Effects Of Online Learning Experience, Cognitive Presence And Psychological Well-Being Among University And College Students During Pandemic In Pakistan And KSA

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ABSTRACT

The present study was conducted to study the relationship between online learning experience, cognitive presence and psychological well-being among university and college students during covid-19 pandemic. Online learning scale (Bernard et al., 2004), community of inquiry (Arbaugh et al., 2008) and psychological well-being scale (Ryff, 1989) were used for the collection of data from students including both males and females. The target population was students with the age range of 17-27 years. The study was conducted by using purposive-convenient sampling technique (N = 283). The results of the present study showed that online learning experience has a positive relationship with community of inquiry. Teaching presence, social presence and cognitive presence are significantly positively correlated with each other. Community of inquiry shows significant positive relation with online learning experience and they both shows significant negative relation with psychological well-being. Additionally, boys scored higher on online learning experience and teaching, social, and cognitive presence as compared to girls. However, there is no difference on psychological well being. The association between these variables holds importance in the life of students in online learning and helps them to deal with the problems and difficulties regarding their learning experience, cognitive presence and psychological well-being.

Keywords: Online learning experience, cognitive presence, psychological well-being, covid-19 pandemic, community of inquiry

Introduction

The spreading of the COVID-19 pandemic enforced educational systems to start acquiring online technologies convenient for teaching and learning. After the alert of the Covid-19 in the world, many of the countries across the world closed schools, colleges and universities effecting a lot of students in the whole world. As face-to-face teaching and learning became impractical, educational officials all over the world were enforced to shut down schools and send students home. Due to the inability to continue with the traditional face-to-face learning, web-based technology and online learning have become popular replacement learning models (Azhari & Ming, 2015).

Current and rising online learning knowledge of technologies are having extreme, instant, uncontrollable and revolutionary alterations on education systems (Moller, Foshay, & Huett, 2008). As online learning has become extra massive, worries rel ated to online coaching emerges like absence of face-time between students and their instructors, discussion practices, practical work, deep mastering, distractions and time management, staying prompted, know-how course expectations, and the maximum crucial technical issues (Farinella, Hobbs & Weeks, 2000; Kim & Bonk, 2006; Pape, 2010). Many of the students are new to this concept but with time to time students will approach online learning with various ideas accumulated from different experiences in different environments. Online learning teachers continuously tries for improving competency and comfort level of learners in online learning environment. They also tries to provide safe and secure environment to enhance the internet efficacy for better online learning experience (Eastin & LaRose, 2000).

Additionally, students also face difficulties during their experience with online teaching and learning. A study showed that approximately 46% of students indicated they experienced network and space issues, 37%

reported that they only had networks issues, 18% said they had internet bills/financial issues. Network restrictions describe why it is challenging for students to acquire a network in their home, causing them to go for network-accessible locations such as trees, riverbeds, and highlands, which are far away and require some time to get to reach that place (Mukhram & Rahmat, 2020).

Online learning experience is defined as learning experiences in simultaneous and non-simultaneous environments by the use of variety of devices having internet connection, such as mobile phones, laptops, and other gadgets (Sujarwo et al., 2020). Students can learn and connect with instructors and other classmates from any place through these networks (Singh & Thurman, 2019). Online learning programme gives students the freedom to learn whenever and wherever they want, regardless of their schedule constraints. Online learning provides a real opportunity for learners with a variety of conditions to study without restrictions or limits in a safe and secure environment (Chawdhry, Paullet, & Benjamin, 2011; Heirdsfield et al., 2011).

Although online learning has many advantages, it sometimes causes students to feel uneasy and dissatisfied (Bisoux, 2002). The lack of teacher preparation, technical concerns, content of the course, humanistic issues, lack of student's experience, and the inability to arrange diverse kinds of connection between students were all major sources of dissatisfaction and discomfort (Granitz & Greene, 2003). Rather of making an attempt to observe more acceptable techniques to bring and carry out classes in an online setting, these online courses are frequently instructed as the only duplication of regular face-to-face sessions (Dolezalek, 2004). Despite these challenges, there is increasing evidence that online education can be a viable and productive learning medium provided if the constraints are overcome (Crawford, 2004).

Cognitive presence refers to a learner's capacity to produce and validate knowledge through continual thought and discussion in a

constructive community of inquiry (Garrison et al., 2000). The community of inquiry paradigm states that there are four periodic steps during which cognitive presence develops. These stages are triggering event, investigation, integration, and resolution (Garrison, 2009).

Previous research has linked cognitive presence to both perceived and actual learning results (Akyol & Garrison, 2008; Garrison, Anderson, & Archer, 2010; Kanuka & Garrison, 2004; Joo, Park, & Lee, 2017). Students reported learning experiences were linked to the precision of structure of course, value of interaction with instructors, and student associations (Swan, 2001). According to a study, framing the topic around a case-based discussion resulted in higher levels of cognitive presence among students, which leads to improved learning outcomes (Akcaoglu & Lee, 2016). Additionally, a study demonstrated that overall cognitive presence is related to student academic performance in a substantial way. Hence, student cognitive presence has a greater impact on academic performance (Jo et al., 2017).

A research showed that teaching presence and cognitive presence have a supportive relationship. Therefore, teachers have a critical part in the development of cognitive skills; in terms of how they structure both the course material and students engagement which helps in the better learning outcomes (Garrison & Innes, 2004). In addition, social presence is the capacity of individuals to present their unique personalities, engage in meaningful conversation in a safe environment, and establish interpersonal connections (Garrison, 2009). The three key elements are team coherence, effective discussions, and communication skills. Social presence encourages pleasant and flexible environments for students' study and possible improvement with other students in the sake of a more comprehensive educational experience (Garrison et al., 2010).

Learning experiences were also found to be strongly and positively connected with social presence. The higher the sense of social community among online students, the better the learning experience will be (Wighting & Williams, 2013). In the online learning environment, social presence in the form of collection conversations and group work which improves student interaction and learning experiences (Bocchi, Eastman, & Swift, 2004). Online learners will have a poor learning experience if high-quality interaction between students is not achieved (Arbaugh et al., 2008; Hay et al., 2004; Hwang & Arbaugh, 2006; Williams, Duray, & Reddy, 2006)

Teaching presence is the planning, organization, and guidance of cognitive and social processes with the goal of producing deeply meaningful and educationally effective learning experiences (Garrison, Anderson, & Archer, 2010). Interacting with students is one of the most crucial roles for teachers in both face to face and online education (Faranda & Clark, 2004). As a result, the teacher's presence significantly affects the atmosphere in the classroom and how well students perceive their education (Garrison & Innes, 2004; Hay et al., 2004; Joo, Lim, & Park, 2011; Shea, Swan, & Pickett, 2003; Shea, 2006; Shea & Bidjerano, 2008; Szeto, 2015). A study discovered that judgments of the degree of social presence were substantially connected with online learning and feasibility with teachers (Richardson & Swan, 2003). A research showed that students judgments of social presence had a direct impact on their perceptions of teaching presence, both of which contribute to the learning experience's quality (Picciano, 2002).

Students psychological well-being is crucial in order for them to achieve their goals and reach their full potential in school and in life. In this epidemic, psychological well-being has been a commonly discussed topic because it plays a very important role in every human life functioning as well as for the students in academics (Son et al., 2020). Psychological well-being is defined as the absence of mental illness, and the presence of healthy functioning in life on an individual and social level (Keyes, 2002). The initial researches shows that home disturbances, such as diversions from other

family members and additional obligations, are a big problem for participants taking classes from home during covid-19 causing severe educational stress and anxiety (Son et al., 2020).

A study looked into the psychological effects of the COVID-19 pandemic on university students and discovered that they had various levels of fear and worry (Cao et al., 2020). During the epidemic, young adults also reported increased worry, stress, and sadness (Parola et al., 2020). As universities around the world struggle to keep their students in school, flaws in large-scale come out with teaching and online learning, such as difficult home learning atmosphere, digital divides due to socioeconomic imbalance, and imbalance online learning systems (Ali et al., 2020; Hasan & Bao, 2020).

These issues put the entire world, including students, under mental and psychological strain. The COVID-19 pandemic had a significant impact on the students' education, affecting their overall learning experience as well as their mental health (Bao, 2020). Several other problems with online learning emerged throughout the pandemic, including excessive mental effort, educational exhaustion, and disinterest, all of which can impact students' psychological well-being as well as their capacity to learn (Cao et al., 2020; Islam et al., 2020; Pohan, 2020).

In a case study, 35 percent of students reported higher anxiety in the spring 2020 semester as a result of the changing from face-to-face to online learning, which corresponds to the early stages of the COVID-19 outbreak. Online learning methods was linked to a lot of stress, which was especially difficult for students who didn't have access to the internet at home (Klussman et al., 2020). In addition, female students reported higher levels of stress, anxiety, and despair than male students (Kumar & Somani, 2020; Wang et al., 2020).

During a pandemic, the online learning method has proven to be an efficient way of ensuring that students continue their studies. However, there are a number of impediments to online learning. Boredom is a significant impediment to online learning. Because the contact between learners is limited, the online learning process quickly becomes boring (Daghan & Akkoyunlu, 2016; Koonin, 2020; Wu, Hsieh, & Yang, 2017). Distraction is another difficulty with online learning (Daly et al., 2019). The inability to use technology is another barrier to online learning. Students with little or no technological experience find online learning challenging since they need support in using technology for academic purposes (Anekwe, 2017). All these studies found that the online learning during the pandemic has the direct negative impact on students and their psychological well-being.

During the COVID-19 pandemic, there was a global shift in the way people worked, with an increased reliance on internet services and new standards. Because of their unfamiliarity with online teaching methods, higher education systems saw this sudden transformation as a challenge or a threat (Daumiller et al. 2021). Pakistan is a developing country that has yet to construct a systematic and statewide infrastructure for online instruction, including virtual classrooms. It has particular hurdles, including a lack of expertise and preparedness, as well as institutional and technological obstacles (Bao, 2020). At the other hand, in KSA, although there is much advancement but still need to bring students towards in online learning is still challenging. As Khalil et al. (2020) indicated the same problem in the learning issues of Medical Students. Students who are irritated with technology are more likely to discontinue their studies (Hofmann, 2014). Lack of family hold up and a heavy task load (Park & Choi, 2009), as well as a lack of fast feedback from teachers and poor student and teacher interaction, are all factors that contribute to learners' inability to continue their online education. Also, course redesign is a big difficulty in online education, and it can be scary for those who aren't familiar with it (Vitale, 2010).

Online education aims to create a conductive atmosphere that is distinct from traditional learning (Holly et al., 2008). As online learning is not a new concept but it was not practiced in Saudi Arab and Pakistan mostly before the pandemic, so it was new and challenging for most of the students. Online learning effects the psychological well-being either positively or negatively. The present study reflects that online learning effects psychological well-being positively if there is cognitive presence among students. Similarly, the learning experience effects psychological well-being negatively if there is the no cognitive presence among students. Learning demands better experience and cognitive presence among students especially in online learning environment where it is challenging to focus and concentrate properly because teacher and the student are geographically separated. So it is very important to study how online learning effects cognitive presence and psychological well-being especially in the covid-19 outbreak due to the unique challenges faced by students and teachers (Bao, 2020).

In Saudi Arabia and Pakistan there are many researches about online learning but there is no research which tells the effect of online learning on psychological well-being among students with respect to cognitive presence. The present study is conducted on Saudi and Pakistani samples which examines the effect of online learning on learning experience and psychological well-being with respect to cognitive presence among university and college students. The main focus of the present study is students, from different educational institutions who have taken online classes, to see the effects of online learning on learning experience, cognitive presence and psychological well-being during pandemic. Studies reveal that online education enhances the level of work load, requiring an instructor to fulfil various roles such as facilitator, mentor, and co-learner (De Gagne & Welters, 2009). According to another study, online communication has links to in-depth discussion, allowing students to go at their own pace while still meeting learning objectives during the covid-19 pandemic (Tallent-Runnels et al., 2006).

Covid-19 pandemic was very hard and difficult time for all the people as well as for the students. All the regular classes converted to online for the social distancing and avoidance of the spread of corona virus. So, it was very challenging and hard to shift to online classes for both teachers and students with all related concerns of online learning. The study describes the problems and hardships faced by the students related to their learning experience, cognitive presence and psychological health. Because the extensive majority of students live in technologically difficult locations and many of them come from low-income families, the socio-economic difference poses additional educational challenge, confirming that the digital divide has an impact on education (Strauss, 2020). Universities have acknowledged the need to make modifications in order to ensure academic continuity by facilitating online learning (Krishnamurthy, 2020).

The present study also aims to know about the relationship between online learning experience, cognitive presence and psychological well-being among students and also tells to which extent online learning effects the cognitive presence and psychological well-being. The present study further elaborate how online learning effects the students' experience, cognitive presence and psychological well-being among students. According to a study online learning has three phases that are preparation of teaching online, supervision and reflection on children while instructing them (Kim, 2020). This study also focuses on how online learning target these phases for the better learning experience of students.

Objectives of the Study

Following are the objectives of the present study:-

1. To find out the relationship between online learning experience, cognitive presence

and psychological well-being among college and university students.

2. To find out the gender differences among the study variables.

Hypotheses of the Study

Following are the hypotheses of the present study:-

1. There is a positive relationship between the online learning experience, cognitive presence and psychological well-being among students.

2. Online learning experience will be higher in male students as compared to female students.

3. Cognitive presence will be higher in male students as compared to female students.

4. Psychological well-being will be higher in male students as compared to female students.

5. Cognitive presence moderates the relationship between online learning experience and psychological well-being.

Research Design

The present study is a quantitative cross-sectional research design which was conducted using survey method for data collection by using questionnaires.

Operational Definitions

Online Learning Experience

The process of acquiring information and establishing personal significance through the use of learning tools, interaction with the course, teacher, and other students, and support from others is called as learning experience (Bernard et al., 2004). High scores indicate higher learning experience and low scores indicate lower learning experience.

Cognitive Presence

Cognitive presence describes the degree to which students can produce and validate information through continual analysis and speaking in a critical learning community (Garrison, Anderson, & Archer, 2000). High

scores indicate higher level of cognitive presence and low scores indicate lower level of cognitive presence.

Psychological Well-being

Psychological well-being is defined as the absence of mental illness and the positive effective development in life on an individual and community level (Keyes, 2002). High scores indicate high psychological well-being and low scores indicate low psychological well-being.

Measures of the Study

Online learning Scale

The scale used in this study to measure online learning experience is called online learning scale/questionnaire developed by Bernard, Brauer, Abrami, and Surkes, (2004) and is a modified version consisting of 38-item which assess the efficacy of online learning. The scale used in the present study consists of 9 items with 5-likert scale ranging from strongly disagree (1) to strongly agree (5). There was no negatively scored item in this scale. The higher scoring indicates the higher effectiveness in online learning and low score indicates low effectiveness in online learning. The internal reliability of this questionnaire was ($\alpha = 0.74$).

Community of Inquiry

The scale used to measure the cognitive presence is called community of inquiry (CoI), consists of 34 items. The questionnaire was developed by Arbaugh et al., (2008). It has three sub-scales named as teaching presence (item 1-13), social presence (item 14-22) and cognitive presence (item 23-34). This is a 5-likert point scale ranges from strongly disagree (1) to strongly agree (5). There was no negatively scored item in this scale. Higher score indicates higher level of cognitive presence and low score indicates lower level of cognitive presence.. The internal reliability of this questionnaire for the present study was ($\alpha=0.92$). The internal reliability of the original scale was ($\alpha = 0.98$)

Psychological Well-being Scale

The scale used in the present study to measure the well being of students is called Psychological Well-Being Scale (PWBS) and it consists of 18 items. It was developed by Ryff (1989). This is a 5-likert point scale ranges from strongly disagree (1) to strongly agree (5). Item number 1, 2, 3, 8, 9, 11, 12, 13, 17, and 18 are reverse-scored items. Items that receive a reverse score have wording that contrasts with the scale's direction of measurement. High scores indicate the high level of psychological well-being and low scores indicate low level of psychological well-being. The internal reliability for the present study was (α=0.61). The 15th item of the questionnaire, which says "I tend to be influenced by people with strong opinions" was negatively correlated with other items. So, that item was taken out, may be the respondents misperceived it and find difficulty while answering. After removing that item the reliability of the scale also improved and increased to ($\alpha = 0.68$). The internal reliability of the original scale was ($\alpha = 0.82$).

Sample

The present study includes 283 participants from colleges and universities. Research targeted two countries i.e., Saudi Arabia and Pakistan. From Pakistan data was collected from students from universities located in Islamabad. And for Saudi students, data was collected from Umm Al Qura University, Makkah, KSA. Almost 80 responses were collected through Google forms . The remaining offline responses were from National University of Modern Languages Islamabad and Umm Al Qura University, Makkah. The sample of the study was students from universities and colleges and the sample collection method uses purposive-convenient sampling. Respondents include both males (n = 71) and females (n = 212) with the age range of 17-27 years (M = 21.47; SD = 1.52).

Procedure

Data was collected through Google forms and by handling out questionnaires. The permission was taken from the concerned university that is National University of Modern Languages for the collection of data. After the approval by the university, students were approached and they were briefed regarding the purpose of the study and then consent of the participants was taken. Participants were also informed that the acquired information will be kept confidential and used only for the research purpose. Participants were first asked to fill out the demographic information and then the rest of the questionnaire was explained and were asked to fill out ensuring the anonymity of their data. Their queries were also answered regarding the questions. At the end they were appreciated for their cooperation.

Results

The purpose of the present study was to find out the relation between online learning experience, cognitive presence and psychological well-being among college and university students during the pandemic. The research data was analyzed using various statistical analysis by using of SPSS software.

Table 1 shows the frequencies and percentages on the demographic variables.

Table 1 Frequency and percentages of demographics variables (N = 283)

Demographic variables	Levels	f (%)
Gender	Male	71 (25.1)
	Female	212 (74.9)
Internet access	Yes	270 (95.4)
	No	13 (4.6)
Attendance in online classes	Below 60%	17 (6)
	60-69%	22 (7.8)

	70-79%		78 (27.6)
	Above 80%		166 (58.7)
Grades in online classes	Below 60%		6 (2.1)
	60-69%		47 (16.6)
	70-79%		148 (52.3)
	Above 80%		82 (29)
Grades before online classes	Below 60%		1 (0.4)
	60-69%		38 (13.4)
	70-79%		131 (46.3)
	Above 80%		113 (39.9)
Students from	Islamabad (Pakistan)		202 (71.3)
	Umm Al Qura University - Makkah (Saudi Arabia)		81(28.7)

Note: f = frequency.

Table 1 shows the frequency and percentages of the demographic variables. Respondents include both males (n = 71) and females (n = 212) with the age range of (17-27) years. Respondents include 270 which have internet access and 13 respondents which do not have internet access. 17 respondents have below 60% attendance and 166 respondents have above 80% attendance in online classes. See table 1 for further details.

Table 2 Descriptive statistics of the variables (N = 283)

Variables	n	α	M	S.D	Range actual	Range	Skewness	Kurtosis
						Min-Max		
OLES	9	0.74	27.65	6.17	36	9-45	0.04	0.12
COI	34	0.92	108.06	23.24	145	36-181	-0.27	0.19
TP	13	0.84	41.58	10.63	89	13-102	0.29	3.13
SP	9	0.76	38.75	8.80	61	9-70	0.46	3.20
CP	12	0.90	38.75	8.80	48	12-60	-0.58	0.29
PWBS	17	0.68	43.89	7.76	44	18-62	-0.26	-0.41

Note: OLES = Online Learning Questionnaire, COI = Community of Inquiry, TP = Teaching Presence, SP = Social Presence, CP = Cognitive presence and PWBS = Psychological Well-being Scale. N = number of items of the variables, α = reliability coefficient, M = Mean value and S.D = Standard Deviation of scales and sub-scales.

Table 2 shows the alpha reliability and descriptive of scales and their sub-scales. The reliability of online learning questionnaire (OLES) and social presence (SP) is acceptable, the reliability of teaching presence (TP) is very good and the reliability of psychological well-being scale (PWBS) is satisfactory and the reliability of community of inquiry (COI) and cognitive presence (CP) are excellent. See table 2 for further details.

Table 3 Correlation matrix of the variables (N = 283)

Variables	1	2	3	4	5	6
OLES	-					
COI	.60**	-				
TP	.49**	.87**	-			

SP	.55**	.84**	.58**	-	
CP	.55**	.88**	.62**	.69**	-
PWBS	-.24**	-.26**	-.21**	-.17**	-.30**	-

Note: OLES = Online Learning Scale, COI = Community of Inquiry, TP = Teaching Presence, SP = Social Presence, CP = Cognitive Presence and PWBS = Psychological Well-being scale. *p < .05, **p < .01, ***p < .001

Table 3 shows the correlation matrix among the variables and the sub-scales. All the factors are positively correlated to one another except psychological well-being. Online learning experience shows significant positive relationship with community of inquiry (p < .01). Teaching presence, social presence and cognitive presence are significantly positively correlated with each other (p < .01). Community of inquiry shows significant positive relation with online learning experience (p < .01) and they both shows significant negative relation with psychological well-being (p < .01).

Table 4 Gender differences on the variables (N = 283: males = 71; females = 212)

Variables	Males		Females		t	p	95% CL		Cohen's
	M	SD	M	SD			LL	UL	d
OLE	29.98	6.49	26.87	5.87	3.75	**0.00**	1.47	4.73	0.50
COI	116.11	22.50	105.36	22.90	3.43	**0.00**	4.58	16.90	0.47
TP	44.80	12.50	40.50	9.72	2.98	**0.00**	1.46	7.12	0.38
SP	30.15	6.18	26.91	7.47	3.29	**0.00**	1.30	5.18	0.47
CP	41.15	7.35	37.94	9.10	2.68	**0.00**	.85	5.55	0.3
PWBS	44.15	7.53	43.80	7.86	.32	.74	-1.75	2.44	0.04

Note: OLE = Online Learning Experience, COI = Community of Inquiry, TP = Teaching Presence, SP = Social Presence, CP = Cognitive Presence and PWB = Psychological Well-being.

Table 4 shows the gender differences on the study variable and significant differences on online learning experience, teaching presence, social presence, and cognitive presence. According to the results in the Table 4, boys scored higher on online learning experience and teaching, social, and cognitive presence as compared to girls. However, there is no difference on psychological well being. Therefore, hypothesis 2 and 3 are accepted and 4 is rejected.

Table 5 Regression analysis (N = 283)

Variables	B	SE	β
Constant	56.17	2.29	
OLES	-.17	.09	-.14
TP	-.03	.05	-.05
SP	.14	.09	.13

CP			.76		-.28
R^2	0.11				
ΔR^2	0.11				
F	8.59				

Note: OLES = Online Learning Scale, TP = Teaching Presence, SP = Social Presence and CP = Cognitive Presence.

Table 5 shows the predictive role of online learning experience, teaching presence, social presence and cognitive presence on psychological well-being. Results showed 11% variance in psychological well-being by online learning experience, teaching presence, social presence and cognitive presence. Online learning experience and cognitive presence are significant predictors of psychological well-being. 1 unit change in online learning experience will result in 14% variance in psychological well-being. 1 unit change in teaching presence will result in 5% variance in psychological well-being. Whereas, 1 unit change in social presence will result in 13% variance and 1 unit change in cognitive presence will result in 28% variance in psychological well-being.

Table 6 Moderation analysis of the variables (N =283)

Note: PWBS = Psychological Well-Being Scale, CoI = Community of Inquiry, Int_1 = Interaction term,

Variables	CE	SE	p	95% CL		R^2	F
				LLCI	ULCI		
Constant	19.85	7.63	0.00	4.81	34.88	0.38	57.18
PWBS	-0.20	0.16	0.22	-053	0.12		
COI	0.10	0.06	0.14	-0.03	0.23		
Int_1	0.00	0.00	0.42	-0.00	-0.00		

CE = Conditional Effect, SE = Standard Error.

Graphical Representation of Moderation
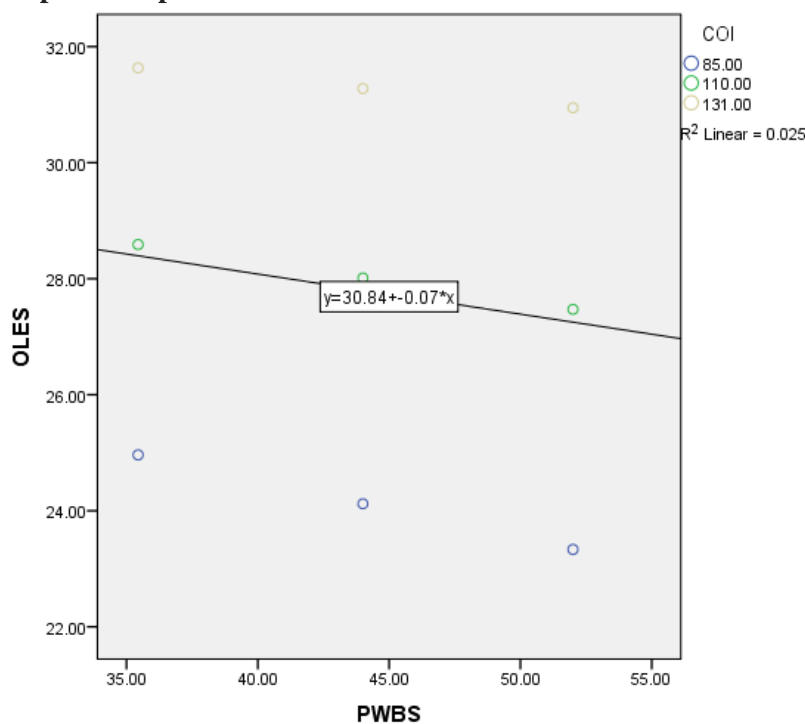
The outcome variable for the moderation analysis was psychological well-being. The predictor variable for the analysis was online learning experience and the moderator variable evaluated for the analysis was cognitive presence. The study sought to ascertain the moderating role of cognitive presence between online learning experience and psychological well-being. The results revealed that there is no significant moderation between the online learning experience and psychological well-being and cognitive presence does not moderate the relationship between learning experience and psychological well-being. The R square change for this interaction is also non-significant which indicates that the model does not contain all the main variables.

Discussion

The aim of the present study was to examine the relationship between online learning experience, cognitive presence and psychological well-being among college and university students during COVID pandemic. All the hypothesis were tested by using statistical tests. Results report a significant relationship between all these variables namely online learning experience, cognitive presence and psychological well-being.

In table 3, online learning experience shows significant positive relationship with community of inquiry, teaching presence, social presence and cognitive presence and all these variables have significant negative relationship with psychological well-being among the university and college students (p < 0.05). The first hypothesis of the study was that "there is a significant positive relationship between the online learning experience, cognitive presence and psychological well-being among students". Results have shown a positive relationship between online learning experience and cognitive presence but a negative relationship with the psychological well-being among students during the pandemic. Here hypothesis has not proved the positive relationship of learning experience and

cognitive presence with the psychological well-being among the students during pandemic. The literature shows multiple reason for the negative effects of online learning on psychological well-being among students during COVID pandemic.

One study looked at how the COVID-19 epidemic affected university students mentally and found that they varied in their levels of stress and fear (Cao et al., 2020). Additionally, it was discovered that throughout the epidemic, students displayed more anxiety, tension, and despair (Parola et al., 2020).

The disturbance in psychological well-being of students is mainly due to some environmental factors which is the increasing number of covid-19 patients, increasing number of countries effected by the virus which has enhance the stress and anxiety levels of students (Bao, Sun, Meng, Shi, & Lu, 2020). Some researches says that corona virus affects some students emotionally, they experience fear of contracting the virus, feeling helpless which makes them anxious (Kumar & Somani, 2020).

During this pandemic, a number of problems with online learning also emerged, including high mental heap, educational tiredness, and detachment. These problems have all received a lot of attention and have the potential to harm students' ability to learn as well as their psychological well-being (Cao et al., 2020; Islam et al., 2020; Pohan, 2020).

Table 4 shows the gender differences between the variables. The results showed cohen's d value for the online learning experience is 0.5 which shows a medium effect size, whereas the effect size of other variables is less than 0.5 which showed a slight gender differences. Male students have slightly high learning experience, cognitive presence and psychological well-being as compared to female students as these finding are supportive with the similar results from the study of Casino-García et al. (2019) and with Khan et al. (2020). Hence, second, third and fourth hypothesis is proved.

In the last, the fifth hypothesis says "cognitive presence moderates the relationship between online learning experience and psychological well-being". In table 6 Moderation analysis shows that there is non-significant moderation. The results revealed that cognitive presence does not moderate the relationship between the learning experience and psychological well-being. Also the change in R^2 for this interaction is non-significant. Similar, findings were also revealed in the cross-sectional study of Agrawal and Krishna, (2021). Hence, the hypothesis was not proved.

Limitations and Suggestions

Following limitations are observed in the present study:-
1. The sample size of the study was very small so it can not be generalized to the whole population.
2. The sample was only gathered from limited universities.
3. Study was unable make comparison among Saudi and Pakistani Sample, as it may be helpful for understanding the differences in learning and learning practices in both countries, which could be done through future research in this perspective.
4. More information can be gained if the sample size increased.
5. Most of the respondents showed lack of interest which could have effected the research results.
6. Also data was collected from university and some of the colleges so this study cannot be applicable to all the educational institutions.
7. There are many other relevant aspects which effects directly or indirectly the students during online learning which should be investigated in further studies to better understand how other factors effect students during online learning process.
8. It is recommended to the future researchers to focus on different methodologies and methods.

Implications

The present study will help dealing the problems and issues faced by the students in online learning during the pandemic. The students reported the difficulties and problems which they faced from their teachers' side, social group or related to their course. These issues and problems effects their learning, their psychological well-being and their learning performance. This study highlights these issues which helps student and teachers to deal with these problems and find effective ways to counter them. This will help them in increasing the efficacy of online learning especially where many of the emerging fields such as nursing and medical are shifting up towards online education system in the Kingdom of Saudi Arabia. (Shahbal et al., 2022)

Conclusions

The results of the present study indicated that there is a significant relationship between online learning experience, cognitive presence and psychological well-being among university and college students during the COVID pandemic. The results show that there is a significant positive relationship between online learning experience and cognitive presence and significant negative relationship with the psychological well-being among students. Gender differences on these variables is negligible. The moderation analysis showed that cognitive presence does not moderate the relationship between online learning experience and psychological well-being. All the results are supported by the previous literature and studies.

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