

The following items pertain to the institutional support you have received and would like to receive in order to further improve your online teaching practices.

Please indicate the support you used to design and deliver your online courses (*multiple answers possible*)

- I used the advice provided on the UvA “Keep on teaching” site
- I consulted the “Educational Re-design Aid” developed by the UvA Teaching and Learning Centre
- I asked for advice and support from the UvA Teaching and Learning Centre
- I received support from faculty services
- I followed a workshop/training offered by the university central services
- I followed a workshop/training offered by my faculty
- Other, namely:
- Not applicable

How satisfied were you with the support you received on a scale from 1 to 10?

Very dissatisfied					Very satisfied				
1	2	3	4	5	6	7	8	9	10
<input style="width: 60px; height: 20px;" type="text"/>									

Can you briefly explain why you were/ were not satisfied with the support received?

Please indicate the extent to which you would be interested in learning about the topics listed below.

	Not interested	Slightly interested	Moderately interested	Very interested	Extremely interested
Online teacher roles	<input type="radio"/>				
Student motivation and engagement in online environments	<input type="radio"/>				
Online student interaction	<input type="radio"/>				
Development of online learning communities	<input type="radio"/>				
Effective instructional strategies for online education	<input type="radio"/>				
Online assessment strategies	<input type="radio"/>				

	Not interested	Slightly interested	Moderately interested	Very interested	Extremely interested
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Available digital technologies and their educational affordances	<input type="radio"/>				
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Please indicate the extent to which you would be interested in having access to the professional development opportunities listed below.

	Not interested	Slightly interested	Moderately interested	Very interested	Extremely interested
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Training (e.g., workshops, webinars)	<input type="radio"/>				
Expert advice/support	<input type="radio"/>				
Good practices	<input type="radio"/>				
Instruction videos	<input type="radio"/>				
Colleagues' experiences with online education	<input type="radio"/>				
Students' experiences with online education	<input type="radio"/>				

**Section G: Views on online education**

Based on your experiences, what aspects of online education would you like to keep and why?

Is there anything else you would like to share with us about your experiences with online education?

**Section H: Follow-up study**

Thank you for completing this questionnaire and sharing your experiences with us!

As a follow-up to this survey, we will be organizing online focus groups early next year to find out how we can use the lessons learned in the past period to further improve (online) education at the UvA. Would you like to share your ideas about the future of online (aspects of) education? Please leave your name and email address below. Your contact details will only be used to invite you to participate in a focus group or interview.

Would you like to participate in a follow-up focus group?

- No, I do not want to participate
- Yes, I would like to participate and here is my email adress:

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