

Teachers' Satisfaction with Online Teaching: A Study of Private Senior-Secondary Schools in Delhi

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ABSTRACT

Purpose: The emerging literature on the importance of faculty satisfaction with online teaching piqued our interest in studying faculty satisfaction in the context of senior-secondary schools in Delhi imparting online education currently. As teachers play such an essential role in student satisfaction, many researchers believe that increasing work satisfaction among school teachers is one of the most excellent strategies to improve student contentment with their online learning experiences. The survey was conducted using the Likert Scale on 90 teachers teaching at private senior-secondary schools in Delhi. The respondents were selected randomly from 20 private schools in Delhi. The first objective of this study is to determine the level of student-teacher relationships (STR), adequate training (AT), Institutional support (IS), technical support (TS), online course design and development (OCDD), and User-friendliness of online tools (UOT). Secondly, this study tries to identify the relationship between student-teacher relationships (STR), adequate training (AT), Institutional support (IS), technical support (TS), online course design and development (OCDD), and User-friendliness of online tools (UOT) with the overall satisfaction of teachers with online teaching. A correlation analysis was conducted to identify the relationships mentioned earlier. Further, a regression analysis was carried out to identify the contribution of the STR, AT, IS, TS, OCDD, UOT towards the overall satisfaction of teachers with online teaching (OS). The data were analyzed using SPSS software. All variables correlate positively with overall satisfaction; OCDD and UOT were the main predictors of our model and can reliably explain the variance in teachers' overall satisfaction with online teaching. The findings of this study provide insights into how course development and online teaching tools are essential for teachers' satisfaction with online teaching.

Paper Type: Empirical Research Paper

KEYWORDS Teacher Satisfaction | Online Teaching | Correlation | Private Schools | Regression Analysis

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Introduction

Education is a continuous process of learning that makes one a rational human being. Education is a means for disseminating information about both known and unfamiliar topics. It enables the human brain to comprehend both known and unknown things more comprehensively. As days pass, so do educational methods, which shift according to the needs of the hour. Online education has grown in popularity (Shelton & Pedersen, 2017). The rapid emergence of Covid-19, a devastating disease caused by the CoronaVirus (SARS-CoV-2), startled the whole globe. It was labelled a pandemic by the World Health Organization. This event posed a challenge to the global education system, forcing instructors to switch to an online form of instruction overnight (Dhawan, 2020). As this COVID -19 outbreak has interrupted people's regular lives all around the world, the virtual world has stepped in to help. Many organizations, including schools, have turned their focus to virtual platforms to offer lessons online. In academia, online learning has progressed from a unique experiment to a practically universal teaching tool. And therefore, online teaching research has increased in leaps and bounds. Research in this sector has evolved tremendously due to the rapid rate of technology development, the rapid rise of online education programs (Zawacki-Richter & Naidu, 2016) and, of course, the pandemic (Dhawan, 2020). Technology has long been regarded as a critical component of educational reform, and it has acquired remarkable traction during this crisis (Singh, 2020).

Online teaching-learning research has looked into the benefits to schools for offering online courses, the benefits to students of learning online, the efficacy of online education, best practices in online teaching, and technological improvements to enhance online teaching. These studies are crucial because they support the usability of online teaching and assist in enhancing content delivery. However, online teacher satisfaction is another vital aspect of the online education trend that has not received academic attention as these other topics. A substantial amount of research has focused on the experiences and satisfaction of students/learners with online learning (Ortagus, 2017). Still, a recent thorough review of the literature found a far lesser number of studies addressing the experiences, attitudes, and satisfaction levels of teachers with online teaching (Wingo *et al.*, 2017). Teachers' views are frequently ignored, even though they are the driving force behind classroom innovation (Cuban, 1986; Stickney *et al.*, 2019). Unfortunately, the considerable rise in learners learning online has not been matched by breakthroughs in online education and preparing teachers to teach online (Garrison *et al.*, 2000). It is crucial to understand teacher satisfaction for a multitude of reasons. Teacher satisfaction influences both the quality of teaching and the results of learners. There is a synergistic link between teacher and student contentment (Akhtar *et al.*, 2010). When the teacher is happy, students are more likely to be satisfied with their online experiences.

As an online teacher, it is easy to feel that one is confined to the electronic machine. They are supposed to be just another wheel integrating mechanical components rather than free and creative teachers. Teacher satisfaction with teaching online is a critical factor to consider. Teachers are more motivated, enthusiastic, and successful when they are happy with their work and are provided with flexibility (Bolliger & Wasilik, 2009). In terms of the institution, satisfied teachers are better at course-content delivery, which helps students be happier with their learning experience (Curran, 2008). Education has been impacted by the Internet, which has created both possibilities and obstacles for online teaching. To satisfy the needs of education, teachers should upgrade their knowledge base. Integrating computers into the educational system will never be possible until teachers and computer machines can work together (Marcinkiewicz, 1994). Teachers are at the front-end of online teaching, and their satisfaction with it will enhance its quality. As a result, it is crucial to research this topic and understand teachers' satisfaction and desire to teach online. The emerging literature on the importance of faculty satisfaction with online teaching piqued our interest in studying faculty satisfaction in the context of senior-secondary schools in Delhi imparting online education currently. Compared to student views regarding online education, the research on teacher attitudes is still in its infancy (Stickney *et al.*, 2019; Wingo *et al.*, 2017). Unfortunately, most research on teacher satisfaction with online teaching has been conducted in higher education. Online teaching in the context of senior-secondary schools has been ignored in the extant literature. To fill this gap, the current study investigated teacher satisfaction with online teaching at senior-secondary private schools in Delhi. Our exploratory study's goal was to conduct an empirical investigation to identify the critical factors or Antecedents of Teacher Satisfaction concerning Online Teaching during this pandemic. This study aims to study the relationship among different variables and to know the contribution of independent variables towards dependent variables.

Literature Review, Research Framework and Hypothesis Development

Teacher Satisfaction

Nowadays, Teachers are increasingly expected to teach online. Earlier, this expectation was only from those teachers who had to teach online only. Still, now, in this modern era, schools offer courses either fully or partially online and therefore expect teachers to be comfortable with teaching online. Teacher or Faculty satisfaction is "the quality principle that recognizes faculty as central to quality learning" (Moore, 2002). Teacher satisfaction can be defined as believing that teaching in an online setting is efficient, effective, and helpful to the person (Bolliger *et al.*, 2014). Teachers are satisfied with online teaching-learning experiences when they think it is personally and professionally rewarding (OLC, 2017). When teachers are recognized and appreciated for their work

and their needs are taken care of, teachers can showcase high satisfaction levels (Evans, 1997). The satisfaction of teachers is crucial for student accomplishment and school success.

Satisfied online instructors can provide quality teaching (Griva *et al.*, 2012); positively influence school and their job performance (Judge *et al.*, 2001); are more motivated and committed towards their tasks (Judge *et al.*, 2001); and are more interested in advancing their careers (Ostroff, 1992). In the "Sloan Consortium (Sloan-C)", faculty satisfaction/teacher satisfaction was taken as one of the five pillars. These five pillars of the quality framework support the learning environment (Moore, 2002). According to Moore's (2002) study at Sloan Consortium, it was believed that teacher satisfaction could be achieved when teachers contribute to the online teaching-learning processes and benefit from them too. Also, teachers are awarded for their lectures and research to make online teaching-learning processes more interactive. The authors also believed that institutional support is vital for teacher satisfaction; educational institutions should have a knowledge-sharing culture where teachers can share their experiences and knowledge about online teaching. Teachers' workload needs to be decided effectively, and there should be a balance between offline and online course content. For enhancing teachers' satisfaction with online teaching, it is necessary to provide them with training and prepare them for their virtual teaching experience. Past studies indicate that teachers are satisfied with their jobs when there is a positive environment at the workplace, and therefore, they are less likely to leave these organizations. It means that teacher satisfaction leads to teacher retention in schools (Skaalvik & Skaalvik, 2011).

The importance of teacher satisfaction inside an institution has only been hinted. It is natural to believe that institutions want their academicians to be happy in their positions. However, it is vital to explain the significance of work satisfaction and what it entails for the organization (McLawhon & Cutright, 2012). Multiple Scholars in the past have contributed to job satisfaction theory. They have considered job/work satisfaction, how it is achieved, and what factors affect it. As per Maslow (1954), employees of any organization will be satisfied when their work and working conditions meet their needs and requirements. Vroom (1964) extended the work by Maslow and added another level to it where individuals take their own decisions based on their perceived ability, current rewards and expected rewards. An increase in these will increase motivation levels and will further enhance their satisfaction with the work. Herzberg's model helps in conceptualizing this construct of teacher satisfaction (Hagedorn, 2000). Triggers (Any changes in personal and professional lives, changes in an emotional state, etc.) and Mediators (Motivators and Demotivators like environmental conditions of the workplace) are two constructs that affect satisfaction levels of the individual at any workplace (Herzberg, 1987).

Therefore, Herzberg's model contributes to the number of factors influencing individual satisfaction with their work (Hagedorn, 2000). Current studies suggest that both triggers and mediators studied in Herzberg's theory can be good predictors of teacher satisfaction (Griva *et al.*, 2012). Teacher Satisfaction in an online teaching-learning environment is a complex issue (Bolliger & Wasilik, 2009). Teachers face many barriers when teaching online (Lloyd *et al.*, 2012; Luongo, 2018; Wingo *et al.*, 2017). Some of these barriers include lack of institutional support, lack of administrative support, lack of experience, lack of technical support, inadequate training of teachers, etc. (Luongo, 2018). Wingo *et al.* (2017) suggest that teacher satisfaction is crucial for all educational institutions that perceive e-learning to be a fundamental component of their strategic strategy; to do this, administrators must comprehend how teachers view teaching online and what factors influence these perspectives. Suppose teachers are not satisfied with their online experiences. In that case, the initiative of online education will fail altogether as the teacher is an important stakeholder whose support is essential for the adoption of online learning (Mitchell *et al.*, 2015).

A growing body of research studies on online teacher satisfaction has added to our understanding of online teachers and the factors that impact their work satisfaction (dependent variable) (Bolliger *et al.*, 2014; Bolliger and Wasilik, 2009; Lloyd *et al.*, 2012; Moore, 2002; Stickney *et al.*, 2019; Wingo *et al.*, 2017). We have identified six antecedents (independent variables) of teacher satisfaction based on an extensive literature review.

i) Student-Teacher Relationships (STR)

It is asserted that a useful teaching technique includes contact, connectedness, active student-teacher participation, and similar activities. Warm and open connections between students and instructors are regarded as having characteristics of mutual respect and empathy, and they assist instructors to stay motivated and fulfilled in their employment (Wubbels *et al.*, 2014; Grayson & Alvarez, 2008). Teachers see the online environment as a platform for students to participate in highly engaged conversation with the teacher and their classmates, which is one of the motivating reasons for teachers teaching online (Bollinger & Wasilik, 2009; Erichsen *et al.*, 2014; Moore, 2002; OLC, 2017). Some teachers show concerns about never meeting students face-to-face (Shea, 2007) and limited interaction with them (Bower, 2001; Horvitz *et al.*, 2015). Sibley & Arbaugh (2005) believe that lack of student-teacher interaction is one major limitation of online teaching-learning environments. Technological glitches in the online mode of learning can seriously hamper student-teacher interaction (Suganya & Sankarshwari, 2020). Implementing practices that result in maximum student interaction is important to enhance teacher satisfaction levels (Horvitz *et al.*, 2015). Past studies reveal that there can be several factors that can affect teacher's satisfaction with their interactions



with students (Marasi *et al.*, 2020). Marks *et al.* (2005) found that one of the most significant determinants of teacher satisfaction is student-teacher interaction. Positive student-teacher interactions can enhance teacher's enthusiasm and give rise to more positive emotions towards their job (Collie *et al.*, 2012). In contrast, negative student-teacher interactions can cause stress to teachers and give rise to negative emotions towards their jobs (Leithwood, 2006).

Hypothesis 1: There is a significant positive correlation between good student-teacher interactions and teachers' overall satisfaction with online teaching.

ii) Adequate Training (AT)

The extent to which instructors are prepared for online teaching by their institutions is referred to as training. Instructional techniques and the computing skills of teachers can be improved via training (Horvitz *et al.*, 2014; Suganya & Sankarshwari, 2020). The training should not just focus on teachers' technical abilities to create and operate a course but also on online educational philosophy and tactics (McLawn & Cutright, 2012). Teachers' worries about student learning and technological concerns regarding computer use in online educational methods require such training and assistance (Horvitz *et al.*, 2014; Marasi *et al.*, 2020). Faculty who felt their online teaching preparation was acceptable indicated more significant levels of satisfaction with the subject. Quality training may increase their technical and instructional capabilities for working in an online teaching-learning environment and their general contentment with the experience of teaching online. Therefore, training is seen as one of the important factors influencing teacher satisfaction by many researchers (Ling, 2014; Marasi *et al.*, 2020; Moore, 2002; Stickney *et al.*, 2019; Yengin *et al.*, 2011).

Hypothesis 2: There is a significant positive correlation between Teachers' perception of their online teaching training and teachers' overall satisfaction with online teaching.

iii) Institutional Support (IS)

Institutional Support leads to teacher satisfaction (Marasi *et al.*, 2020). A strong school culture stresses teachers' jobs as valuable, has clear institutional goals, and supports teacher cooperation, according to an OECD report (2014). Teachers will likely be satisfied with their job and loyal to their employing institution to the degree that they perceive institutional support for their professional activities (McLawn & Cutright, 2012). Bollinger & Wasilik (2009) believe that faculty satisfaction is often high when an institution prioritizes online teaching and has procedures to facilitate it. Institutional support can enhance teachers' well-being and their retention in schools (Leithwood, 2006). Allowing teachers to engage in decision-making, assisting with discipline concerns, conducting seminars, and fostering cooperation and transparency among teachers increases

job satisfaction. Therefore, educational institutions must examine teacher satisfaction to succeed in their functions and processes, such successful implementation of e-learning systems, and the variables affecting teacher satisfaction should also be researched in greater depth.

Hypothesis 3: There is a significant positive correlation between Teachers' satisfaction with institutional support and teachers' overall satisfaction with online teaching.

iv) Technical Support (TS)

Many teachers forecast eventual discontent with the online classroom before teaching there as they lack technical support (Brian *et al.*, 2014). Technical support is crucial before any online classes can be conducted (McLawn & Cutright, 2012). Educational institutions should give technical support during the online course and aim to persuade teachers to offer flexible work schedules and freedom (Marasi *et al.*, 2020). Limited technical support is considered a significant barrier to online teaching (Bollinger & Wasilik, 2009). When teachers teach in an online environment, they rely on the smooth operation of a complex system of interconnected technological pieces; as a result, many more things outside their control can go wrong than when they teach in a conventional face-to-face setting (Stickney *et al.*, 2019; Wiesenmayer *et al.*, 2008). Faculty may require buffers to shield them from the unpredictability inherent in the technological factors underpinning the design and delivery of their online courses to deal with this increased susceptibility (Selim, 2007; Stickney *et al.*, 2019). Adequate technical support leads to teacher satisfaction (Moore, 2002; OLC, 2017).

Hypothesis 4: There is a significant positive correlation between Teachers' satisfaction with technical support and teachers' overall satisfaction with online teaching.

v) Online Course Design and Development (OCDD)

"Instructor satisfaction derived from the teaching process that involves online course design, development, delivery, and student assessment" (Bollinger & Wasilik, 2009). The design, planning, and delivery of online courses, as well as their influence on workload, is one of the critical concerns of aspiring or active online teachers. Teachers are worried about their students' course quality and results, and they are disappointed when they have little influence over online courses or programs (Bower, 2001). Researchers have mixed opinions on this dimension; some findings reveal that few teachers think it is easy to develop courses online (DiBiase, 2000), while others believe it is the most challenging task to prepare online course content (Bollinger *et al.*, 2014).

Hypothesis 5: There is a significant positive correlation between Teachers' satisfaction with online course design and

development and teachers' overall satisfaction with online teaching.

vi) User-Friendly Online Tools (UOT)

Conventional teaching has the advantage of requiring less advanced preparation time than establishing an entirely online course. Teachers and instructors will be far more inclined to utilize simple and quick technology, and students will anticipate similar capabilities in the technology they will use for learning. What is 'easy for teachers and students to utilize, on the other hand, will be determined by their level of digital literacy. Learning Management systems or online tools should be quick and easy to install, login, and accept and give back assignments. If the technology involved isn't up to pace, even the finest assistance for dealing with the technical aspects of online education won't be adequate (Stickney et al., 2019). Therefore, the user-friendliness of Learning management systems and online tools impacts teachers' satisfaction when teaching online (Almarashdeh, 2016). Figure 1 shows the conceptual framework of this study.

Hypothesis 6: There is a significant positive correlation between User-friendliness of online teaching tools and teachers' overall satisfaction with online teaching.

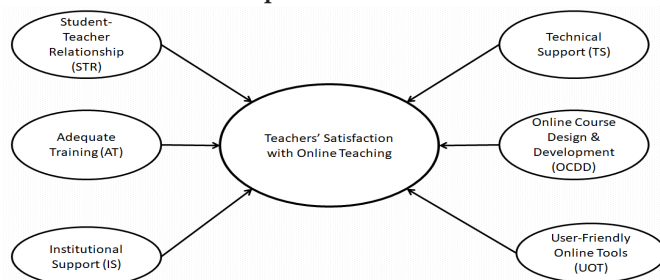
Research Methodology

This quantitative study follows a deductive approach to draw conclusions from the survey results. Data were collected from the teachers teaching online in the private senior-secondary schools in Delhi after taking their consent to participate in this study. As per the Directorate of Education (DOE), there are 1365 unaided/private schools in Delhi. Two schools from each district of Delhi (East Delhi, North East Delhi, North West Delhi, North Delhi, South Delhi, South East Delhi, South West Delhi, West Delhi, Central Delhi and New Delhi) were purposefully selected to cover every area in Delhi. That is, a total of 20 schools were targeted, which is quite representative of the population. Five to Six teachers were randomly selected from each school to participate in the said survey. Keeping in mind the protocols in Delhi due to the covid-19 pandemic, questionnaires were distributed to teachers online via e-mail. The G*Power software was used to determine the minimum sample size of the study. With the help of priori analysis (effect size = 0.15, alpha = 0.05, power = 0.95, and the number of predictors = 6) the minimum sample size came out to be 74. Out of 150 distributed questionnaires, 116 questionnaires were duly filled. In these received responses, only 90 teachers were teaching online; therefore, out of 116, only 90 responses were used to fulfil the requirements of our study (it matches the minimum sample size too). The present study used a structured questionnaire to study teachers' satisfaction with online teaching and its antecedents. The questionnaire used a five-point Likert scale where "1" stands for strongly disagree, "2" for disagree, "3" for neither agree nor disagree, "4" for agree, and "5" for strongly agree. A 3-item faculty satisfaction scale by Sultan et al. (2021) is adopted to measure teachers'

satisfaction with Online Teaching. To measure the construct of Student-Teacher Relationships, a 6 item Instructor-Student Interaction scale (sub-scale of Online Instructor Satisfaction Measure (OISM) by Bollinger et al. (2014) was adopted. It has high reliability and validity and is the most widely used scale to measure this construct.

The authors measured the construct of Adequate training with the help of a scale developed by Marasi et al. (2020). Marasi et al. (2020) scales of Institutional and Technical Support were used to measure the constructs of Institutional Support (2 items) and Technical Support (3 items) in this study. For measuring the construct of Online Course Design and Development, Bollinger et al. (2014) scale of CTD was used. It is a 5-item subscale of OISM, which is widely used and has reasonable reliability. The user-friendly online tools construct was measured with the help of 9-item ease of use scale by Stickney et al. (2019). The scales mentioned above were adopted, and only a few changes were made in their language to measure the constructs in the context of private schools in Delhi. Correlation and step-wise regression analysis was applied to analyze the data. For this purpose, SPSS version 25 was used.

Figure 1: Teachers' Satisfaction with Online Learning- A Conceptual Framework



Results

Table 1 below shows the demographic details of the respondents. Of 116 responses received, only 90 were useful for the study as 20.7% of the total respondents were not teaching online. Of these, 75.6% of the respondents were female teachers; 24.4% were males. Most of the respondents were in the age group of 20-30, i.e., 48.9%; followed by 23.3% in the age group of 41-50, 16.7% in 31-40, and 11.1% in the age group of 50 and above. Interestingly, 94.4% of the teachers have recently started teaching online with only 1-5 years of experience. Teachers reported that they are also given administrative work and teaching activities; 54.4% of teachers handled both teaching and administrative work while teaching online. Workload concerns are the most significant impediment to online education adoption, as teachers consider that the workload is higher in the case of online mode when compared with offline mode. Data also reported that 64.4% of the teachers had a post-graduate degree, other qualification includes Graduation (25.6%), Diploma (4.4%), and Doctorate (1.1%).

Table 1: Demographic Details



Demographic Data for the study (N=90)			
Group	Category	Number	Percentage
Gender	Male	68	24.4%
	Female	22	75.6%
Age Group (In Years)	20-30	44	48.9%
	31-40	15	16.7%
	41-50	21	23.3%
	50 & above	10	11.1%
Online Teaching Experience	1-5	85	94.4%
	6-10	01	1.1%
	Above 10	04	4.4%
Teaching Workload	Teaching only	41	45.6%
	Teaching plus administrative	49	54.4%
Qualification	Diploma	04	4.4%
	Graduation	23	25.6%
	Post-Graduation	58	64.4%
	Doctorate	01	1.1%
	Others	04	4.5%

When asked whether online teaching makes them happy, 66.7% of the teachers responded with a Yes, and the rest, 33.3%, responded with a No (See Table 2).

Table 2: Does Teaching Online Make You Feel Happy?

It was interesting that 95.6% of the respondents started teaching online during Covid-19 Pandemic only. Only 4.4% of the respondents were teaching in this mode earlier (See Table 3).

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	30	33.3	33.3	33.3
	Yes	60	66.7	66.7	100.0
	Total	90	100.0	100.0	

Table 3: Have you Started Teaching Online During Covid-19 Pandemic Only?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	4	4.4	4.4	4.4
	Yes	86	95.6	95.6	100.0
	Total	90	100.0	100.0	

When respondents were asked about the necessity of teaching online, 87.8% of the teachers reported that they had no other option but to teach online during this pandemic (See Table 4).

Table 4: Was it a Necessity for you to Teach Online?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	11	12.2	12.2	12.2
	Yes	79	87.8	87.8	100.0
	Total	90	100.0	100.0	

When asked about the Online Learning Management System, 65.6% of the school teachers said that their schools had an e-LMS, but 34.4% of the school teachers said that their institutions did not have an LMS, which is quite disappointing (See Table 5).

Table 5: Does your institution have an Online Learning Management System?

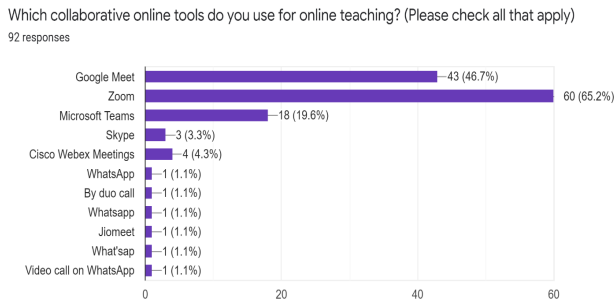
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	31	34.4	34.4	34.4
	Yes	59	65.6	65.6	100.0
	Total	90	100.0	100.0	

Institutions need to provide their teachers with the proper resources and support to help them conduct their online lectures smoothly. Institutions can provide teachers with Help Desk Support, Pedagogical Support, or Technical Support. When school teachers were asked what kind of support and resources they require to teach online, 54.4% of school teachers said that technical support is imperative. 8.9% of these teachers voted for all three supports (See Table 6). It is important to use the right tools to deliver online lectures effectively. School teachers were asked about the collaborative tools they use the most for their teaching (see Figure 2). It was found that 65.2% of them use the Zoom platform to conduct their classes, followed by Google Meet, Microsoft Teams, Cisco WebEx Meetings, Skype, Jio Meet, Duo (Video and Voice calls), and WhatsApp (Video and Voice Calls). The first objective of this study is to determine the level of student-teacher relationships (STR), adequate training (AT), Institutional support (IS), technical support (TS), online course design and development (OCDD), and User-friendliness of online tools (UOT), this was fulfilled via descriptive statistics.

Table 6: What kinds of support or resources would you need to teach online?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Help Desk Support	5	5.6	5.6	5.6
	Pedagogical Support	5	5.6	5.6	11.1
	Technical Support	49	54.4	54.4	65.6
	Technical Support, Help Desk Support	10	11.1	11.1	76.7
	Technical Support, Online teaching resources	1	1.1	1.1	77.8
	Technical Support, Pedagogical Support	12	13.3	13.3	91.1
	Technical Support, Pedagogical Support, Help Desk Support	8	8.9	8.9	100.0
Total		90	100.0	100.0	

Figure 2: Which collaborative online tools do you use for online teaching?



Secondly, this study tries to identify the relationship between student-teacher relationships (STR), adequate training (AT), Institutional support (IS), technical support (TS), online course design and development (OCDD), and User-friendliness of online tools (UOT) with the overall satisfaction of teachers with online teaching, for this purpose correlation analysis was conducted. And finally, to identify the contribution of the student-teacher relationships (STR), adequate training (AT), Institutional support (IS), technical support (TS), online course design and development (OCDD), and User-friendliness of online tools (UOT) towards overall satisfaction of teachers with online teaching (OS), this objective was fulfilled with regression analysis. Table 7 shows the sample size, mean, standard deviation, range, minimum, and maximum values for all seven variables of this study. Student-teacher relationships show a low mean value raising a concern on this issue. All other variables show more than moderate levels of means.

Table 7: Descriptive Statistics

	N	Range	Minimum	Maximum	Mean	Std. Deviation
STR	90	4.00	1.00	5.00	2.8537	.89834
AT	90	4.00	1.00	5.00	3.0250	1.12433
IS	90	4.00	1.00	5.00	3.2278	1.12968
TS	90	4.00	1.00	5.00	3.1667	1.11426
OCDD	90	4.00	1.00	5.00	3.2000	.91725
UOT	90	4.00	1.00	5.00	3.2346	.98799
OS	90	4.00	1.00	5.00	3.2111	1.05263
Valid N (listwise)	90					

Correlation Analysis

Student-Teacher Relationships (STR) and Teachers' Overall Satisfaction (OS)

Table 8 shows the results of correlation (Pearson) between Student-Teacher Relationships and Teacher's Overall Satisfaction. According to analysis in Table 8, there exists a significant relationship ($r=0.579$, $p<0.05$) between Student-Teacher relationships and Teachers' overall satisfaction with online teaching. This means a moderate positive correlation exists between these two variables, i.e., teachers' satisfaction with online teaching, when relationships between teachers and students are good. *Therefore, hypothesis 1 is supported.*

Table 8: Correlations (Student-Teacher Relationships (STR) & Teachers' Overall Satisfaction (OS))

		STR	OS
STR	Pearson Correlation	1	.579**
	Sig. (2-tailed)		.000
	N	90	90
OS	Pearson Correlation	.579**	1
	Sig. (2-tailed)	.000	
	N	90	90

** . Correlation is significant at the 0.01 level (2-tailed).

Adequate Training (AT) and Teachers' Overall Satisfaction (OS)

Table 9 shows the correlation (Pearson) results between Adequate Training to teachers and Teachers' Overall satisfaction with online teaching.

As per Table 9, a significant correlation ($r=0.510$, $p<0.05$) exists between Adequate training by institutions and teachers' satisfaction with online teaching. This means that there is a moderate positive relationship between these two variables, i.e. when institutions provide teachers with adequate training for online teaching, teachers' satisfaction with online teaching exists. *Therefore, hypothesis 2 is supported.*

Table 9: Correlations (Adequate Training (AT) & Teachers' Overall Satisfaction (OS))

		OS	AT
OS	Pearson Correlation	1	.510**
	Sig. (2-tailed)		.000
	N	90	90
AT	Pearson Correlation	.510**	1
	Sig. (2-tailed)	.000	
	N	90	90

** . Correlation is significant at the 0.01 level (2-tailed).

Institutional Support (IS) and Teachers' Overall Satisfaction (OS)

Table 10 shows the correlation (Pearson) results between Institutional Support and Teachers' overall satisfaction with online teaching.

Table 10: Correlations (Institutional Support (IS) & Teachers' Overall Satisfaction (OS))

		OS	IS
OS	Pearson Correlation	1	.587**
	Sig. (2-tailed)		.000
	N	90	90
IS	Pearson Correlation	.587**	1
	Sig. (2-tailed)	.000	
	N	90	90

** . Correlation is significant at the 0.01 level (2-tailed).



As per the analysis, table 10 shows a significant correlation ($r=0.587$, $p<0.05$) between Institutional Support and Teachers' overall satisfaction with online teaching. This means that there is a moderate positive association between these two variables, i.e. when institutions provide adequate support to their teachers, teachers' overall satisfaction with online teaching exists. *Therefore, hypothesis 3 is supported.*

Technical Support and Teachers' Overall Satisfaction (OS)

Table 11 shows the results of correlation (Pearson) between technical support provided by schools to teachers and teachers' overall satisfaction with online teaching.

Table 11: Correlations (Technical Support & Teachers' Overall Satisfaction (OS))

		OS	TS
OS	Pearson Correlation	1	.535**
	Sig. (2-tailed)		.000
	N	90	90
TS	Pearson Correlation	.535**	1
	Sig. (2-tailed)	.000	
	N	90	90
** . Correlation is significant at the 0.01 level (2-tailed).			

As per table 11, a significant correlation ($r=0.535$, $p<0.05$) exists between technical support provided by institutions and teachers' overall satisfaction with online teaching.

This means there is a moderate positive association between these two variables, i.e. when institutions provide teachers with adequate technical support, teachers' overall satisfaction with online teaching exists. *Therefore, hypothesis 4 is supported.*

Online Course Design and Development (OCDD) and Teachers' Overall Satisfaction (OS)

Table 12 shows the correlation (Pearson) between Online course design and development and Teachers' overall satisfaction with online teaching. As per the analysis, there exists a significant correlation ($r=0.802$, $p<0.05$) between online course design and development and teachers' overall satisfaction with online teaching. This shows a strong positive association between these two variables, i.e., when online course design and development are good, teachers' overall satisfaction with online teaching exists. *Therefore, hypothesis 5 is supported.*

Table 12: Correlations (Online Course Design and Development (OCDD) & Teachers' Overall Satisfaction (OS))

		OS	OCDD
OS	Pearson Correlation	1	.802**
	Sig. (2-tailed)		.000
	N	90	90
OCDD	Pearson Correlation	.802**	1
	Sig. (2-tailed)	.000	
	N	90	90
** . Correlation is significant at the 0.01 level (2-tailed).			

User-Friendliness of Online Tools (UOT) and Teachers' Overall Satisfaction (OS)

Table 13 shows the correlation (Pearson) between the User-friendliness of online tools and teachers' overall satisfaction with online teaching. As per the analysis in Table 13, there is a significant correlation ($r=0.778$, $p<0.05$) between the user-friendliness of online tools and teachers' overall satisfaction with online teaching. This means that there is a strong positive association between these two variables, i.e. when their online tools for teaching are user-friendly, teachers' overall satisfaction with online teaching exists. *Therefore, hypothesis 6 is supported.*

Table 13: Correlations (User-Friendliness of Online Tools (UOT) & Teachers' Overall Satisfaction (OS))

Table 13: Correlations (User-Friendliness of Online Tools (UOT) & Teachers' Overall Satisfaction (OS))			
		OS	UOT
OS	Pearson Correlation	1	.778**
	Sig. (2-tailed)		.000
	N	90	90
UOT	Pearson Correlation	.778**	1
	Sig. (2-tailed)	.000	
	N	90	90
** . Correlation is significant at the 0.01 level (2-tailed).			

Regression Analysis (Step-Wise Regression Analysis)

Table 14 shows the results of descriptive statistics of all the variables entered, i.e., OS, STR, AT, IS, TS, OCDD, UOT. The reliability statistic or Cronbach alpha for these seven variables came out to be 0.916, which is quite good. Step-wise regression is the technique of continuous development of a regression model. The independent variables to be included in the final model are chosen one at a time. It entails sequentially inserting and deleting possible independent/predictor variables, with each iteration requiring predictive validity assessment. All the conditions regarding, Levels of measurement (interval and ratio data), sample size, normality, linearity, no outliers, and independence of observations were satisfied. Table 15 shows that only two variables were considered, i.e., OCDD and UOT, for predicting OS by step-wise regression analysis.

Table 14: Descriptive Statistics

	Mean	Std. Deviation	N
OS	3.2111	1.05263	90
STR	2.8537	.89834	90
AT	3.0250	1.12433	90
IS	3.2278	1.12968	90
TS	3.1667	1.11426	90
OCDD	3.2000	.91725	90
UOT	3.2346	.98799	90

In this step-wise regression, OCDD was taken as the only predictor in Model 1. In the second iteration (Model 2), two variables, i.e., OCDD and UOT, were taken as predictor or explanatory variables (See Table 16). In the model summary (See table 16), Model 2 with OCDD and UOT gives the best results. R shows the correlation between the observed and predicted values of the explained or dependent variable, i.e., Overall Satisfaction of teachers with online teaching. R² is the coefficient of determination that shows the percentage of variance explained by independent/explanatory variables for dependent/explained variables. In model 2, R² is 0.714, which is a very good value. But, Adjusted R² is preferred over R² value as it gives a more honest value to estimate the R² and it doesn't vary with the sample size. Adjusted R² above 0.6 is considered reliable, and in our study with two predictors, it comes out to be 0.707, which is very good. It means that 70.7% of the variance of the dependent variable, i.e., overall satisfaction of teachers with online teaching, is explained by these two independent variables, online course design and development (OCDD) and user-friendliness of online teaching tools (UOT). The step-wise regression technique removed other variables as other independent variables were not predictors of the dependent variable.

Table 15: Variables Entered/Removed

Model	Variables Entered	Variables Removed	Method
1	OCDD		Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).
2	UOT		Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).

a. Dependent Variable: OS

Table 16: Step-Wise Regression (Model Summary)

Model	R	R Square	Adjusted R Square	Std. Error of Estimate	R Square Change	F Change	Df1	Df2	Sig. F Change
1	.802 ^a	.644	.640	.63177	.644	159.066	1	88	.000
2	.845 ^b	.714	.707	.56983	.70	21.173	1	87	.000

a. Predictors: (Constant), OCDD
b. Predictors: (Constant), OCDD, UOT

The F-value is 108.352 in model 2 (see table 17) which is significant at p-value=0.000 (p<0.05). This means that explanatory variables in the model reliably predict the dependent variable. Therefore, we can say that OCDD and UOT together are reliable predictors of the dependent variable OS. To understand the ability of each predictor variable to predict the dependent variable, we can see the coefficients table (see table 18). The coefficient table shows the values of standard errors, beta (standardized and unstandardized), significance values, t-values, confidence intervals, correlations, and collinearity statistics. The standard error associated with coefficients in model 2 is 0.100 for OCDD and 0.93 for UOT. Here we see the standardized coefficients as in this, both the dependent and independent variables are measured on the same scale to make them comparable. Larger betas are associated with larger t-values. For OCDD, with one standard deviation movement dependent variable will increase by 0.499 units which are significant at p<0.05; for UOT, with one standard deviation movement, the dependent variable OS will increase by 0.402. P-values in model 2 are less than 0.05; therefore, this model is a good fit for the data, i.e., the regression model significantly predicts the outcome variable. Confidence intervals in the table tell us how much this value can vary; the intervals don't include 0 in between; therefore, the results are statistically significant. Overall, these two variables OCDD and UOT, are significant predictors of our model, as they together predict 70.7% variance of the dependent variable OS.

Multiple Regression equation: $Y = a + b_1X_1 + b_2X_2 + e$
 $YY = 0.008 + 0.573X_1 + 0.428X_2$, where Y= Overall satisfaction of teachers with Online Teaching, X₁=Online course design and development, X₂= User-friendliness of online tools, b₁ and b₂ are coefficients of X₁ and X₂, and a is a constant.

Table 17 Anova

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	63.490	1	63.490	159.066	.000 ^b
	Residual	35.124	88	.399		
	Total	98.614	89			
2	Regression	70.365	2	35.182	108.352	.000 ^c
	Residual	28.249	87	.325		
	Total	98.614	89			

a. Dependent Variable: OS

b. Predictors: (Constant), OCDD

c. Predictors: (Constant), OCDD, UOT



Table 18: Coefficients

Model	Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	95% Confidence Interval for B	
						Lower Bound	Upper Bound
1 (Constant) OCDD	.265	.243		1.089	.279	-.218	.747
	.921	.073	.802	12.612	.000	.776	1.066
2 (Constant) OCDD	-.008	.227		-.035	.972	-.459	.443
UOT	.573	.100	.499	5.719	.000	.374	.772
	.428	.093	.402	4.601	.000	.243	.613

a. Dependent Variable: OS

Discussion and Conclusion

E-learning techniques might be approached from a system design perspective, in which components of the system and variables play essential roles in ensuring the overall system's success. Teachers play an indispensable role in the e-learning system (Curran, 2008). As a result, there is a growing need to look at the variables that influence teachers' satisfaction in online teaching-learning systems (Bolliger & Wasilik, 2009; Bollinger *et al.*, 2014). Satisfaction is one of the most important variables influencing the online system's usability, directly impacting teachers' performance in the online teaching-learning environment (Moore, 2002). To discover the most significant elements affecting teachers' satisfaction in private schools in all districts of Delhi, factors connected to instructors' satisfaction in e-learning systems were identified in this study. For the creators and managers of computer-based courses, user satisfaction is crucial. Because user happiness is strongly linked to the success of computer-based systems (Ives *et al.*, 1983; Muylle *et al.*, 2004), in this study, we identified six variables from the extant literature that contributes to teachers' satisfaction with online teaching. These are student-teacher relationships (STR), adequate training (AT), Institutional support (IS), technical support (TS), online course design and development (OCDD), and User-friendliness of online tools (UOT). As per the correlation analysis, student-teacher relationships (STR), adequate training (AT), Institutional support (IS), technical support (TS), online course design and development (OCDD), and User-friendliness of online tools (UOT) were found to have a significant and positive association with the overall satisfaction of teachers with online teaching (OS). This means all the variables positively correlate with teachers' satisfaction with their online teaching experiences. Great student-teacher relationships (Horvitz *et al.*, 2015), proper training and strong institutional and technical support (Marasi *et al.*, 2020), high-quality course designs (Bolliger & Wasilik, 2009), and easy-to-use online tools (Stickney *et al.*, 2019) are crucial for instructor's satisfaction. In the regression analysis, the authors got some interesting results, i.e., only two variables, namely, OCDD and UOT, could predict our model reliably. These two variables together explained a large amount of variance in the dependent variable. Therefore, it is pretty interesting that teachers' satisfaction with online course design and

development and user-friendly online teaching tools are associated with overall satisfaction. Teachers plan to devote more effort to develop and teach online courses. Teachers are happier when the school allows adequate time for course creation and acknowledges that online teaching takes time (Bollinger *et al.*, 2014; Moore, 2002). Teachers' satisfaction with online courses design and structure can create favourable learning environments (Baldwin *et al.*, 2018; Merrill *et al.*, 1996) and is important for students' contentment (Baldwin *et al.*, 2018). As digital and remote education enter the forefront of higher education, the problem of quality has become more prominent (Sloan Consortium, 2004). Therefore, to strive on the path of high-quality online courses, high-quality course design is imperative (Chao *et al.*, 2010). Ease of use of online tools is important and should be integrated into the system in such a way that it provides an enriching learning experience to students (Kumar, 2009). An easy-to-use online education system makes things more efficient, less complicated, and enjoyable. It is counter-productive to promise users a cutting-edge learning management system but then fail to deliver. If the system is riddled with bugs and technological flaws, users will have difficulty navigating it. As a result, it is critical to ensure that the design is attractive and functional. Providing adequate training and proper institutional and technical support can be an added advantage for teachers, improving their online teaching experiences.

Limitations and Scope of Future Research

A comparative study between government schools and private schools would have given a better view of our results. The sample size of this study is small and may not be enough in proportion to the total number of teachers in Private Schools in Delhi. A few more constructs can be identified from the existing literature that influences teachers' satisfaction with online teaching. Present research work focuses upon only teacher's satisfaction, and researchers can replicate this study to find students' satisfaction with online learning as students are the primary stakeholders of any school. In the future, researchers can study few more aspects that influence teachers' satisfaction and effectiveness like work-life balance, social impact, psychological impact, job security, safety, mental health and well-being.

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The Editorial Board had used the Ouriginal – a Swedish anti-plagiarism software tool which is a fully-automatic machine learning text-recognition system made for detecting, preventing and handling plagiarism and trusted by thousands of institutions across worldwide. Urkund is GDPR compliant with privacy by design and an uptime of 99.9% and have trust to be the partner in academic integrity. <https://www.orkund.com>] tool to check the originality and further affixed the similarity index which is {9%} in this case (See below Annexure-I). Thus, the reviewers and editors are of view to find it suitable to publish in this Volume-13, Issue-4, Oct-Dec 2021

Annexure 1

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W	URL: https://olj.onlinelearningconsortium.org/index.php/olj/article/view/761 Fetched: 2019-12-10T23:57:03.3470000	1
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**Reviewers
Memorandum**

Reviewer's Comment 1: The paper is really a good attempt. Specifically, during the Pandemic, the Teachers too underwent difficult times. It's better to understand the satisfaction of teachers, parents and students. Yours study exclusively focused on teachers of school and their satisfaction level by adopting appropriate research methodology, hypothesis and statistical tools. The outcomes of the study really will help for teaching community and policy makers for appropriate action. The study has been missing response of the students, if it added it might have given better results. May be due to specific focuses the researchers might have avoided the same.

Reviewer's Comment 2: The paper, "Teachers Satisfaction with Online Teaching: A Study of Private Senior Secondary schools in Delhi." by Dr. Anil Kumar, Ms. Shivangi Dhawan, Dr. Surender Singh and Mr. Ashwani Kumar has significant importance in academics at present time. The authors have chosen an important topic for the study. The study will help the academicians, researchers, policymakers, and practitioners to deal with the issues raised by authors. The methodology of the study is appropriate however some limitations highlighted by the authors need to rework for future research.

Reviewer's Comment 3: The paper is well written however the sample size is small which is also mentioned in the limitation of the study. The authors could have used bootstrapping to deal with this limitation. The private school teachers are facing a lot of trouble/dissatisfaction because of the untimely meetings held by the senior teachers. This is particularly outweighing their satisfaction derived from course structure and user-friendly technology. This point has not been considered in the paper.



Anil Kumar, Shivangi Dhawan,
Surender Singh and Ashwani Kumar
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**Editorial
Excerpt**

The article has 09% of plagiarism which is the accepted percentage as per the norms and standards of the journal for the publication. As per the editorial board's observations and blind reviewers' remarks the paper had some minor revisions which were communicated on a timely basis to the authors (Anil, Shivangi, Surender and Ashwani) and accordingly all the corrections had been incorporated as and when directed and required to do so. The comments related to this manuscript are noticeably related to the "Teachers' Satisfaction with Online Teaching: A Study of Private Senior-Secondary Schools in Delhi" both subject-wise and research-wise. The present research article aims to study the learning concerns that affected the academic progress of the children with disabilities and is based on the perspective of the parent. It makes suggestions for an appropriate learning environment for children with disabilities studying through an online mode. Overall, the paper promises to provide a strong base for the further studies in the area. After comprehensive reviews and editorial board's remarks, the manuscript has been categorized and decided to publish under "Empirical Research Paper" category.

Acknowledgement

The acknowledgement section is an essential part of all academic research papers. It provides appropriate recognition to all contributors for their hard work and effort taken while writing a paper. The data presented and analyzed in this paper by (Anil, Shivangi, Surender and Ashwani) were collected first handily and wherever it has been taken the proper acknowledgment and endorsement depicts. The author is highly indebted to others who had facilitated in accomplishing the research. Last but not least endorse all reviewers and editors of GJEIS in publishing in a present issue.

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