

The effects of cognitive- and affective-based trust on students' knowledge sharing and learning performance during the COVID-19 pandemic

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Abstract: This study examined the effects of cognitive and affective-based trust on knowledge sharing among students, which influences learning performance during the COVID-19 pandemic. A survey was conducted with 730 participants, and analysis was carried out using structural equation modeling (SEM) based on the uses and gratifications (U&G) theory. The results showed that cognitive and affective trust significantly affects students' knowledge sharing behavior on Facebook, which further influences learning performance. This study also showed that social media had become a tool for social interaction and learning, which is crucial to students during the COVID-19 pandemic.

Keywords: trust, knowledge sharing, Facebook, learning performance, uses and gratifications theory, COVID-19 pandemic

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1. Introduction

The COVID-19 pandemic has drastically altered most people's lives around the world. It also had an effect on the learning process, as lockdowns were implemented to prevent the virus' spread. Social media has become one of the best solutions to enhance students' intelligence through online learning (Bayrak, 2022; Wong et al., 2022). Consequently, most countries applied learning from home and online platforms to support students' knowledge sharing activity (Menkhoff et al., 2022). The millennial generation is the largest social media user category and has influenced habits such as educating people to use new platforms instead of conventional educational outlets. Facebook facilitates students' learning by promoting their readiness to communicate with others and exchange pertinent information and expertise (Asterhan & Bouton, 2017; Duffy & Pooley, 2017), particularly during the COVID-19 pandemic (Iglesias-Pradas et al., 2021; Mishra et al., 2020). This application supports communication, collaboration, and online learning processes in a rapid, inexpensive, and user-friendly manner (Junaidi et al., 2020; Wong et al., 2022). Social media is suitable for supplementary teaching methods and modern learning technologies. However, distance learning causes a decline in educational quality and students' learning performance.

Social media has currently earned students' trust from diverse backgrounds, nationalities, and regions. Some attributes that are crucial in supporting knowledge sharing during the COVID-19 pandemic include trustworthiness, credibility, reliability, and truthfulness (Bayrak, 2022; Muliadi et al., 2022). This suggests that credibility is the main basis for the strong relationship between students and the author of online content, media, and even technology. Consequently, the educational process continues beyond the COVID-19 pandemic. False information and users' credibility cause difficulties, discomfort, and failure to manage knowledge sharing among students (Kmieciak, 2021; Rahman et al., 2018; Shateri & Hayar, 2020). This is because trust and the credibility of source information play an important role in evaluating knowledge sharing activity and teamwork during the online learning process (Aref & Tran, 2020; Suti & Sari, 2021).

Knowledge sharing is a mechanism that bridges relationships, enhance students' performance, and helps them to obtain a better learning process. It also refers to community activity involving the sharing of knowledge. In order to promote the online learning process, the quality of relationships and trust among students (Salimi et al., 2022) and non-academic personnel have become of essential importance (Rahman et al., 2018). It indicates that the relationship between predictor and outcome variables can be bridged positively and significantly as a result of knowledge exchange and through rational justification (Fauzi, 2022; Kmieciak, 2021). According to Garg et al. (2021), knowledge sharing plays an important role in improving students' performance in India, and this pattern also emerged in Iraq (Alyouzbaky et al., 2022). It is proven that social media is a feasible online platform that facilitates users' socialization. However, there are only a few previous studies in the context of social media (e.g., Facebook) (Junaidi et al., 2020; Sabatini & Sarracino, 2019). Earlier studies ignored examining the factors influencing the knowledge sharing of Facebook users. Kapoor et al. (2018) and Wong et al. (2022) recommended that future studies should focus on the role of social media, such as Facebook, as a vehicle for information and knowledge sharing and the factors that influence these activities on the learning process. This can provide insights into the educational background and aid in achieving a comprehensive understanding of the interaction between various variables. It may also extend the generalizability of the uses and gratifications (U&G) theory.

This study aims to investigate the effects of cognitive and affective-based trust on knowledge sharing among students, which subsequently influences learning performance during the COVID-19 pandemic. Table 1 shows the study’s conceptual model.

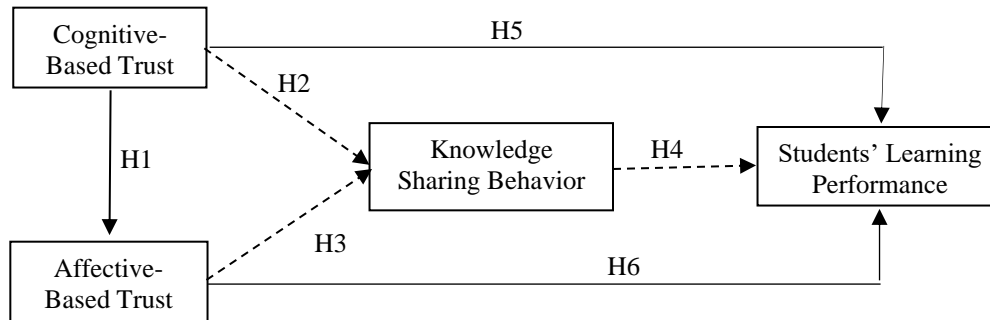


Fig. 1. Proposed Model

This study contributes to understanding the relationship between trust, knowledge sharing behavior, and performance among students on Facebook. Various theoretical, methodological, and useful contributions were made. First, this study ties the U&G theory to cognitive- and affective-based trust, as well as knowledge sharing behavior among students through Facebook. Social-relation gratification has been categorized in U&G studies, particularly within the SNS context and retention (Adeyelure et al., 2019; Ferris & Hollenbaugh, 2018; Junaidi et al., 2020). Trust, as a factor of social-relation gratification (Salimi et al., 2022; Suti & Sari, 2021), has a critical effect on knowledge exchange (Ahmed et al., 2019; Rutten et al., 2016; Suti & Sari, 2021), which potentially influences students’ learning performance.

Second, previous studies on trust overlooked the mediating roles of knowledge sharing behavior on students’ learning performance and social media interaction (Blasco-Arcas et al., 2013; Jain & Gupta, 2019; Sabatini & Sarracino, 2019; Oladele et al., 2022). Facebook is the world’s most popular (social networking site) SNS platform among Instagram, Snapchat, and Twitter (Junaidi et al., 2020; Su & Chan, 2017). It is used as a communication and learning tool for users (Ferris & Hollenbaugh, 2018; Sabatini & Sarracino, 2019) and is widely utilized within virtual communities (VCs). Its popularity is highly valued by users who connect and interact with each other through their common interests, values, and visions. Furthermore, it allows users to connect, familiarize themselves, share mutual information and knowledge, and also helps students build relationships for educational purposes (Eid & Al-Jabri, 2016; Fauzi, 2022).

Finally, this study examines the relationship between the conduct and trust of active students on Facebook. Furthermore, students work together with those who share their aims for a decade to share knowledge and build trust (Kapoor et al., 2018; Nahapiet & Ghoshal, 1998). There are comparatively few theory-driven empirical studies, particularly in education, regarding trust, knowledge sharing behavior, and students’ performance in SNS.

2. Theoretical background and hypotheses

2.1 Uses and gratifications (U&G) theory

The U&G theory examines how students satisfy their psychological and social requirements by extending the communication channels with new technologies by embracing and employing various internet-based media (Junaidi et al., 2020; López et al., 2017). The needs of U&G significantly affect users' habits and intentions to use Facebook (Hossain, 2019). Based on U&G theory, social media meets users' goals, motivations, and needs by pursuing information and sharing their experiences, ideas, opinions, and knowledge with others (Ferris & Hollenbaugh, 2018; Muliadi et al., 2022). Furthermore, three significant dimensions are relevant to enhancing SNS users' performance, namely content, social relation, and self-presentation gratification (Hossain, 2019). Social, hedonic, and cognitive needs are three categories of social media use for U&G theory. The need to seek information, knowledge, and understanding (Ali-Hassan et al., 2015; Vanhala, 2020) is applied in recent studies, specifically among Facebook, building, and sharing of knowledge produced by other users. The social influencing processes of U&G theory can explain why individuals use social media to interact, learn about themselves, have fun, improve their social lives, and connect with others.

The choice, frequency, and intensity of utilizing social media are influenced by knowledge sharing toward engagement. A variety of factors, including age, culture, education, social standing, economy, and politics, influence knowledge sharing among students. This study focused on the three different benefits of using social media, namely trust, knowledge sharing behavior, and learning performance. Trust is the expectation of cooperative, truthful, and consistent behavior based on widely accepted societal norms. Cognitive-based trust relates specifically to students' perceptions of dependability and reliability. Its other components include competence, integrity, and goodwill trust. On the other hand, affective-based trust refers to trustees' emotional components, reciprocity, and social skills regarding interpersonal care and concern. Knowledge-sharing behavior refers to students' capacity to acquire and use new knowledge and skills.

2.2 Trust

Trust plays a crucial part in upholding social order by fostering harmony and simplifying complexities. It also plays an important role in enhancing collaboration, study, and work outcomes. Therefore, students' relationship quality is determined by their willingness to help others. Online trust-based social capital is one of the aspects influencing academic communication and interaction in a discussion. Therefore, students' affective-based trust may be impacted by cognitive trust (Schaubroeck et al., 2011; Wong et al., 2022). There are two well-known types of trust, namely cognitive and affective (Lewis & Weigert, 1985; McAllister, 1995). Cognitive-based trust is related to calculating and reasoning qualities, such as competence, reliability, and accountability (McAllister, 1995; Vanhala, 2020). On the other hand, affective-based trust refers to emotional components, such as caring and concern for the welfare of others (McAllister, 1995; Punyatoya, 2018), which possibly improve the partnership in the community (Ervasti et al., 2019; Sabatini & Sarracino, 2019).

Online contact and communication are associated with students' access to network linkages, which enhances their norms and trust. Strong social networks and social-behavioral norms, which can promote and foster knowledge sharing among students, are represented by high levels of cognitive-based trust. This shows that online engagement may be the basis for successful knowledge sharing. Furthermore, collaboration and discussion refer to strong bonds and trust between students. Several studies argued that cognitive and affective-based trust have a close relationship. The effect of cognition arises

naturally and without any extent, while other studies showed a bidirectional relationship (Wang et al., 2016). However, the first step, which is cognitive-based trust, has a binding effect on affective-based confidence (Punyatoya, 2018; Schaubroeck et al., 2011). The cognitive-based trust's expectations and beliefs dimensions influence the affective response pattern with emotional replies. For teamwork relationships among members, some level of cognition-based trust is required to develop and enhance affect-based trust. Consequently, the following hypothesis was proposed:

H1. Affective-based trust is significantly and favorably impacted by the cognitive-based trust.

Trust is essential in establishing collaboration between parties, specifically when using social media, because of the competence, goodness, integrity, and predictability of users' conformities to interaction standards (Ervasti et al., 2019; Vanhala, 2020). It reflects the interactions between partners and fosters a powerful user collaboration (Ahmed et al., 2019; Garg et al., 2021). It also promotes information and knowledge exchange, makes resources more accessible, and ensures righteousness to increase cooperation among users. Furthermore, the endorsements of trust increase knowledge sharing behavior on SNS when there are shared objectives or other similar qualities. Knowledge sharing is the process of communication between two or more individuals within and across boundaries that deals with acquiring and providing knowledge.

Trust incites social interactions and reduces interpersonal complexity (Lewis & Weigert, 1985). It enhances interpersonal connections and promotes participation in cooperative and exchange activities. Social networks are the vehicle for the flow of knowledge that improves user performance. Users collaborate and successfully build trust when they assist one another in problem-solving based on the trust principle (Shateri & Hayat, 2020; Tsai & Ghoshal, 1998). Facebook users form social bonds through information exchange and interpersonal contacts. Furthermore, students' competency makes knowledge transfer simpler and less expensive. According to Alyouzbaky et al. (2022), a lack of trust makes some students hide their knowledge. The level of trust compels the sender to anticipate that other students would be able to share knowledge regarding feedback and achieve it through different methods such as trust, communication, feedback, interaction, and teamwork among students (Ng, 2022). Trust was also used to understand the exchange of knowledge. According to Kmiecik (2021), knowledge sharing needs collaboration between the sender and receiver to achieve reciprocity or provide problem-solving within the community. Between active Facebook students, cognitive and affective-based trust fosters communication and frequency ties and catalyzes knowledge exchange. The U&G theory shows that cognitive-based and affective-based trust influence information-sharing behavior through relationships and interactions among students as Facebook users. Therefore, it was suggested through the following hypotheses that cognitive- and affective-based trust contribute to knowledge sharing behavior.

H2. Knowledge sharing behavior is significantly and favorably impacted by cognitive-based trust.

H3. Knowledge sharing behavior is significantly and favorably impacted by affective-based trust.

Knowledge sharing in online studies significantly affects students' performance, which has shifted from the traditional approach (Im, 2021; Oladele et al., 2022). Many university students worldwide faced limitations in learning from home during the COVID-19 pandemic, which influenced their performance. However, previous studies found that social media provides a solution, specifically in developing regions (Ahmed et al., 2019; Mishra et al., 2020). Learning performance is students' progress toward achieving educational goals, which is influenced by their knowledge and skills (Eid & Al-Jabri, 2016; Jain & Gupta, 2019). A recent study examined the effectiveness of students' learning process and academic achievement. The results showed that social media, such as Facebook, can help students become more motivated and involved in their studies (Qureshi et al., 2014; Wong et al., 2022). Facebook has eliminated the cost, time, and space of the traditional teaching process by making it cheaper, simpler, and faster. It has a favorable impact on students' learning outcomes since it is a tool for interactions and an exchange of knowledge. However, preliminary studies showed that knowledge sharing behavior is an important key point in increasing learning performance during the pandemic (Alyouzbaky et al., 2022; Fauzi, 2022; Iglesias-Pradas et al., 2021; Rahiem, 2021). It was then proposed that knowledge sharing behavior enhances students' learning performance through the following hypothesis.

H4: Students learning outcomes are significantly and favorably impacted by knowledge sharing behavior.

In order to forecast the causes and effects of the causal process, this study considered the mediating variables. In other words, mediator variables are the mechanism by which a change in one variable causes variation in the other. Therefore, this study examines how knowledge sharing behavior mediates the relationship between cognitive- and affective-based trust and students' learning performance. Notably, in online learning, trust and knowledge sharing play a significant role in enhancing learning output and students' performance from multi-disciplinary skills and knowledge. Some advantages of knowledge sharing include time and cost savings, as well as error reduction (Shateri & Hayat, 2020; Oladele et al., 2022). According to preliminary studies, there is a significant relationship between trust, knowledge sharing, and how well students learn (Eid & Al-Jabri, 2016; Punyatoya, 2018; Schaubroeck et al., 2011). Knowledge sharing also facilitates the transmission of intra to multi-disciplinary knowledge and online learning work with respect to trust, collaboration, and knowledgeable students. Therefore, the role of students' trust is inevitable to facilitate knowledge sharing as it embodies experiences and skills. It plays an essential role as a mediator variable in the social media context. Accordingly, the following hypotheses were proposed:

H5. Cognitive-based trust positively affects students' performance, which is mediated by knowledge sharing behavior.

H6. Affective-based trust positively affects students' performance, which is mediated by knowledge sharing behavior.

3. Methodology

3.1. Questionnaire design, pretest, and pilot study

This study used multi-item measures with good reliability and validity for each construct. A pretest was conducted to revise and validate the wording of measurement items for

Indonesian Facebook using college students. This questionnaire’s measuring items were adjusted to fit the study needs. Furthermore, 10 Facebook users and a qualified English-Indonesian translator examined the measurement items’ phrasing. During the pretest, this study conducted nine independent rounds, consisting of three respondents each, to ensure that the measurement items were suitable for Indonesian college students who use Facebook. The wording was modified during face-to-face talks with prospective respondents to ensure they grasped the Indonesian context. A pilot test of the measurement items and constructs was then conducted to confirm the final wording of the official survey. The respondents answered the questions designed to analyze the variables that influenced their decision to use this banking system. According to the pretesting, several statements should be changed to ensure they are fully understood in the Indonesian context. Subsequently, a pilot test of the measurement items and constructs was conducted to confirm the final wording of the official survey.

According to Hair Jr et al. (2019), the pilot test was used to determine different participant responses, implications, challenges, attentiveness, and kindness in relation to the pretest questions. A minimum of 20 participants was advised for each construct to improve the quality of the instruments and reduce the likelihood of ambiguity and language mistakes in the participants’ responses. Before the formal survey, a pilot test on 120 samples was conducted, and this was deemed sufficient for statistical studies to check the reliability, convergent, and discriminant validity using the specified criteria (Hair Jr et al., 2019).

3.2. Sample and data collection

Indonesia is the third-leading user of Facebook worldwide, with over 123 million users (Statista, 2019). This study used a purposive sample technique to ascertain the connection between trust, knowledge sharing behavior, and students’ performance. The target population comprised Facebook users in forum discussions who are Indonesian college students and have been active for three years (2017-2020). Out of 730 samples, 675 were legitimate, yielding a completion rate of 92.46%. The highest number of respondents completed were female, accounting for 66.7%, mostly under 26 years old at 84.1%, followed by 26-40 years old at 11.9%. Furthermore, 75.7% are bachelor’s degree holders and have been using Facebook for between 6 and 10 years (64.3%). Table 1 shows the respondents’ socio-demographic profile.

Table 1
Respondents’ demographics

Demographics	Frequency	Percentage	Accumulated
Gender			
Male	225	33.3	33.3
Female	450	66.7	100.0
Age			
Under 26 years old	568	84.1	84.1
26~40 years old	80	11.9	96.0
41~55 years old	27	4.0	100.0
Students’ level			
Bachelor	511	75.7	75.7

Master and PhD degree	164	24.3	100.0
Range time use Facebook			
Below 5 years	154	22.8	22.8
6~10 years	434	64.3	87.1
Over 10 years	87	12.9	100.0

3.3. Measures

The Appendix contains a list of measurement-related objects, including students' academic performance, knowledge sharing behavior, as well as affective- and cognitive-based trust. The respondents provided demographic data, including their gender, age, level of education, and amount of Facebook usage. The questionnaire used a seven-point Likert scale with an anchor between 1 and 7 ("strongly disagree"). An assessment tool for affective- and cognitive-based trust was created from Junaidi, Chih, and Ortiz (2020), with six items for each construct. During the COVID-19 pandemic learning process, Facebook surfing and knowledge sharing are referred to as knowledge sharing behavior. The measurement tool of Suti and Sari (2021) for knowledge sharing behavior was modified with five components. The students' learning performance construct was slightly modified from Blasco-Arcas et al. (2013).

3.4. Data analysis

Data were evaluated using two statistical applications, namely SPSS 22 and AMOS 22. The structural equation model (SEM) and hypothesis testing were also carried out. The key benefit of adopting SEM is that it facilitates the assessment of the model separately using factor and regression analysis. It is also employed to estimate all path coefficients. According to Byrne (2016), SEM offers two crucial facets of the process, including (a) it is used to ascertain the underlying causes of the observable variables, and (b) the structural relationships between variables allow for a concise explanation of the theory under consideration.

Frequency distribution was further used to create descriptive statistics. The Pearson correlation coefficient also examined the link between cognitive- and affective-based trust, knowledge sharing predictors, and criterion variables, such as students' learning performance. The conventional method variance (CMV) technique was employed for pre- and post-detection. In addition to the statistical test, Baron and Kenny (1986) developed a different approach to identify the mediation effects. This study used the Hayes (2018) bootstrapping approach to investigate the mediating and indirect impacts of knowledge sharing behavior on cognitive and affective-based trust, as well as students' learning performance.

4. Results

4.1. Pilot study and descriptive statistic

The variables that were initially noticed in the first phase of this study were compared using the means and standard deviations to validate the subjective data (Byrne, 2016; Hair Jr et al., 2019). The values of the mean differences are expressed in terms of standard deviations

in Table 2. The mean difference is equal to the standard deviations when the effect size is bigger than 0.5. This indicates that students generally use social media as a tool to advance their academic careers. In comparison to the mean values, the standard deviations for cognitive- and affective-based trust, knowledge sharing behavior, and students' learning performance are minimal. Therefore, it provides a good fit for the collected data.

4.2. Pearson correlation

Table 2 shows the results of the correlation analysis. The relationship between the variables were examined using Pearson's correlation coefficient (r) analysis. It was for this investigation because it is a parametric statistic and necessitates interval data for all variables (Byrne, 2016). Therefore, bivariate-correlation analyses were performed to provide the Pearson correlation coefficients, which were then used to assess the strength and direction of the association between the variables (Hair Jr et al., 2019). The result showed that students can develop positive relationships in the learning process through cognitive- and affective-based trust, knowledge sharing, and learning performance on Facebook. Furthermore, there are indispensable parts to support the online learning process.

Table 2
Correlation matrix for measurement scales

Constructs	Mean	SD	CBT	ABT	KSB	SLP
CBT	5.246	.839	0.778			
ABT	5.651	.658	0.593**	0.729		
KSB	5.220	.763	0.585**	0.435**	0.786	
SLP	5.941	.763	0.540**	0.542**	0.362**	0.813

Notes: SD: Standard Deviation
 Diagonal elements are the square roots of the AVE for each construct
 Pearson correlations are shown below the diagonal
 CBT: Cognitive-based trust; ABT: Affective-based trust; KSB: Knowledge sharing behavior; SLP: Students' learning performance
 * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

4.3. Common method variance (CMV)

This study used preventative and remedial measures to address the problem of common method variance (CMV), such as requiring respondents to complete the survey anonymously, randomizing the ordering of the measuring questions, and hiding the construct labels to alleviate respondents' worries (Podsakoff et al., 2003). Furthermore, the common latent and Eichhorn's (2014) single-factor test proposed by Harman for post-detection methods (CLF) were used. The purpose of the CLF is post-detection, which addresses the fundamental flaw in Harman's single-factor test for CMV detection (Eichhorn, 2014). Less than 50, or 42.50%, of the first factor's explained variance. Additionally, the CLF factor loading was 0.48, indicating a 35.67% variance in CMV. The results of this investigation indicated no serious issues with CMV.

4.4. Measurement model

This study carried out a measurement model using the AMOS 22 program and maximum likelihood estimation. Some of the statistics displayed in Table 3 are $2/df = 4.997$, goodness-of-fit index (GFI) = 0.875, non-normed fit index (NFI) = 0.888, comparative fit

index (CFI) = 0.909, incremental fit index (IFI) = 0.909, and root mean square error of approximation (RMSEA) = 0.077. They demonstrate that the CFA model reproduces the covariance matrix of the observed variables with an adequate fit (Byrne, 2016; Hair Jr et al., 2019): Other values include $\chi^2/df = 4.997$, goodness-of-fit index (GFI) = 0.875, non-normed fit index (NFI) = 0.888, comparative fit index (CFI) = 0.909, incremental fit index (IFI) = 0.909, and root mean square error of approximation (RMSEA) = 0.077. The average variance extracted (AVE) was above 0.600 for each construct, while the composite reliability (CR) was greater than 0.800. Additionally, the square multiple correlations and factor loading for every item were higher than 0.700. This indicates a strong convergent validity and reliability for all assessment items and constructs. The Cronbach's alpha for all constructs was greater than 0.800, and the correlation coefficients are displayed in Table 3 to show discriminant.

Table 3
Analysis of measurement model

Constructs	MLE estimates factor loading/ measurement error		Squared multiple correlations (SMC)	Composite reliability (CR)	Average of variance extracted (AVE)	Cronbach's α
CBT				0.902	0.606	0.900
CBT1	0.793	0.371	0.629			
CBT2	0.819	0.329	0.671			
CBT3	0.826	0.318	0.682			
CBT4	0.747	0.442	0.558			
CBT5	0.765	0.415	0.585			
CBT6	0.714	0.490	0.510			
ABT				0.872	0.532	0.871
ABT1	0.754	0.431	0.569			
ABT2	0.708	0.499	0.501			
ABT3	0.799	0.362	0.638			
ABT4	0.739	0.454	0.546			
ABT5	0.666	0.556	0.444			
ABT6	0.703	0.506	0.494			
KSB				0.890	0.617	0.886
KSB1	0.718	0.484	0.516			
KSB2	0.813	0.339	0.661			
KSB3	0.782	0.388	0.612			
KSB4	0.804	0.354	0.646			
KSB5	0.808	0.347	0.653			
SLP				0.907	0.662	0.907
SLP1	0.834	0.304	0.696			
SLP2	0.847	0.283	0.717			
SLP3	0.836	0.301	0.699			
SLP4	0.761	0.421	0.579			

SLP5	0.787	0.381	0.619
Fit statistics (N = 675)			

4.5. Structural model

According to Byrne (2016) and Hair et al. (2019), the data fit the suggested model well since $\chi^2 = 1,098.93$, $df = 207$, $\chi^2/df = 5.309$, $GFI = 0.868$, $NFI = 0.880$, $CFI = 0.900$, $IFI = 0.901$, and $RMSEA = 0.080$. This study provided empirical support for the idea that affective-based trust is significantly and favorably impacted by cognitive-based trust ($\gamma_{21} = 0.450$, $p < 0.001$), thereby validating H1. The implication is that skills, knowledge, and capability are important factors in influencing students' interaction, discussion, and new information.

This study provided additional evidence that knowledge sharing behavior is highly influenced by cognitive- and affective-based trust, as indicated by $\beta_{11} = 0.271$, $p < 0.001$, $\beta_{21} = 0.253$, and $p > 0.005$. Consequently, H2 and H3 are supported, indicating that most students' beliefs, capacities, expertise, skills, interaction, and communication positively affect online discussion and knowledge sharing. The study also provides a solution to the limitation of the learning process during the COVID-19 pandemic, as indicated by $\beta_{22} = 0.101$ and $p = 0.001$, thereby validating H4. The hypotheses results are shown in Table 4.

Table 4
Proposed model results

		Paths	Coefficients	Hypotheses	Test results
γ_{21}	CBT →	ABT	0.450***	H1	Supported
β_{11}	CBT →	KSB	0.271***	H2	Supported
β_{21}	ABT →	KSB	0.253**	H3	Supported
β_{22}	KSB →	SLP	0.101***	H4	Supported

Significance threshold: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

4.6. Mediating effect

To examine the mediation effects of students' knowledge sharing activity, this study employed the approach suggested by Hayes (2018) using the PROCESS macro for SPSS to compute the 95% confidence interval (CI) with 5,000 bootstrapped samples. Bootstrapping is a nonparametric statistical method that takes repeated samples from the dataset. According to mediation analysis, the 95% CI of all investigated indirect effects was not zero. Table 5 shows the partial mediator of variables, such as knowledge sharing behavior, between trust and learning performance during the COVID-19 pandemic. Therefore, it was determined that trust significantly influences learning performance directly and indirectly through knowledge sharing behavior. All the previously mentioned conditions were met because H5 and H6 are supported.

Table 5
Mediation effects

IV	M	DV	IV->DV	IV->M	IV+M->DV		Bootstrapping 95% CI	
			(c)	(a)	IV (c')	M(b)	Percentile method	Bias-corrected method
CBT	KSB	SLP	0.180***	0.316***	0.218***	0.120***	[0.173, 0.262]	[0.340, 0.348]
		SE	0.022	0.048	0.022	0.018		
ABT	KSB	SLP	0.484***	0.658***	0.532***	0.072***	[0.421, 0.548]	[0.471, 0.593]
		SE	0.032	0.071	0.031	0.016		

Significance thresholds: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

IV: Independent variable, M: Mediator variable, DV: Dependent variable

5. Discussion

The correlations between trust, knowledge sharing behavior, and academic performance among students toward Facebook were confirmed by this study. Furthermore, Facebook offers students a platform to strengthen their relationships and gain others' confidence while sharing knowledge. This study also validated that cognitive-based trust plays a significant role in affective-based trust. It implies that skills in discussing relevant topics play an important role in fostering strong student interaction. In line with skills, knowledge, and expertise on trends and school courses, provide valuable feedback during online discussions. This positively and significantly affects discussion frequently and promotes students' understanding fairly and consistently. This result is consistent with Punyatoya (2018) and Schaubroeck et al. (2011) that cognitive-based trust positively and significantly influences affective-based trust. Additionally, a trust founded on cognition greatly and advantageous impacts knowledge sharing actions. It implies that students' communication, interaction, and participation in online knowledge sharing activity are influenced by the trust level, including the source and the students' credibility. Therefore, this result is consistent with Ahmed et al. (2019), Fauzi (2022), and Mishra et al. (2020) that trust is likely significant in influencing personal and community members' opinions, as well as has a beneficial effect on knowledge sharing behavior.

Besides affective and cognitive-based trust, knowledge sharing among students plays an important role in enhancing their learning performance during the COVID-19 pandemic. It implies that Facebook provides a valuable tool to support the online learning process by providing other students with comprehensive concepts. This result supports the reports of Blasco-Arcas et al. (2013), Brouwer and Jansen (2019), Eid and Al-Jabri (2016), and Iglesias-Pradas et al. (2021) that knowledge sharing has a favorable and significant impact on students' learning outcomes. A recent study also showed that knowledge sharing helps to mediate the association between students' trustworthiness and academic achievement. Furthermore, some previous studies showed that knowledge sharing plays an important role in enhancing students' learning performance and is supported by their level of trust (Mishra et al., 2020; Salimi et al., 2022; Suti & Sari, 2021; Vanhala, 2020). This study suggested that in order to support learning, university administrators, professors, and students need to develop a platform to enhance and promote efficient interaction, communication, and learning processes. These processes should be consistent with the expectations of the universities' stakeholders and governmental policy. In addition,

knowledge sharing fosters intelligent cooperation between universities, instructors, and students as an instructional tool to ensure that they can improve and use their literacy to develop skills and knowledge on social media.

6. Conclusion

6.1. Summary of the findings

The massive usage of social media among students has influenced their lives and education in normal and critically critical moments, such as the COVID-19 pandemic lockdown. However, the digital development gap has become a distance learning obstacle. Studies in the field of education need to investigate trust more frequently because it offers an important psychological construct. Students must be able to communicate and interact with each other online to achieve their best learning performance, which is a requirement of the process. This study showed that students with a higher level of cognitive- and affective-based trust are more aware of online knowledge sharing, which directly enhances learning performance. It means that social media has become a tool for social interaction and learning. During the COVID-19 pandemic, students applied online learning through social media platforms. In terms of communication, interaction, and knowledge sharing, social media has become an indispensable part of supporting learning activities. Therefore, the main questions to be addressed are the impact of trust on knowledge sharing and students' learning performance through Facebook. The results showed that students need social media such as Facebook as a tool for their online learning process in normal conditions during the COVID-19 pandemic.

6.2. Academic Implications

This study contributed to the body of knowledge on Facebook, U&G theory, social connectivity, and knowledge sharing on social media, particularly among students under ambiguous circumstances (Iglesias-Pradas et al., 2021; Rahiem, 2021; Wang et al., 2016). It verifies the connections between cognitive-based trust, affective-based trust, knowledge sharing behavior, and learning performance based on the U&G theory. The results supported the idea of fostering relationships and collaboration based on a social network connection. Furthermore, this study showed that trust leads students to participate in SNS and influences knowledge sharing behavior. It offers two theoretical advances to the literature on the virtual community. This study also examined the connections between knowledge sharing behavior, affective, and cognitive-based trust. The results confirmed that cognitive and affective-based trust impact behavior, which in turn affects how well students learn on Facebook. According to the U&G theory, the knowledge sharing activity among active students on Facebook partially mediates trust and academic success. The correlations between these variables are rarely examined in studies. Consequently, the results offered a theoretical foundation for further studies.

6.3. Practical implications

University stakeholders should address and identify their users' objective and rational concerns to improve education quality. Additionally, it should concentrate on refining user interactions' information, knowledge, and methods to promote dialogue and value exchanges that result in exceptional and worthwhile experiences. The results of this study

suggested that Facebook users should strategically entice discussions about trust and knowledge sharing behavior. It allows the analysis of specific cases in the education context, such as decreases in learning performance, unsatisfied teachers and students, and unsuccessful programs, through knowledge sharing about experiences, methods of learning, and services. University leaders should be aware of the fundamental components of interaction, such as user control, effective two-way communication, and timely responses to users' questions. In comparison to traditional SNS, Facebook is a platform for socialization and knowledge exchange. SNS can also be treated as a tool that allows users to share their expertise and knowledge. Therefore, social media such as Facebook provides valuable information for the learning process in the future since it is cheaper, easier, and faster when compared with traditional forms. It should also provide hedonistic value to its users and encourage them to help each other.

6.4. Limitations and future study directions

The scope of this study has several restrictions. First, this study carried out a random survey to examine the behavior of active Facebook users of university students. Therefore, future studies must water the dynamic behavior of Facebook users to elaborate on the content and effects of the knowledge sharing activity. Second, it only considered contextual elements, such as affective- and cognitive-based trust, when analyzing knowledge sharing behavior. Future studies must examine internal and external elements from the perspectives of trust and the educational context, including institutionalized concern, economics, and specialized community knowledge, as well as organizational comparability and their relationships with students. Finally, even though the majority of the hypotheses were true, they were constrained and limited to students' awareness, attitudes, and relationships with previous studies. Therefore, future studies should pay close attention to the connection between trust and knowledge sharing behavior. It is also vital to establish whether university stakeholders are aware of the relevance of this relationship to ascertain whether students are at ease and more confident.

Appendix

Cognitive-based trust (Junaidi, Chih & Ortiz, 2020)

1. Students have relevant skills when discussing particular topics.
2. Students have relevant knowledge when discussing particular topics.
3. Students provide professional knowledge when discussing major topics.
4. Students have the expertise to advance community discussions.
5. Students provide feedback after discussions.
6. Students possess the capability to accomplish tasks.

Affective-based trust (Junaidi, Chih, & Ortiz, 2020)

1. Students increase their interaction between other students.
2. Students intentionally discuss about valuable issues.
3. Students promote understanding between colleagues.
4. Students help others within their capabilities.
5. Students treat other users fairly (honestly).
6. Students help others consistency

Knowledge sharing behavior (Suti & Sari, 2021)

1. I frequently participate in knowledge sharing activity in this online learning.

2. I usually spend much time conducting knowledge sharing activity in this online learning.
3. I usually actively share my knowledge with others when participating in this online community.
4. When discussing a complicated issue, I am usually involved in subsequent interactions.
5. I usually involve myself in discussions of various topics rather than specific topic.


Students' Learning Performance (Blasco-Arcas, Buil, Hernández-Ortega, & Sese, 2013)


1. Facebook has improved our comprehension of the concepts studied in class during the COVID-19 pandemic.
2. Facebook has led to a better learning experience in this module during the COVID-19 pandemic.
3. Facebook has allowed me to better understand the concepts in this module during the COVID-19 pandemic.
4. Facebook has an essential tool to promote the learning process during the COVID-19 pandemic.
5. I will share my knowledge in the future on Facebook because it can increase our GPA.


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