

FACTORS INFLUENCING STUDENTS TO PARTICIPATE IN FRONTAL LEARNING POST CORONA

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The unprecedented restrictions imposed due to the COVID-19 pandemic altered our daily habits and severely affected our well-being and physiology. Although the transition to online learning has brought some benefits to academic studies, it has also raised various challenges such as concentration challenges for students, gaps in available resources and equipment suitable for active participation, and anxiety related to physical distancing. The aim of the present study is to examine the relationship between a sense of loneliness, social support, and a sense of desire to learn frontally or remotely depending on the subject. Our research contributes to understanding how to adapt academic studies to student's needs. Examples are provided for incorporating group activities in statistics courses to enhance student interaction and reduce the sense of loneliness.

BACKGROUND

COVID-19 caused the most enormous disruption of education in history, affecting 1.6 billion learners in more than 200 countries (Pokhrel & Chhetri, 2021). Many countries had to close their educational institutions, ranging from kindergartens up to institutions of higher education. Thus, the pandemic severely affected the world's student population (Billy, 2020), causing certain practical and mental consequences. From a practical reaction perspective, the pandemic forced the higher education environment to shift its entire paradigm of frontal teaching and learning to various online platforms (Pokhrel & Chhetri, 2021). Mental outcomes included various psychological symptoms of emotional distress such as anxiety, fear, frustration, anger, depression, stress, avoidance behaviors, and loneliness (Talevi et al., 2020).

At the beginning of the pandemic, many education ministers worldwide decided to turn the education of most levels to online learning, trying to stop the spread of the virus (Ferri et al., 2020). In addition, online education offers some advantages during emergencies, such as staying in touch with teachers and classmates, following lessons (Eyles et al., 2020), allowing flexibility, and saving time and money. Nevertheless, online learning increases the chance of students getting distracted much more than face-to-face learning and decreases social interactions among students (Sadeghi, 2019). Moreover, students can perceive themselves as less friendly and experience more of a sense of loneliness when studying online (Savci et al., 2022).

The experience of loneliness, also known as perceived social isolation, is a subjective feeling reflecting a threat to one's need to be in a close relationship with others (Hawkey & Cacioppo, 2010; Teneva & Lemay, 2020). Social loneliness refers to an absence of a social network circle of people that would enable an individual to develop a sense of belonging, company, and being part of a community (Yanguas et al., 2018). During COVID-19, the existence and severity of loneliness increased dramatically (Ausín et al., 2021; Bu et al., 2020). This was especially evident among younger people (Bu et al., 2020; Li et al., 2020).

Loneliness also increases the probability of developing severe physical conditions such as obesity, alteration in cellular function, increase in vascular resistance (Lauder et al., 2006), stroke, and hypertension (Cacioppo et al., 2014). Loneliness, moreover, is a risk factor for depression, anxiety, and their comorbidity (Palgi et al., 2020). In addition, loneliness can contribute to problematic use of smartphones (Li et al., 2021) and internet addiction (Özdemir et al., 2014).

The antidote to loneliness is social support. Social support is the perception that an individual has a social network of communication and friendship. The person feels he has people around him who care and love him (Cobb, 1976). One can fully feel emotionally supported due to a romantic relationship, or by family, friends, colleagues, community life, and pets (Allen et al., 2002). Additionally, social support serves as a resource of psychological support that can enhance the person's ability to cope with stress. It increases self-confidence, autonomy, and intimacy (Herman, 2015). Russo, Shteigman, and Carmeli (2016) showed that work and family social support increased well-being,

which increases psychological availability. Loneliness can be mitigated by a high social support perception (Lee & Goldstein, 2015).

Since the COVID-19 pandemic started, many studies have focused on psychological outcomes, specifically on the experience of loneliness, due to its tremendous impact on depression and anxiety symptoms. The aim of the present study is to examine the relationship between a sense of loneliness and social and family support, because of a desire to learn frontally or remotely, depending on the subject.

METHOD

Participants and Procedure

The participants were 301 students from Israeli educational institutions of higher learning. The data of 22 (7.3%) participants were excluded because of the large number of missing values (under 90% response). The study, therefore, had a sample of 279 ($N = 279$) participants, which consisted of 65 men 213 women, and one other. Their ages ranged from 18 to 48 years ($M = 24.9$, $SD = 4.067$). Participants completed the questionnaire using the online platform, Qualtrics (Rich, 2022). The ethical board of Tel-Aviv-Jaffa College approved this study. All participants were informed of the research background and gave their consent before starting to answer. First, all participants answered a demographical questionnaire. Then, they answered the multidimensional scale of perceived social support and the revised U.C.L.A. loneliness scale, which appeared randomly.

The Demographical Questionnaire

Demographical information was collected with questions designed for the current study. Participants were asked to give their age, sex, marital status, and education, including the year of completion, degree type, and current work status. The participants were also asked to provide some basic information regarding their learning behaviors during COVID-19. This included questions about participation in online lessons, the time spent in traveling to the educational institution, and their preferred method of learning, either remotely or frontally.

The Multidimensional Scale of Perceived Social Support: MSPSS

The Multidimensional Scale of Perceived Social Support (MSPSS), developed by Zimet et al. (1988), is a 12-item, self-report measure of how one perceives their social support system, including an individual's sources of social support (i.e., family, friends, and significant other). Items are rated from 1 (very strongly disagree) to 7 (very strongly agree). Three subscale scores for MSPSS were computed: family support, friend support, and significant other support. An example of items from this form includes "My friends really try to help me." The Hebrew valid version of this scale was used in this study, as presented by Statman (1995). The Cronbach's alpha coefficient for the original MSPSS was high (Cronbach's $\alpha = .88$) (Zimet et al., 1988). In the current study, the Cronbach's alpha coefficient was also high (Cronbach's $\alpha = .92$).

The Revised UCLA Loneliness Scale

The 20-item UCLA Loneliness Scale developed by Russel, Peplau, and Cutrona (1980) is a self-report measure that assesses the participant's frequency levels of overall loneliness with his environment. A Hebrew version demonstrated by Hochdorf (1989) was used in the current study. Items were rated from 1 (never) to 4 (always). From all 20 items, eleven items are opposite (2, 3, 4, 7, 8, 11, 12, 13, 14, 17, and 18). After reversing the scores from those items, a total scale-rank was calculated for each participant, summing all items. The scale was inverted, for convenience, so that a high rank on this scale meant a high level of perceived loneliness. The Cronbach's alpha coefficient for the original scale was high (Cronbach's $\alpha = .80$) (Russell et al., 1980). In this study, the Cronbach's alpha coefficient was also high (Cronbach's $\alpha = .92$).

RESULTS

The descriptive statistics for the study's main variables were calculated in a preliminary analysis. Table 1 shows the averages, the standard deviations according to demographical information, and the psychological availability and loneliness among some groups.

Table 1. Sample demographics

	<i>N (%)</i>	<i>Mean (SD)</i>
<i>Age</i>	246	24.9 (4.067)
<i>Gender</i>		
<i>Women</i>	213 (76.3%)	24.54 (4.374)
<i>Men</i>	65 (23.3%)	26.13 (2.465)
<i>Learning preferences</i>		
<i>Frontal</i>	75 (26.98%)	
<i>Online</i>	203 (73.02%)	
<i>Education</i>		
<i>B.A.</i>	247 (88.5%)	
<i>M.A.</i>	32 (11.5%)	
<i>Social support (MSPSS)</i>	278	6.0 (1.0)
<i>Family support (MSPSS subscale)</i>	278	6.0 (1.2)
<i>Loneliness</i>	274	82.2 (10.3)

Loneliness, Social, and Family Support

Group comparisons of loneliness and social support are presented in Table 2. We found that students that preferred frontal learning scored significantly higher in loneliness and family support (one of three subscales of social support) but not in general perceived social support.

Table 2. Loneliness and perceived social and family support among participants who preferred frontal over online learning

	<i>Frontal learning preferred</i> <i>n=73</i>		<i>Online learning preferred</i> <i>n=201</i>		<i>t</i>	<i>p-value</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
<i>Loneliness</i>	85.9	8.2	80.8	10.7	3.7	.000
<i>Perceived social support (MSPSS)</i>	6.2	0.7	6	1	1.7	.083
<i>Perceived family support (MSPSS subscale)</i>	6.3	0.8	5.9	1.3	2.3	.023

Note: df = 272 for loneliness and 276 for perceived social support and family support

STATISTICS EDUCATION

The above conclusions emphasize the need to help a student who is engaged in online learning overcome the sense of loneliness. The role that the course lecturer can take in doing that is to encourage and initiate group learning in an online setting. Specifically, when teaching statistics, a lecturer may use breakout rooms and choose one of the following activities to help students interact with each other:

- Basic probability:
 - Select two traits “events” that may relate to the group members (has siblings, loves coffee, etc.) and find the union and intersection of these events.
 - Calculate the probability of each event, assuming random selection.
- Conditional probability:
 - Find two events that relate to the group members and are mutually exclusive.
 - Find two events that relate to the group members and are independent.
 - Calculate the conditional probability of A given B, for the event defined in the basic probability section.
- Descriptive statistics:
 - Find a news article that uses a graphic description. Identify what variables are shown in the graph.
 - Use all possible measures to describe these variables.
- Statistical inference:
 - Choose a quantitative trait and measure it for all group members. Estimate its mean using a subset of the group members and compare it to the true mean.
 - Construct three confidence intervals to this trait using three subsets of the group members. How many of them include the true mean?

CONCLUSION

The study found that students who reported extensive online learning had higher levels of sense of loneliness. Conversely, students who reported extensive frontal learning had higher levels of perceived family support. This may indicate that, despite its apparent benefits, online learning results in undesired psychological effects. Future curriculum planning not affected by COVID-19 restrictions should consider these outcomes and possibly combine frontal classes in courses predominantly taught online. Examples are provided for incorporating group activities in statistics courses to enhance students' interaction and reduce the sense of loneliness.

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