



**Universität  
Zürich** <sup>UZH</sup>

Initial report

Teaching, motivation, and well-being during COVID-19 from the perspective of university students and lecturers

Authors: Vanda Sieber, Roya Hüppi & Anna-Katharina Praetorius

University of Zurich

August 2020

Please cite as: Sieber, V., Hüppi, R., & Praetorius, A.-K. (2020). Teaching, motivation, and well-being during COVID-19 from the perspective of university students and lecturers

Initial Report.

These are preliminary findings from the present research project. Different publications are planned within this project.

1	Introduction.....	3
2	Sample .....	3
3	Sociodemographic data.....	4
	3.1 Lecturers .....	4
	3.2 Students .....	5
4	Overall satisfaction and well-being.....	6
	4.1 Lecturers .....	6
	4.2 Students .....	8
5	Teaching.....	10
	5.1 Attitudes towards e-learning.....	10
	5.1.1 Lecturers' attitudes towards e-learning.....	10
	5.1.2 Students' attitudes towards e-learning.....	11
	5.2 Communication channels used to teach remotely.....	11
	5.2.1 Choice of communication channels during COVID-19.....	11
	5.2.2 Choice of communication channels before COVID-19.....	13
	5.2.3 Choice of communication channels and different teaching formats and their interactivity .....	14
	5.2.4 Choice of communication channels and interaction between students and lecturers.....	16
	5.3 Need supportive behavior of lecturers.....	16
	5.4 Motivation and well-being during online classes.....	17
	5.4.1 Lecturer well-being and motivation during online classes.....	17
	5.4.2 Student well-being and motivation during online classes.....	19
6	Supportive work climate for lecturers .....	20
7	Summary and Conclusion .....	22
8	References .....	23

## 1 Introduction

This initial report gives an overview of some preliminary results. Please note that due to the explorative nature of some analyses, the significant tests should only be used to aid interpretation. We recommend focusing to the effect sizes presented when interpreting the results (see Wasserstein & Lazar, 2016).

The interim report starts by describing the demographic data of our student and university teacher sample. Following that, some general findings on students' and lecturers' general life satisfaction and well-being are presented. Well-being is measured by self-reports of perceived stress which is compared to ratings of a norm sample (Fliege et al., 2005).

In the paragraph on teaching, students' and university lecturers' attitudes towards e-learning are presented. Moreover, an overview on the choice of communication channels is provided along with the type of course (seminar, lecture, etc.). Additionally, the student perceived interaction between students and lecturers during online teaching is discussed.

Following this, lecturer behavior concerning the support of students' basic psychological needs is presented, as well as the teachers' and students' motivation and well-being during classes.

To conclude the interim report, the descriptive data on perceived support from the university and peers from the perspective of lecturers is presented.

## 2 Sample

The study was advertised among all lecturers<sup>1</sup> at the University of Zurich via the official mailing list from the university sent on April 6<sup>th</sup>, 2020. No reward was offered for participating in the study. The sample size was determined by the number of participants who agreed to participate while the study was running. We asked lecturers to fill in the questionnaire within a period starting on April 6<sup>th</sup> and ending on April 19<sup>th</sup>, as the shutdown appointed by the Swiss Government was known to be maintained at least until that date (including the closing of shops, restaurants, bars and entertainment and leisure facilities). After completing the questionnaire, the lecturers were asked to forward the questionnaire to their students via an anonymous, personalized link. Accordingly, the questionnaire for the students was accessible for three more days. Please note that it is a convenience sample and thus the representability of our data is limited,  $n = 299$  lecturers and  $n = 479$  students participated in the study. Out of those participants,  $n = 282$  lecturers and  $n = 428$  students provided information on most items related to online teaching. The results in this report are based on this sample.

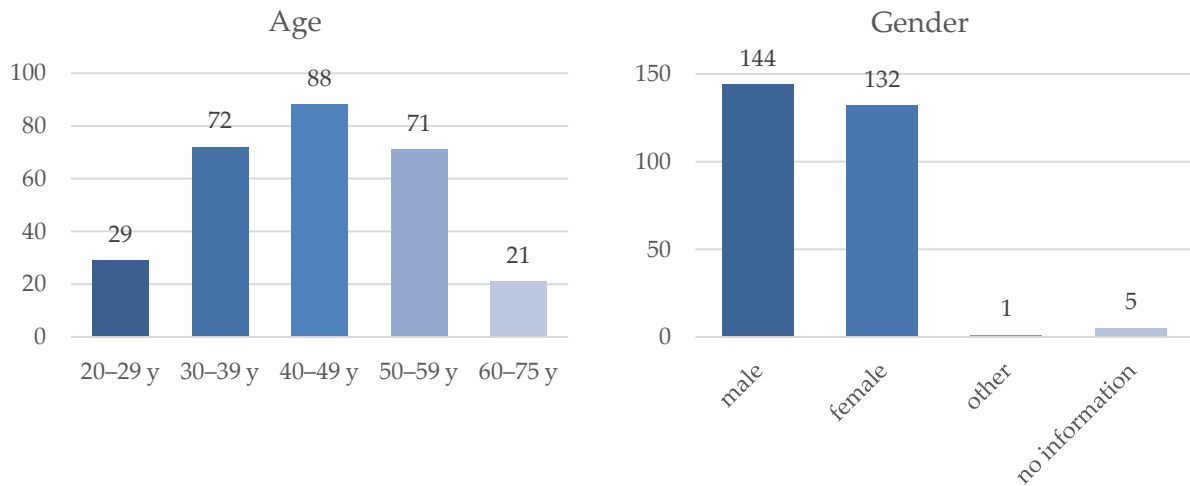
---

<sup>1</sup> The term lecturer includes all employees at the University who lecture/ teach courses (i.e. professors, postgraduates, PhD students, tutors, etc.).

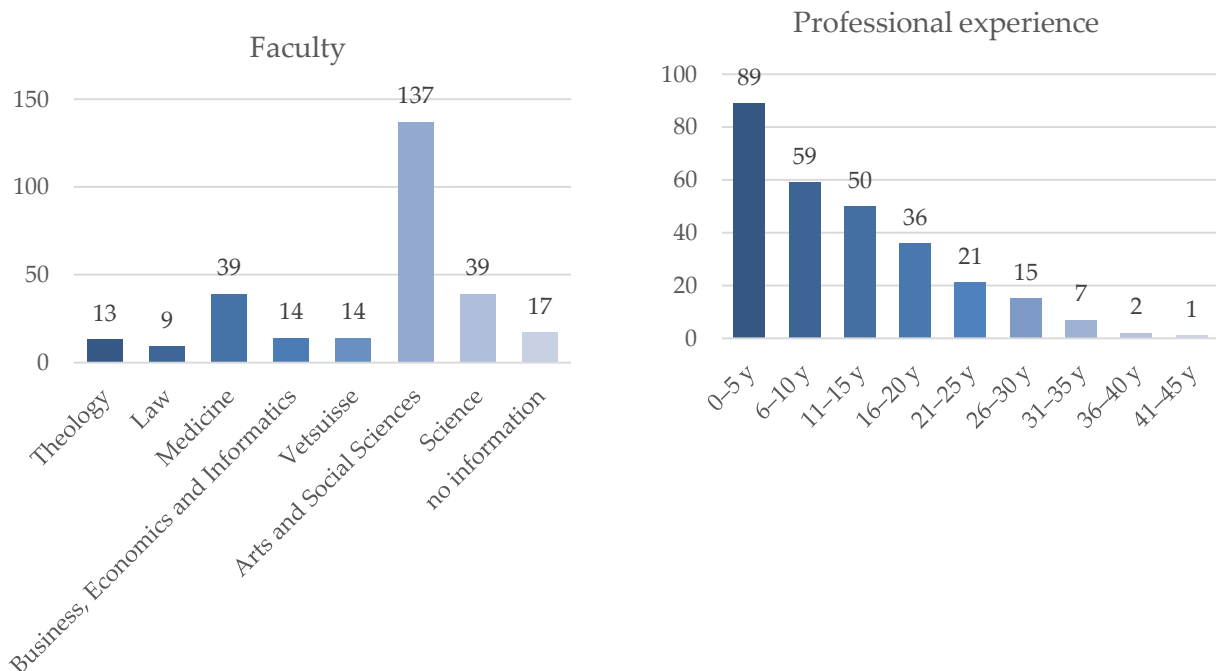
### 3 Sociodemographic data

#### 3.1 Lecturers

About 51 % of the 282 lecturers who filled in our survey were male and about 47 % female. The average age was 43.62 years ( $SD = 10.85$ ), with the majority of the 281 (one answer was missing concerning age) answering lecturers being in their forties ( $n = 88$ ), followed by an equal amount in their thirties ( $n = 72$ ) and fifties ( $n = 71$ ).

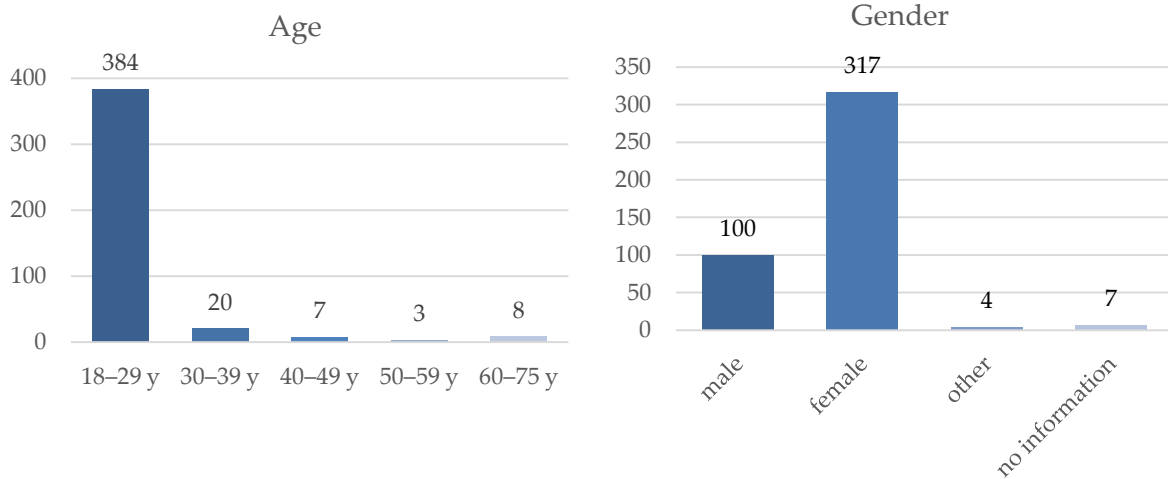


By far the largest number of lecturers ( $n = 137$  out of  $N = 282$ ) who completed the questionnaire belonged to the Faculty of Philosophy. Of the 280 lecturers who reported their professional experience, most had between 0 and 5 years of professional experience ( $n = 89$ ), with the average professional experience being 11.89 years ( $SD = 9.19$ ).

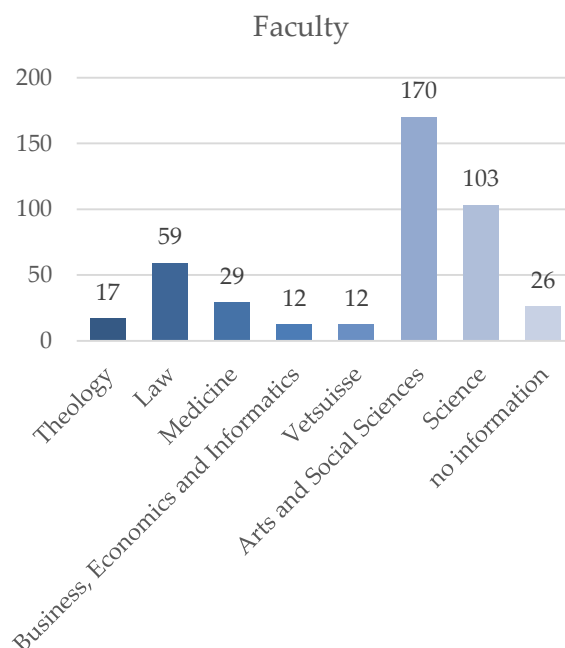


### 3.2 Students

Of the 428 students who participated in our study about 74 % were female, while about 23 % were male. The majority of the 422 students who answered the question were aged between 18 and 29 years ( $n = 384$ ). The second largest proportion of students was in their thirties ( $n = 20$ ). The average age was 24.45 years ( $SD = 7.67$ ).



The majority of students are enrolled in the Faculty of Philosophy ( $n = 170$ ). The fewest students are enrolled in the Vetsuisse Faculty and the Faculty of Business, Economics and Informatics with  $n = 12$  each.



## 4 Overall satisfaction and well-being

### 4.1 Lecturers

Two hundred eighty-one lecturers answered questions about their satisfaction with life before the outbreak of COVID-19 as well as during the pandemic. The self-reported average satisfaction with life before the outbreak ( $M = 5.00$ ,  $SD = .87$ ) was higher than during the pandemic ( $M = 4.51$ ,  $SD = 1.02$ ),  $t(280) = 8.41$ ,  $p < .001$ , represented by a medium effect size  $d = 0.50$ .

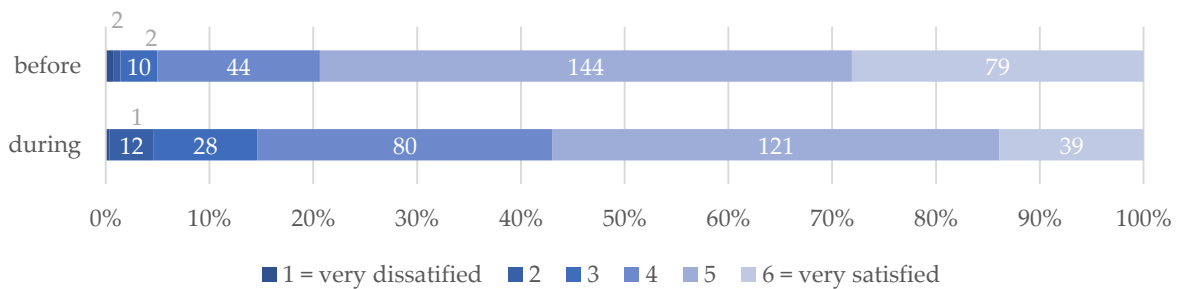


Figure 1. Lecturers' satisfaction with life before vs. during COVID-19 measures.

The lecturers ( $N = 281$ ) also answered questions about their satisfaction with their work at the university before the outbreak of COVID-19 ( $M = 4.77$ ,  $SD = .91$ ) and during the pandemic ( $M = 4.20$ ,  $SD = 1.14$ ). A paired student  $t$  test showed that the self-reported average satisfaction with work at the university before the outbreak was significantly higher than during the pandemic,  $t(280) = 8.46$ ,  $p < .001$ , represented by a medium effect size  $d = 0.50$ .

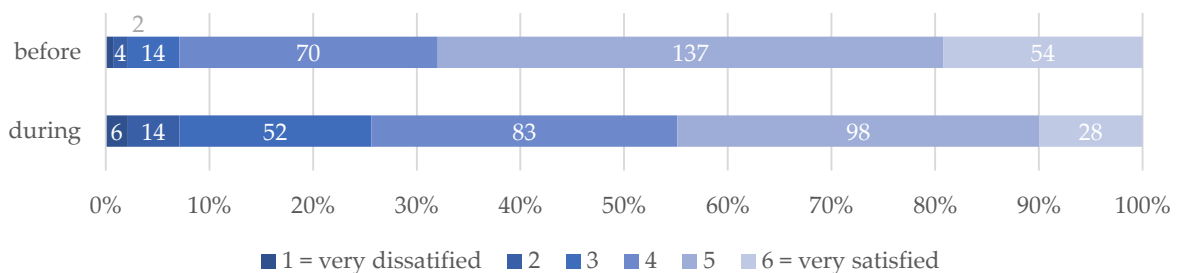


Figure 2. Lecturers' satisfaction with work before vs. during COVID-19 measures.

Two hundred seventy-four lecturers answered the Perceived Stress Questionnaire (PSQ) from Fliege and colleagues (2005) regarding their life in the past two weeks. We used the subscales "worries", "tension" and "demands". *Worries* is concerned with feelings of desperation and frustration, worries and anxious concern for the future (e.g., "You were afraid concerning the future"). *Tension* covers exhaustion, the lack of relaxation and tense disquietude (e.g., "You felt mentally exhausted"). Furthermore, the subscale *demands* reflects perceived environmental demands, such as overload, lack of time and pressure (e.g., "You felt under pressure from deadlines").

The original rating values 1–4 used in the questionnaire (1 = almost never, 2 = sometimes, 3 = often, 4 = usually) were linearly transformed to values 0–1, following the approach of Fliege et al., 2005, whereas higher values indicate a higher perceived stress level. The resulting mean values for the three subscales used were:  $M = 0.32$  for worries ( $SD = .24$ ),  $M = 0.45$  for tension ( $SD = .25$ ) and  $M = 0.50$  for demands ( $SD = .25$ ). The mean value of the overall stress scale was  $M = 0.42$  ( $SD = .22$ ). Compared to the norm values of 334 healthy adults (worries:  $M = .26$ ,  $SD = .20$ ; tension:  $M = .34$ ,  $SD = .21$ ; demands:  $M = .36$ ,  $SD = .21$ ) which were taken from Fliege et al., 2005, the perceived stress level of the 274 lecturers are higher regarding every subscale (see Figure 3). The rather high values in the ratings might be attributed to the overall difficult situation a lot of people were facing during this period. Moreover, the high mean values might reflect the pressure to perform during COVID-19, especially regarding the responsibility to teach despite the challenges of switching to teaching remotely. In addition, lecturers are often facing deadlines (Lashuel, 2020), feel uneasy about demands with an uncertain outcome (Ruth, Wilson, Alakavuklar, & Dickson, 2018) and experience multiple performance pressures and emotional demands (Smith & Ulus, 2019). Please note, that due to its different composition, the comparison with the sample from Fliege and colleagues (2005) has to be interpreted with caution.

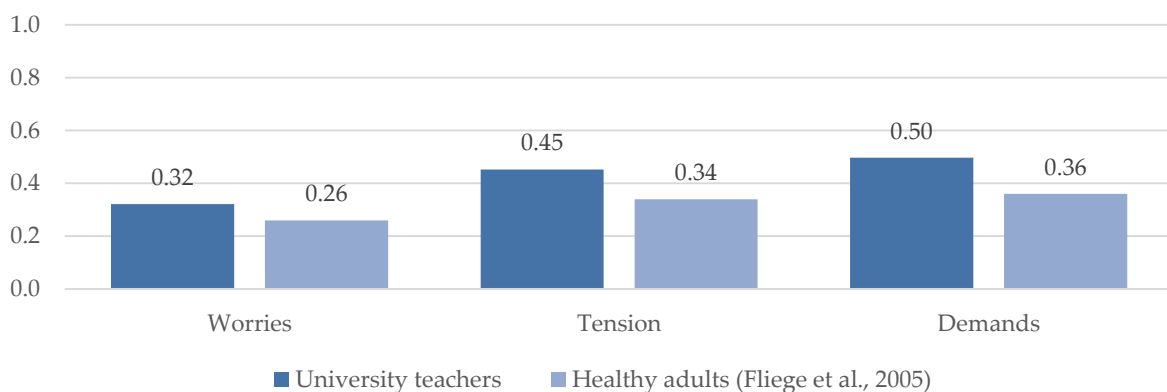


Figure 3. Perceived stress: University teacher ratings during COVID-19 measures compared to healthy adults from Fliege et al. (2005).

## 4.2 Students

The 428 students also answered questions about their satisfaction with life before the outbreak of COVID-19 as well as during the pandemic, whereby it was found that the self-reported average satisfaction with life before the outbreak ( $M = 4.83$ ,  $SD = .97$ ) was higher than during the pandemic ( $M = 4.12$ ,  $SD = 1.05$ ),  $t(427) = 12.50$ ,  $p < .001$ , with a medium effect size  $d = 0.60$ .

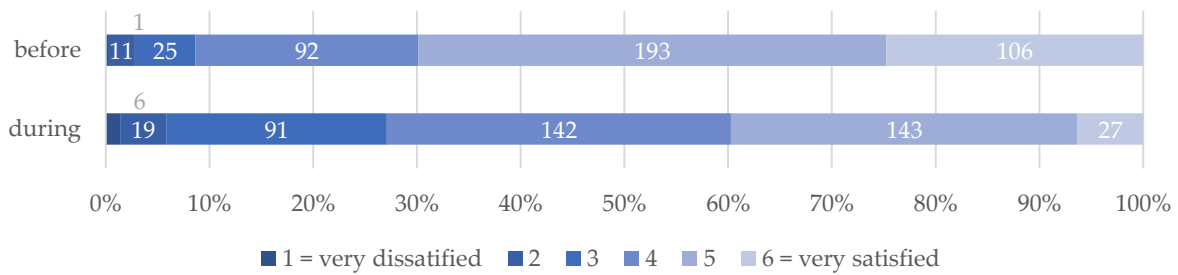


Figure 4. Students' satisfaction with life before vs. during COVID-19 measures.

Furthermore, the 428 students were questioned about their satisfaction with their university studies before the outbreak of COVID-19 as well as during the pandemic. The results revealed that the self-reported average satisfaction with their university studies before the outbreak ( $M = 4.75$ ,  $SD = 0.91$ ) was higher than during the pandemic ( $M = 3.83$ ,  $SD = 1.16$ ),  $t(427) = 14.60$ ,  $p < .001$ , again showing a medium effect  $d = 0.71$ .

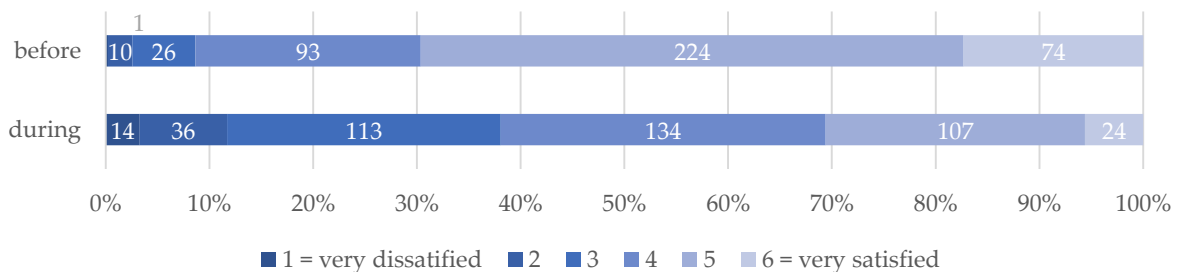


Figure 5. Students' satisfaction with university studies before vs. during COVID-19 measures.

Additionally, the students were asked to indicate the extent to which they felt restricted in their social life from the time the measures to stop the spreading of COVID-19 were implemented (rated from 1 = not restricted at all to 7 = severely restricted). Most of the students indicated a value of 6 ( $n = 150$ ). The average extent of reported restriction was  $M = 5.00$  ( $SD = 1.41$ ). Spearman correlations reveal that the feeling of being socially restricted was moderately negatively correlated with the satisfaction with life in general ( $r_s = -.27$ ,  $p$



<.001), as well as with the satisfaction with their university studies ( $r_s=-23$ ,  $p<.001$ ).

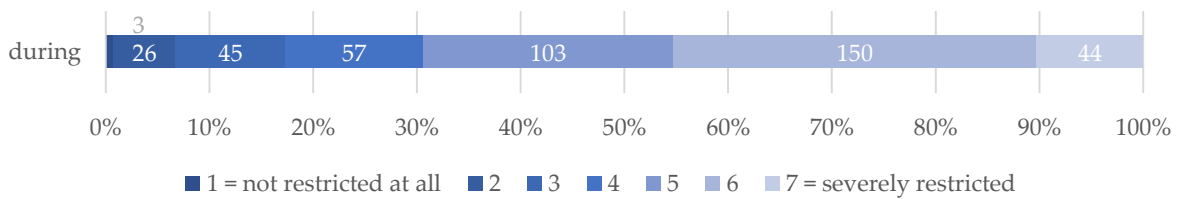


Figure 6. Students' self-reported social restriction during the COVID-19 measures.

Analogously to the lecturers, the 428 students answered the Perceived Stress Questionnaire (PSQ) from Fliege et al., 2005. The original rating values 1–4 used in the questionnaire (1 = almost never, 2 = sometimes, 3 = often, 4 = usually) were again linearly transformed to values 0–1, following the approach of Fliege et al., 2005. The resulting mean values for the three subscales were:  $M = 0.39$  for *worries* ( $SD = .27$ ),  $M = 0.42$  for *tension* ( $SD = .25$ ) and  $M = 0.40$  for *demands* ( $SD = .26$ ). The mean value of the overall stress scale was  $M = 0.40$  ( $SD = .23$ ). To provide initial hints on the extent to which the students were experiencing stress, we compared them to the norm values of 249 medical students in the 4<sup>th</sup> year (*worries*:  $M = .26$ ,  $SD = .18$ ; *tension*:  $M = .40$ ,  $SD = .21$ ; *demands*:  $M = .42$ ,  $SD = .21$ ) which were taken from Fliege et al., 2005. The perceived stress level of our student sample was higher regarding the subscale *worries*, but appeared to be at the same level on the subscales *tension* and *demands* (see Figure 7). The finding that the perceived stress level on the subscale *worries* of our sample is higher than in the norm sample is consistent with the results of (Elmer, Mepham, & Stadtfeld, 2020), who also observed more worries among students since the beginning of the COVID-19. However, as it was pointed out with the sample of lecturers in the previous paragraph, the comparison with the norm sample from Fliege et al. (2005) has to be interpreted with caution.

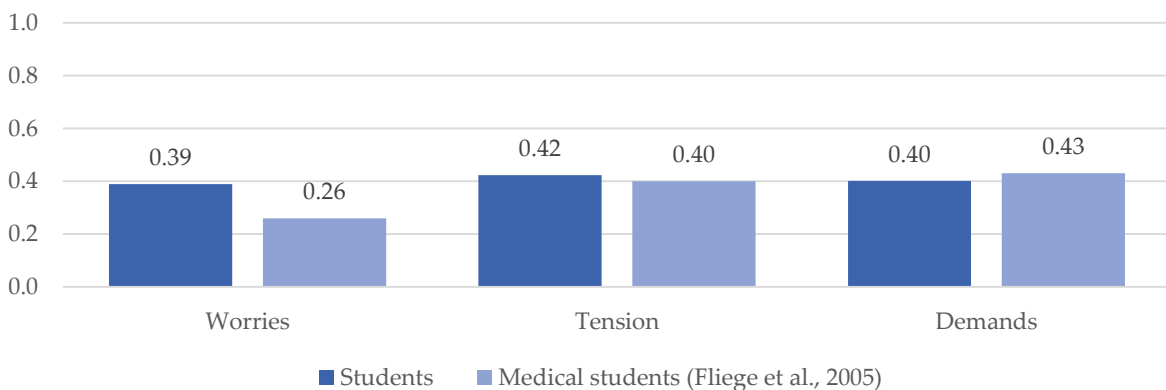


Figure 7. Perceived stress: Student ratings during COVID-19 measures compared to a medical student sample from Fliege et al. (2005).

## 5 Teaching

Each lecturer answered questions concerning the first course they lecture during the week online. 27.7 % ( $n = 78$ ) of the courses were lectures, 39.0 % ( $n = 110$ ) were seminars, 14.2 % ( $n = 40$ ) were exercise courses, 1.8 % ( $n = 5$ ) were tutorials, 2.8 % ( $n = 8$ ) were colloquiums and 14.5 % ( $n = 41$ ) were other course types. The other course types included amongst others language courses (3.2 %,  $n = 9$ ), internships (2.5 %,  $n = 7$ ), a mixed form of lecture and exercise (1.8 %,  $n = 5$ ), clinical courses (1.06 %,  $n = 3$ ), block seminars (0.7 %,  $n = 2$ ) and continuing education (0.7 %,  $n = 2$ ). The average size of the courses was 43 students per course.

### 5.1 Attitudes towards e-learning

#### 5.1.1 Lecturers' attitudes towards e-learning

To measure the lecturers' attitude towards e-learning the *Test of e-learning Related Attitudes* (TeLRA) scale from Kisanga and Ireson (2016) was used. Four different items measured lecturers' attitudes towards e-learning. The items were rated from 1 to 7 (1 = strongly disagree, 7 = strongly agree). The negatively formulated items 1 and 3 were recoded in the scale formation. The overall attitude towards e-learning showed a mean value of  $M_{Total} = 4.18$ ,  $SD = 1.10$  which is quite neutral. However, the reliability of the scale was rather low, Cronbach's  $\alpha = .537$ . As can be seen below, the items were capturing different aspects of attitudes towards e-learning environments. Interestingly, most of the lecturers who participated in the survey indicated that they like to discuss innovations in e-learning; however, a large proportion of the participants indicated that they do not think that e-learning would improve the quality of their teaching.

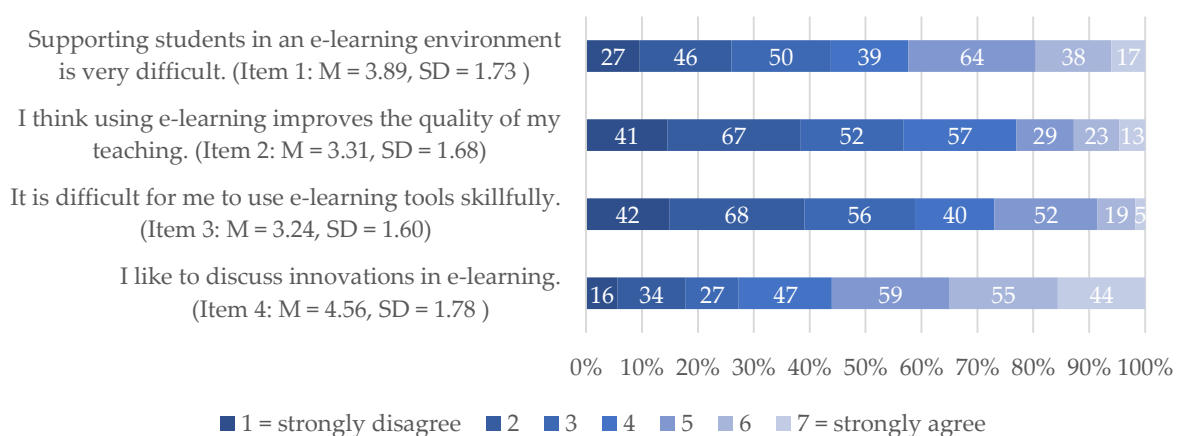


Figure 8. Lecturers' attitude towards e-learning.

### 5.1.2 Students' attitudes towards e-learning

The students were also asked about their attitudes towards e-learning. To assess the attitudes, four statements of the overall attitude towards e-learning scale (Zabadi & Al-Alawi, 2016) were used. Items 1, 2 and 3 were positively formulated, whereas Item 4 was negatively formulated and consequently had to be recoded in the scale formation. The scale measuring the overall attitude towards e-learning showed a mean value of  $M_{Total} = 4.00$  ( $SD = 0.94$ ), which is neutral. The scale showed good internal consistency, Cronbachs  $\alpha = .803$ .

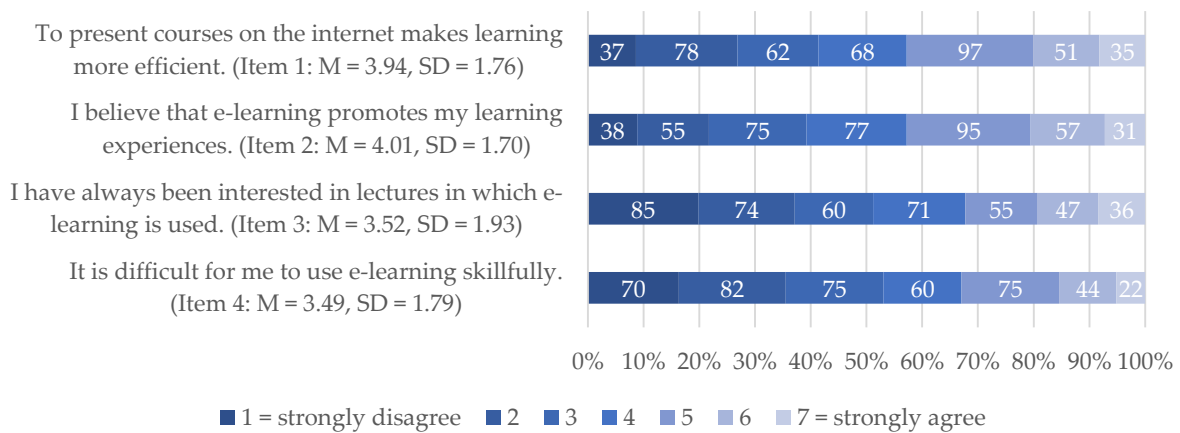


Figure 9. Students' attitude towards e-learning.

Summing up the university students and the lecturers who participated in this study had neither positive nor negative attitudes towards e-learning during the adjustment to online classes. This might also be due to the novelty of the situation and the lack of experience. Whereas the lecturers indicate interest in the topic, it seems that they are rather sceptical on the benefits of e-learning concerning their teaching. From the answers of the lecturers one might carefully conclude that more information as well as exchange on the topic is needed, especially on how e-learning might benefit teaching.

## 5.2 Communication channels used to teach remotely

### 5.2.1 Choice of communication channels during COVID-19

Due to the novelty of the situation and the prompt change to online classes, we were interested in seeing which methods were used to teach the classes online. Did the lecturers ( $N = 282$ ) focus on synchronous or asynchronous methods to teach or lecture their courses? Was video chat involved? As can be seen in Figure 10, provision of material on e-learning platforms (i.e. OLAT) was the most frequently chosen option ( $n = 250, 88.7\%$ ), followed by communication via e-mail ( $n = 202, 71.6\%$ ). Within our sample,  $n = 250$  ( $88.7\%$ ) provided audio recordings and  $n = 102$  ( $36.2\%$ ) lecturers used video recordings to convey their lesson. Most of the participants indicated that they were using some form of interactive

communication channel during their courses, represented by text chat and forums ( $n = 147$ , 52.1%), audio chat ( $n = 71$ , 25.2%) and video chat ( $n = 199$ , 70.6%) which was the most frequently used way to communicate synchronously. It should be noted, that several communication channels were used in one course and most of the lecturers indicated that they were using a combination of three ( $n = 83$ ), respectively four ( $n = 85$ ) communication channels to teach their course remotely.

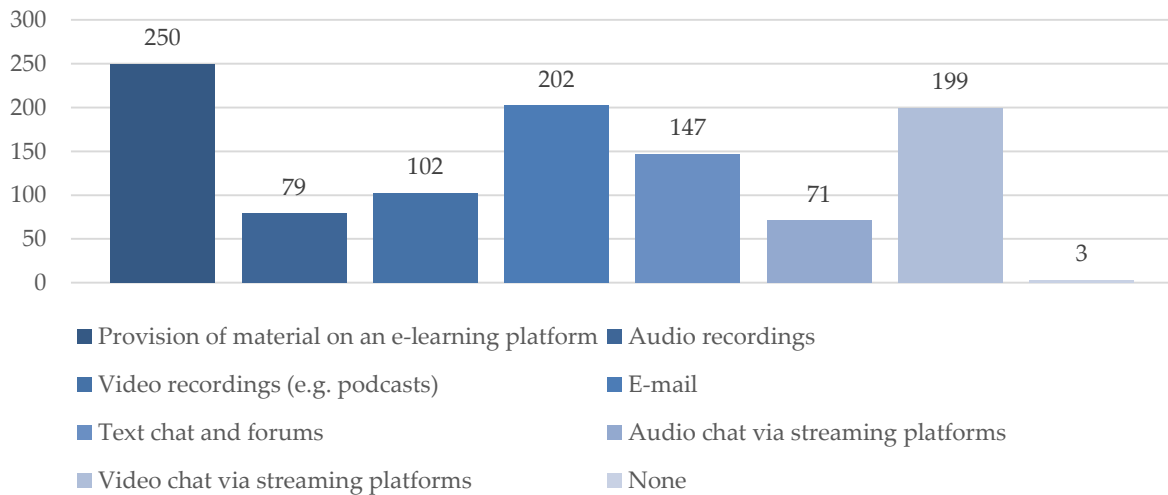


Figure 10. Communication channels during COVID-19 measures.

Additionally, the lecturers were asked to indicate how strongly they felt that they were using the communication channels because it fit their interest and goals (intrinsic reason represented by item 1 and identified reason represented by item 2) rather than because they felt pressured to do so (introjected reason represented by item 3 and external reason represented by item 4). By subtracting items 3 and 4 from the first two items, a so-called self-concordance score can be computed, which has been repeatedly associated with motivation and well-being during one's striving for a goal (Sheldon & Elliot, 1999). The values of the single items are displayed in Figure 11.

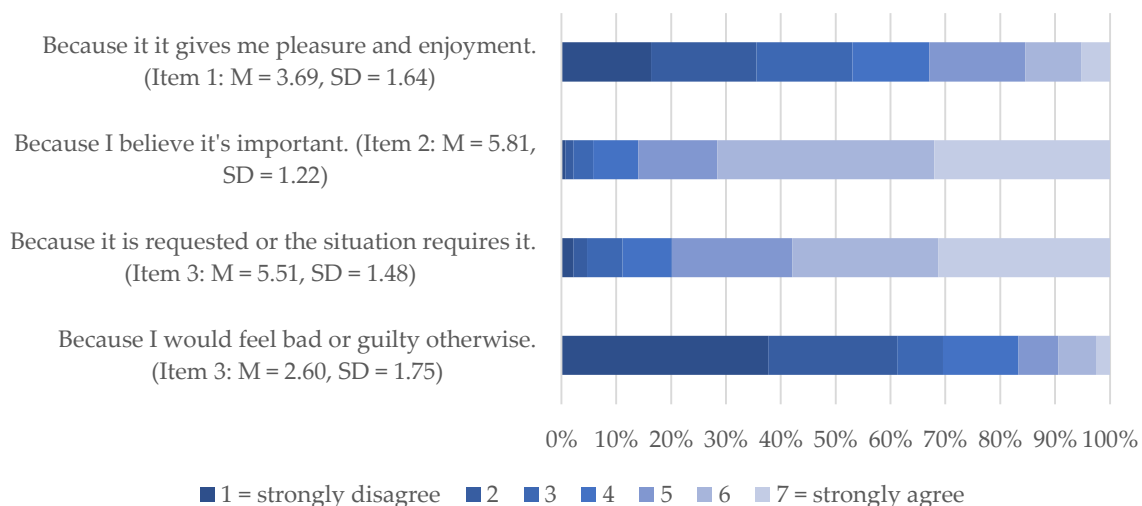


Figure 11. Self-concordance concerning the communication channels used to teach remotely.

Unsurprisingly most of the lecturers felt it was important to use those communication channels and that the situation required such measures. The minority of the lecturers indicated that they would have felt bad or guilty if they had not used the chosen means of communication, whereas the majority of the lecturers were relatively neutral concerning enjoyment as a reason for their choice of communication channel. This is also reflected in a rather low, but not negative overall self-concordance score ( $M = 1.38$ ,  $SD = 3.86$ ).

### 5.2.2 Choice of communication channels before COVID-19

Different communication channels were indicated by the lecturers for lecturing their courses before the outbreak of COVID-19. Within our sample,  $n = 266$  (94.3 %) lecturers provided material on an e-learning platform (i.e. OLAT),  $n = 13$  (4.6 %) provided audio recordings,  $n = 38$  (13.5 %) lecturers used video recordings (i.e. podcast) and  $n = 202$  (71.6 %) lecturers communicated via e-mail. Furthermore,  $n = 13$  (4.6 %) lecturers utilized audio chats,  $n = 18$  (6.4 %) lecturers used video chats and  $n = 60$  (21.3 %) lecturers communicated via text chat and forums. There were no lecturers that indicated not using any kind of communication. It is important to note that whilst in a lot of courses only one communication channel ( $n = 51$ ) was used, using two or more communication channels was more common. Most lecturers indicated that they were using a combination of two ( $n = 148$ ) or three ( $n = 61$ ) communication channels respectively to teach their course. The provision of material on e-learning platforms was the most frequently chosen option ( $n = 266$ , 94.3 %), followed by communication via e-mail ( $n = 202$ , 71.6 %) (Figure 12).

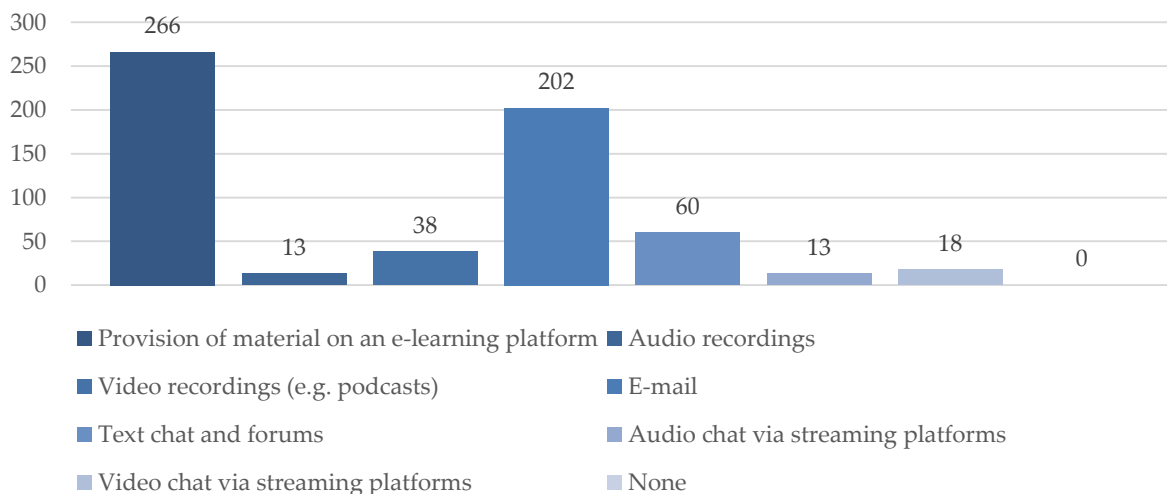


Figure 12. Communication channels before COVID-19 measures.

Comparing the communication channels used before the outbreak of COVID-19 with those used during the pandemic, it is noticeable that much less online synchronous communication was used before: Text chat and forums ( $n = 60$  vs.  $n = 147$ ), audio chat ( $n = 13$  vs.  $n = 71$ ) and video chat ( $n = 18$  vs.  $n = 199$ ). The communication channels audio recordings ( $n = 13$  vs.  $n = 79$ ) and video recordings ( $n = 38$  vs.  $n = 102$ ) were also used much less before

COVID-19. The third unidirectional communication channel, the provision of material on an e-learning platform ( $n = 266$  vs.  $n = 250$ ) and the communication channel e-mail ( $n = 202$  vs.  $n = 202$ ), were used (about) as often before the outbreak as during COVID-19 (Figure 13).

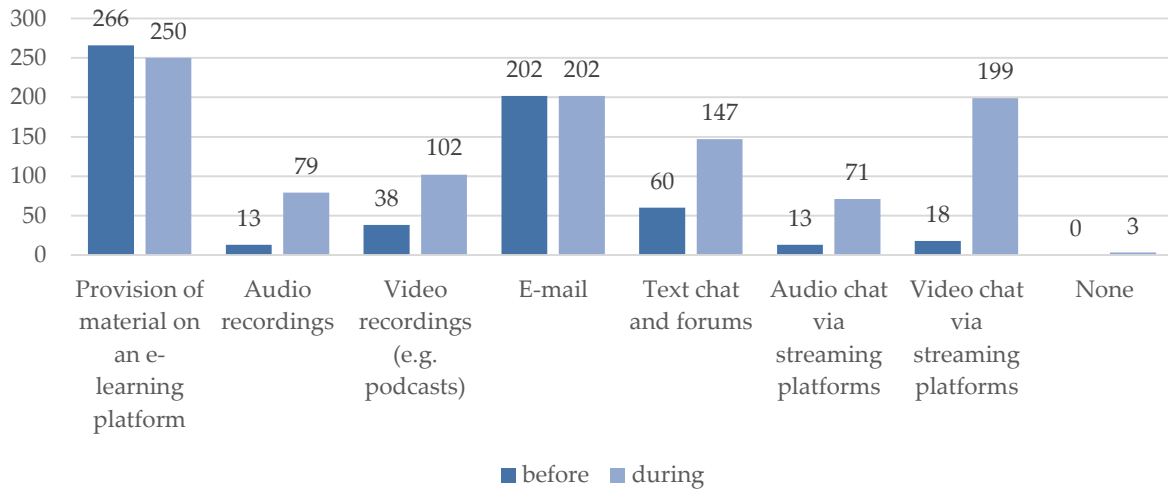


Figure 13. Communication channels before vs. during COVID-19 measures.

### 5.2.3 Choice of communication channels and different teaching formats and their interactivity

When comparing the use of communication channels between seminars ( $n = 110$ ), lectures ( $n = 78$ ), and exercise groups ( $n = 40$ ), we see that the provision of material on e-learning platforms is the most used method to communicate with the students ( $n = 204$ , 89.47 %). However, there are also differences in the use of communication channels among the different types of courses. In seminars, a large proportion of courses ( $n = 194$ , 58.79 %) was conducted via synchronous communication channels (text chat, audio chat, and video chat). Whereas lecturers giving lectures indicated to use those synchronous bidirectional channels in  $n = 74$  cases (31.62 %), unidirectional communication channels (video recordings, audio recordings) were mentioned rather frequently with  $n = 66$  cases (42.31 %). As in seminars, the use of video chat was widely spread among exercise courses ( $n = 27$ , 67.50 %).

### Communication channels per course type

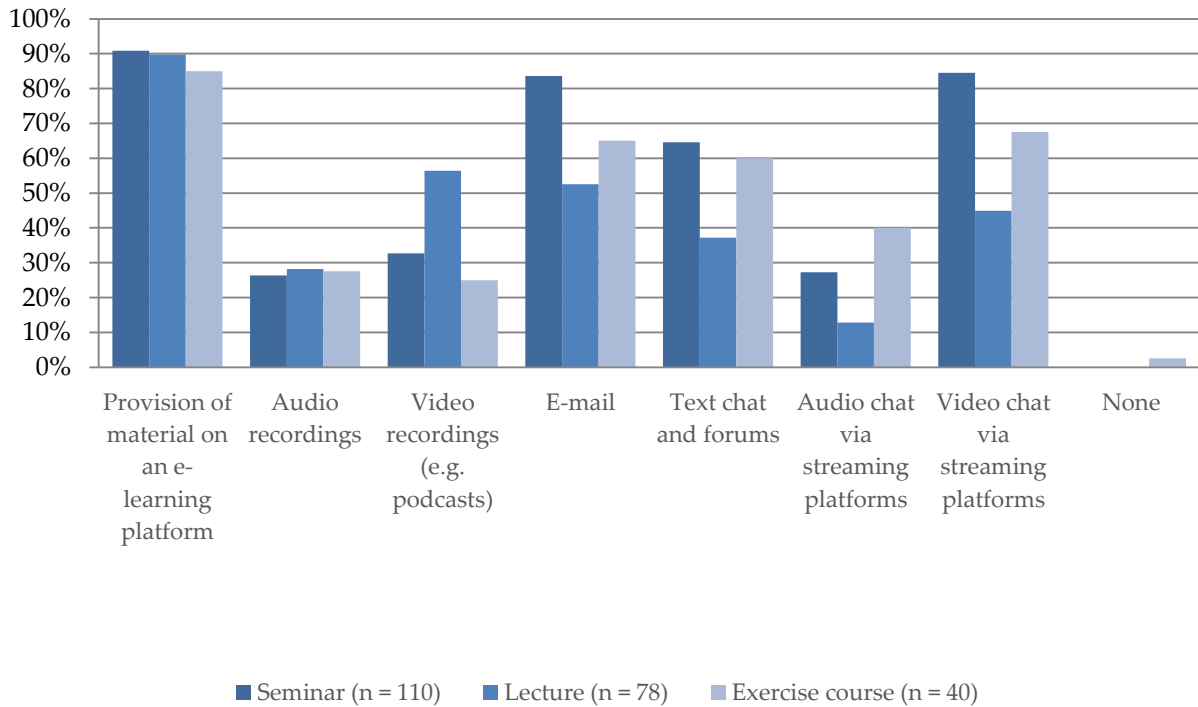


Figure 14. Percentage of how often a communication channel was used depending on the course type. Please note, that more than one communication channel could be indicated.

This is not surprising, given the different nature of the formats taught. Whereas in a seminar or exercise course the students are often directly involved in the lesson and contributing to the events in class, this is less the case in lectures, which are often more teacher-centered in their format (Bär, Rößling, & Mühlhäuser, 2004; Young, Robinson, & Alberts, 2009).

This assumption is affirmed by the data from students on student-teacher interactions (Johnson, Aragon, & Shaik, 2000, sample item: “The lecturer encouraged me to become actively involved in the course discussions.”, 1 = strongly disagree, 5 = strongly agree), whereas unsurprisingly the highest interaction with the lecturers was, on a descriptive level, found in exercise courses ( $M = 3.35$ ,  $SD = .88$ ), followed by seminars ( $M = 3.31$ ,  $SD = .94$ ), and lectures ( $M = 2.86$ ,  $SD = .90$ ). A similar pattern was found for student-student interactions (Johnson et al., 2000; sample item “This course encouraged me to work in small groups or teams.”, 1 = strongly disagree, 5 = strongly agree), which was higher in exercise courses ( $M = 3.13$ ,  $SD = .89$ ) and seminars ( $M = 2.78$ ,  $SD = .92$ ) than in lectures ( $M = 2.45$ ,  $SD = .99$ ). In order to test whether the difference between the groups was statistically significant, we conducted analyses in MPlus (Muthén & Muthén, 1998-2017) while using type = complex to account for the nested structure of the data. Please also note that some lecturers did not have any students who filled in the questionnaire. Thus, the sample size was reduced in the analyses with  $N = 425$  students nested in 70 classes. To compare the different groups, two dummy variables were created, whereas the lecture was used as a reference group and

coded with 0. From the perspective of the students, the interaction with the university teacher was significantly higher in exercise courses than in lectures,  $\beta = .53$ ,  $p = .024$ . The difference between seminars and lectures was smaller and not statistically significant,  $\beta = .48$ ,  $p = .055$ . A similar pattern was found for student-student interaction, which was significantly higher in exercise than in lectures,  $\beta = .69$ ,  $p = .001$ . The difference between seminars and lectures was again smaller and not statistically significant,  $\beta = .35$ ,  $p = .112$ .

#### **5.2.4 Choice of communication channels and interaction between students and lecturers**

To further investigate whether the choice of the communication channel affects the perceived interaction from the perspective of students, a regression model was calculated in MPlus (Muthén & Muthén, 1998-2017), which enabled us to control for the nested structure of the data by employing type = complex. Interestingly, none of the lecturers in this subsample did rely on providing material online only. Thus, the analyses were conducted comparing the predominantly asynchronous communication via e-mail ( $n = 36$ ) with synchronous communication channels ( $n = 387$ ). To compare the different groups a dummy variable was created, whereas the e-mail was used as a reference group and coded with 0. The results show that students who were taught with synchronous teaching methods (text chat, video chat and audio chat) experienced statistically significantly more student-student interaction,  $\beta = .53$ ,  $p = .019$ , as well as student-teacher interaction,  $\beta = .52$ ,  $p = .042$ . Please note however, that due to the uneven sample sizes these results need to be interpreted with the necessary caution. It seems however, that using synchronous teaching methods is associated with higher interaction between teachers and students, as well as between the students.

### **5.3 Need supportive behavior of lecturers**

In the present study, a focus was put on finding out whether university teachers succeed in supporting the basic needs for competence (desire for effectiveness and mastery), relatedness (desire for close and warm relationships) and autonomy (desire to experience volition, choice and personal freedom, see Deci & Ryan, 2000; Ryan & Deci, 2000). According to self-determination theory (Ryan & Deci, 2000; Ryan & Deci, 2017), the satisfaction of those basic needs is seen as an important prerequisite for optimal human functioning in terms of motivation and well-being. In the present study special attention was given to the basic need of relatedness which was assumed to play a specifically important role during social isolation. Please note that as those analyses are part of upcoming publications, thus only some descriptive statistics are presented here.

The need supportive behavior was measured from student and teacher perspective with adapted items from Standage, Duda, and Ntoumanis (2005) all rated on a scale from 1 = "*do not agree at all*", 4 = "*neutral*", 7 = "*fully agree*". To reflect the perspective of the teachers, relatedness support was measured with five items such as "I encourage the students to work together", Cronbachs  $\alpha = .650$ . Competence support was measured with four items such as "I



want to give the students the feeling that they are able to do the activities in class”, Cronbachs  $\alpha = .742$ . Finally, autonomy supportive teacher behavior was measured with items such as “I provide the students with choices and options”, Cronbachs  $\alpha = .747$ . In order to capture the perspective from the students, the items were adapted in their wording (Cronbachs  $\alpha$  were .752 for relatedness, .767 for competence, and .819 for autonomy). Figure 15 presents the means and standard deviations from student and lecturer perspective.

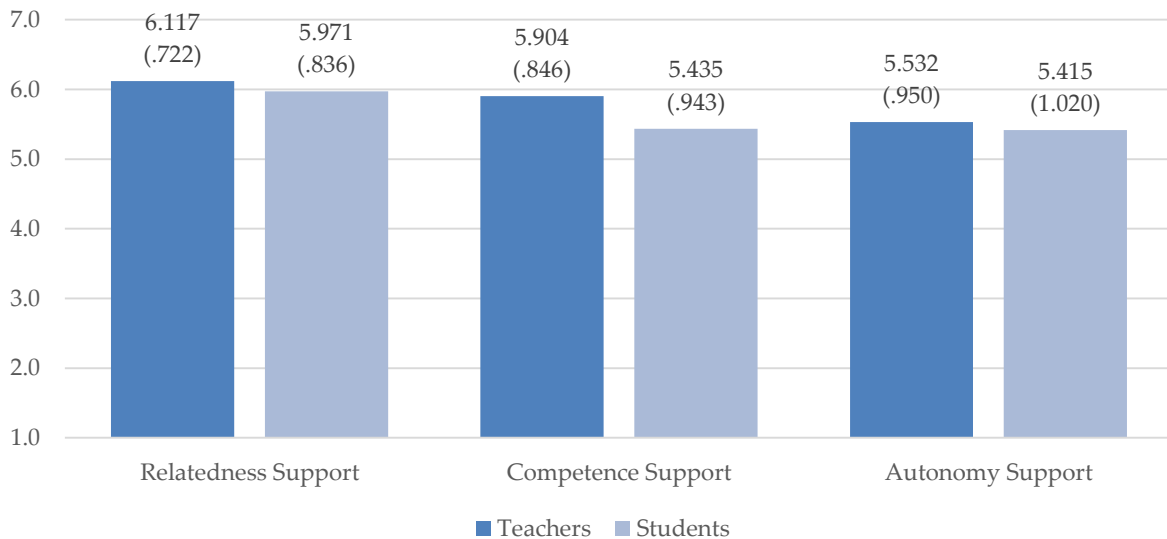


Figure 15. Perception of need supportive teacher behavior during online classes from teacher and student perspective. Please note that the standard deviations are presented in brackets.

The means show that the lecturers participating in the study were relatively high in their need supportive behavior, especially concerning the support of relatedness. This was reflected in both student and lecturer data.

## 5.4 Motivation and well-being during online classes

In order to understand how lecturers as well as their students felt during online classes, we were interested in whether they experienced the positive feelings of being alive and energetic while teaching or attending the course respectively. This feeling is described as vitality and reflects a subjective feeling that one is sufficiently supplied with energy (Ryan & Frederick, 1997). Moreover, we were interested in how motivated they felt. Thus, both lecturers and students answered questions concerning their interest and pleasure during the course (Ryan, 1982).

### 5.4.1 Lecturer well-being and motivation during online classes

Two hundred seventy-seven lecturers indicated how energetic they felt while teaching online classes using the German Adaptation of the Subjective Vitality Scales (SVS-G) from Bertrams,

Dyllick, Englert, and Krispenz (2020) with items such as “I felt energized during the course”, Cronbachs  $\alpha = .902$ . The items were rated from 1 to 7 (1 = not at all true, 4 = somewhat true, 7 = very true). The mean value was  $M = 4.31$  ( $SD = 1.32$ ), with a median of 4.20 and the modal value being 4.20 ( $n = 20$ ).

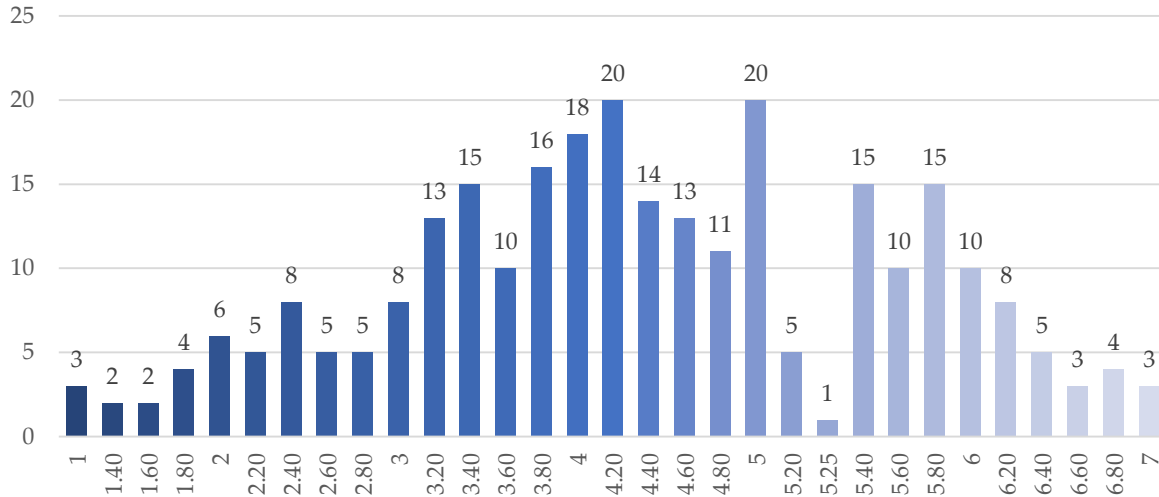


Figure 16. Teachers' vitality during online classes.

The intrinsic motivation of 281 lecturers was measured using the subscale interest/enjoyment from the Intrinsic Motivation Inventory from (Ryan, 1982) with items such as “I enjoyed teaching the class”, Cronbachs  $\alpha = .911$ . The items were rated from 1 to 7 (1 = strongly disagree, 7 = strongly agree). The lecturers showed a mean value of  $M = 4.74$  ( $SD = 1.43$ ). The median was 5.00 and the modal value was 5.14.

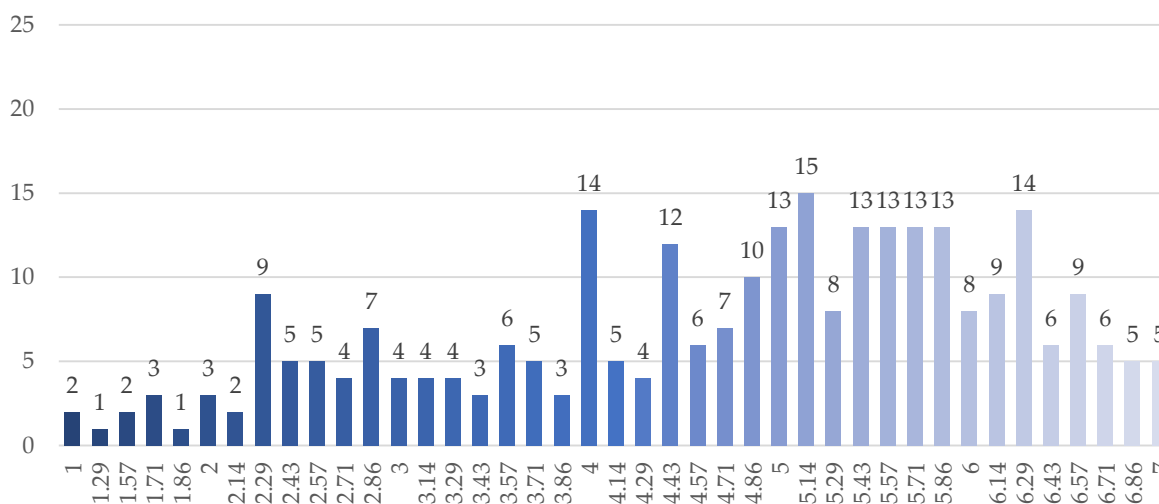


Figure 17. Teachers' intrinsic motivation during online classes.

### 5.4.2 Student well-being and motivation during online classes

In the same manner as the lecturers, the 427 students were asked about their vitality during online classes using the German Adaptation of the Subjective Vitality Scales (SVS-G) from Bertrams et al., (2020). The reliability of the scale was very high, Cronbachs  $\alpha = .909$ . The students had a mean value of  $M = 3.81$  ( $SD = 1.33$ ). The students' median was 3.80 and their modal value was 4.00 ( $n = 43$ ).

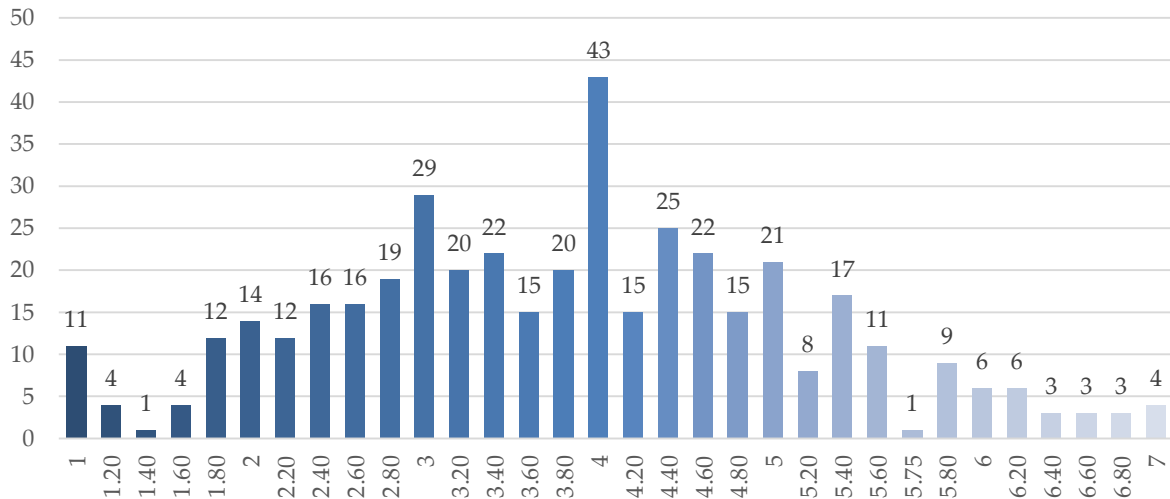


Figure 18. Students' vitality during online classes.

Using the Intrinsic Motivation Inventory from (Ryan, 1982), the students' intrinsic motivation was measured. Again, the reliability was very high, Cronbachs  $\alpha = .889$ . The students' mean value was  $M = 5.01$  ( $SD = 1.23$ ). Furthermore, the students' median was 5.21 and the modal value was 5.57 ( $n = 25$ ).

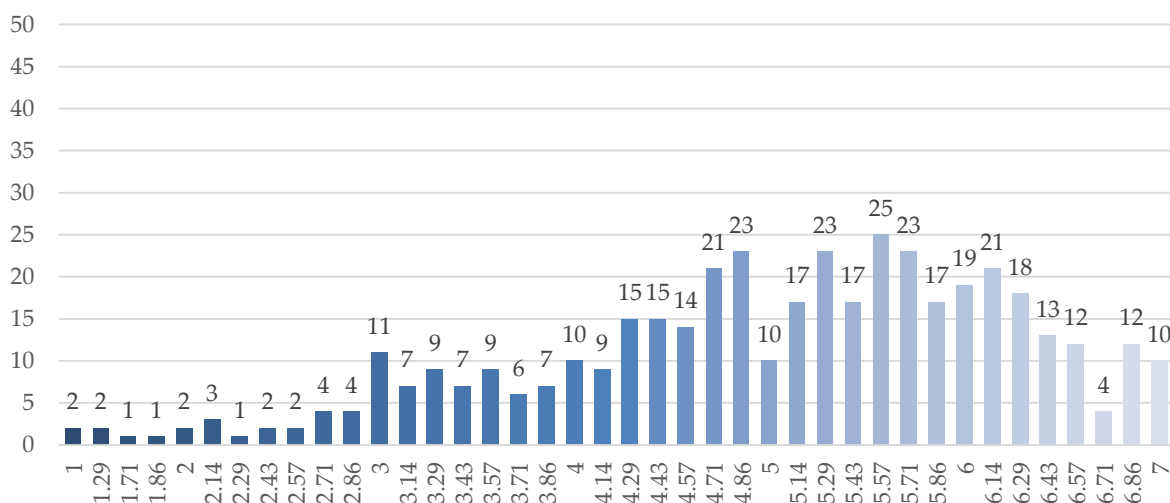


Figure 19. Students' intrinsic motivation during online classes.

Summing up, the data shows that both lecturers and their students were relatively highly motivated. Concerning their self-reported energy levels during class it seems like most were on a medium level, whereas the university teachers had slightly higher levels.

## **6 Supportive work climate for lecturers**

As the situation was associated with different challenges for the lecturers, we were also interested in understanding how supported they felt by their work environment. Thus, the lecturers were asked how supportive they perceived their work climate, considering the support provided by colleagues, the university management, and the university as an organisation. To measure the work climate from the lecturers' perspective, an adapted version of the initial item pool of the Work Climate Questionnaire from Mahmood (2009) was used. In our questionnaire, the items were rated from 1 to 5 (1 = not true at all, 2 = does not apply, 3 = partially true, 4 = mostly applies, 5 = completely true) with the additional option to choose "6 = I cannot answer the question" if one was unable to answer the question properly. In the calculation of the mean values, the response 6 was coded as a missing value so that the mean values were not distorted. Depending on the item, 273–275 lecturers answered the items on the support subscale, including those who chose answer option 6 ("I cannot answer the question"). Items 6 and 7 were negatively formulated and consequently had to be recoded in the scale formation. The overall mean value of the support subscale was  $M = 3.75$  ( $SD = 0.77$ ), which is quite positive. The support subscale showed good internal consistency, Cronbachs  $\alpha = .813$ . As the items reflect different aspects of the work environment (colleagues, superior, etc.), the single items are presented in Figure 20.

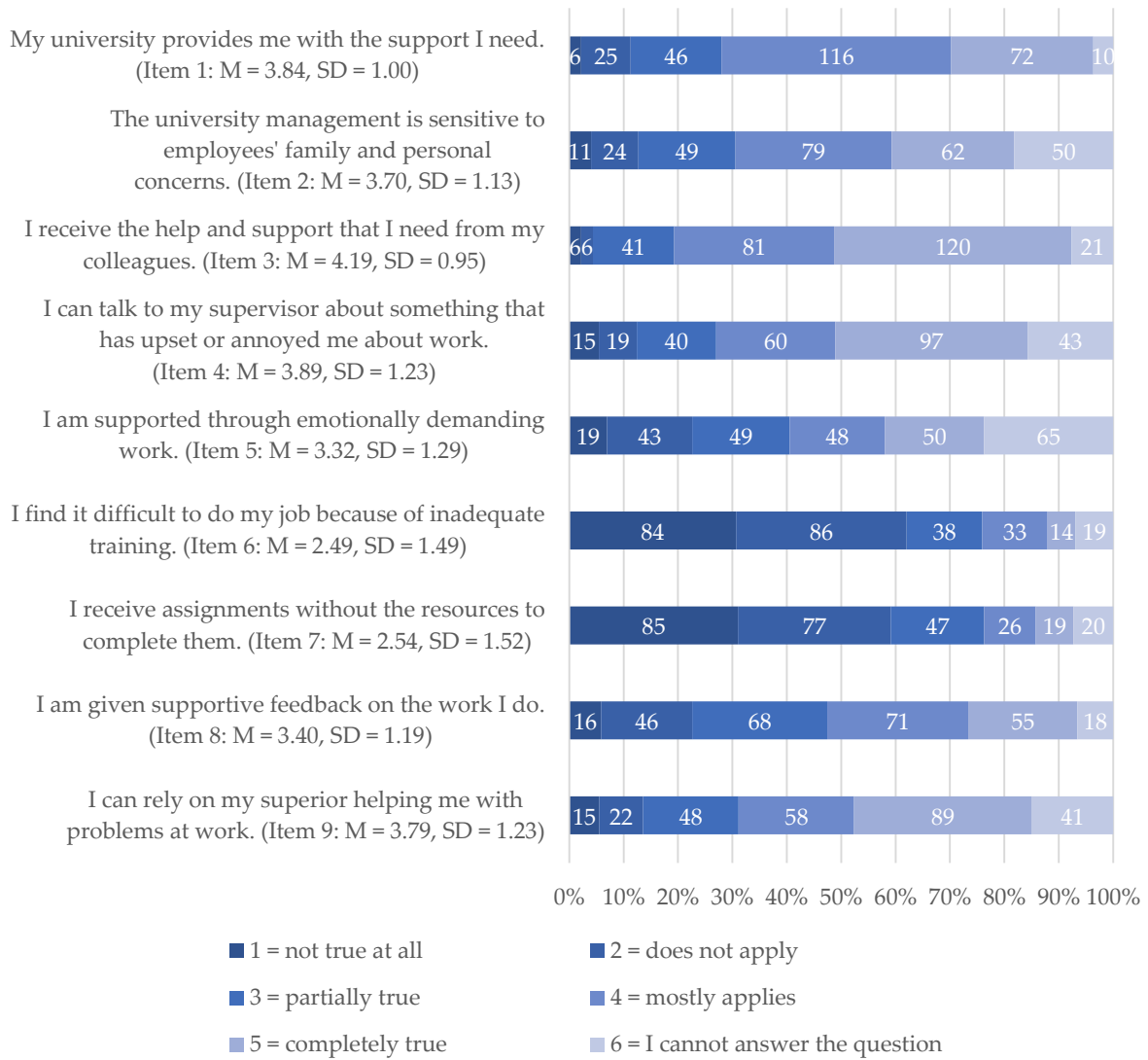


Figure 20. Supportive work climate for lecturers.

## 7 Summary and Conclusion

- The present report indicates that all in all the participants of the study perceived less satisfaction with life and work / university during the pandemic, as well as more stress in their everyday lives.
- Despite those challenges the lecturers in our sample were mostly engaged in using new technology to teach their courses online.
- The descriptive data on attitudes towards teaching indicates that lecturers and students have relatively neutral attitudes towards e-learning. However, most lecturers indicated that they did not think that conducting their courses online would improve their teaching.
- When looking at the use of teaching tools before the outbreak of COVID-19, it becomes evident, that especially the synchronous online teaching methods (Zoom, Microsoft Teams, etc.) were not frequently used. Thus, the neutral attitude towards the topic might also stem from a lack of experience with the topic. It would be interesting for future research to assess the situation now that most staff at the universities has gained experience with teaching remotely.
- Statistical analyses concerning the interactivity of the communication channels used to teach remotely indicate that synchronous communication channels (which were used by a large proportion of our sample) might enable more student-student interaction as well as student-teacher interaction compared to the rather asynchronous communication channel e-mail.
- Even if teaching completely online was not the standard before, students reported that they felt supported by their lecturers regarding their autonomy, competence, and relatedness during that time.
- Motivation during classes was rather high for students, as well as for the lecturers, whereas the vitality was rather mediocre.
- Overall the university staff who participated in the study felt supported by their organization, colleagues, and superiors.

## 8 References

- Bär, H., Rößling, G., & Mühlhäuser, M. (2004). Improving interaction during lectures: A minimal-distraction approach. In L. Cantoni & C. McLoughlin (Eds.), *Proceedings of ED-MEDIA 2004--World conference on educational multimedia, hypermedia & telecommunications* (pp. 1250–1255). Lugano, Switzerland: Association for the Advancement of Computing in Education (AACE).
- Bertrams, A., Dyllick, T. H., Englert, C., & Krispenz, A. (2020). German adaptation of the subjective vitality scales (SVS-G). *Open Psychology, 2*(1), 57–75.  
<https://doi.org/10.1515/psych-2020-0005>
- Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry, 11*(4), 227–268.
- Elmer, T., Mepham, K., & Stadtfeld, C. (2020). Students under lockdown: Assessing change in students’ social networks and mental health during the COVID-19 crisis. Advance online publication. <https://doi.org/10.31234/osf.io/ua6tq>
- Fliege, H., Rose, M., Arck, P., Walter, O. B., Kocalevent, R.-D., Weber, C., & Klapp, B. F. (2005). The Perceived Stress Questionnaire (PSQ) Reconsidered: Validation and Reference Values From Different Clinical and Healthy Adult Samples. *Psychosomatic Medicine, 67*(1), 78–88. <https://doi.org/10.1097/01.psy.0000151491.80178.78>
- Johnson, S. D., Aragon, S. R., & Shaik, N. (2000). Comparative analysis of learner satisfaction and learning outcomes in online and face-to-face learning environments. *Journal of Interactive Learning Research, 11*(1), 29–49.
- Kisanga, D. H., & Ireson, G. (2016). Test of e-Learning Related Attitudes (TeLRA) scale: Development, reliability and validity study. *International Journal of Education and Development Using Information and Communication Technology, 12*(1), 20–36.
- Lashuel, H. A. (2020). Mental Health in Academia: What about faculty? *ELife, 9*(e54551). <https://doi.org/10.7554/eLife.54551>
- Mahmood, M. H. (2009). *Development and testing of the workplace climate questionnaire*. (Dissertation). University of Arizona, Arizona.
- Muthén, L. K., & Muthén, B. O. (1998-2017). *Mplus User’s Guide*: Los Angeles, CA: Muthén & Muthén.
- Ruth, D., Wilson, S., Alakavuklar, O., & Dickson, A. (2018). Anxious academics: talking back to the audit culture through collegial, critical and creative autoethnography. *Culture and Organization, 24*(2), 154–170. <https://doi.org/10.1080/14759551.2017.1380644>
- Ryan, R. M. (1982). Control and information in the intrapersonal sphere: An extension of cognitive evaluation theory. *Journal of Personality and Social Psychology, 43*(3), 450.
- Ryan, R. M., & Deci, E. L. (2000). Self-Determination Theory and the Facilitation of Intrinsic Motivation, Social Development, and Well-Being. *American Psychologist, 55*(1), 68–78. <https://doi.org/10.1037//0003-066X.55.1.68>
- Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*: Guilford Press.

- Sheldon, K. M., & Elliot, A. J. (1999). Goal striving, need satisfaction, and longitudinal well-being: The self-concordance model. *Journal of Personality and Social Psychology*, 76(3), 482–497. <https://doi.org/10.1037/0022-3514.76.3.482>
- Smith, C., & Ulus, E. (2019). Who cares for academics? We need to talk about emotional well-being including what we avoid and intellectualize through macro-discourses. *Organization*, 1-18. <https://doi.org/10.1177/1350508419867201>
- Standage, M., Duda, J. L., & Ntoumanis, N. (2005). A test of self-determination theory in school physical education. *The British Journal of Educational Psychology*, 75(3), 411–433. <https://doi.org/10.1348/000709904X22359>
- Wasserstein, R. L., & Lazar, N. A. (2016). The ASA Statement on p -Values: Context, Process, and Purpose. *The American Statistician*, 70(2), 129–133. <https://doi.org/10.1080/00031305.2016.1154108>
- Young, M. S., Robinson, S., & Alberts, P. (2009). Students pay attention! *Active Learning in Higher Education*, 10(1), 41–55. <https://doi.org/10.1177/1469787408100194>
- Zabadi, A. M., & Al-Alawi, A. H. (2016). University Students' Attitudes towards E-Learning: University of Business & Technology (UBT)-Saudi Arabia-Jeddah: A Case Study. *International Journal of Business and Management*, 11(6), 286. <https://doi.org/10.5539/ijbm.v11n6p286>