Students' and Lecturers' Experiences of the Sudden Shift to Distance Learning in the Wake of the Covid-19 Crisis

Report of Initial Findings

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1. Overview

This report summarizes initial findings from a study of students' and lecturers' experiences of and attitudes towards distance learning and teaching following the sudden shift to online education during the COVID-19 pandemic (March-June, 2020). Three main questions guided the study:

- What are students' and lecturers' attitudes towards the transition from traditional face-to-face learning to distance learning and teaching? Specifically, to what extent are they satisfied with the transition and with the quality of online teaching and learning? Would they like to continue distance learning in the future?

- How did the transition affect the teaching methods used, and how was the use of different methods related to students' and lecturers' satisfaction?

- What are the socio-demographic, psychological and pedagogical antecedents of students' and lecturers' attitudes towards online teaching and learning (e.g., gender, faculty, degree of experience, degree studied, personal goals and pedagogical characteristics)? In particular, how did socially marginalized students experience and cope with the shift to distance learning?

Surveys were sent to all Ben-Gurion University of the Negev students and lecturers. Over five-thousand students and 527 lecturers responded. Respondents approved of the decision to move studies to distance learning during the crisis, and were satisfied with the way the courses were conducted. However, most students and faculty found face-to-face learning to be more effective than on-line learning or similar in its effectiveness vis-à-vis concentration, participation, understanding, interest, and competence; very few students found on-line learning to be preferable or more effective on any of these parameters. Students differ significantly in their attitudes toward distance learning and their perceptions of its effectiveness, depending on their faculty, degree level, stage of studies, and social background. The greatest predictor of students' satisfaction and perceived quality of learning was the extent to which they perceived the learning environment to be supportive, engaging, responsive, and flexible.

In the following report we present findings from the students' survey, followed by findings from the survey of lecturers, and then discussion of implications. These initial findings will eventually be bolstered by further statistical analyses, and by data from interviews with students and lecturers.

2. Student survey

2.1 *Sample characteristics*

An invitation to participate in the study was sent to 22,000 BGU students via e-mail. Of them, 5,292 students (54% female) participated in the study (a 24% participation rate; note that not all students responded to all parts of the survey). All students gave their informed consent, approved by the Ethics committee of the Department of Education. Data were collected during the week of April 30th and May 6th, 2020, about five weeks after the shift to online learning. Figures 1 and 2 present the distribution of students by faculty and academic degree, respectively.

Figure 1. Student distribution by faculty (%)

N=5,287

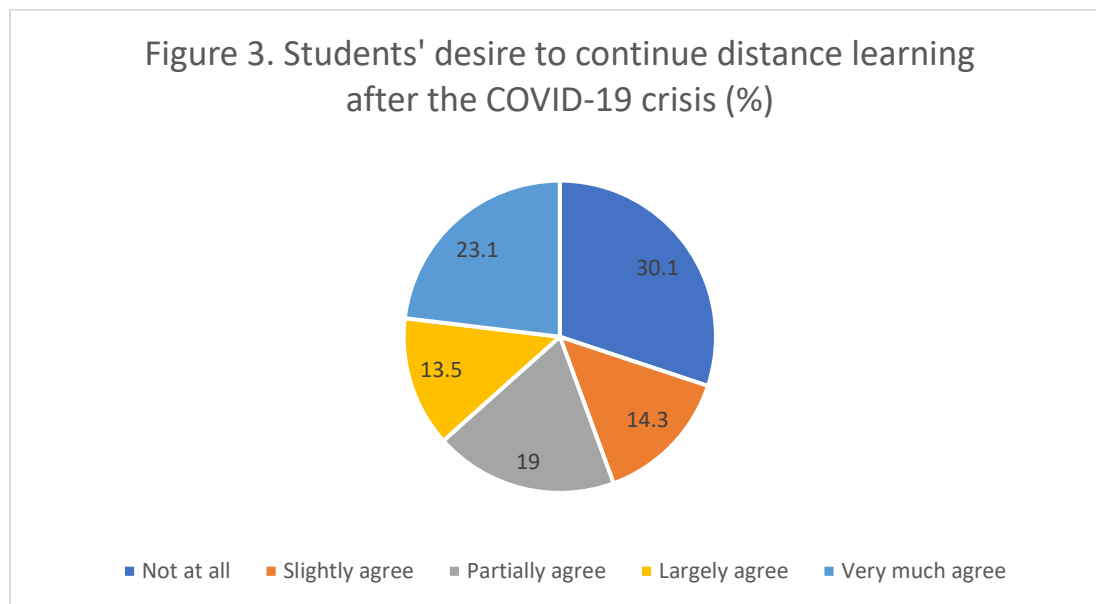Figure 2. Student distribution by academic degree (%)

N=5,287

3
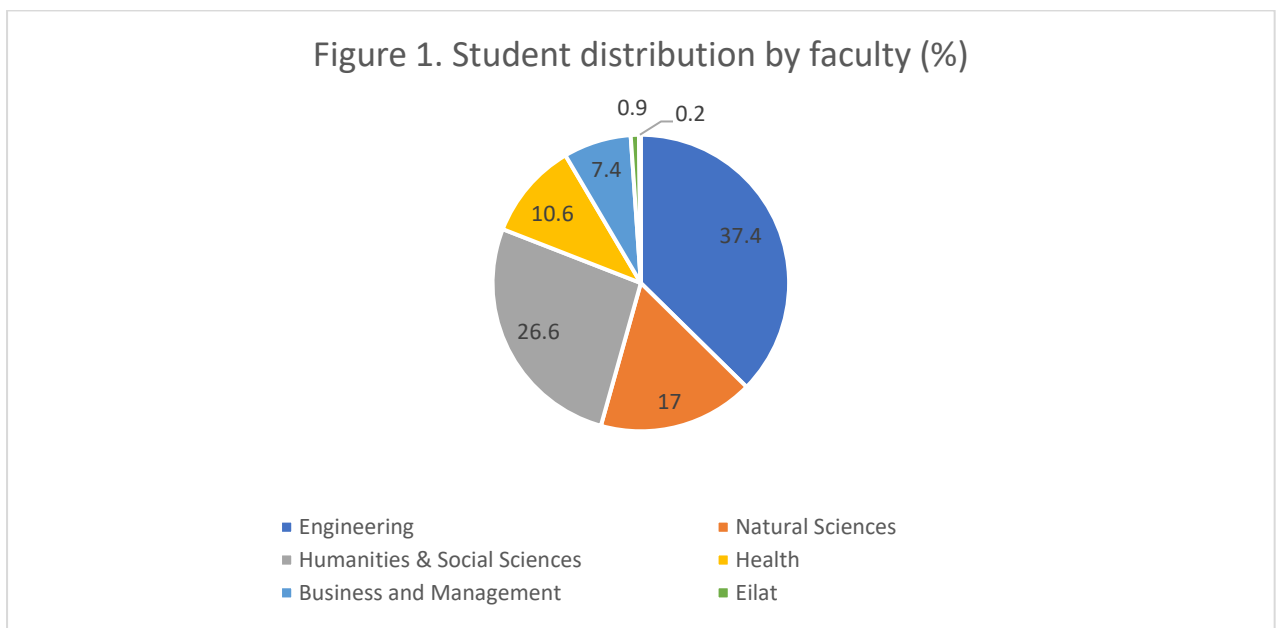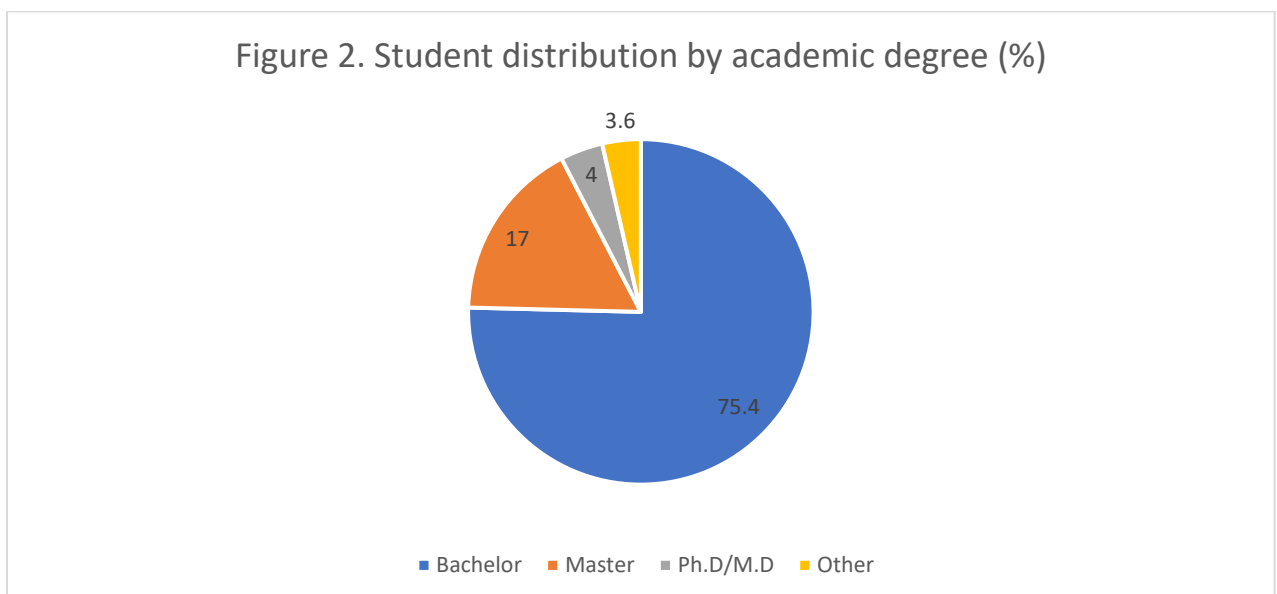
Forty-one percent (41.1%) of the participants were in the first year of their academic program, followed by 29.9% in the second-year, 19.1% in the third year, and 9.9% in the fourth or later year.

*2.2 Student attitudes towards the sudden shift to distance learning*

Students' attitudes towards the sudden shift to distance learning were assessed by five items, including "The transition to distance learning was well conducted", "I would have preferred suspension of studies over distance learning during the crisis", "I would be happy to continue on-line learning even after the crisis is over", "Distance learning has many advantages", and "Distance learning has many disadvantages" (a revised item). More than half of the students were satisfied (36.6%) or very satisfied (21.1%) with the manner in which the transition to distance learning was conducted. Overall, 87% of the students felt that shifting online was a better solution to the crisis than cancelling the semester. However, almost half of the students (44.4%) resisted the idea of continuing their education online after the COVID-19 crisis (Figure 3).

Figure 3. Students' desire to continue distance learning after the COVID-19 crisis (%)

- Not at all: 30.1
- Slightly agree: 14.3
- Partially agree: 19
- Largely agree: 13.5
- Very much agree: 23.1

N=5,031

Interestingly, students' willingness to continue distance learning significantly differed between faculties: Humanities and Social Science students tended to oppose distance learning after the crisis ends, while 40% of the Engineering students, 41.8% of Health students, and 45% of Natural Science students very much or largely agreed with continuing online learning even after conclusion of the COVID-19 crisis (Figure 4). Aggregating all five satisfaction items, women were more satisfied with the shift to distance learning than men and more

readily recognized its advantages. However, no gender differences were identified in students' motivation to continue distance learning after the COVID-19 crisis.


Figure 4. Students' desire to continue distance learning after the crisis, by faculty (%)
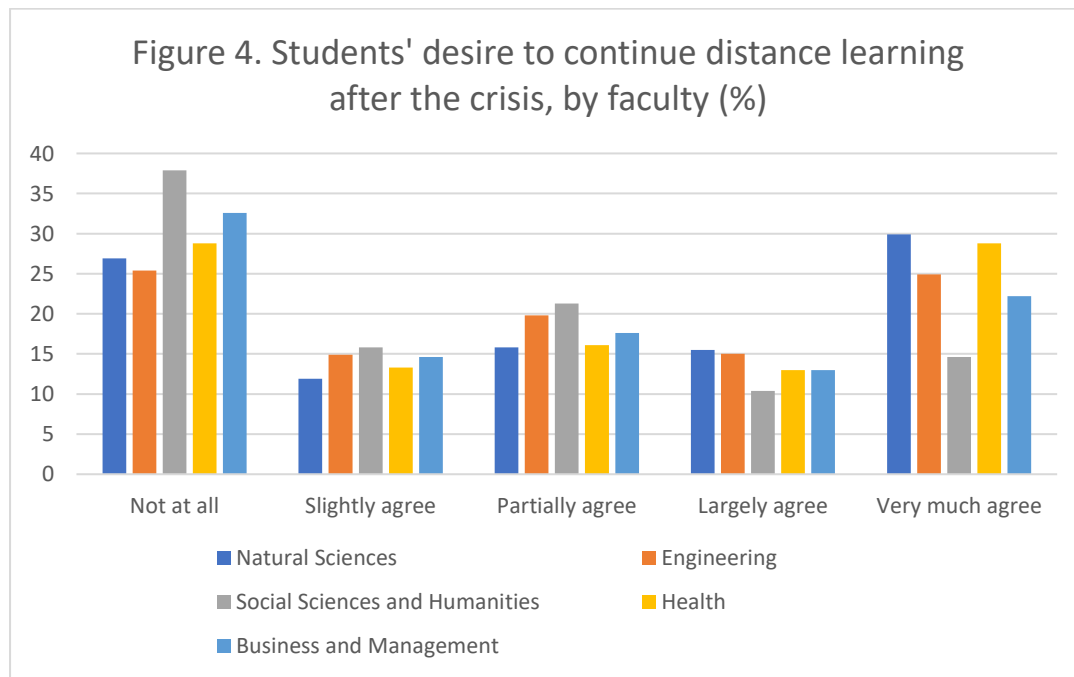
N=5,031

2.3. Perceived support: students' experience of a supportive, engaging, responsive, and flexible online learning environment

Prior research has demonstrated the importance of a supportive learning environment for student learning and development. Hence, we examined the extent to which students perceived the on-line learning environment as supporting their needs, and the relationship between the learning environment and their satisfaction and reported quality of learning. For this and subsequent sections of the survey, we asked students to choose one course upon which to base their responses. Students were asked to report the extent to which their lecturer in that course provided a supportive, engaging, responsive, and flexible learning environment. Examples for items assessing lecturer support include: "The lecturer presents clear expectations from the students"; "The lecturer is attentive to students' questions and ideas"; "When students fail to understand a subject the lecturer explains it in alternative ways"; and "The lecturer plans the class so it will be easy to identify and summarize the central topics". Each student received a score for "level of support s/he receives from the lecturer" which represents the mean score of their answers to these items.

To simplify the interpretation of our findings, we divided the students' responses on the index of perceived support to three categories: Low support (not at all agree and slightly agree), medium support (partially agree) and high support (largely agree, very much agree).

Twenty-nine percent (29%) of the students perceived their lecturer as providing a low level of support (i.e., providing a learning environment that was insufficiently supportive, engaging, responsive, and flexible). Twenty-three percent (23%) perceived their lecturer as supportive of an optimal online learning environment (i.e., a high level of support). The rest of the students (48%) reported a medium level of support (Figure 5). The level of perceived support significantly differed between faculties. For example, 16% of the Engineering students perceived their lecturers as supportive, compared to 30% of the Humanities and Social Science students (Figure 6).


Figure 5. Perceived lecturer suppport (%)

N=2,401

Figure 6. Perceived lecturer support, by faculty (%)
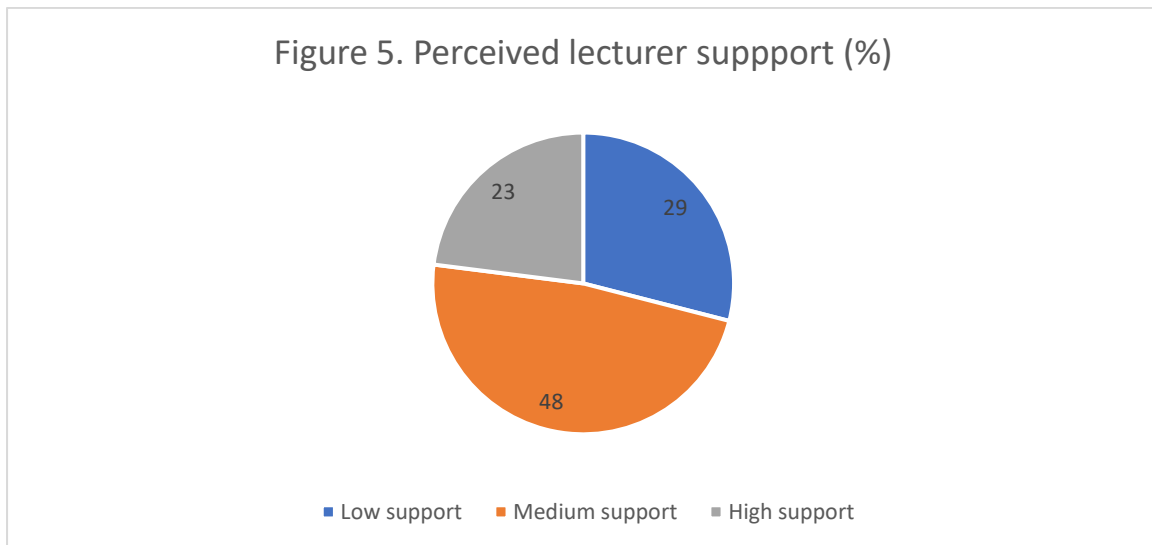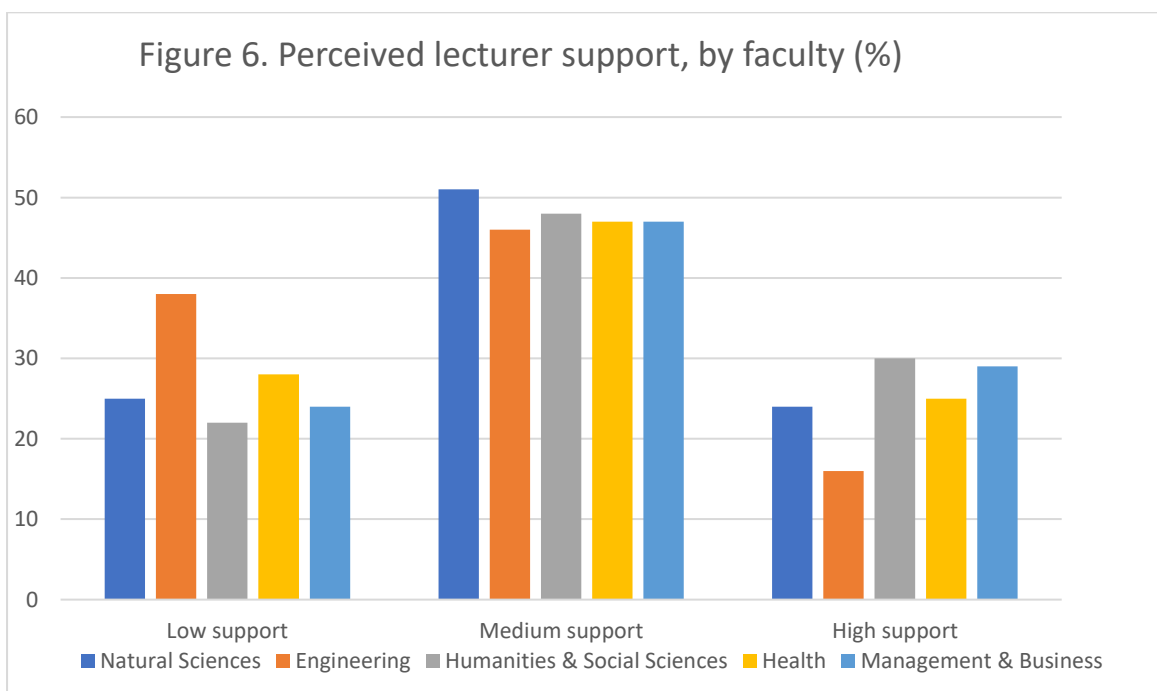
N=2,401

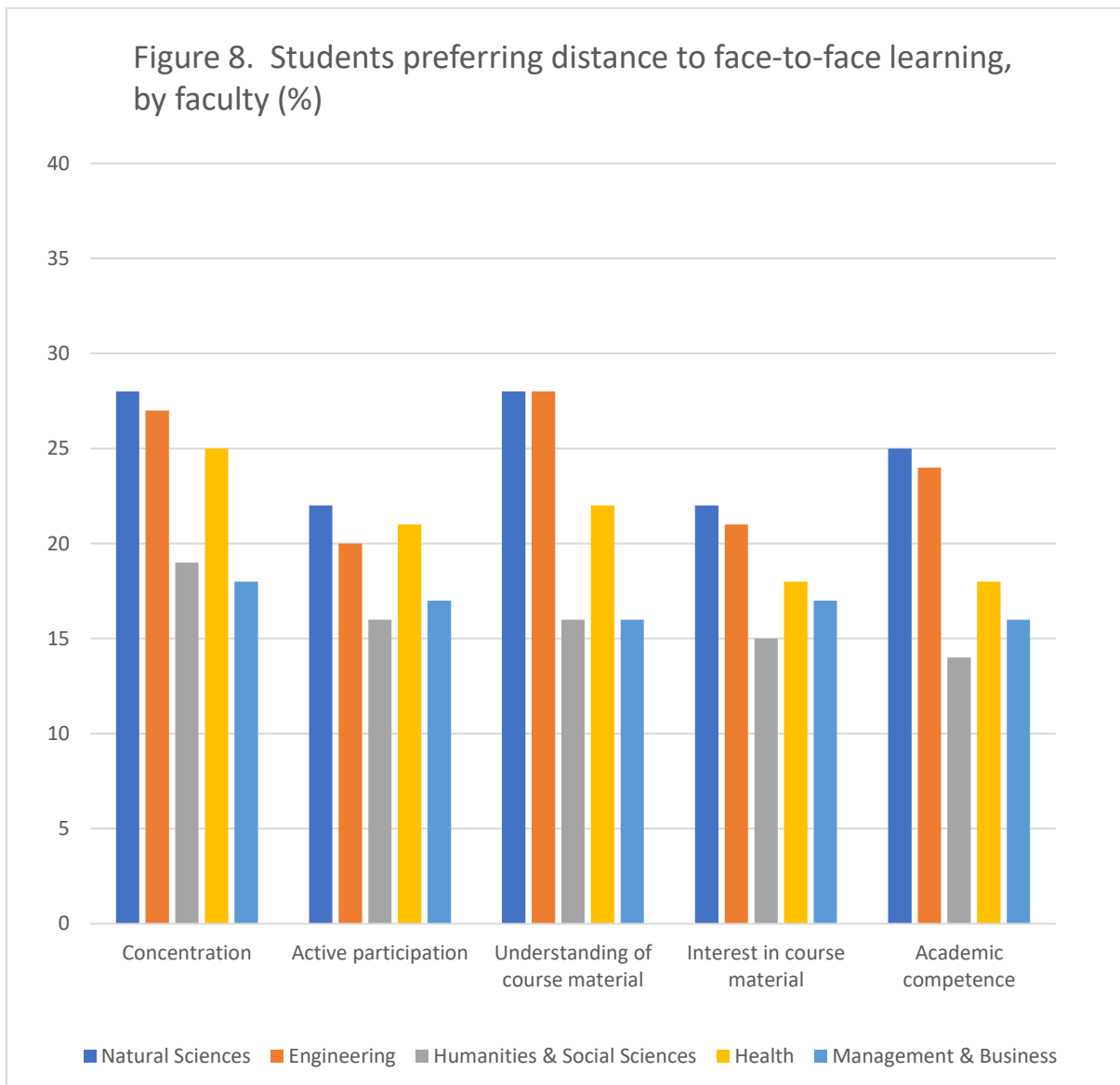*2.4 Quality of distance learning compared to face-to-face learning.*

We asked students to compare the quality of on-line to face-to-face learning in the same class or a similar class (during the previous semester). Quality of learning was assessed by five items including concentration, active participation, understanding of the course material, level of interest, and perceived academic competence (the extent to which students felt that they are able to successfully complete their assignments). In all parameters of comparison, except for academic competence, a plurality of students found face-to-face learning advantageous over distance learning (see Figure 7). The greatest difference was found in students' level of concentration.

Figure 7. Students' perceptions of distance learning compared to face-to face learning (%)
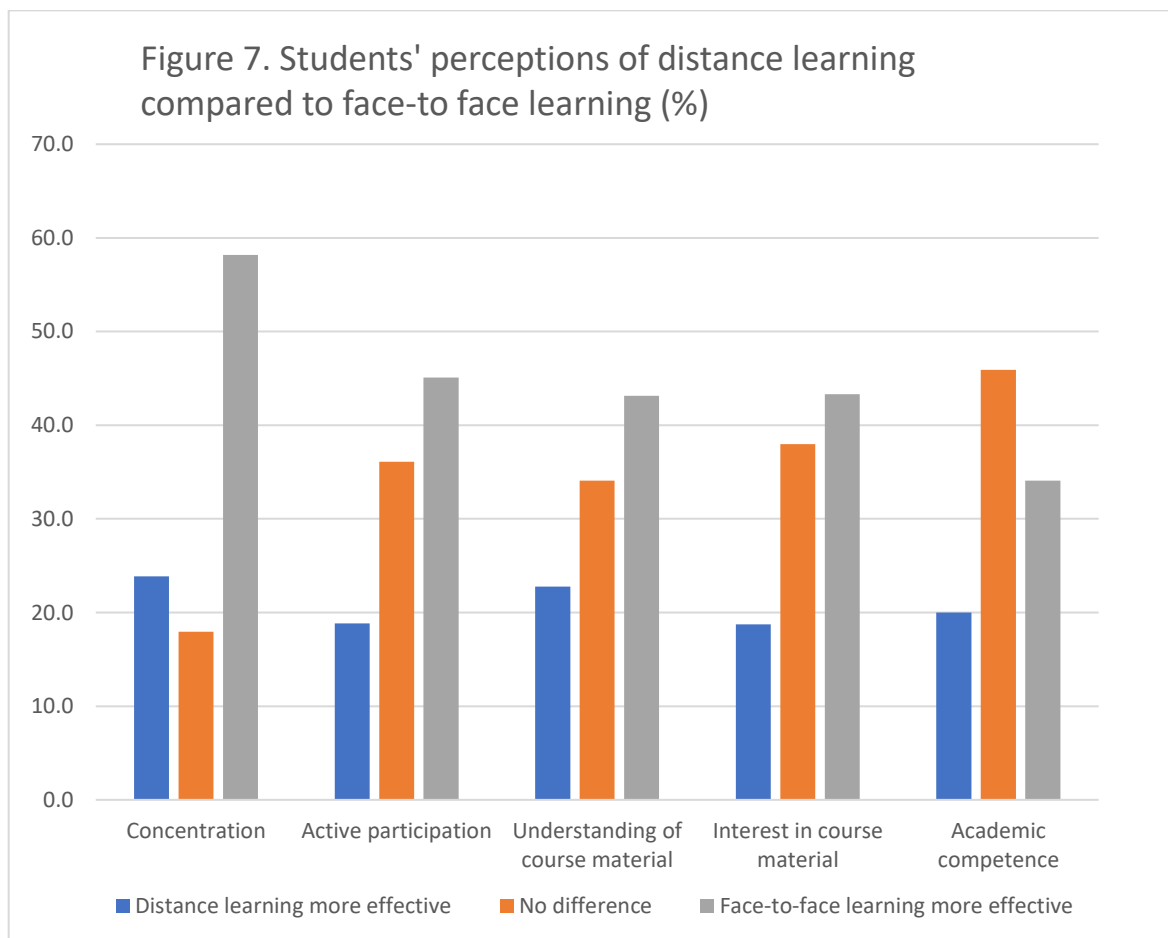
N=3,435

Univariate analysis with Bonferroni post-hoc comparisons revealed significant differences between faculties vis-à-vis students' perceptions of distance learning compared to face-to-face learning, on all observed parameters. Importantly, Natural Sciences and Engineering students were more likely than Humanities and Social Science students to find distance learning advantageous in terms of concentration, interest, and level of understanding. Figure

8 presents the proportion of students in each faculty that found distance learning more effective than face-to-face learning on each parameter.

Figure 8. Students preferring distance to face-to-face learning, by faculty (%)

Examining the relationship between students' stage in their studies and their perception of distance learning compared to face-to face learning revealed that first-year students were less likely to find distance learning advantageous in terms of concentration, interest, and level of understanding than students in their second or further years. Figure 9 presents the proportion of students from each year of study within their degree program who found distance learning advantageous over face-to-face learning.

Figure 9. Students preferring distance to face-to-face learning, by year of studies (%)
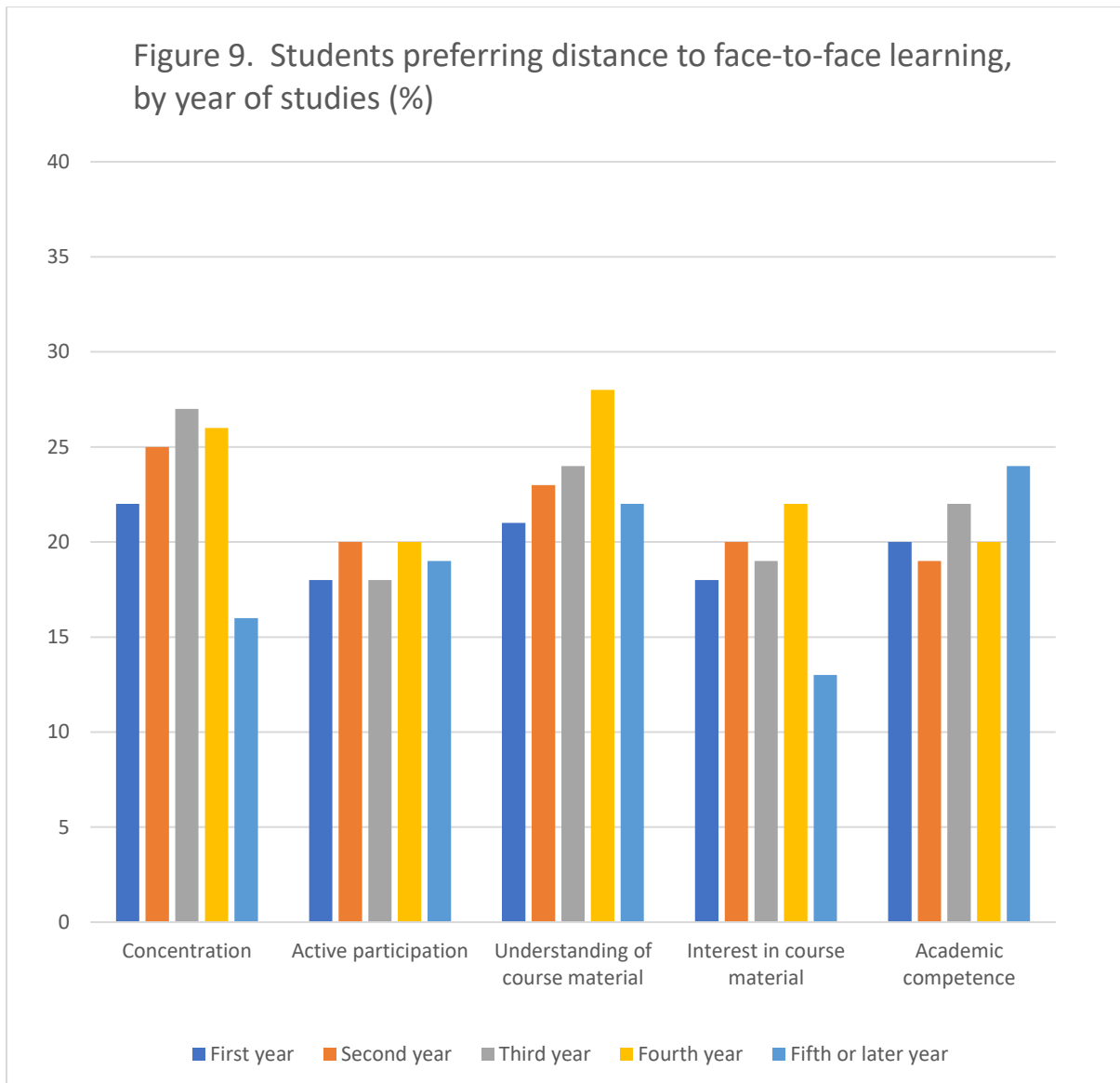
N=3,435

We also investigated the associations between student social background (ethnicity, parental education) and their perception of distance learning compared to face-to face learning (see Figures 11 and 12 in section 2.6 below).

2.5 Antecedents of students' satisfaction with the shift to distance learning

One of our goals was to identify the structural and pedagogical factors that are associated with students' satisfaction with distance learning. We particularly focused on the prediction of two outcomes: students' attitudes towards distance learning and students' reported understanding of the course material (learning quality) among bachelor and masters students. We predicted these two outcomes using a three-step hierarchical regression. In each step we added a type of antecedent: In Step 1 we tested the predictive role of variables related

to the course characteristics and level of study (i.e., degree level, year in studies and number of students registered in the course). In step 2 we tested the additional predictive contribution of the reported frequency of lecturers using three different teaching strategies: synchronous teaching, asynchronous teaching (e.g., recorded lectures), and interactive strategies (e.g., breakout rooms, polls). Finally, in step 3 we tested perceived lecturer support as an additional variable. Table 1 presents the results of these analyses for predicting students' attitudes towards distance learning.

Table 1. Results of regression analyses predicting students' attitudes towards distant learning (N=1,638)

Variable	Model 1		Model 2		Model 3	
	Standardized Coefficient (β)	T	Standardized Coefficient (β)	t	Standardized Coefficient (β)	T
Study level and course size						
Degree (0=Bachelor, 1= Master)	.25[**]	9.66	.22[**]	8.45	.13[**]	5.34
Year within the degree	.19[**]	7.43	.17[**]	6.95	.14[**]	6.33
Number of registered students	.08[**]	3.26	.11[**]	4.13	.09[**]	3.84
Use of distance learning strategies						
Synchronous strategies			.18[**]	7.21	.00	.15
Asynchronous strategies			.10[**]	4.31	.05[*]	2.07
Interactive strategies			.13[**]	5.32	.08[**]	3.74
Perceived lecturer support lecturer					.44[**]	17.72
Total adjusted R^2	.07		.14		.27	

*$p<.05$, **$p<.01$

As can be seen, students' attitudes were more positive the higher the academic degree, the more advanced they were in their studies within the degree, and the greater the number the students in the course (Model 1). However, these variables explain only 7% of the variance. When we added the reported use of distance learning strategies (Model 2) the model explained 14% of the variance, F_{change} (3, 1632)=44.73, p<.001; each type of strategies had a statistically significant contribution over and above the other strategies and course characteristics. Finally, Model 3, which includes the contribution of perceived lecturer support, explains 27% of the variance, F_{change} (1, 1631)=313.88, p<.001. This predictor seems to make the largest single contribution to students' positive attitudes towards distance learning; indeed, when it was added to the model, synchronous teaching became no longer statistically significant. While this suggests that lecturer support is a critically important antecedent of student positive attitudes, a word of caution is in order regarding the

interpretation of these results, given that the subjective experience of support may represent an additional aspect of one's positive orientation to distant learning. We intend to further pursue this issue with more advanced analyses that match the lecturers' reports about their pedagogical strategies with students' attitudes.

To predict students' reports of learning quality we followed the same procedure reported above. Table 2 presents the results of these hierarchical regression analyses.

Table 2. Results of regression analyses predicting students' reports of the quality of understanding (N=1638)

Variable	Model 1 Standardized Coefficient (β)	T	Model 2 Standardized Coefficient (β)	t	Model 3 Standardized Coefficient (β)	T
Study level and course size						
Degree (0=Bachelor, 1= Master)	.27**	10.03	.21**	8.39	.08**	3.89
Year within the degree	.13**	5.11	.10**	4.09	.06**	2.98
Number of registered students	.06*	2.45	.11**	4.47	.09**	4.50
Use of distance learning strategies						
Synchronous strategies			.31**	12.76	.04*	2.12
Asynchronous strategies			.11**	4.80	.03	1.38
Interactive strategies			.06*	2.74	.00	-.21
Perceived lecturer support lecturer					.66**	32.18
Total adjusted R^2	.06		.18		.50	

*$p<.05$, **$p<.01$*

In general, these results are similar to those reported above vis-à-vis students' attitudes toward distance learning. Specifically, students reported higher learning quality the higher the academic degree, the more advanced they were in their studies within the degree, and the greater the number the students in the course (Model 1). These variables explained 6% of the variance. When we added the reported use of distance learning strategies (Model 2) the model explained 18% of the variance, F_{change} (3, 1632)=77.62, p<.001; each set of strategies made a statistically significant contribution over and above the other strategies and course characteristics. Finally, Model 3, which includes the contribution of perceived lecturer support, explained 50% of the variance, F_{change} (1, 1631)=1035.74, p<.001. Here, too, this predictor seems to make the greatest single contribution to students' reports of learning quality, and after this predictor was added, the contributions of the teaching strategies decreased considerably.

2.6 Socially disadvantaged students and the shift to distance learning.

Students from socially marginalized populations, such as ethno-national minority students and first generation university students, often encounter difficulties in taking advantage of higher education opportunities. We wondered how such students experienced the shift to distance teaching and learning. Overall, Arab students' perceptions of and attitudes towards distance learning were significantly more negative than those of Jewish students (taking all five satisfaction items into account). Specifically, Arab students were less satisfied with the quality of the transition, more readily recognized the disadvantages of online learning, and more strongly opposed continuing online learning after the crises ends. Figure 10 compares native Arabic speakers (n=153) to native Hebrew speakers (n=3,424).


Figure 10. Ethno-national differences in students' statisfaction with distance learning
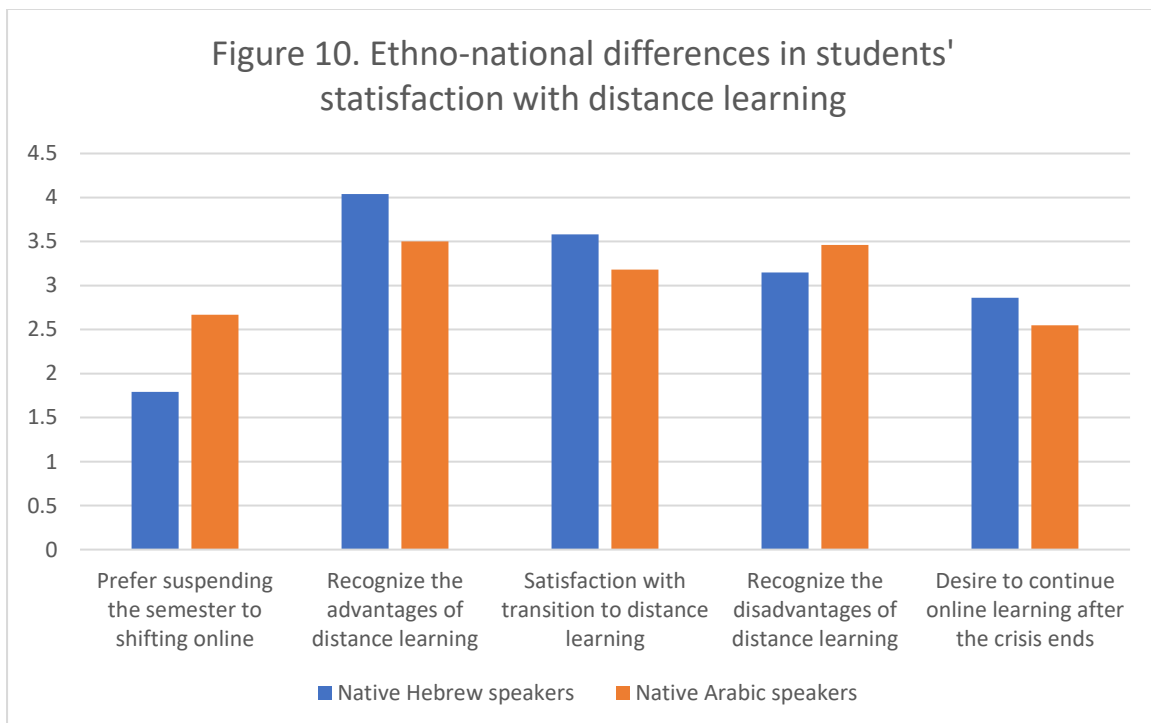
N=3,577

Likewise, Arab students showed an even greater preference for face-to-face learning than Jewish students in terms of satisfaction and learning quality. Figure 11 compares the proportions of native Arabic and native Hebrew speaking students who found distance learning preferable to face-to-face learning. While Arab students were similar to Jewish students in their assessment of the implications of on-line learning for concentration and active participation, higher proportions of Arab students found distance learning less advantageous vis-à-vis understanding, interest, and perceived academic competence.

Figure 11. Students preferring face-to-face learning to distance learning, by ethno-national background (%)
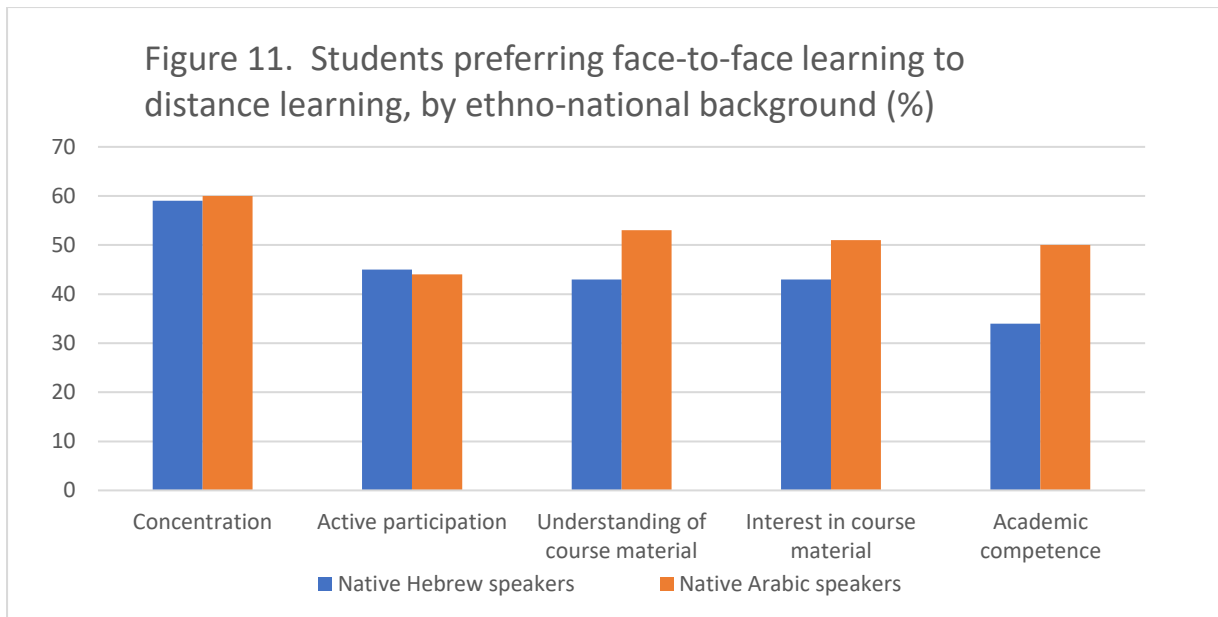
N=3,577

We found similar patterns with regard to students' family educational background. Figure 12 compares students with academically educated parents (n=999) to those who are first generation university students (n=709). A greater proportion of first generation students preferred face-to-face over on-line learning on all parameters. The difference with regard to perceived academic competence was most pronounced, with 38% of the first generation students finding face-to-face learning more effective compared to 29% of students from families in which at least one parent has an academic degree.
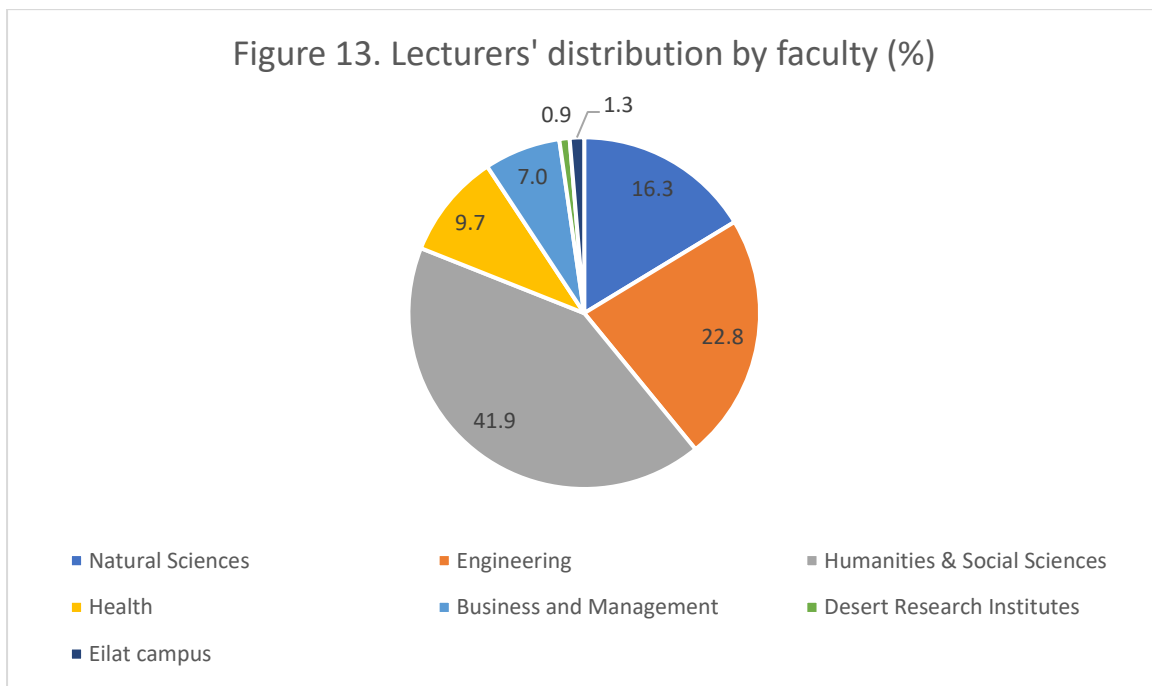

Figure 12. Students preferring face-to-face learning to distance learning, by parental education (%)
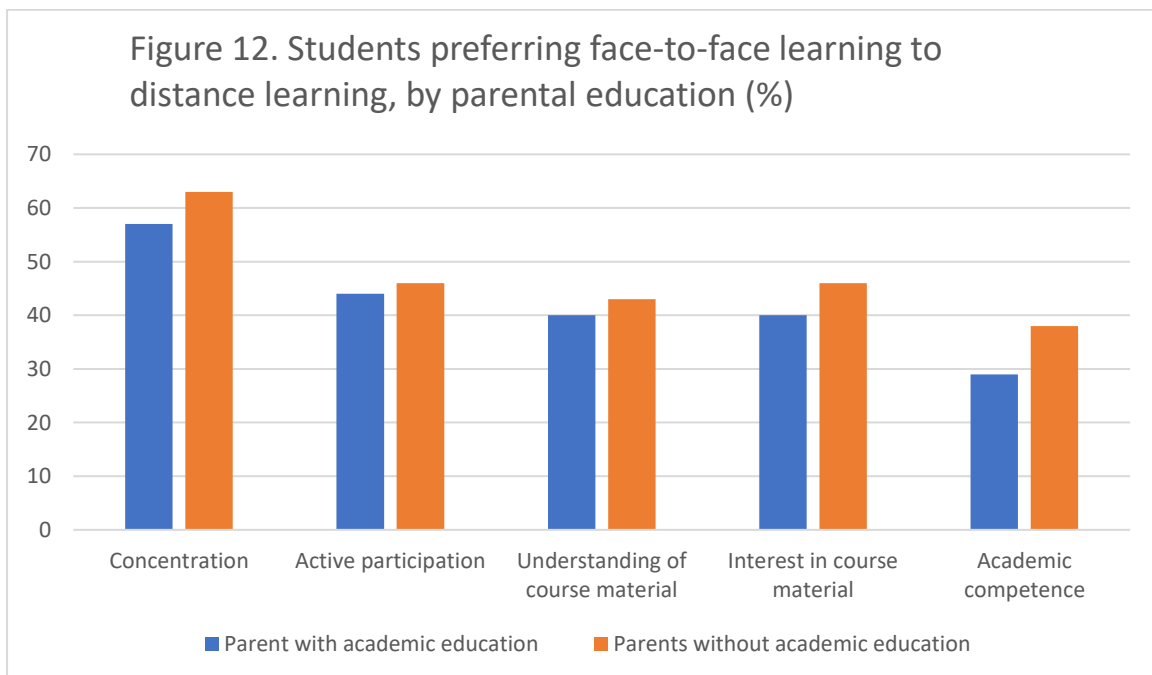
N=1,708

Many issues likely contribute to socially disadvantaged students' relatively negative attitudes toward and perceptions of on-line learning – for example, cultural and linguistic capital, identification with lecturers, sense of belonging, and social networks. One tangible issue, which we investigated in our survey was access to the technology necessary for participation in on-line learning. Indeed, we found that 41% of the Arab students suffered from a poor internet connection, compared to 19% of Jewish students. Moreover, 10.5% of the Arab students did not have a personal computer, compared to only 0.7% of Jewish students. Note that we invited students to participate in the survey via e-mail and administered the survey on-line, so students with internet access problems are likely under-represented in our sample. We assume, therefore, that these figures underestimate the extent of the problem.
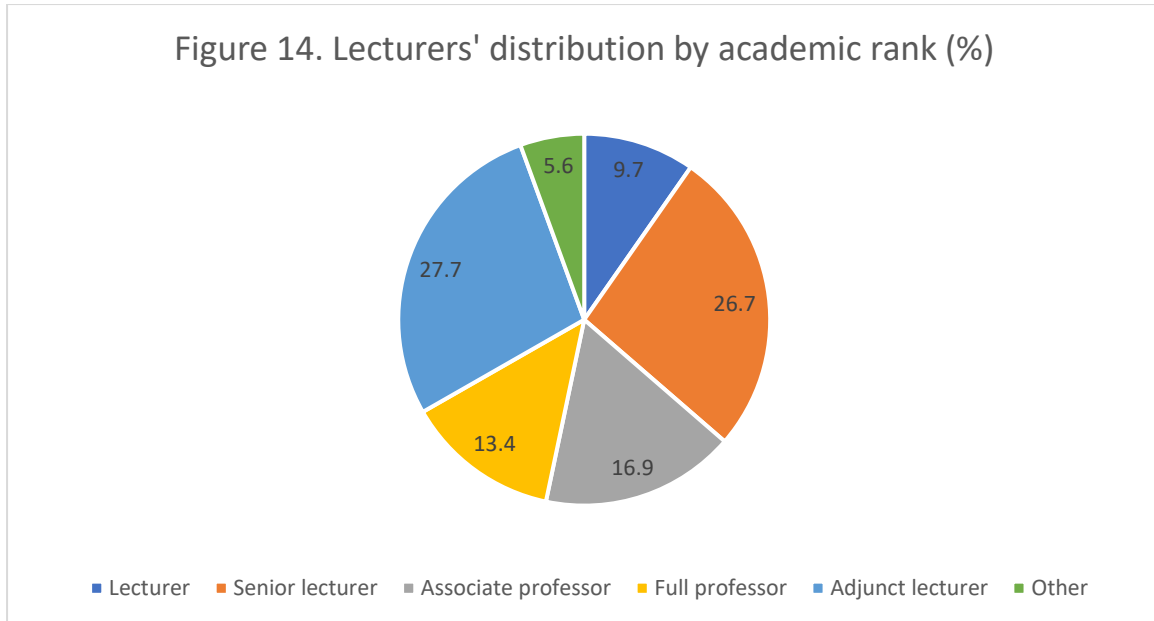
3. Lecturer survey

3.1 Sample characteristics. This study included 527 BGU lecturers (42% female), who were invited to participate via e-mail and gave their informed consent. Data were collected between May 25th and June 22nd, 2020. Two-thirds (65.8%) of the sample were current faculty members, 32.7% were adjunct lecturers, and 1.5% were retired faculty members. Figures 13 and 14 present the distribution of respondents by faculty and academic rank, respectively. Note the high proportion (41.9%) of respondents from the Humanities and Social Sciences, which is likely attributable to research team members' affiliation, and perhaps to those lecturers' affinity to social science research.

Figure 13. Lecturers' distribution by faculty (%)

- Natural Sciences
- Engineering
- Humanities & Social Sciences
- Health
- Business and Management
- Desert Research Institutes
- Eilat campus

N=527

14

Figure 14. Lecturers' distribution by academic rank (%)

- Lecturer 9.7
- Senior lecturer 26.7
- Associate professor 16.9
- Full professor 13.4
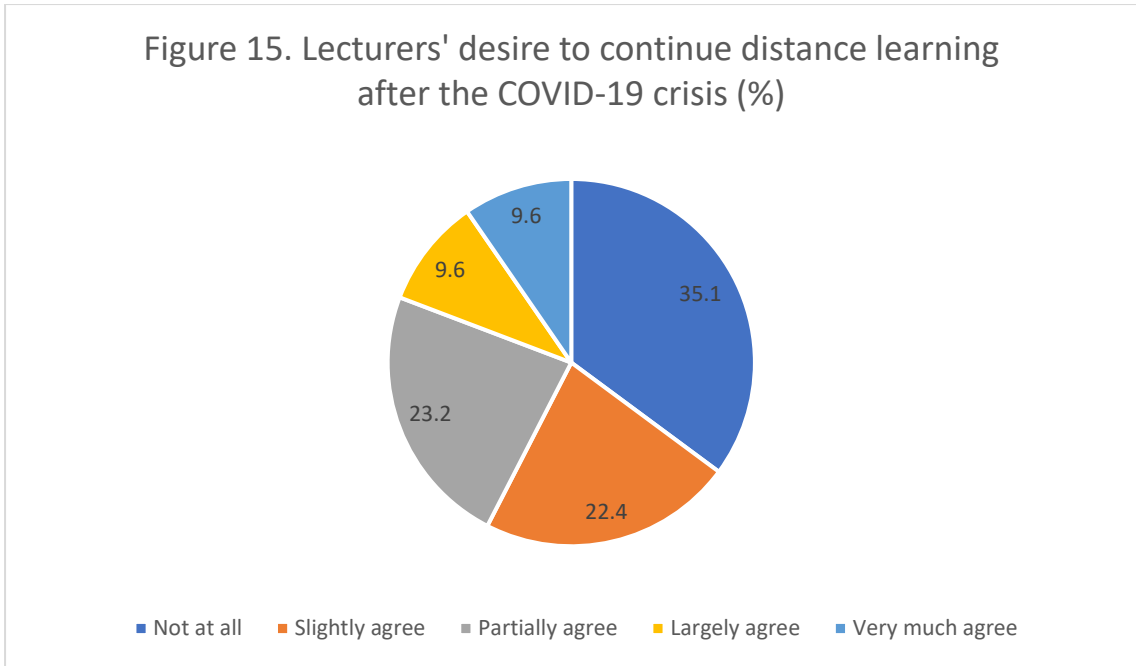- Adjunct lecturer 27.7
- Other 5.6

N=527

Lecturers' ages ranged between 28 and 82 years (Mean=49.06, S. D= 9.95). Most participants (65%) had children under the age of 18 (Mean number of children= 1.54, S. D= 2.53). Women were significantly more likely to be the child's primary caregiver and less likely to share childcare with another adult. Around 9% of the lecturers reported that their internet connection is unstable.

3.2 Lecturers' attitudes towards the sudden shift to distance learning

Lecturers' attitudes towards the sudden shift to distance learning were assessed by six items including, "I would be happy to continue teaching online after the crisis is over", "It's important to me to continue teaching online during the crisis" and "I can successfully cope with transferring my course to distance teaching and learning". Overall, 95% of the lecturers felt that continuing their teaching online was a better solution to the pandemic and lockdown than premature termination of the semester. However, most of the lecturers (57.5%) resisted the idea of continuing their teaching online after the COVID-19 crisis ends, while less than 20% largely or strongly agreed with the idea (Figure 15). Notably, while 23% of the students reported a strong desire to continue distance learning after the crisis passes, only 9.6% of the lectures reported a similar attitude. Lecturers' willingness to continue distance learning did not differ between faculties.
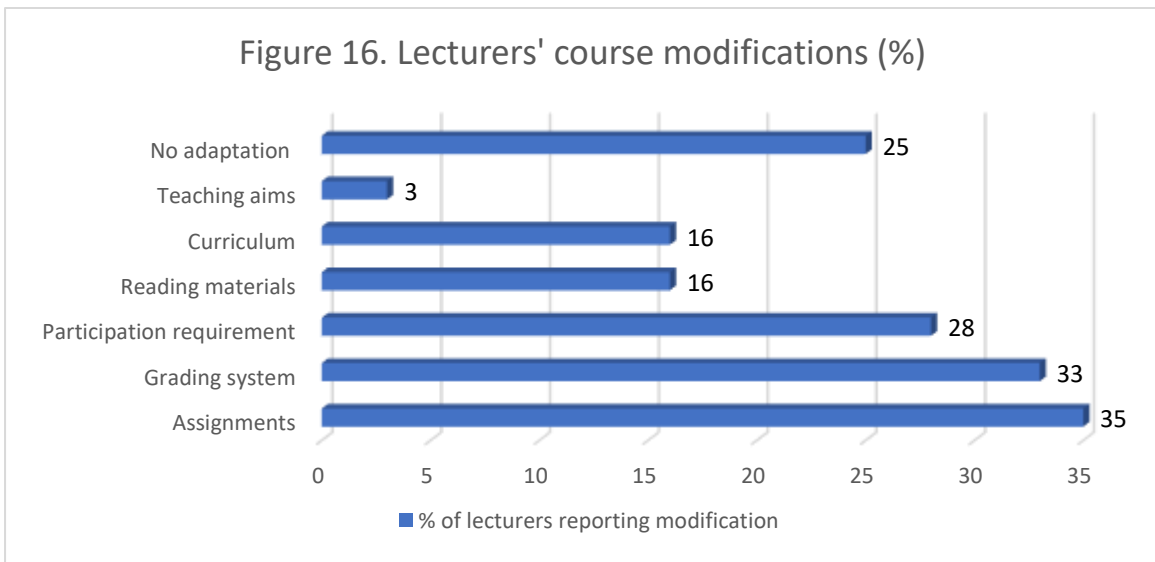
Figure 15. Lecturers' desire to continue distance learning after the COVID-19 crisis (%)

Not at all 35.1 | Slightly agree 22.4 | Partially agree 23.2 | Largely agree 9.6 | Very much agree 9.6
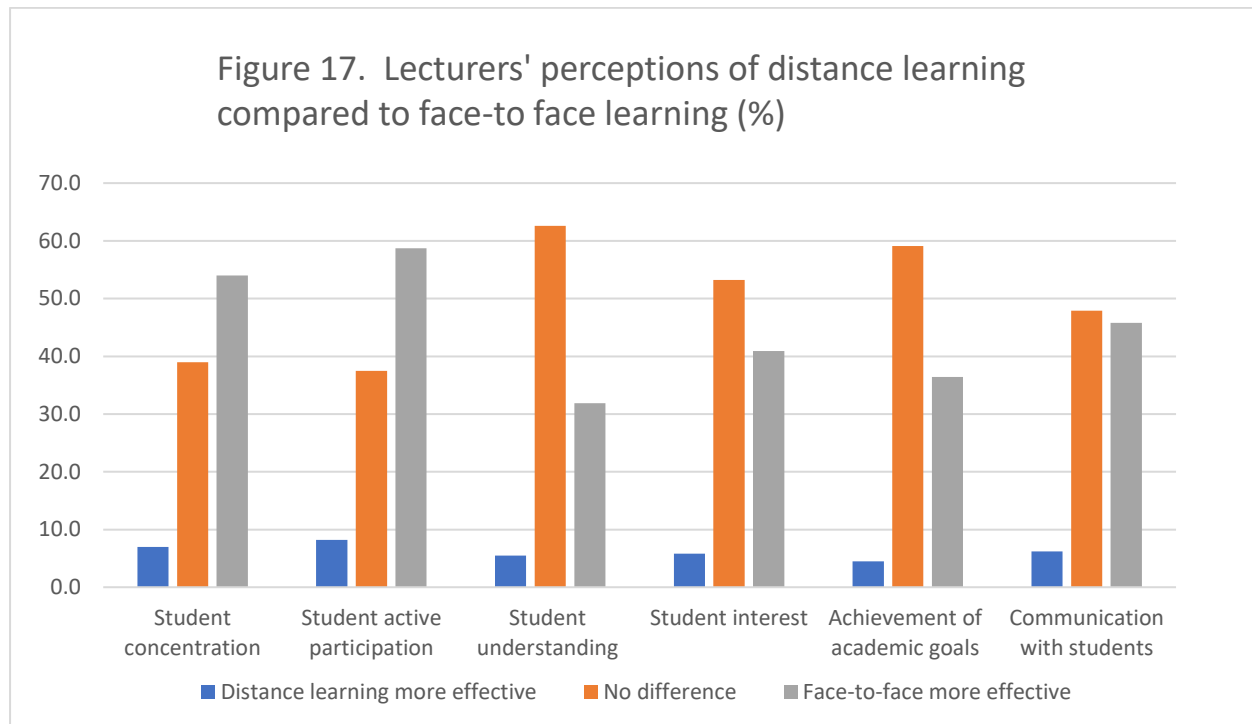
N=527

3.3 Adaptation to distance learning. Most lecturers adapted their courses to the circumstances of distance learning by modifying course material, teaching strategies and assignments (see Figure 16). One quarter of the respondents (25%) left their courses unchanged. The most frequently reported modifications were to course assignments (35%), grading systems (33%) and participation requirements (28%). Overwhelmingly (97%), teaching aims remained unchanged.

Figure 16. Lecturers' course modifications (%)

No adaptation 25 | Teaching aims 3 | Curriculum 16 | Reading materials 16 | Participation requirement 28 | Grading system 33 | Assignments 35

% of lecturers reporting modification

3.4 Quality of distance learning compared to face-to-face learning. As in the students' survey, lecturers were asked to compare the quality and outcomes of distance to face-to-face learning (e.g., levels of students' participation, interest, ability to understand studied material,

etc.). Echoing the findings from the students' survey, most lecturers found face-to-face learning more effective than distance learning, or at least similar to it, in all observed parameters (Figure 17); less than 10% of the lecturers found distance learning to be more effective than face-to-face learning on any of the parameters. A majority of lecturers found face-to-face learning to be more effective vis-à-vis student concentration (58.7%) and active participation (54%). No significant differences were observed between faculties.

Figure 17. Lecturers' perceptions of distance learning compared to face-to face learning (%)

N=527

3.5 *Predictors of lecturers' satisfaction with the shift to distance learning*

Overall, lecturers who held positive attitudes towards distance learning were more sensitive to student's perspectives and needs, showed increased ability to provide a supportive learning environment, and put more efforts into helping students succeed.

Examining which professional and personal variables predict lecturers' attitudes towards distance learning revealed that previous experience with distance teaching was positively (but weakly) associated with positive attitudes towards this mode of instruction. Lecturers' attitudes towards distance learning were not related to their general view of teaching (e.g., as a core aspect of their work) or to their teaching experience. We found no significant associations between lecturers' attitudes towards distance learning and their faculty, age, or academic rank.

4. Discussion

How satisfied were the respondents with their courses moving on-line?

Overall, both the student and lecturer surveys show that both groups of respondents approved of the University's decision to shift teaching and learning on-line during the Covid-19 crisis and lockdown, rather than cancelling the semester, and most students felt that the transition was managed well. Students generally felt that their lecturers supported their needs in this critical first five weeks of on-line learning, either to a high (29%) or moderate (48%) degree. However, we should not conclude from these high levels of satisfaction that most respondents prefer on-line to face-to-face learning. The vast majority of students and especially lecturers felt that face-to-face learning was either similar or more effective than on-line learning with regard to concentration, participation, understanding, interest, and perceived competence. Nevertheless, a considerable group of students (36.6%) expressed their desire to continue some form of distance learning after the Covid-19 crisis ends, while almost half of the students (44.4%) resisted this idea. The lecturers were much less open to the idea of continuing to teach on-line after the crisis ends, with 19.2% supporting the idea and 57.5% opposing it.

Who was more or less satisfied?

One of this study's most important findings is the large degree of variation in students' experience of distance learning. Students from some faculties (especially, Engineering, Health, and Natural Sciences) tended to have more positive attitudes toward distance learning than Humanities and Social Science students. Likewise, women and masters students expressed greater satisfaction, and as students progressed through their studies they found distance learning more effective. Socially marginalized groups, such as Arab students, were much less satisfied with the move to on-line learning, and felt less capable than Jewish students in coping with the challenges it posed.

This variation in students' experiences suggests that no one solution is optimal for all faculties, courses and students, and that we need to attend very closely to which courses we move on-line, and in what ways, both during the crisis (inasmuch as health regulations permit face-to-face instruction) and after the crisis. In particular, we need to think carefully about how to support first and second-year students, and students from socially marginalized groups, if moving their studies on-line is unavoidable.

What teaching approaches and technologies were most effective?

Generally speaking, all three sets of strategies – synchronous strategies, such as conducting on-line lectures on Zoom, asynchronous strategies (e.g., recorded lectures) and interactive

strategies (e.g., breakout rooms and polls) – had a positive, significant effect on student understanding. This finding seems to suggest that in on-line teaching strategies "the more the merrier": more frequent uses of more tools and technologies were associated with greater student understanding. One possible interpretation of this finding is that multiple strategies cater to multiple student learning needs and preferences (e.g., some students prefer to meet the lecturer on-line, others to watch the recorded lecture at a later date). Another possibility is that students appreciated their lecturers experimenting with multiple strategies because it signaled to them that the lecturers cared about their learning, and were investing effort to make distance learning work.

The effects of teaching strategies substantially decrease, however, when we add lecturers' support for student needs into the equation, suggesting that perceived support from the lecturer may mediate the association between learning strategies and students' understanding of the course material. In other words, instead of asking *which* strategies did the lecturers use, we would be wiser to focus on *how* they used them, and to what extent their manner of teaching (through whichever technologies and strategies) made students feel that their lecturer is supportive, engaging, responsive, and flexible in meeting their learning needs. This finding resonates with numerous psychological studies that demonstrate that students learn best when their needs for autonomy, connectedness, and competence are satisfied. Providing for such needs is important at all times; we expect that it is particularly critical in the current era of uncertainty, threat and crisis. We note in this regard that research has demonstrated that teachers who work in an organization supportive of their needs are more likely to provide a learning environment supportive of their students' needs.

What's next?

We have opted to publish this report before completing all our data collection and analyses, in the hope that these initial findings may be helpful in preparing the Fall semester. These initial findings have their limitations, of course. In particular, note that the student survey was administered early in the semester and as such offers a snapshot of student attitudes and experiences at that time. Since the survey was circulated and administered on-line, the sample is likely biased in favor of respondents who are predisposed to on-line activities. Likewise, our analyses do not distinguish between types of courses, their levels of difficulty, instructional goals, and more. We intend to conduct deeper statistical analyses, for example by combining the lecturer and student survey data sets, and to conduct detailed interviews of students and faculty members. Comments, questions and suggestions are welcome; please contact one of the authors.