INSTRUCTORS' PERCEPTIONS OF TEACHING ONLINE DURING EMERGENCY REMOTE TEACHING: THE CASE OF A TEACHER EDUCATION COLLEGE

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ABSTRACT

This paper explored instructors' perceptions of teaching online during emergency remote teaching. The sample consisted of instructors from a teacher education college in Israel. Data were collected from a survey and were analyzed using descriptive and inferential statistics. The results suggested an overall tendency towards positive perceptions of online learning and teaching practices. While quantitative data revealed undecided opinions regarding institutional support, qualitative data suggested a need for pedagogical and technical support for students and instructors. Correlations concerning specific demographics and categories were detected. Significant differences in perceptions according to specific demographics, categories, and statements were found. The study recommends more comprehensive institutional support for students and instructors that incorporates: 1) self-learning; 2) assessment and provision of technical and pedagogical training; 3) a robust technological infrastructure; 4) a professional learning community; and 5) peer mentoring programs that respect diversity and include the more experienced online instructors as valuable resources.

Keywords: *online teaching, perceptions, demographic variables*

INTRODUCTION

Like other countries that experienced the closure of schools and universities (UNESCO, 2020), Israel was part of a widespread transition to online teaching in the spring 2020 term due to preventive measures implemented in response to the global pandemic. According to Donitsa-Schmidt and Ramot (2020), all schools and higher education staff in Israel were instructed to teach online immediately after the Israeli Ministry of Health's announcement on March 13, 2020. Approximately 320,000 Israeli students who were enrolled in institutes of higher education switched to online learning, 44,000 of whom were studying in teacher education colleges (Donitsa-Schmidt & Ramot, 2020). The rapid migration to online teaching and learning has been referred to as emergency remote teaching (ERT) (Hodges et al., 2020) due to the absence of adequate planning, design, and development of instruction (Adedoyin & Soykan, 2020). ERT brought attention to a series of concerns, including pedagogy, technology, student learning, and access to online learning environments (Westwick & Morreale, 2021). However, as noted by Johnson et al. (2020), it is essential to recognize what was achieved within this period of crisis and highlight the resilience of higher education.

During the rapid transition to online learning in higher education, many researchers published studies focusing on different aspects of the ETR

experience, ranging from challenges and opportunities (e.g., Hashemi & Adu-Gyamfi, 2021; Sepulveda-Escobar & Morrison, 2020), lessons learned (e.g., Brown & Krzic, 2021; Westwick & Morreale, 2021), instructors' perceptions of teaching online during the pandemic (e.g., Ramlo, 2021), and postpandemic perspectives of instructors and leaders (e.g., Ashour et al., 2021). As indicated by Todd (2020), although more research is needed, findings from these studies are significant to help understand future online learning applications since this mode of delivery may be sustained postpandemic (Adedoyin & Soykan, 2020). Similarly, Kim (2020) reminded us that teaching and learning will never be the same as prior to COVID-19, suggesting that institutions of higher education will need to rethink their future strategies as online learning will keep increasing in these institutes (Bates, 2020).

In particular, a series of studies conducted worldwide examined instructors' perceptions of teaching online during the pandemic (e.g., Al-Freih, 2021; Egan & Crotty, 2020). These studies provided valuable insights into instructors' experiences during the transition and, as noted by Johnson et al. (2020), could also inform future course design, implementation, and pedagogical practices. For example, researchers such as Sims and Baker (2021) found that instructors appreciated the flexibility offered by online teaching but acknowledged limited interaction and engagement with their students compared to face-to-face teaching. Sims and Baker recommended more research on instructors' perceptions and experiences in other contexts and universities.

The current study aims at examining instructors' perceptions of teaching online during the pandemic at a teacher education college in Israel. The study also investigates participants' perceptions according to demographic variables (e.g., age, gender, academic background) to reveal patterns and impacts on perceptions. Since limited studies have been conducted in this regard in Israel (e.g., Abbas et al., 2021), the current study contributes to the growing body of knowledge in this context and extends prior studies conducted in other countries on the same topic.

BACKGROUND LITERATURE

When colleges and universities worldwide transitioned to online learning due to the global pandemic, Bates (2020) stressed the importance of distinguishing between online learning and ERT to allow institutions to examine outcomes and plan for future improvements. According to Hodges et al. (2020), ERT described the current situation whereby educational institutions temporarily switched instructional delivery to remote learning due to lockdown circumstances. Since ERT's main aim was to enable temporary access to teaching and learning and support during the crisis, Hodges et al. warned against comparing ERT with online learning. The latter carefully involves planning, designing, and implementation that considers online pedagogical methods, assessments, technologies, and engagement in experimentations to improve practice, among other aspects (Bates, 2020; Hüttel & Gnaur, 2020). When well planned and designed, Green et al. (2020) believed that "online teaching and learning has the capacity to provide socially rich learning experiences" (p. 919).

As noted by Korkmaz and Toraman (2020), institutions that were already delivering distance learning and investing in technological infrastructure would probably navigate their way better through the ERT experience. In contrast, those instructors having less or no preparation experience with online teaching would react with apprehension to the swift change to remote teaching (Westwick & Morreale, 2021). Regardless of the experience, and given that the unplanned shift to online teaching was the only option to continue delivering education (Todd, 2020), Hodges et al. (2020) stressed that those involved in the ERT experience would do their best to go through the situation.

Perceptions and Experiences of Teaching Online during the Pandemic

A growing number of studies exploring instructors' perceptions and experiences with online teaching appeared during the pandemic. For example, many studies reported that instructors perceived online teaching as increasing their workload (e.g., Egan & Crotty, 2020; Horan & Kim, 2020; Todd, 2020). Egan and Crotty (2020) found that most instructors agreed that shifting to online teaching added greater demands on their time, including preparing classes, communicating with students and giving tutorials. Todd (2020) similarly reported an increase in the instructors' workload

regarding time spent checking assessments, communicating with students, and preparing engaging learning activities. The workload is not only a concern related to ERT, because previous studies have reported similar findings (e.g., Conceição, 2006). Despite the perceived increased workload, online learning allows instructors and students to attend classes anywhere and anytime if they are offered asynchronously (Ally, 2008).

The above sentiment is shared by Sims and Baker's (2021) study, where many instructors appreciated the flexibility of teaching from any place. He and Xiao (2020) exemplified other opportunities, including self-paced learning offered by lesson recordings (50.75%) and a new approach to promote interaction in the course (46.25%). However, many instructors felt that student-instructor interactions were limited (Sims & Baker, 2021) and found it challenging to interact with students (45.34%) (He & Xiao, 2020). Further analysis by Sims and Baker (2021) showed that more male than female faculty perceived that the transition to online teaching negatively affected student engagement. On the positive side, Egan and Crotty (2020) reported that most instructors would continue with online teaching but using a blended approach. In contrast, Moralista and Oducado (2020) revealed that instructors were overall undecided regarding the benefits of online learning. They also found significant differences in perceptions of online learning favorability according to instructor demographics, including gender, age, college, education, and academic ranking. In contrast, others found that age or prior experience with online teaching had no impact on perceptions (e.g., Abdelmola et al., 2021; Kumar, 2020).

Teaching Practices

Several studies found that instructors lowered their expectations regarding what students could accomplish during the transition to online learning (e.g., Egan & Crotty, 2020; Johnson et al., 2020). A survey by Bay View Analytics, in collaboration with Cengage, conducted with more than 800 institutes of higher education in the United States revealed that 63% of the instructors modified the kinds of assessments they asked their students to complete (Cengage, 2020). Another large-scale study by Johnson et al. (2020) reported similar findings, adding that about one-third of the instructors reduced their expectations regarding the quality of student work. Al-Freih (2021) further showed that instructors modified their learning activities, assessments, and teaching methods to encourage student engagement in the online learning context. For example, an instructor changed the pedagogical use of discussion forums to promote more in-depth cognitive engagement. The same study showed that instructors considered their online experience as an opportunity to make future improvements in teaching practices and course design. In addition, these instructors increased their awareness of the affordances of digital technologies and gained confidence in using them, which led them to make plans to adopt blended learning in their future teaching.

A study by Erdem-Aydin (2021) revealed that instructors perceived interactions with their students, reliable assessment, and students' motivation as being most problematic. In this regard, many worried about the reliability of online assessments and noted students' preferences for recorded lessons rather than attending live sessions. Some instructors were even in favor of compulsory student attendance to live classes to increase participation and interaction. Meanwhile, DiMarco (2020) reported creating a supportive community of learners to encourage discussion and collaborative learning in the course. However, DiMarco noted the extra efforts required to create opportunities for students to coconstruct knowledge and share responsibilities for their learning in online discussion forums.

Institutional Support

Researchers like Horan and Kim (2020) reported that most instructors were not only aware of support provided by their institution (e.g., workshops) but were also pleased with the support received. However, these instructors suggested that future workshops should also focus on pedagogy rather than only on technology. This finding agrees with Johnson et al. (2020). They stressed that online professional development opportunities for instructors should also cover pedagogy, assessment, and support for students to help them learn and succeed. Similarly, in their survey with approximately 870 instructors, George Washington University (2020) reported instructors' satisfaction with the technical support and training received, including pedagogy such as strategies to promote student engagement and group work.

In contrast, Sims and Baker (2021) found a low level of instructor agreement regarding technological support received during the transition to online teaching, with no significant differences in perceptions according to gender. A study by Todd (2020) indicated that many instructors were proactive in seeking support and engaging in experimentation and adjustments of their teaching approaches. DiMarco (2020) joined online forums and took advice from professors, while Tucker and Quintero-Ares (2021) described a professional learning community that allowed instructors to engage in meaningful discussions about online teaching, share tools, and engage in questions and answers on how to do things. Similarly, Abbas et al. (2021) described the emergence of networks of knowledge sharing and social support.

According to Adedoyin and Soykan (2020), online learning depends heavily on robust infrastructure, and low connectivity or lack of access to digital tools and platforms can affect the effectiveness of online delivery. For instance, He and Xiao (2020) found that instructors perceived unstable internet connections as one of the main factors affecting the effectiveness of online classes. Others reported similar findings (e.g., DiMarco, 2020; Joshi et al., 2020), with Moralista and Oducado (2020) reporting that instructors' reluctance to move to online teaching may have been related to the lack of a robust internet connection for teaching their classes. Moving forward, educational institutions should, in collaboration with telecommunication companies, fund the cost of internet subscriptions or provide free browsing data to their instructors and students (Adedoyin & Soykan, 2020).

RESEARCH QUESTIONS

The reviewed literature revealed valuable insights on how instructors perceived their experience, including teaching practices and institutional support. These studies were conducted in different parts of the world and disciplines. The few studies conducted in Israel within colleges of education focused on stakeholders' experiences with ERT (Abbas et al., 2021) and anecdotal discussions of challenges and reflections (Donitsa-Schmidt & Ramot, 2020). Thus, the current study explores instructor perceptions and experiences with online teaching during emergency remote teaching within a teacher education college in Israel. The research questions are as follows:

1. What are instructors' perceptions of online learning during their transition to emergency remote teaching?
2. Do, and to what extent, demographics data, including age, gender, teaching experience, prior experience with online teaching, and academic background relate to participants' perceptions? The following subquestions are asked:

    2.1 Is there a correlation between demographics data and participants' perceptions?

    2.2. Are there significant differences in participants' perceptions according to their demographics data?

METHODOLOGY

Context of the Study

The survey was carried out at a teacher education college in the Galilee region in northern Israel, home to more than half of Israel's Arabic-speaking community. The college aims to fulfill a range of vital needs in Arab society; it trains and qualifies teachers and provides more diverse opportunities for Arab students, especially women. The college offers bachelor's and master's degrees in education, teaching certificates, and professional development education. It has approximately 4,000 students and 300 instructors distributed across specializations. During the global pandemic, all instructors and students transitioned to online learning. More than 90% of face-to-face courses were taught via the Zoom platform. The instructors also managed their courses on the Moodle learning management system. According to college procedures, students were required to attend at least 80% of the online classes and were given the freedom to open or close their cameras on Zoom during lectures.

Participants

A total of 112 instructors gave their consent to participate in the survey. About 57% were males and 43% females, which represents 37% of the population. The instructors were from various specializations, including math, science, computer science, education, and early childhood education. As seen in Table 1, participants' ages ranged from

Table 1. Demographic Information

Variables	Classification	Frequency (n=112)	%
Age group	Below 18	0	0
	19–29	6	5.4
	30–39	24	21.4
	40–49	22	19.6
	50 or above	60	53.6
Academic background	Bachelor	0	0
	Master	40	35.7
	PhD	68	60.7
	Other	4	3.6
Years of teaching experience	0–5 years	10	8.9
	6–10 years	10	8.9
	11–15 years	6	5.4
	16–20 years	22	19.6
	21 years or more	64	57.1
Previous experience with online teaching prior to the pandemic	None	36	32.1
	1–2 years	22	19.6
	3–5 years	22	19.6
	6 years or more	32	28.6

19 to 50 years old or older, with more than half (53.6%) being in the latter group. Many (60.7%) held a doctoral degree, and more than half (57.1%) had 21 years or more of teaching experience. Table 1 shows that instructors' previous experience with online teaching prior to the pandemic varied, with 32.1% having no experience while 28.6% had six or more years of experience.

Data Collection

We developed the survey based on the online learning literature (e.g., Adedoyin & Soykan, 2020; Johnson et al., 2020; Korkmaz & Toraman, 2020; Moralista & Oducado, 2020). The survey included demographic information and 5-point Likert scales ranging from *strongly disagree* (1) to *strongly agree* (5) that cover three main categories: a) perceptions of online teaching (14 statements, Table 2); b) perceptions of support (7 statements, Table 3); and c) perceptions of teaching practices (15 statements, Table 4). The survey also included three open-ended questions regarding the benefits of online teaching, challenges, and recommendations. Two colleagues piloted the survey; based on their feedback, we clarified some of the statements. The internal consistency of the survey reached Cronbach's alpha 0.836, and its dimensions ranged from 0.429 to 0.790 (0.429/perceptions of online teaching practices; 0.774/perceptions of online teaching; 0.790/perceptions of support). One of us, who is bilingual, translated the survey from English into Arabic, and two PhD colleagues checked the translation for accuracy. We sent an invitation to the instructors' emails, which included a link to the survey on a Google form and a consent form. A reminder was sent to the instructors two weeks after the original invitation. The survey was completed anonymously and participation was voluntary. In the online survey, each item had to be answered before proceeding to the next statement. A total of 112 instructors returned the surveys.

Data Analysis

We analyzed quantitative data using SPSS software version 22. The analysis involved descriptive statistics, mainly calculating frequency, averages, and standard deviations for each statement separately and for the whole category. To examine how demographics variables related to each category,

we used the Pearson correlation at $p < 0.01$ and $p < 0.05$. In addition, we ran the Pearson correlation between the three categories. We also conducted independent *t*-tests, one-way ANOVA, and post hoc tests (LSD) to explore differences among groups (divided according to demographic data) in perceptions.

Additionally, one of us translated the responses to the three open questions in the survey into English while another created the codes and coded the information using NVivo software and looked for themes in the coded data. Three main themes with subthemes emerged (benefits of online learning, technical and pedagogical challenges, and recommendations) and were reported in the findings. We discussed the codes and coding to ensure valid interpretations.

RESULTS

This section presents the quantitative results first, followed by a qualitative analysis.

Perceptions of Online Teaching

Table 2 presents the instructors' perceptions of online teaching during the pandemic, with an overall average and standard deviation of 3.588 and 0.541, respectively. As seen in Table 2, the instructors tended to agree with statements 1 (online teaching is an effective approach for student learning), 2 (was easy to adapt teaching to online), 9 (was able to improve digital skills), and 10 (flexibility in terms of time and place). They similarly tended to agree with statements 11 (positive experience towards online teaching), 12 (became more interested in online teaching), and 14 (would like to continue teaching online courses). There is a trend towards agreement regarding statements 3 (time to prepare classes, M = 3.45, SD = 1.122), 4 (time commitment to provide student feedback, M = 3.41, SD = 0.926), and 5 (self-paced learning, M = 3.48, SD = 0.949). However, there is a tendency to a neutral opinion for statements 6 (interaction between teacher-student, M = 2.63, SD = 1.238), 7 (interactions among students, M = 2.73, SD = 1.223), 8 (assessment of student performance, M = 2.70, SD = 1.184), and 13 (felt lonely teaching online, M = 3.34, SD = 1.127).

Table 3 shows the perceptions of teaching practices in the online environment, with an overall average and standard deviation of 3.857 and 0.443, respectively. The instructors tended towards a neutral opinion regarding statements 4 (reliable assessment, M = 2.84, SD = 1.103), 10 (reduction of assessment, M = 2.59, SD = 0.906), 11 (dropped

Table 2. Perceptions of Online Teaching

Statement—Scale: *strongly disagree* **(1) to** *strongly agree* **(5)**	**Mean (*n*=112)**	**Std. Deviation (SD)**
Online teaching is an effective approach to promote students' learning.	3.79	0.885
It was easy for me to adapt my teaching to an online setting.	3.95	0.957
The time commitment for preparing online classes is reasonable.	3.45	1.122
The time commitment to provide student feedback online is reasonable.	3.41	0.926
The online format facilitates students' self-paced learning.	3.48	0.949
The interactions between student-teacher in the online learning environment were not adequate.	2.63	1.238
The interactions among students in the online learning environment were not adequate.	2.73	1.223
It is much more difficult to assess student performance in the online learning.	2.70	1.184
I was able to improve my digital skills due to online teaching.	3.97	0.934
I enjoyed the flexibility of time and place in online teaching.	3.89	1.051
After having experienced teaching online, my opinion towards online approaches is positive.	3.70	1.229
After having experienced teaching online, I became more interested in online teaching.	3.91	1.027
I feel lonely teaching online courses.	3.34	1.127
I would like to continue teaching online courses in the future.	3.54	1.090

Table 3. Perceptions of Teaching Practices

Statement*—Scale: strongly disagree (1) to strongly agree (5)	Mean (n=112)	Std. Deviation (SD)
I used multiple teaching strategies (e.g., lecturing, video) to introduce and teach the content knowledge online.	4.32	0.633
I encouraged collaborative work in the online course.	3.96	0.890
I used multiple forms of assessment to evaluate student progress.	3.93	0.867
Reliable assessment could not be made in the online course environment.	2.84	1.103
I used differentiation strategies to accommodate learning differences.	3.95	0.721
I communicated with my students regularly to engage them.	4.21	0.650
I integrated technology to motivate students.	4.23	0.569
I changed the kinds of assignments I am asking students to do when teaching online.	4.14	0.769
I changed the kinds of exams I am asking students to do when teaching online.	4.13	0.761
I reduced some of the assessments when moving to an online course.	2.59	0.906
I dropped some of the readings that I was originally asking students to do.	2.63	1.238
I lowered my expectations about the quality of work that my students would be able to do.	2.82	1.172
I developed a sense of community among learners in this course.	3.71	0.963
I felt confident communicating in the online learning environment with the students.	3.96	0.827
I felt confident that I could successfully teach relevant content using appropriate technology.	4.16	0.778

* Note: statements 3, 5, and 7 were adapted from Lin and Zheng (2015); statements 8, 9, 11, and 12 were adapted from Johnson et al. (2020); statement 4 was adapted from Korkmaz and Toraman (2020).

reading, M = 2.63, SD = 1.238), and 12 (lowered expectation, M = 2.82, SD = 1.172). Overall, Table 3 suggests agreement for the remaining statements. More specifically, there is clear agreement for statements 1, 6, 7, 8, 9, and 15, and a strong tendency of agreement for statement 2 (collaborative work, M = 3.96, SD = 0.890), 3 (multiple forms of assessment, M = 3.93, SD = 0.867), 5 (differentiation, M = 3.95, SD = 1.103), 13 (sense of community, M = 3.71, SD = 0.963), and 14 (communicating online, M = 3.96, SD = 0.827).

Table 4 shows the results of perceptions of support, with an overall average and standard deviation of 3.493 and 0.473, respectively. While the instructors agreed with having received pedagogical training (M = 4.13, SD = 0.631) and tended to agree with having received ongoing technical training (M = 3.66, SD = 1.111), overall, they tended to remain neutral regarding other statements shown in Table 4.

Correlations

We performed further analysis to determine the relationship between demographic variables and the survey categories by using the Pearson

Table 4. Perceptions of Support

Statement—Scale: *strongly disagree* (1) to *strongly agree* (5)	Mean (*n*=112)	Std. Deviation (SD)
I received ongoing technical support to teach my online course.	3.66	1.111
I received pedagogical training to teach online.	3.31	1.031
I engaged in self-learning during online teaching.	4.13	0.631
I had proper infrastructure facilities like the internet and computers to teach my online classes.	3.30	1.089
My students received the technical support they needed when they had a problem.	3.38	0.997
I still need technical training to teach effectively online.	3.30	1.038
I still need pedagogical training to teach in the online environment.	3.38	0.997

correlation. The findings showed a correlation between gender and instructors' perceptions of online teaching ($r = 0.252$, $p < 0.01$), and a negative correlation was detected in relation to age and years of teaching experience ($r = -0.261$, $p < 0.01$; $r = -0.213$, $p < 0.05$, respectively). The findings also revealed a correlation between academic background, previous experience with online teaching prior to the pandemic, and perceptions of teaching practices ($r = 0.200$, $p < 0.05$; $r = 0.191$, $p < 0.05$, respectively). No statistical significance, neither at 0.01 or 0.05 levels, was detected between demographic variables and perceptions of support. We also explored the potential correlation between the three categories (perceptions of online teaching, perceptions of teaching practices, and perceptions of support). We found a positive correlation between perceptions of online teaching and perceptions of teaching practices in the online environment ($r = 0.573$, $p < 0.01$). No other significant correlations were detected.

Differences in Perceptions

We conducted different statistic tests to explore differences in perceptions according to demographic data and the three categories of the survey (Tables 2–4). The results of the analysis are presented below.

Gender

An independent *t*-test was conducted to compare male and female responses in the three survey categories. The results show a statistically significant difference in participants' perceptions of teaching practices ($t(110) = 0.025$, $p = 0.001$) in favor of the female participants. No statistical differences were found in the other two categories (perceptions of teaching and support). To detect the statements within the perceptions of teaching practices category that mainly contributed to gender differences, we conducted an independent *t*-test. The findings did not point to specific statements that stood behind this difference.

Age

The findings from the one-way ANOVA test showed a significant difference ($F(3, 108) = 3.93$, $p = 0.01$) among age group responses in the category perceptions of online teaching. According to the post hoc test (LSD), there was a statistically significant difference at the level of indication ($\alpha = 0.05$) between age group 19–29 (represented by I) and 50 or above (represented by J), where the younger group showed more agreement with the statements (I-J = 0.61667). In addition, a statistically significant difference was found between age group 40–49 (I) and 50 or above (J), where the former group agreed more with the statements (I-J = 0.308). There were no statistical differences in the other two categories according to age group.

Furthermore, we conducted an independent *t*-test comparing participants' responses (from different age groups) to different statements within the category perceptions of online teaching (each statement separately). The findings showed that the difference between group 19–29 and 50 or above was contributed mainly by statements 2, 3, 4, and 10 with the following values presented respectively: ($t(64) = 2.30$, $p = 0.02$); ($t(11.16) = 5.78$, $p = 0.00$); ($t(8.55) = 4.13$, $p = 0.003$); and ($t(64) = 2.22$, $p = 0.03$). The difference between the two group ages 40–49 and 50 or above was contributed by statements 5, 9, 10, 11, 12, and 14 with the following *t*-test results: ($t(80) = 2.04$, $p = 0.04$); ($t(80) = 2.39$, $p = 0.01$); ($t(80) = 2.98$, $p = 0.00$); ($t(68.37) = 6.11$, $p = 0.00$); ($t(80) = 3.07$, $p = 0.003$); and ($t(69.66) = 3.49$, $p = 0.001$).

Academic Background

The results showed a significant difference between academic ranking (master, PhD, and other degrees) concerning the category perceptions of support ($F(2, 109) = 3.197$, $p = 0.045$). The post hoc test (LSD) indicated a significant difference between PhD holders (represented by I) and other degrees (represented by J) in favor of the PhD (I-J = 0.556, $p < 0.05$). The *t*-test showed a significant difference in perceptions between PhD and other degrees regarding statement 5 (technical support provided to the students), where the PhD agreed more ($t(67) = 4.30$, $p = 0.00$). No significant differences were found in other statements or in the two other categories.

Experience with Online Teaching before the Pandemic

A significant difference was found between experience with online teaching prior to the pandemic and perceptions of teaching practices ($F(4, 107) = 4.964$, $p = 0.001$). The post hoc (LSD) results showed a significant difference between the 6 years of experience group and the group with no experience. The results of the *t*-test showed that

the significant differences relate to statements 2, 3, 8, and 13, where the former group agreed more with these statements: ($t(54.03) = -3.76$, $p = 0.000$; $t(51.24) = -2.76$, $p = 0.005$; $t(51.16) = -1.64$, $p = 0.045$; and $t(62.08) = -2.44$, $p = 0.002$). In addition, a significant difference was found in the 6 years of experience group and 1–2 years of experience regarding statements 1, 2, 3, 6, 8, and 9, where the former agreed more with the statements ($t(11.53) = -1.006$, $p = 0.014$; $t(31.00) = -2.98$, $p = 0.000$; $t(31.00) = -16.13$, $p = 0.000$; $t(16.53) = -0.906$, $p = 0.036$; $t(31.00) = -4.31$, $p = 0.000$; and $t(31.00) = -12.53$, $p = 0.000$). Further analysis showed a significant difference between 3–5 years of experience and 1–2 years in relation to statements 2, 3, 7, and 9, where the former agreed more ($t(21.00) = 0.526$, $p = 0.000$; $t(21.00) = -4.53$, $p = 0.000$, $t(21.00) = -0.810$, $p = 0.030$; and $t(21.00) = -5.37$, $p = 0.031$). No significant differences were found in other statements within the category teaching practices and between other groups (e.g., 6 years and 3–5 years or 3–5 years and none) or in the two other categories.

Teaching Experience

No significant differences were found in the three categories.

Qualitative Data

Analysis of open questions from the survey is organized around three main themes with subthemes as described below.

Benefits of Online Learning

Some instructors perceived online learning as being flexible in terms of time ($n = 11$) and time management ($n = 6$), as well as convenient ($n = 9$), since there was "no need to get out of the house and travel (I.33)," while one felt it was both flexible and convenient. A few ($n = 8$) believed that online learning helped prevent the spread of COVID-19 and allowed the continuation of lectures ($n = 3$). Some mentioned pedagogical benefits, ranging from exposure to online teaching methods ($n = 5$), being able to promote collaboration ($n = 2$), to recording lessons ($n = 3$). About 18 instructors saw online learning as an opportunity to develop technological skills by learning ($n = 12$) "about networking . . . how to use a computer to perform tasks online" (I.53) and being exposed to digital tools ($n = 6$). Others ($n = 7$) saw opportunities for students to become independent learners ($n = 4$), acquire computer skills ($n = 2$), and think outside the box ($n = 1$). Additional benefits were that it was easier to involve female students in online lectures ($n = 2$) and "constant learning and searching for teaching materials . . . on an ongoing basis (I.47)." In contrast, a few instructors ($n = 4$) perceived online learning as an "unfruitful approach" (I.87) or having "no benefits" (I.31).

Technical and Pedagogical Challenges

The instructors discussed technical challenges ranging from issues with internet connections ($n = 11$), technical problems ($n = 6$), and lack of access to digital tools ($n = 6$), with four referring that "not all students had a computer or a steady internet connection" (I.111). Some ($n = 10$) lacked the skills to use technology efficiently, while a few others ($n = 5$) faced challenges in dealing with the students' level of readiness to use technology. In addition, 22 instructors mentioned limited student participation and interaction during class and low communication with them ($n = 3$). One instructor, for example, questioned how to "educate students to continue to interact and participate among themselves and with the lecturers (working rooms, groups etc.)" (I.46).

Similarly, other instructors ($n = 11$) stressed students' lack of commitment, responsibility, and persistence to participate in the online lessons as illustrated next: "students with low self-responsibility were difficult to reach behind the screen (I.43)." Some spoke ($n = 10$) about difficulties in promoting active student participation, with three mentioning the need for " . . . proper methodology to ensure students' presence and desire to learn remotely" (I.110). A further difficulty related to students not opening their cameras during lectures ($n = 10$) as "opening cameras and participating is more effective for students" (I.22). Other difficulties included online assessments ($n = 7$), developing connections with students ($n = 5$), and organizing teaching materials ($n = 5$). One instructor exemplified: " . . . not being able to have a deeper connection with students to discuss any additional questions about the course material or get to know them more as people and support them in their learning journey not just as students" (I.40). Five instructors did not face any challenges.

Recommendations

Some instructors ($n = 20$) recommended professional development that covers, for example,

"techniques" (I.30) and "digital tools for synchronous and asynchronous learning" (I.47). Other instructors (n = 19) recommended providing guidelines. Among these instructors, two mentioned guidelines in using technology, and 12 mentioned providing instructions for students to "open the camera" (I.3) during lectures. To better support the students, a few others (n = 5) suggested assessing students' needs to understand their readiness for online learning and potential problems. Others (n = 8) suggested providing a strong technological infrastructure to support online learning. Within this group, three specifically mentioned providing students with an internet connection, computers, and the tools needed for learning. A few (n = 5) recommended providing students with a supportive learning environment. When the pandemic will be over, some instructors (n = 11) suggested adopting a hybrid model of delivery as exemplified next: "I would recommend having a balance of online and face-to-face learning instead of only one being dominant" (I.40). On the other hand, four instructors believed that online learning should not continue and recommended shifting "back to face-to-face education" (I.94). Other recommendations included using video clips; organizing small group Zoom meetings for discussions, revisions, and feedback; and "monitoring students by video during teaching time" (I.49).

DISCUSSION

This study examined instructors' perceptions of teaching online during the pandemic based on a sample from a teacher education college in Israel. The results revealed an overall tendency towards positive perceptions about online learning (Table 2), supported by qualitative comments regarding the benefits of online learning. Previous studies also reported positive instructors' perceptions about online learning during the pandemic (e.g., Egan & Crotty, 2020; He & Xiao, 2020; Sims and Baker, 2021). In the current study, the instructors remained undecided as to whether interactions were adequate in the online medium (student-instructor and among students, Table 2). A closer look at the qualitative data suggests that several instructors may have had limited interactions in their online courses. Similarly, other studies (Erdem-Aydin, 2021; Sims & Baker, 2021) revealed challenges in promoting active students' engagement in online classes. In the current study, there may be different reasons for limited interactions, which could be related to instructors' lack of experience with online teaching, technical issues, or students' unfamiliarity (or readiness) with online learning. Also, as interaction is critical to developing a community of learners (Palloff & Keith, 2007), the qualitative comments on low interactions may explain the weak agreement for statement 13 (development of community) displayed in Table 3.

The findings revealed that the instructors used several strategies and, in tandem with previous findings (e.g., Al-Freih, 2021; DiMarco, 2020), made changes to their practice to accommodate the sudden transition to online learning (Table 3). However, a few instructors did not perceive any benefits of teaching online, and a few others wanted to return to traditional teaching. Their perceptions were possibly impacted by difficulties faced by internet problems, lack of skills, or limited interactions in their courses. Moralista and Oducado (2020), for example, found that instructors' favorability towards online learning was affected by technical issues.

Moreover, the instructors were undecided for most of the statements in Table 4 regarding the technical and pedagogical support provided during the pandemic and for some of the statements in Tables 2 and 3. While this study cannot explain why the instructors remained undecided (Tables 2–4), qualitative comments suggested that they needed technical and pedagogical professional development, and that not all instructors and students had access to reliable technological infrastructure. Other studies also revealed similar findings (e.g., He & Xiao, 2020; Horan & Kim, 2020). As found by He and Xiao (2020), for example, instructors perceived unstable internet connections as the main factor affecting the delivery of online classes. Nevertheless, in the current study, instructors proactively engaged in self-learning during the transition to online learning. This pattern has been reported by other researchers such as Todd (2020). Perhaps, the Israeli instructors needed more inclusive and ongoing support covering their own initiatives for professional development (PD), as well as institutional support offering technical and pedagogical PD and access to a more robust technological infrastructure. Based on qualitative comments, such support should be extended to the

students. This suggestion agrees with Erdem-Aydin (2021), who reported instructors' recommendations for ongoing support to their students.

Correlation between Demographics and Perceptions

Our study found positive correlations between gender and instructors' perceptions of online learning (Table 2). This finding could constitute an indicator that female and male instructors may perceive online learning differently. However, the *t*-test we performed in the study did not point to significant differences in perceptions. A negative relationship was found between age, years of teaching experience, and perceptions of online teaching. This finding implies that positive perceptions with the statements in Table 2 decreased as age and years of teaching experience increased. It would be worth investigating this finding further to explore reasons for the negative perceptions. Kalaimathi et al. (2020), on the other hand, indicated a positive relationship between age and years of experience and perceptions of online learning. In addition, the current study revealed a positive correlation between academic background and prior online teaching experience with perceptions of teaching practices (Table 3). This result suggests that more positive perceptions of teaching practice were associated with a higher degree and more experience with online teaching before the pandemic. Our study similarly found a positive correlation between the categories, perceptions of online teaching (Table 2), and perceptions of teaching practices (Table 3). This correlation suggests that instructors' positive perceptions about online learning have the potential to impact their teaching practice (Levin & Wadmany, 2006; Saadati et al., 2021).

Difference in Perceptions

The findings revealed that gender, age, academic background, and prior online experience significantly impacted instructors' perceptions of specific categories and statements in the survey. Teaching experience, on the other hand, did not have a significant effect on perceptions. Regarding gender, female instructors agreed more with statements in the category perceptions of teaching practices. This result implies, for example, that the former group adapted their practice more and felt more confident in communicating and teaching online. This result contrasts with previous studies that found no gender differences towards online learning (Abdelmola et al., 2021; Kumar, 2020; Sims & Baker, 2021; Tzivinikou et al., 2021). To note, while most of the previous studies explored gender differences in general online perceptions or attitudes, this current research highlights that meaningful difference in gender groups could be limited/related specifically to teaching practices. Moreover, this finding could relate to a cultural aspect of the population investigated. This issue should be examined in greater depth in future research.

The findings suggested age differences between groups 19–29 and 50 years old or above and 40–49 and 50 years old or above within the survey category perceptions of online learning in favor of the younger groups. In this case, the former groups differed in perceptions regarding changes, time commitment, and flexibility (Table 1, statements 2, 3, 4, and 10), while the latter groups differed in opinions regarding positive aspects of the online experience (Table 1, statements 5, 9, 10,11,12, and 14). Previous studies (e.g., Abdelmola et al., 2021; Kumar, 2020) revealed that age had no significant impact on perceptions about online learning. Despite its contradictions with our study findings, we could still agree with Kumar (2020) that age is not a barrier in developing positive perceptions as instructors can learn and teach online, but we emphasize here that age could constitute a factor that facilitates and enhances reshaping participants' perceptions.

The present study also found a significant difference within the category of support, where PhD holders agreed more than other degrees; in particular, the former group agreed more with technical support provided to the students. Although additional research is needed, it could be that PhD holders were more aware of students' technical problems and actively sought technical support for them. This finding concurs with Marek et al. (2021), who found differences in perceptions according to academic ranking but disagrees with other findings that reported no significant differences (e.g., Abdelmola et al., 2021).

Our study also found significant differences within the teaching practice category according to prior online teaching experience. Analysis showed significant differences between 6 years of

experience and no experience, 6 years of experience and 1–2 years of experience, and 3–5 years and 1–2 years of experience. More experienced groups agreed more with some of the statements as described in the results. This finding is not surprising, as the literature suggests that instructors with previous experience with online teaching would feel more comfortable with the transition (e.g., Horan & Kim, 2020; Marek et al., 2021; Westwick & Morreale, 2021). A closer look at Table 3 suggests that instructors were confident in communicating online and teaching using technology (statements 13 and 14). Since 32.1% (Table 1) did not have prior online teaching experience, these instructors possibly developed more confidence while teaching their online courses. This statement is supported by Al-Freih (2021), who reported instructors' increased confidence in using technologies.

Additionally, in the current study, qualitative results indicated that a few instructors did not face any challenges during their transition to online. Possibly, prior online teaching experience may have helped them deal with the transition and the uncertainties. More research is required to validate this assertion.

Implications for Practice and Future Research

Higher education will likely be involved in blended learning postpandemic (Johnson et al., 2020). Moving forward, and based on our study's findings, a more comprehensive support structure for instructors and students should be provided. This support includes self-learning opportunities, provision of technical and pedagogical training, and availability of a robust technological infrastructure to allow equal access to the online learning environment. Students' readiness to attend online classes, including access to digital tools and networks and training, must be assessed and addressed. Al-Freih (2021, p. 19) argued that "deliberate design and support" for students to develop readiness to attend online classes must be integrated within the online learning environment. While our study did not reveal whether instructors were involved in professional learning communities, the literature provides evidence of its value (e.g., Tucker & Quintero-Ares, 2021). Thus, a professional learning community should also be encouraged as part of the institutional support where all instructors can share experiences and challenges, collaborate, and ask questions (Al-Freih, 2021). Instructors could also benefit from a peer-mentoring program where the instructors with online learning experience could offer consultation and share content-specific and pedagogical knowledge and experiences with peers. The support of a mentor is invaluable as it can help instructors develop more confidence in their ability to teach in online settings (Sims & Baker, 2020). Given the instructors' diversity found in our study, and following Beane-Katner (2014), mentoring programs should consider differences across gender, age, experience, and other demographic aspects to address mentees' needs and expectations adequately.

Our study complements previous findings conducted in other contexts (e.g., Al-Freih, 2021; Sims & Baker, 2020) and proposes a more comprehensive support structure to students and instructors. However, the study represents a specific population and uses the survey tool. Future research could adopt other data tools such as interviews to explore in depth instructors' perceptions, including institutional support and interactions in online classes. Students' and other stakeholders' perceptions of the transition to online learning should also be investigated to produce a more comprehensive picture of the experience. Additional research could investigate instructors' perceptions of their experiences of teaching courses postpandemic. Research could also explore the implementation of inclusive institutional support and its impact on course delivery. Finally, previous studies discussed instructors' increased workload when shifting to the online mode (e.g., Horan & Kim, 2020; Todd, 2020). Our study did not reveal a theme related to workload; it could be the design of the tool or that the instructors did not experience an increase in their workload. Future research could investigate this issue using interviews.

CONCLUSION

The study explored instructors' perceptions of teaching online during the pandemic at a teacher education college in Israel. The instructors demonstrated an overall tendency towards positive perceptions of online learning and teaching practices despite challenges discussed through qualitative comments. While the quantitative results revealed that instructors were undecided

for most of the survey statements regarding institutional support, the qualitative findings suggested a need for pedagogical and technical support for students and instructors. The findings revealed positive and negative correlations concerning specific demographics and the survey categories. Significant differences in perceptions of online learning, perceptions of teaching practice, and support were also found among different groups (varying in demographic data). More comprehensive institutional support is needed to support future online learning delivery that includes self-learning initiatives, assessment and provision of technical and pedagogical training, and robust technological infrastructure for students and instructors. Institutional support should also encourage an ongoing professional learning community and peer mentoring programs that respect diversity and inclusion of more experienced online instructors as valuable resources.

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