Special Section Article

Effect of Communication Strategies for Implementation of IT-based Educational Innovation During COVID-19 Pandemic on Students' Motivation, Attitude, and Intent

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Abstract

The COVID-19 pandemic made the world come to a halt, but the number and pace of innovation responses became faster than ever. However, there is a paucity of studies concentrating on the management/implementation of innovation in educational institutes. Moreover, no in-depth study has been conducted on the effect of communication strategies adopted for educational innovation implementation on the students' motivation, attitude, and intent to use, particularly in India, to the best of the writer's information. Accordingly, the present study aims to address the research gaps by measuring the effect of select communication strategies used for implementing IT-based educational innovations. Grounded on prior research, the study scrutinizes the effect of rational persuasive strategy (utilizing legitimate contentions), assertive strategy (utilizing intimidation), and consulting strategy (engaging in the act of giving expert advice), and inspirational (evoking feelings of appreciation) strategy. To address the hypotheses framed, the

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data for the cross-sectional quantitative study was collected from engineering students using an e-questionnaire from Rajasthan, India. The sample comprised 305 (84.3% male and 15.7% female) students, with a mean age of 18.16 years. The findings of PLS-SEM using SmartPLS 3.2.9 confirmed that all strategies except assertive strategy had a positive and significant effect on motivation, attitude, and intent, thereby confirming the role of communication strategies. The study adds to the extant studies on communication strategies, innovation implementation, and adoption of Information Technology for education. The managerial implications include assisting institutes, faculty, and administration in providing insight into appropriate tactics to encourage the implementation of educational innovations among students. The study will also be useful for the administrators/policymakers, for better comprehension of issues and finding solutions for innovation implementation.

Keywords

Survey of practices, higher education, communication strategies, innovation management/implementation

JEL Classification: I23, I28, I29

Introduction

The pandemic caused by COVID-19 made the world come to a halt. The number and pace of innovation responses have been bewildering (Woolllinscroft, 2020) as indeed, the innovations have emerged at a very fast pace during the pandemic. The innovations in the field of education were a response to the disruptions to educational institutes, the chaos caused by the lockdown imposed on schools and colleges, and so on. Implementation of educational innovation involves preparing the institute and its stakeholders, especially the students, for using and accepting the innovation, and for its sustained use. Innovation management is the procedure of finding suitable and dedicated usage (Klein & Sorra, 1996), which depends on the users' choice to accept and to use it (Baradarani & Kilic, 2018; Dube, 2018), combined with its continuous use (Maroulis & Wilensky, 2015; Somech & Drach-Zahavy, 2013), across different levels (Baek et al., 2018; Tian et al., 2019), until it becomes almost a routine for them (Baradarani & Kilic, 2018; Dube, 2018; Lapiedra et al., 2011).

Innovation has been the focus of research in recent times as an instrument essential for advancement, improvement, and competitiveness (Chen et al., 2013; Choi et al., 2011). It is characterized as novel thoughts, information, or tasks, and refers to the introduction of new things/methods (Brewer & Tierney, 2012). The success, financial or otherwise, of any organization/institute is based on its capacity to create and adopt an innovation (Singh et al., 2020). The realization of innovation management is based on mutual adjustment and cooperation between individual/groups with different or contradictory concerns (Cohen et al., 2004); this requires the resolution of the preliminary tensions between innovation and implementation entities (Chung & Choi, 2018; González-Blanco et al., 2019).

Educational innovation, in the context of the present study, refers to actions intended to accomplish instructive and educational objectives. The choices for innovation in education during the pandemic were vast and wide-ranging from the instructive framework, structure, ideas, strategies, to educational programs. The innovations endeavors may not always yield the positive results envisioned. This may be ascribed to failure in implementation rather than the failure of innovation (Kim & Chung, 2017). Moreover, in the context of educational innovation implementation, research has found varied results regarding its success or failure, for example, classroom response system was regarded as good, meticulously trailed by e-lectures, classroom chat, and then mobile virtual reality (Sprenger & Schwaninger, 2021); other studies have also found inconsistent and contradictory results for the implementation and acceptance of educational innovations from time to time.

Thus, there is a paucity of literature on the implementation of innovation (Kirillova et al., 2020), especially in the context of educational institutes. Although several studies have examined how motivation influences the students' intention, and attitude for the utilization of innovations, no in-depth study has been conducted on the effect of communication strategies used for educational innovation management/implementation, to the best of the writer's information, especially in India. Accordingly, the study aims to address the research gaps by assessing the effectiveness of communication strategies on the students' motivation and their attitude and intent to use because the role played by these strategies is important (Klein et al., 2001). The Technology Acceptance Model (TAM) (Enu-Kwesi & Opoku, 2020; Zaineldeen & Koffi, 2020) and Diffusion of Innovation Theory (DIT) (Dearing & Cox, 2018; Murray, 2020) have established the students' perceptions play an important part in the formation of attitudes and intentions of the students towards any innovation.

Literature Review

Communication strategy refers to the strategy that imbues communication efforts with a plan/agenda (Christensen, 2014). For the management of any educational innovation, the administration utilizes different communication strategies to deal with and convince the students to acknowledge and utilize the innovation. The strategies include communication, influence, cooperation, or pressure (Burke, 2014; Huy et al., 2014). The administration may use diverse communication strategies to influence the students to achieve the desired objective. The communication strategies are of particular concern for the current examination since they positively or negatively affect the users' motivation, attitudes, or even performance (Al-Asfour & Lettau, 2014). Based on prior studies, rational persuasive strategy (utilizing legitimate contentions for influencing students attitude and usage of the innovation), assertive strategy (utilizing intimidation for influencing students attitude and usage of the innovation), and relationship-based strategy (alluding to the individual relations for influencing students attitude and usage of the innovation) (Chong, 2014; Chong et al., 2013, 2015), which play an important part in innovation implementation, were selected. However, the relationship-based

strategy does not apply to the current research because it is not usually implemented in present scenarios (FuPeng et al., 2004).

Assertive Strategies AS

Illustrations of assertive strategies which administration may adopt for innovation implementation include demanding or even threatening users or incessantly scrutinizing them (Chong, 2014), reiterating the demands again and again until it is fulfilled (Fu et al., 2004) or resorting to the use of the educational institute policies, rules, and regulations for ensuring that the students follow them. It is usually observed that when the institute resorts to the use of assertiveness, the students comply, though they may also resort to resistance at times. The following hypotheses are proposed:

H_{1a}: Assertive strategies (AS) positively and significantly affect the students' motivation towards IT-based educational innovation.
H_{1b}: Assertive strategies (AS) positively and significantly affect the students' attitude towards IT-based educational innovation.
H_{1c}: Assertive strategies (AS) positively and significantly affect the students' intent to use IT-based educational innovation.

Consulting Strategies CS

"Consulting" means to engage in the act of giving expert advice to others often about a professional or technical issue, or the business of giving expert advice to others, as such the administration may advise the students about the utility of the IT-based innovation for educational purposes. The consulting strategies may help in solving problems and moving from the current state to the desired state. To scrutinize the effect of consulting strategies on the students, the following hypotheses were formulated:

H_{2a}: Consulting Strategies (CS) positively and significantly affect the students' motivation towards IT-based educational innovation.
H_{2b}: Consulting Strategies (CS) positively and significantly affect the students' attitude towards IT-based educational innovation.
H_{2c}: Consulting Strategies (CS) positively and significantly affect the students' intent to use IT-based educational innovation.

Inspirational Strategies IS

Inspiration, a psychological concept (Thrash & Elliot, 2003) is frequently used interchangeably with several other terms (Oleynick et al., 2014), for example, motivation, encouragement, and so on. Educational administration may utilize inspirational strategies to convince the students why certain practices are better liked, using inspiration to influence the students' behaviors and attitudes. In the innovation implantation phase, the administration/staff/faculty may evoke feelings

of appreciation for new and novel ideas, things that "fire" the soul (Harding, 1948). The tripartite concept (Thrash & Elliot, 2003) stipulates three core features of inspiration, namely, elicitation, transcendence, and approach. The hypotheses formulated are as follows:

H_{3a}: Inspirational Strategies (IS) positively and significantly affect the students' motivation towards IT-based educational innovation.
H_{3b}: Inspirational Strategies (IS) positively and significantly affect the students' attitude towards IT-based educational innovation.
H_{3c}: Inspirational Strategies (IS) positively and significantly affect the students' intent to use IT-based educational innovation.

Rational Persuasion Strategies

The educational institutes may resort to the use of persuasion strategies to convince the students, giving them logical and rational arguments for elucidating the innovation's harmonious aspects with the users' beliefs and values (Chong et al., 2013, 2015). They may discuss how the educational institute could provide training, deliver advantage (Yukl et al., 2005), ask for input/feedback, and involve them in the process of implementation (Chong, 2014), thus making the users commit to the use (Yukl et al., 2005). It is assumed that if the users are aware of the positive aspects of the innovation being implemented and if they are provided with the requisite assistance in its use, they would be more like to accept it (Sharma & Yetton, 2007). It is anticipated that the communication strategy lowers the perceived complexity of the IT-based educational innovation. The hypotheses proposed are as follows:

H_{4a}: Rational Persuasion Strategies (RPS) positively and significantly affect the students' motivation towards IT-based educational innovation.
H_{4b}: Rational Persuasion Strategies (RPS) positively and significantly affect the students' attitude towards IT-based educational innovation.
H_{4c}: Rational Persuasion Strategies (RPS) positively and significantly affect the students' intent to use IT-based educational innovation.

Motivation

Motivation is a psychological feature that clarifies why individuals behave differently (Nahavandi et al., 2015); it is a source of conviction (Gopalan et al., 2020). The students' motivation influences how they respond to any educational innovation implemented by the institutes. In light of self-determination theory (SDT), a student may be argued to possess three fundamental psychological requirements: autonomy, ability, and relatedness (Aryee et al., 2015; Haivas et al., 2013). Motivation is pertinent to the management of innovation as it shows the primacies that the individual seeks (Loscocco, 1989), which may bring about various results for implementing innovation. Thus, the following hypotheses were framed:

H_5: Motivation (M) positively and significantly affects the students' attitude towards IT-based educational innovation.

H_6: Motivation (M) positively and significantly affects the students' intent to use IT-based educational innovation.

Innovation in the Context of the Current Study

Innovation refers to any new products/processes/procedures which are new for the students, irrespective of the fact of how long they have been accessible (Rogers, 2003). The study mainly focuses on ICT-based educational innovations, which have been recently introduced by the Department of Higher Education, Government of Rajasthan, for achieving vision goals of 2022 and are being used extensively during the pandemic, for example, "Massive open online courses (MOOCs), spoken tutorials for FOSS courses, digital classrooms, online test for students to access skill and aptitude on regular basis, … etc." (digitalLearning Network, 2017).

The term "administration" alludes to institute administration/staff/faculty entrusted with the responsibility of implementing the innovation. The students' attitudes and intentions are measured as results of innovation implementation and as dependent variables, and the various communication strategies are used as independent variables. Figure 1 displays the hypothesized model for the present study.

Methodology

The research design utilized for the investigation was cross-sectional, using a quantitative approach to get reactions from the students for measuring and

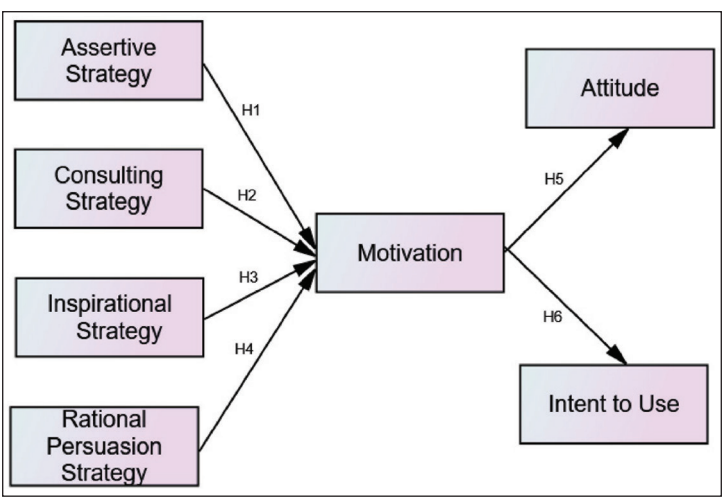

Figure 1. Research Model Showing the Hypothesized Paths

Source: The author.

evaluating the effectiveness of communication strategies for the management/implementation of educational IT Innovations on the students' motivation, attitudes, and intention. The data was collected in January 2021 from students from the State of Rajasthan, India. The State of Rajasthan was chosen as the target area for the survey, as the "Government of Rajasthan introduced innovations into the State's educational landscape" … "realizing the growing importance of higher education for youngsters as one of the important prerequisites for grabbing good jobs and achieve a decent living standard." (digitalLearning Network, 2017). As no detailed study has been done in this context, the present study aimed to bridge the research gap by investigating the role of communication strategies on educational innovation implementation.

The sample was chosen using the random sampling method for the validation of the hypotheses framed. Random sampling gave all the students in the populace equivalent opportunities to partake in the investigation. A total of 305 students were selected from different engineering institutes. As the background of the student, educational level and the stream of education may have an impact on the results of the study, hence, data were collected only from engineering students. It is pertinent to mention that the background of the students is crucial to embracing any kind of tech-based innovation, for example, engineering graduates may easily adapt to technology-based innovations in the classroom, whereas literature or philosophy students, for instance, may not embrace it in the same way. The author took care of this aspect in the research design, by limiting the scope of the study to engineering students only. Moreover, the level of education and age may also have a comparable effect, so data was collected only from first-year students with an average age of 18.16 years standard deviation of 0.94. The sample comprised of 305 students, 257 males (84.3%) and 48 females (15.7%) with a mean age of 18.16 years.

Instrument and Constructs

The information for this examination was collected using an e-questionnaire. All the items were based on measures from extant scholarly work. The constructs for the examination were estimated utilizing different items anchored on the five-point Likert scale—where, 1 is "emphatically disagree" and 5 is "emphatically agree"—for securing the students' perceptions about the select constructs. The constructs for select communication strategies were based on the influence strategy Behavior questionnaire (Chiu, 2017; Yukl et al., 2005; Yukl et al., 2008). Each construct consisted of four items; however, few items were deleted, based on their poor loadings, to ensure the construct's reliability. The construct of motivations was estimated utilizing three items based on extant studies (Loscocco, 1989). The procedure of data management involved the corroboration of the filled e-questionnaires received from the students, information authentication, and inspection for errors, discovering mistakes in the data document, and remedying the current mistakes in the data set (Field, 2005; Hair et al., 2010; Pallant, 2005). The sample size was calculated using the ten times rule as well as the power investigation technique (Hair et al., 2017).

Data Analysis

Scrutinizing common method variance (CMV) is important in cases where dependent and independent factors are based on the responses acquired through a self-administrated questionnaire for the collection of data (Podsakoff et al., 2003). To ensure honest responses were given by the students, anonymity and privacy measures were taken. Second, Harman's single factor test was used to ensure the data was clean and unbiased. Common method bias is caused when one factor embodies a main portion of variances after factor analysis (Podsakoff et al., 2003). The sums of squared loading extracted indicated 38.383% of the variance, which is much below the threshold of 50%, demonstrating method bias is not an issue (Podsakoff et al., 2003). For analyzing the data, structural equation modeling (SEM) was considered since the study utilized a designed questionnaire for gathering data employing latent constructs (Usakli & Kucukergin, 2018). The values for KMO and Bartlett's Test of Sphericity were 0.890 and 3126.822 significant at <0.000.

Hypothesis Testing

Using SmartPLS, SEM was used for testing the Hypotheses framed in the hypothetical model. Comparable to SEM (CB-SEM), the selected application helps validate direct and indirect effects. Moreover, it does not necessitate data normality, which is important for CB-SEM (Hair et al., 2011). It can satisfactorily assess models despite a moderate sample size (Hair et al., 2017). As such, PLS-SEM was used, due to the moderate sample size, and its lack of normal distribution. The study adopted a two-stage approach, the measurement model, and the structural model (Ali et al., 2018).

Results

Measurement Model

The model developed was tested for composite, convergent, and discriminant validities. Reliability was estimated utilizing Cronbach's alpha coefficient. The general guideline is that it ought to have values above 0.70 (Bagozzi & Yi, 1988; Cronbach, 1971; Nunnally, 1978). Composite reliability (CR) is an alternative measure for calculating reliability. For demonstrating suitability in exploratory and advanced research, estimations ranging from 0.60 to 0.90 are considered satisfactory. The average variance extracted (AVE) was utilized to establish validity, which was above 0.5 (Table 1).

For testing of discriminant validity, the Fornell–Larcker criterion was used (Fornell & Larcker, 1981; Henseler et al., 2016); as indicated in Table 2 all values in diagonal shown in bold were found to be higher than the correlations between the other items. The cross-loadings were checked and found satisfactory, as indicated in bold fonts for each construct. The outcomes are shown in Tables 2 and 3.

Heterotrait–Monotrait (HTMT) ratio, an alternative gauge for measuring discriminant validity, is considered as more vigorous in identifying validity issues; HTMT values were below the threshold of 0.90 (Henseler et al., 2015). Table 4 shows the HTMT ratio. Subsequently, the structural model was constructed after convergent reliability and discriminant validity were established.

Table 1. Construct Validity and Reliability

Constructs	Indicators	Loadings	CA	Rho A	CR	(AVE)	Results
Inspirational strategy	IS1	0.692					
	IS2	0.718					
	IS3	0.829					
	IS4	0.749	0.835	0.840	0.836	0.561	Valid
Assertive strategy	AS2	0.887					
	AS3	0.780	0.818	0.828	0.821	0.698	Valid
Consulting strategy	CS2	0.765					
	CS3	0.806					
	CS4	0.791	0.829	0.831	0.830	0.620	Valid
Attitude	AT1	0.832					
	AT2	0.731	0.756	0.765	0.760	0.613	Valid
Motivation	IM1	0.824					
	IM2	0.625					
	IM3	0.792					
	IM4	0.769	0.835	0.849	0.841	0.572	Valid
Intent to use	IU2	0.746					
	IU3	0.815	0.756	0.760	0.757	0.610	Valid
Rational persuasion strategy	RPS1	0.829					
	RPS2	0.957					
	RPS3	0.814					
	RPS4	0.868	0.900	0.928	0.904	0.754	Valid

Source: The author.

Table 2. Fornell and Larker Criteria using SmartPLS

	AS	AT	CS	IS	Intent to Use	M	RPS	Results
Assertive strategy	**0.835**							Valid
Attitude	0.401	**0.783**						Valid
Consulting strategy	0.778	0.392	**0.787**					Valid
Inspirational strategy	0.488	0.531	0.470	**0.749**				Valid
Intent to use	0.328	0.255	0.360	0.316	**0.781**			Valid
Motivation	0.492	0.349	0.533	0.477	0.499	**0.756**		Valid
Rational persuasion strategy	0.496	0.268	0.459	0.438	0.615	0.744	**0.869**	Valid

Source: The author.

Table 3. Cross Loadings

Construct	Indicators	AS	AT	CS	IS	Intent to Use	M	RPS	Results
Inspirational strategy	IS1	0.273	0.296	0.243	**0.692**	0.199	0.330	0.260	
	IS2	0.392	0.403	0.386	**0.718**	0.196	0.342	0.298	
	IS3	0.380	0.381	0.358	**0.829**	0.273	0.395	0.380	
	IS4	0.413	0.509	0.416	**0.749**	0.273	0.357	0.367	Valid
Assertive strategy	AS2	**0.887**	0.317	0.630	0.371	0.254	0.436	0.431	
	AS3	**0.780**	0.356	0.676	0.451	0.298	0.383	0.397	Valid
Consulting strategy	CS2	0.543	0.294	**0.765**	0.412	0.243	0.408	0.316	
	CS3	0.595	0.292	**0.806**	0.282	0.361	0.430	0.416	
	CS4	0.699	0.340	**0.791**	0.419	0.243	0.422	0.349	Valid
Attitude	AT1	0.274	**0.832**	0.275	0.367	0.189	0.290	0.198	
	AT2	0.361	**0.731**	0.346	0.473	0.213	0.255	0.224	Valid
Motivation	IM1	0.381	0.274	0.419	0.386	0.437	**0.824**	0.635	
	IM2	0.336	0.186	0.359	0.345	0.275	**0.625**	0.437	
	IM3	0.397	0.304	0.422	0.358	0.376	**0.792**	0.596	
	IM4	0.373	0.281	0.412	0.355	0.405	**0.769**	0.565	Valid
Intent to use	IU2	0.270	0.234	0.336	0.256	**0.746**	0.372	0.493	
	IU3	0.244	0.167	0.231	0.239	**0.815**	0.406	0.469	Valid
Rational persuasion strategy	RPS1	0.423	0.216	0.337	0.387	0.532	0.616	**0.829**	
	RPS2	0.420	0.296	0.439	0.395	0.593	0.712	**0.957**	
	RPS3	0.473	0.167	0.423	0.365	0.466	0.606	**0.814**	
	RPS4	0.413	0.242	0.392	0.377	0.538	0.646	**0.868**	Valid

Source: The author.

Table 4. HTMT Ratio/Henseler Criterion Using SmartPLS

	AS	AT	CS	IS	Intent to Use	M	RPS	Results
Assertive strategy								
Attitude	0.411							Valid
Consulting strategy	0.785	0.398						Valid
Inspirational strategy	0.494	0.540	0.471					Valid
Intent to use	0.333	0.260	0.363	0.317				Valid
Motivation	0.498	0.350	0.539	0.483	0.499			Valid
Rational persuasion strategy	0.499	0.268	0.457	0.437	0.615	0.745	–	Valid

Source: The author.

Structural Model

SEM model was constructed to find the effect of select communication strategies on the students' motivation, attitude, and intent in a single model. Furthermore, the predictive relevance and impact size are measured after developing the structural model (Hair et al., 2016). A model using PLS-SEM bootstrap was used to validate the effect of the select variables on motivation, attitude, and intent. The structural model was also scrutinized for collinearity issues (Ali et al., 2018), through variance inflation factor (VIF) values which were below the threshold of 5 (Hair et al., 2011). The R^2 and path coefficients (β), and t-statistics, and p-values were observed for assessing the model, using 5,000 resamplings for bootstrapping (Hair et al., 2011) using SmartPLS v 3.2.9. The foremost criteria (Hair et al., 2017) for assessing the structural model are to check path coefficient (β), coefficient of Determination (R^2), and Predictive Relevance (Q^2). R^2 values indicated the influence of exogenous variables on endogenous ones, thereby showing the accuracy of the proposed model. The values under 0.25, 0.50, and 0.75 are regarded as small, medium, and large respectively, for ascertaining the predictive accurateness (Merli et al., 2019). The values for the present model were Attitude 0.122, Intent to Use 0.250, and Motivation 0.611, which were considered as small, medium, and large respectively (Henseler et al., 2009). The f^2 effect size was used for assessing adjustment in R^2 estimation in case a predefined exogenous construct was excluded from the proposed model. These values ranged from small (assertive strategy) to moderate (motivation) to high (RPS) (according to criteria presented by Cohen (1988). The predictive accurateness of the model was evaluated using Stone-Geisser Q^2 (Hair et al., 2017; Stone, 1974) through blindfolding. SRMR is a model fit measure (Hair et al., 2017; Henseler et al., 2014). The SRMR value for the proposed model was 0.048 which is acceptable (Hair et al., 2011).

Hypothesis Testing

The hypotheses formulated were tested using bootstrapping process. First, the direct effect of the four select communication strategies (H_{1a}, H_{2a}, H_{3a}, and H_{4a}), and motivation H_4 and H_5 were tested, next the specific indirect and total effects were evaluated. Figure 2 SEM shows the path coefficients and indicator loadings using SmartPLS.

Direct Effect. The process of bootstrapping yielded the results shown in Table 5. All communication strategies except the assertive strategy had a positive effect on motivation; however, the effect of the inspirational strategy was not statistically significant, although it was positive. Therefore, H_{2a} and H_{4a} were supported, while H_{3a} was partially supported. A glance at the path coefficients shows that the effect of Rational persuasion strategy ⟶ Motivation (0.607) is greater than both Consulting (0.240) and Inspirational strategy (0.124). The results also indicated the effect of motivation on attitude and intent is positive and statistically significant, as such H_5 and H_6 were both accepted.

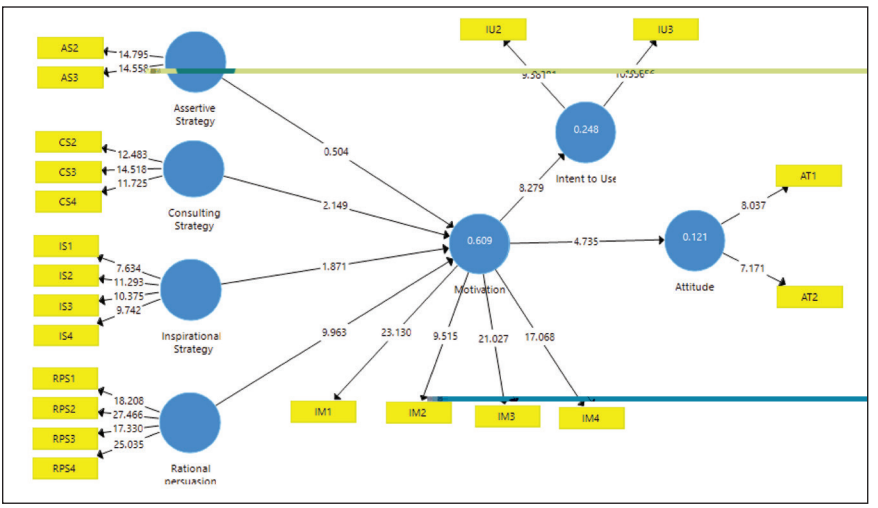

Figure 2. SEM Showing Path Coefficients and Indicator Loadings

Source: The author.

Indirect Effects. Bootstrapping test was conducted using SmartPLS which showed specific indirect effects, as indicated in Table 6. The effects of Consulting strategy ⟶ Motivation ⟶ Intent to use, Rational persuasion strategy ⟶ Motivation ⟶ Attitude, Rational persuasion strategy ⟶ Motivation ⟶ Intent to use were found to be significant, as the confidence interval did not contain zero. The indirect effect of Consulting strategy ⟶ Motivation ⟶ Attitude did not contain zero but the *T*-value was slightly lower than 1.96, which is considered as the threshold. The indirect effects of Assertive_strategy ⟶ Motivation ⟶ Attitude, Assertive_strategy ⟶ Motivation ⟶ Intent to use, and Inspirational_strategy ⟶ Motivation ⟶ Attitude, and Inspirational_strategy ⟶ Motivation ⟶ Intent to use were insignificant. Based on the findings, the hypotheses H_{1b}, and H_{1c} were rejected, while H_{2c}, H_{4b}, and H_{4c} were accepted and H_{2b}, H_{3b}, and H_{3c} were partially accepted as the effect was positive but small.

Discussion

Efficient implementation of educational IT-based innovations requires making circumstances favorable by improving the process of management/implementation (Wilcox & Lawson, 2018) for improved execution, loyalty, and steadfastness (Falter & Hadwich, 2020). As such, the result of the process of implementation depends on the strategies adopted by the institute administration. The process increases the insight and information for the management of the innovation (Dhir et al., 2019), which may make the institutes more successful. As such, the present study confirmed the significant role played by communication strategies in IT-based educational innovation management/implementation. Assertiveness, as the results indicate, did not have any statistically significant effect on the students' motivation, attitude, and intent. It may be assumed that the students desired

Table 5. Direct Effects and Confidence Intervals Using SmartPLS

Hypotheses	β	STD	*T*-values	CILL 2.5%	CIUL 97.5%	Results
H_{1a}: Assertive strategy ⟶ Motivation	–0.059	0.116	0.504	–0.287	0.168	Not valid
H_{2a}: Consulting strategy ⟶ Motivation	0.240	0.112	2.149	0.012	0.455	Valid
H_{3a}: Inspirational strategy ⟶ Motivation	0.124	0.066	1.871	–0.005	0.254	Partially valid
H_{4a}: Rational persuasion strategy ⟶ Motivation	0.607	0.061	9.963	0.480	0.717	Valid
H_{5}: Motivation ⟶ Attitude	0.348	0.074	4.735	0.204	0.490	Valid
H_{6}: Motivation ⟶ Intent to use	0.498	0.060	8.279	0.375	0.610	Valid

Source: The author.

Table 6. Indirect Effects and Confidence Intervals Using SmartPLS

Hypotheses	β	STD	*T*-values	CILL 2.5%	CIUL 97.5%	Results
H_{1b}: Assertive_strategy ⟶ Motivation ⟶ Attitude	–0.020	0.042	0.486	–0.111	0.055	Not valid
H_{1c}: Assertive_strategy ⟶ Motivation ⟶ Intent to use	–0.029	0.058	0.502	–0.147	0.084	Not valid
H_{2b}: Consulting strategy ⟶ Motivation ⟶ Attitude	0.084	0.045	1.862	0.011	0.191	Partially valid
H_{2c}: Consulting strategy ⟶ Motivation ⟶ Intent to use	110.120	0.057	2.087	0.009	0.238	Valid
H_{3b}: Inspirational_strategy ⟶ Motivation ⟶ Attitude	0.043	0.028	1.573	0.001	0.110	Partially valid
H_{3c}: Inspirational_strategy ⟶ Motivation ⟶ Intent to use	0.062	0.035	1.791	0.000	0.136	Partially valid
H_{4b}: Rational persuasion strategy ⟶ Motivation ⟶ Attitude	0.211	0.046	4.552	0.125	0.309	Valid
H_{4c}: Rational persuasion strategy ⟶ Motivation ⟶ Intent to Use	0.302	0.050	5.997	0.205	0.406	Valid

Source: The author.

autonomy (based on SDT) (Gagne & Deci, 2005), and the use of assertive strategies for IT-based innovation management/implementation lowered their sense of autonomy. Assertiveness has a negative relationship with motivation (Pierro et al., 2008), so the students perceived the educational innovation with negativity. The effect of both CS and IS was positive. However, CS affected attitude and intent significantly, but IS did not have a significant effect on attitude and intent. RPS was found to be very effective as the users are provided with enough evidence and support (Chin & Benne, 2009; Sharma & Yetton, 2007) for the use of the innovation, which diminishes the apparent complications associated with the innovation (Chiu & Fogel, 2017). Cognitive evaluation theory proposes an emotional state of competence and self-reliance is significant for impetus/attitude/intent among the students. Moreover, RPS encourages the two emotions of competence and self-reliance, thereby positively influencing motivation (Gagne & Deci, 2005).

The results of the study confirmed all the communication strategies except assertive exerted positive effects on the students' motivation, attitude, and intent to use the IT-based educational innovation. The results also endorsed the assumptions that communication augments students' motivation, attitude, and intent to use. Likewise, the use of appropriate communication strategies can maximize IT-based educational innovation management/implementation success (Chung et al., 2017). Moreover, the communication among the users and the management needs to be reliable (Johnson, 2001), to encourage constructive sentiments and diminish adverse feelings concerning the application of the innovation (Hoffman & Roman, 1984).

Theoretical Implications

The study adds to the extant studies on communication, in a milieu of grounded/organizational communication theory (Atun et al., 2007) for regulating the enactment and accomplishment employing diverse strategies, thus, assisting and facilitating the effective innovation implementation. This investigation contributes to the advancement of literature on innovation management/implementation by inspecting the effect of students' motivation on attitude toward educational innovations and on their perspectives toward utilizing them. Furthermore, this investigation adds to the literature on influence strategy by scrutinizing communication strategies for the management/implementation of IT-based educational innovations at the level of the main stakeholder, the students. The study is timely and pertinent; investigating the influence system at present is the need of the hour as the entire educational system is undergoing drastic changes due to the COVID-19 pandemic. The current study also adds to the literature on education and the adoption of Information Technology for education.

Practical and Managerial Implications

The outcomes of the current study may assist institutes in acquiring insight into appropriate tactics to encourage the implementation of educational innovations among students. The faculty and staff will also benefit from this survey and be able to eliminate any obstacles in implementing them. Moreover, the students will

be aware of factors influencing specifically communication strategies. The investigation may likewise assist the researchers in determining the students' perceptions. The study will also be useful for the administrators/policymakers, who would better comprehend areas for enhancement for acknowledgment issues and will be able to find solutions based on the findings.

Limitations and Scope for Future Studies

There is a paucity of research studies when it comes to investigating the influence of communication strategies on the management and implementation of IT-based innovations in educational contexts. The study filled the research gap by scrutinizing the self-reported responses of the students. However, there is a possibility that the data may be skewed or biased, due to the means of collection and sampling adopted, as the sample was non-experimental, and the data was collected and assessed only one time. Furthermore, the data were obtained from only engineering students from Rajasthan, resulting in a fairly homogeneous populace, as such the findings may not be generalized to all. Additional factors can be used in future studies, as well as more varied samples and more diverse research methodologies employed to improve and augment the illustrative competence of the proposed model.

Conclusion

The study's main aim was to explore the effect of communication strategies on the students' motivation/attitude/intent, in the context of educational innovation implementation, which requires formulating communication strategies. It involves the procedure of utilization of advancement by users (Klein & Sorra, 1996), strengthens a feeling of conviction, reliance, and commitment in both the institute and the innovation for the effective management/implementation. Subsequently, it results in innovation utilization (Maroulis & Wilensky, 2015), adds approval (Lambooij & Koster, 2016), and routinizes use (Lapiedra et al., 2011). Additionally, the study reveals the best-suited strategies for motivating the students to ensure successful use, which is the result of common adjustment between various stakeholders with the same/different/contradictory views (Cohen et al., 2004). Consequently, educational innovation management/implementation can be regarded as the quest for harmony and stability achieved by settling preliminary strain between users and innovation (Chung & Choi, 2018; González-Blanco et al., 2019) for successful implementation of educational innovations.

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