# The Impact of Implementing Technology Brand Reputation and University External Image on The Student Adoption to Change: A Moderated Mediation Approach

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**Abstract:** Objective- The basic aim or objective of this study is to investigate the impact of implementing technology brand reputation and the university's external image on the student's adoption to change. Based on the social identity theory this research recommends that implementing technology with brand reputation and university external image may induce their students to adopt these technologies. It is further argued that the effect of these factors also depend on the student's university identification and their culture. Methodology/ design/approach - This study used the convenience sampling method for collecting the data from the 370 students of the educational sector in Pakistan during the implementation of new online technology systems. The model of this study was tested by using the structure equation modeling technique in Amos. Findings- The analysis of this study suggests that implementing technology brand reputation and the university external image positively increased the student's adoption to change and their relationship is also importance for the better performance of university when student's deification with the university are high and when they are loyal to their institution then they easily adopt the changes whatever technology is being implement in their institution. Value/originality - In this latest ere of research, technology play an important role in educational sector for different activities or most popularly for online classes during an epidemic situation which is need to study the role of brand reputation and university image in the student identification and adoption behavior. The study fills this gap and has two main contributions: one is how reputation of technological brand which is implementing in the university and their external image play a role in student adoption for change perspectives and second is how social identity perspective model leads students to quickly adopt this technological change.

**Keywords:** Implementation Brand Technology Reputation, University External Image Collectivism and Student Adoption to Change.

**Paper Type-** Research Paper

## 1. INTRODUCTION

Today the idea of change and adoption to changes are important and significant agenda for all type of institutions and societies (Canlı et al., 2015). Education is a significant impetus that carries change to our general community (Mei Kin et al., 2018). Educational basics are at the front line of foundations that continually feel the requirement for change (Caena, 2014) as the fortunes of social orders generally rely upon their capacity to lead and adjust to changes that occur at a high speed (Stauffer & Maxwell, 2020). They are moreover expected to make changes that will empower the turn of events and progress of social orders by preparing qualified people in different orders. This may just be conceivable through changes in instructive frameworks (Caena, 2014). Educational change refers to an adjustment in structure, arrangement or on the other hand working of an instructive circumstance or framework with the point of progress. More importantly, the task of leading and executing change effectively requires a multi-dimensional set of competencies (Mei Kin et al., 2018) and adopt these changes easily is not an easy task for students that's why it has been difficult to know the change behavior of students towards new technology and changes (Karp, 2014).

In the previous studies, mainly focus are given to the technology acceptance behavior of individuals with respect to technology acceptance model factors such as perceived ease of use and perceived usefulness (Sunny et al., 2019) and other factors such as performance and effort expectancy, social influence, hedonic motivation, price value, habit (Daly & Hallinan, 1984). In the review study of (Panigrahi et al., 2018), they provides a complete list of antecedents of adoption to change and technology related to personal factors such as perception of interaction, perceived usefulness and perceived ease of use (Ros et al., 2015), attitude, subjective norms, perceived enjoyment and perceived behavior control (Mäntymäki et al., 2014). They also provides the antecedents of adoption to change and

technology related to environmental factor such as relative advantage, computability, complexity, tri-ability and observability (Hoffmann et al., 2007), national culture, social influence and facilitating conditions (Im et al., 2011) but limited studies are present which examined the effect of other institutional factors such as brand reputation of technology implemented in the university and university external image, innovative performance and technological advancement on the student adoption to change (Höflinger et al., 2018). Some studies in the past also not clearly explain the role of student university identification in student adoption to change because according to the previous studies and social identity theory student university identification is also important factor which help the student to adopt the changes (Authors, 2018). Some studies also explain the role of culture (collectivism and individualism) in the technology adoption behavior. (Huang et al., 2019) also explain the role of (Chinese and Spanish) culture in the adoption of technology. However few studies are present in which cultural orientation used as boundary condition (moderator) between institutional pressure and employee adoption of IS system (Arshad et al., 2019). According to the previous studies culture has important impact on the adoption of change in the educational sector that's why our basic question and challenge at that point isn't advancing take-up, however encouraging and implementing new brand technology over an organization that is probably going to affect students' adoption to change and learning in huge manners.

Adopting an ethnographic strategy to the adoption and implementation of a learning and teaching methodology at a solitary UK college, found that implementation or inconsistent usage, prove by missed limits and targets, impacted academic's view of the benefit of having a system by any stretch of the imagination (Höflinger et al., 2018). The new technological program which is implemented in the higher education organization must have a good reputation and innovative performance, which is easily enhancing the students to adopt this change or learning environment. Examining whether innovative performance and reputation connection are authentic and intense, especially while thinking about the advantages of a decent notoriety or reputation (Corkindale & Belder, 2009). Mostly Papers about reputation, consider it as an asset of competitiveness with significances for budgetary outcomes or investor esteem (Roberts & Dowling, 2002). Fewer investigations inquired about how firms gain reputation status and how reputation as a sign adds to protecting a key, serious position (Shamsie, 2003). An institution's image is certainly not a sensible brief idea, but instead a lot of a person's observations or perceptions about institutions. Economic analysts contend that individuals' recognitions are basic to an organization's prosperity (Younger & Fisher, 2020). Institutional image affects a variety of quantities of the college/university, for example, attracting new students, enrolling staff, attracting outsider for funding for research purpose and impacting the student adoption to change related to implemented technologies (Sung & Yang, 2008). It is in each establishment's wellbeing to comprehend its imagery, to take a shot at approaches to improve that imagery. As an institution, a university has a multidimensional image that incorporates academic, social, political, and maybe complex measurements which influence the student to easily adopt changes in the learning environment (Kazoleas et al., 2001). All the more explicitly, the individuals who unequivocally relate to an organization will in general purchase more and to suggest the organization and its administrations or items, which can be converted into more prominent consumer loyalty and dependability or identity. This outcome is upheld by both the Organizational Identification Theory (OIT) and the Social Identity Theory (SIT) (Cheney & Tompkins, 1987). OIT which is the sensation of a person to relate to his association, is connected to principle significant results that contain worker reliability and maintenance (Ashforth et al., 2008). Besides, as indicated by the SIT, the gathering of recognizable identity is consistently incorporated an obsessive section (Homburg, Nicole Koschate, 2005). Distinguishing identity with the organization happens when a customer/students show positive perspectives and feelings toward the organization. Since the greater part of the exploration concentrated essentially on student faithfulness as an immediate result for the customer organization distinguishing identity (Afra Abdeen, 2016) . In the recent studies it is suggested that individual personality varies from person to person and also influence by the culture of the individual or organization. In this investigation, we inspected collectivism as an individual-level identity, deciding how to react or adopt the changing environment. Collectivism is how much people base their characters on group enrollments (Hofstede & Bond, 1984). Collectivists see themselves as interdependent with their gatherings, but individualists receive a progressive free perspective on oneself (Triandis, 2001). For collectivists, interdependent relations are one of the key components through which representatives become attached to their associations (Boyacigiller & Adler, 1991). Given that collectivists place a premium on looking after their connections, we anticipated that collectivists should have more prominence resilience to change previously diminishing their relationship quality

with the inventor. Therefore, we contend that collectivism influence the student adoption to change differently and significantly.

In addressing to the previously mentioned gaps, this paper yields the different contributions/commitments. We add to current literature by investigating the reputation of a technological brand by indicating that implement technology brand reputation is related to the student university identification and student adoption to change and innovative performance of organizations. We find huge help that implement technology brand reputation as estimated by incentive force is identified by the student university identification and university external image. The higher the incentive force, generally utilized to distinguish identity and image of the institution with respect to students (Karp, 2014). Along these contributions, we can show that organization identification can be decidedly connected with the student perception and adoption of change. This understanding is new to the literature and technological brand reputation. For this purpose, data was collected from the students of different educational sector of Pakistan with the sample size of 370. Data was gathered from the respondents through self-administrative questionnaire and by using online survey and analyzed by using the statistical software SPSS 22.

### 1.1. Educational sector in Pakistan

Due to the rapid growth of technology, the use of the internet has become widespread in many individual's daily routines. Most of the educational sector in Pakistan are also moving from traditional learning to e-learning. E-Learning or Electronic learning is the term used to represent all discovering that has an electronic measurement to it. E-Learning interconnects various students, specialists, partners, and expert companions, both in and outside the educational institution. E-Learning is complete e-Learning that empower the e-student to choose a learning strategy (Ferdous, 2007). Pakistan endeavors to receive all new techniques for e-learning in training at all levels like the pattern in different nations. e-Learning is the change of inward and outer data through Information Technology so as to improve learning and learning limit. Developments and information move happens with the marvel of rising innovation and assembly of rising innovation. Here arrangement is required for technique, innovation, cycle, and staff and its total execution, as by this. Students will leave on information network based e-learning (Chen & Hsiang, 2007). With a recently epidemic fear of COVID 19 according to the instruction of higher education commission universities. Colleges and schools or all academic institutes are closed for the period of six months. During this periods higher education commission (HEC) notice that studies of the student's waste and their semester are too late than HEC decided to start online classes for all type of students.

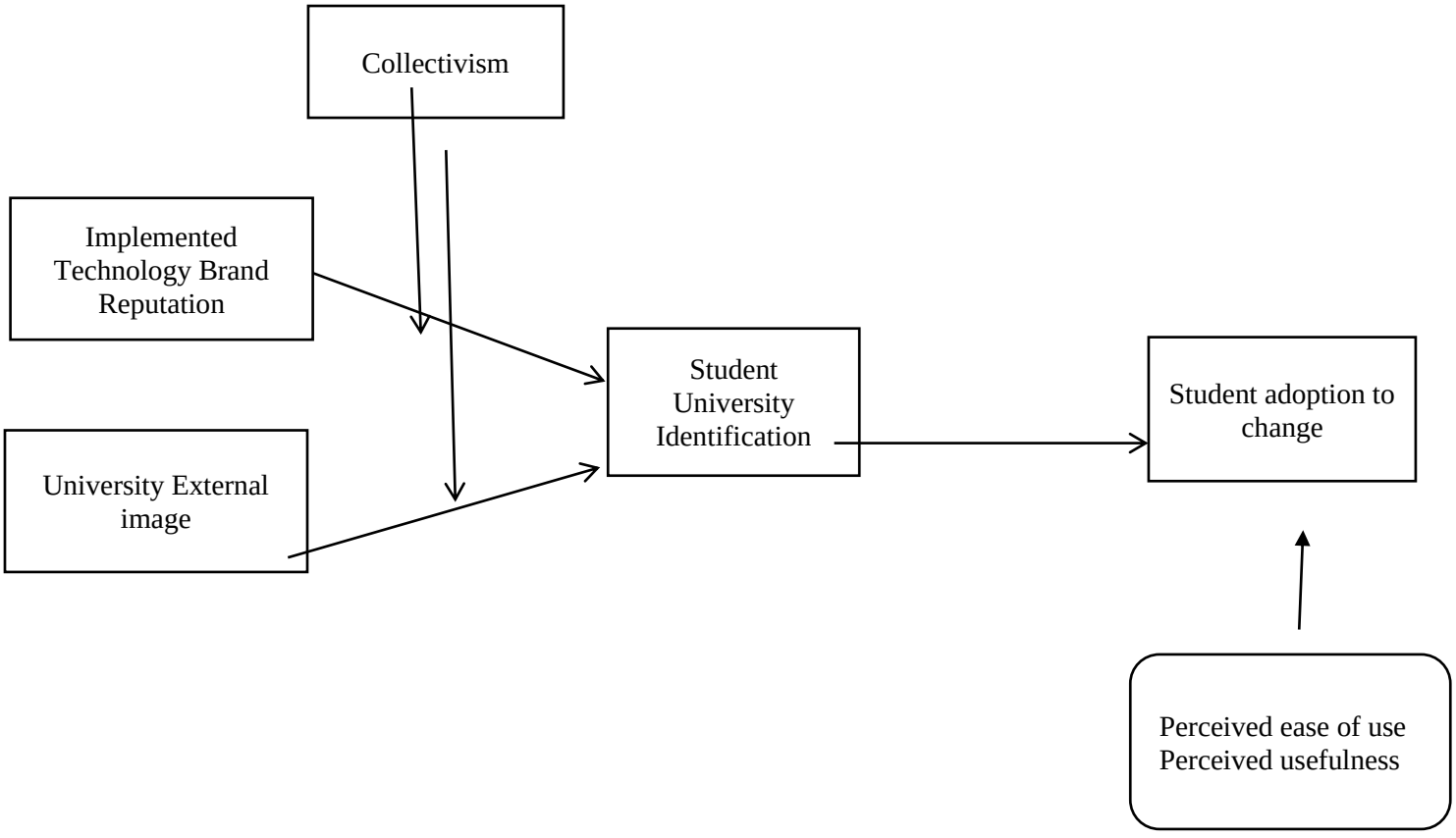
For the online classes universities try to use or implemented latest technologies like zoom, go to meeting and Google meeting etc. due to the rapid use of this technology learners (students) show different type of technology adoption behavior and emotions (in order of preference) as being for entertainment, convenience, medium appeal, passing time, self-expression, self-documentation, social interaction, and information. Besides, (Sheldon & Bryant, 2016) detailed that online students for the most part satisfied their needs of self-advancement, opinion, and documentation as opposed to speaking with others. This study provides the managerial implication to universities to understand the impact of implemented technology brand reputation and university external image on the student adoption to change because this study proposed that technology which is implemented in university for e-learning, university external image and cultural effect also have important role in the student adoption to change.

## 2. THEORETICAL FOUNDATION

In the previous literature, many scholars estimate the adoption behavior of individuals towards new technology and changes by focus on the technology acceptance model such as shao who studied the role of leadership on the individual it used and (Hegner et al., 2019) who also examined the external and internal factors of technology acceptance model and technology acceptance behavior. In the past studies many authors such park who examined the impact of institutional support on the individual technology acceptance behavior as (Compeau & Higgins, 1995) also used social cognitive theory in which they explain the role of self-efficacy on the individual technology acceptance behavior.

According to the past literature mostly focus have been given to the technology acceptance model (perceived ease of use and perceived usefulness) and on social norms. However, there have been less importance given to the educational sectors or contexts where new technologies (changes) are implemented because according to the (DiMaggio & Powell, 1983) an institutional setting is formed by the social guidelines that invigorate the social entertainers to follow the regulating practices and which is implemented in the institution for changes and also influence the social actors. There are an enormous number of implementation instruments, software's and procedures on which to draw what's more, we were quick to build up a usage program or implemented brand technology program that depended on the student adoption to change. In this study, researcher mainly proposed that how this reputed brand technology which is implemented in the institution (university) effect the individual (student adoption to change) and other factors such as university external image influence student to easily adopt these changes.

In this study researcher also used the organization identification theory and social identity theory to measure the mediator role of student university identification between implemented technology brand reputation and student adoption to change. Organizational Identification Theory (Cheney & Tompkins, 1987) and the Social Identity Theory (SIT) which is the sensation of a person to relate to his association, is connected to principle significant results that contain worker reliability and maintenance (Ashforth et al., 2008). Besides, as indicated by the SIT, the gathering of recognizable identity is consistently incorporated an obsessive section (Homburg, Nicole Koschate, 2005). Distinguishing identity with the organization happens when a customer/students show positive perspectives and feelings toward the organization. In addition, in this study researcher also used the organization culture orientation as a boundary condition to know the impact of implemented technology brand reputation/university external image on student adoption to change.




**Theoretical framework**

## 2.1. Hypothesis Development

### 2.1.1. Implemented Technology Brand Reputation and Student Adoption To Change

The implementation of information technology which has strong brand reputation in new institute is a complex process that includes support of numerous parts. As per (Cooper, 1990) 'IT usage is characterized as a hierarchical exertion coordinated toward diffusing proper data innovation inside a user network'. As (Benson & Whitworth, 2007) recommend 'different partners are remembered for these dealings: students; educators; organizers; institutional authority; and the influenced public'. The execution of another component will consistently grasp change and a portion of the parts engaged with the usage can oppose adjusting to changes. (Shirley et al., 1981) show that 'change prompts fear for a few, irritation for other people, shock for still others, and trust in a couple'. Subsequently, the appropriation of another innovation needs to follow a cycle so as to accomplish the objectives of the usage. Likewise, (Hall et al., 1975) recommend that change or advancement appropriation isn't practiced in actuality in light of the fact that a leader has reported it and how other employees adopt this. Rather, the different individuals from a client framework, for example, instructors and educators, exhibit a wide variety in the sort and level of their utilization of an advancement. However, the fear to change as a rule happens toward the start of the cycle, as (Assembly, 1900) specifies, 'under states of vulnerability, learning, uneasiness, troubles, and dread of the obscure are natural for all change measures, particularly at the beginning phases'. As announced by (Yuen et al., 2003) the implementation of information innovation activated dependent on three fundamental targets for data framework use. To start with, 'to improve business effectiveness via computerizing data preparing'. Second, 'to improve the board adequacy by fulfilling data needs'. At long last, 'to improve intensity by influencing the business system'. From that point forward, numerous creators have proposed various methodologies concerning the execution of innovation into instruction. Moreover, (Keller, 2005) suggests that 'with regards to implement technology and its adoption by students examination and association hypothesis, usage is seen as stages inside a cycle depicting new advances as hierarchical developments'.

**Hypothesis H1:** Implement technology Brand Reputation has positive and significant impact on Student Adoption to change.

### 2.1.2. University External Brand Image and Student Adoption to Change

Brand image is the key element in marketing (Alkhawaldeh et al., 2020). It is a set of beliefs and feelings that is prone merely to a cognitive approach. It allows distinguishing between products and services from others (Dejnaka et al., 2016). It has become the main factor for academic organizations and their marketing policies. According to (Azoury et al., 2014a) “universities with a powerful unique image will be better to compete effectively in the near future” (p.6). In the universities’ context, the primary objective of image management was the need to attract students and distinguish themselves from others (Dejnaka et al., 2016). The increasing role of the image has resulted in increased competitiveness between universities. In addition, the significance of the image of academic organizations has a beneficial impact on their location in the rankings (Azoury et al., 2014b). Currently, the image of a college is vital in the eyes of overseas candidates in the competitive educational market (Woodall et al., 2014). Thus, "advertisers in the zone of advanced education administration ought to understand that building up a positive brand picture is a higher priority than making mindfulness" (Graydon et al., 2006). For universities, brand image is critical. (Helgesen & Nesset, 2007) recorded a favorable impact of college image on the likelihood of students attending new classes at the same university and further education. Similarly, (Palacio et al., 2002) reported that students' experience, understanding, and emotions towards the higher education organization shape the general assessment of university image. Brand image is vital for helping private institution of higher education gain entry to the brand consideration set. Creating the brand image of the private university is essential to the long-term survival of the university (Plungpongpan et al., 2016). Although organizational image has been examined frequently in other sectors, it has been seldom studied in the education arena. There is still lack of literature on the subject of university image and its effect on the student adoption to chnage, consequently, future studies are recommended to investigate brand image.

Hypothesis H2: University external image has positive impact on student adoption to change.

### 2.1.3. Student University Identification and student adoption to change

(Balaji et al., 2016) define university identification as the "student's perceived sense of belongingness or oneness with the university following their direct interaction." It occurs when the student realizes that the distinctive characteristics of the university enhance her/his self-identity. Thus, the direct interaction with university members 'i.e., staff, academics, and colleagues' forms the basis upon which identification evolves. In this context,

From a university-based perspective, (T. Kim et al., 2010) argue that the prestige of the academic department which a student enrolls in is positively related to identification with that department. The students identify with an academic department when outsiders widely view it as competent and distinguished. In this context, the department membership satisfies their need for uniqueness and self-enhancement. Furthermore, the authors add that identification with the department leads to the student's identification with the whole university. (Stephenson & Yerger, 2014) emphasize that the perceived distinctiveness and prestige of the university are strong predictors of student identification. They also postulate that participation in university-sponsored activities helps the students to understand the true character of their university. More specifically, the students identify when the continuous participation in such activities leads to a heightened sense of pleasure. However, few studies have attempted to explore identification from a social network perspective. The social network perspective emphasizes that dyadic and group relationships play a vital role in the development of organizational identification. In this context, (Sluss & Ashforth, 2008) propose that the perceived quality of recurring interactions among organizational members leads to relational identification.

Relational identification refers to the degree to which one views her/his relationship with others e.g., co-workers or supervisors' as self-defining. (Sluss & Ashforth, 2008) argue that the strength of the individual's relational identification with a supervisor can get her/him more exposed to the social influence of that supervisor. Therefore, if the supervisor manages to represent or portray the organization in a positive manner, the subordinates may consequently perceive it a great place that is worth belonging to. On the basis of the above arguments, identification is widely perceived as a personal attitude which is influenced by affective and cognitive factors. On the other hand, affective identification reflects the student's feelings of happiness, pride and satisfaction which occur as a result of belonging to a certain university. The above authors conclude that cognitive identification is a precondition for establishing high levels of affective identification. The present study focuses on the quality of interaction between academics and students and university reputation because they are two core elements of a strong university brand. It also reflects the degree to which students perceive the university's prestige, academic standards and employability. Fruitful interaction with the academic and environmental value-creation systems of the university could certainly define the students' perceptions of the university and confirm the credibility of the promised educational experience.

**Hypothesis 3**: Student University identification positively mediates the relationship between Implement Technology Brand Reputation and Student Adoption to change.

**Hypothesis 4**: Student University identification positively mediates the relationship between university external image and Student Adoption to change.

### 2.1.4. Collectivism as a Moderator

Collectivism represents the tendency to emphasize the importance of groups, groups' interests and achievements, emphasizing values of conformity and in group harmony, and fostering an interdependent view of the self, focusing on ones' relatedness with others (Triandis et al., 1986). Within collectivistic cultures, such as China or Turkey, emotions are considered as interactive, rather than personal, experiences. Accordingly, the expression of emotions should therefore be group-desired (Markus et al., 1991). Consequentially, individually felt emotions that run counter to the social context would be restrained, and emotion expressions overall are moderated.

Preference for and responses to emotion regulation strategies may differ across individualistic and collectivistic

cultures. With regard to preference, within individualistic societies, individuals tend to focus more on their own welfare, rather than group welfare, so they are less likely to adopt strategies that hide their inner emotions (Markus et al., 1991; Diener & Suh, 2018), such as surface acting. Instead, these individuals may prefer to reframe the situation to alter its influence on their emotional experience, and thus, expression (Matsumoto et al., 2008). This process aligns with reappraisal, or deep acting. In contrast, in collectivistic cultures, individuals are expected to express their emotions in a manner that will not cause a negative influence on the group, so they are more likely to mask felt emotions that may damage interpersonal harmony (Markus et al., 1991; Triandis, 2001). Consistent with this, individuals from collectivistic cultures more frequently use emotional suppression, a form of surface acting, than their individual counterparts (Matsumoto et al., 2007). Culture also seems to impact how individuals respond to emotion regulation strategies and technology which is implement in university. People from individualistic cultures value the free expression of emotions, prefer deep acting strategies and tend to experience detrimental consequences of suppression, or surface acting (A et al., 2004). However, in collectivistic cultures, concentrating on personal feelings is interpreted as a threat to group cohesion, so individuals may suppress their personal emotions to show desirable emotions about the external image of university and reaction towards the technology which is implement in the university; these individuals may not view suppressing emotions as negative, thus it would not activate a stressor-strain process (Spector & Jex, 1998).

**Hypothesis H5**: Collectivism positively moderates the relationship between Implement Technology Brand Reputation and Student Adoption to change.

**Hypothesis H6**: Collectivism positively moderates the relationship between University External Image and Student Adoption to change.

## 3. RESEARCH METHOD

### 3.1. Sample and Procedure

The population of this study was the students of educational sector, studies in different universities of Pakistan. Due to the large population and lack of access to all members is costly and time consuming, researcher used convenience sampling techniques for collecting the data from students of educational sector (Mirza et al., 2020). For the analysis this study used survey method. Self-administrative questionnaire is used which is obtained from previous studies. Sample size of this study was obtained by the use of item response theory in which questionnaire items are multiplying with the number 10 and 15. After identify the sampling techniques and sample first of all researcher choose those educational sector in which branded technology which have strong reputation was implemented for the online learning or classes. After identifying the educational sector researcher next personally received the permission from the faculty member of that educational sector and mail the questionnaire to that students which e-mails are provided by the faculty members. Researcher also send online survey to the convinced students by using the social media websites (Facebook, WhatsApp and Imo). In this study 500 sample sizes were used out of which only data of 370 respondents are used for data analysis. After collecting the data, the data was analyzing by using the statistical software SPSS 22.

According to the (IRR) Item response theory (Van Hauwaert et al., 2020), 370 sample size selected for this study. Online questionnaires are distributed among the students of different universities of Pakistan. Out of 370 respondents 175(48.5%) was female and 195(51.5%) was male. According to the age 216(63.5%) respondents have age below 25, 65(19.4%) respondents have age between 26-30 years, 36(10.1%) respondents have age between 31-35 and only 4.6% and 2.4% respondents have age greater than 35 years. Most of the respondents linked with their class with Zoom app (86.8%) and Moodle (8.5%) and almost (14%) respondents institute implement goes to meeting technology app for online classes.

### 3.2. Measurements

The data of the study was collected through the self-administrative questionnaire which is adopted from the

previous studies. According to the procedure of (Liang et al., 2007) all questions are administrated with a five point Likert scale ranging from 1 strongly disagree to 5 strongly agree. The language of the questionnaire was English because data was collected from the students of educational sector and their official language is English by which they easily understood the questionnaire. Researcher used convenience sampling techniques for collecting the data from the students of different educational sectors. Due to the COVID 19 all the educational sectors was closed due to this data from the respondents were gathered through online survey. Online survey was mailed to the students which are convinced to researcher.

To measure implement technology brand reputation a four items scale was adopted from the study of …..

To measure the university external image a 6 items scale was adopted from the study of …..

To measure the student university identification a 5 items scale was adopted from the study of….

To measure the student adoption to change a 4 item scales was adopted from the study of ….

To measure the collectivism a 6 item scale was adopted from the study of (Triandis et al., 1988)

### 3.3. Control Variables

In the previous studies perceived ease of use and perceived usefulness have strong and contingent effect on technology acceptance behavior. In this study, therefore researcher thought that it is necessary to treat perceived ease of use and perceived usefulness as control variables for student adoption to change which is implement in university. Perceived ease of use and perceived usefulness items are adopted from the study of Horton et.al.

### 3.4. Data Analysis Technique

After the data collection the data has been analyzed by SPSS. Analysis of the data is done by two steps. In the first step researcher measure the reliability and validity of the scale by using confirmatory factor analysis, common method bias of the data, demographic profile of the respondents, descriptive and correlation between the variables. In the second step researcher test the direct, indirect and moderation effect of the model by using the process macro method of (Hayes & Rockwood, 2020) in SPSS.

### 3.5. Scale Validation

In this study, instrument was adopted from the previous (western) studies that's why researcher first of all check the validity of the instrument. The validity of the scale was check by the confirmatory factor analysis (CFA) by using the SPSS. First of single factor CFA was performed in which all items of the scale are loaded on single ite. According to the table 1 and model 1 ($x^2$ = 2107.68, df= 275, $\frac{x^2}{df}$= 5.66, GFI= .47, CFI= .58, TLI= .51 and RMSEA= .23) data shows that none of the fit indices meeting threshold value and data showed poor model fit. But in the five factor CFA, data shown good model fit and all values of the table meeting threshold value ($x^2$ = 955.7, df= 265, $\frac{x^2}{df}$= 3.79, GFI= .83, CFI= .90, TLI= .82 and RMSEA= .076). As show in the table the chi-square difference $x^2$ shows that Model 2 good fit rather than model 1.

**Table 1:** CFA model fit index

| Model No | Model Description | $x^2$ | Df | $\frac{x^2}{df}$ | GFI | CFI | TLI | RMSEA |
|---|---|---|---|---|---|---|---|---|
| 1 | Single factor CFA | 2107.68 | 275 | 5.66 | 0.47 | 0.58 | 0.51 | 0.23 |
| 2 | Five Factor CFA | 955.779 | 265 | 3.79 | 0.83 | 0.90 | 0.82 | 0.076 |

Overall reliability of the instrument is analyzed by the Cronbach-alpha coefficients. According to the past studies when the value of Cronbach- alpha coefficient (α) is more than 0.6 than it's considered that each construct of the instruments high reliability. In this study the reliability of each construct is between .74 to .89.

According to the table 2 the AVE value of each construct is between 0.65 to 0.75 which is above the recommendation value (0.05) and show the good convergent validity. For the discriminant validity analysis, the square

root of AVE values of each construct was compare with their cross-pending correlation values. According to the table the square root of AVE values of each construct was greater than their cross-pending correlation values thus the scale shows good convergent and discriminant validity and internal consistency.

The descriptive statistics of the study is shown in the below table 2. In this table we mainly focus on the Mean and Standard deviation. Researcher used Skewness and Kurtosis (T.-H. Kim & White, 2003) variable to check the normality of the data. According to the, the value of skewness is limited to the range of +1 and -1 and the value of kurtosis is acceptable at the range of +3 and -3. The skewness value of the data set is between the +1.12 to -0.18 and the value of kurtosis is ranged -.301 to +3.33 which shows that the data is normally distributed. Correlation matrix in that table also analyzes the impact of one variable to another variable and how much they relate with each other. Table also shows the reverse and inverse relation among variables at the two-tailed significance level.

### 3.6. Common Method Variance

In this study researcher used questionnaire of prior study and collect data at the cross sectional design (single time) which leads researcher towards Common Method Bias (CMB). Researcher used Harman's one- factor (principle component analysis), Common latent factor and single factor CFA to analyze the threat of common method bias in the data set. According to the result of Harman's one factor for CMB the value of the single factor extract 36.2% of the variance. In the Principle Component analysis first factor of the data set show less than 50% variation that is 30.5% and the other all factor (combine) of the data set is show greater than 50% variation that is 82.3%. When researcher load all factors on one factor than it shows less than 50% variation which is almost 30.6% that means there is no serious issue or threat related to common method bias in the data set.

### 3.7. Model Testing

Different techniques are used to analyze the data in SPSS. Researcher used linear regression and process method to analyze the data in two step model. In the first model researcher analyze the direct and indirect effect of the implement brand technology brand reputation, student university identification and collectivism on the student adoption to change. In the second model researcher analyze the moderation and mediating moderation impact with the help of Hayes process method. Mostly linear regression is used to analyze the common method bias and multi-collinearity of the data set this direct and indirect effect of variables is also analyzed by the process

**Table 2 Descriptive statistics and correlation metrics**

| Variable | Mean | S.D | AVE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | CR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.Implement technology brand reputation | 4.15 | 0.49 | 0.62 | **0.79** | | | | | | | | | | | | 0.84 |
| 2.University external image | 4.21 | 0.54 | 0.77 | .34** | **0.88** | | | | | | | | | | | 0.83 |
| 3.student university identification | 3.91 | 0.57 | 0.5 | 0.09 | .35** | **0.78** | | | | | | | | | | 0.80 |
| 4.Student adoption to change | 4.02 | 0.50 | 0.52 | .12* | .12* | .59** | **0.72** | | | | | | | | | 0.77 |
| 5.Collectivism | 3.97 | 0.43 | 0.75 | .31** | 0.06 | 0.08 | .62** | **0.87** | | | | | | | | 0.82 |
| 6.perceived usefulness | 3.94 | 0.61 | 0.6 | .31** | -0.01 | .13* | .17** | .32** | **0.77** | | | | | | | 0.83 |
| 7.perceived ease of use | 3.00 | 0.39 | 0.72 | .20** | 0.02 | -.12* | -0.10 | .17** | .55** | **0.85** | | | | | | 0.89 |
| 8.gender | 1.51 | 0.50 | - | -.12* | -0.01 | -0.04 | -0.05 | -0.06 | 0.02 | -0.03 | - | | | | | - |
| 9.maritel_status | 1.52 | 0.50 | - | -.12* | -0.02 | -0.04 | -0.05 | -0.06 | 0.02 | -0.03 | 1.00** | - | | | | - |
| 10.Age | 1.62 | 0.99 | - | .10 | 0.09 | .20** | -.24** | -0.10 | -.11* | -0.08 | .14** | .14** | - | | | - |
| 11.education | 2.28 | 0.65 | - | .05 | 0.05 | -.13* | -.20** | -.14** | -0.10 | 0.01 | 0.1 | 0.1 | .60** | - | | - |
| 12.technology used in institution | 1.18 | 0.51 | - | .01 | -0.06 | -.11* | -0.09 | -0.02 | -0.08 | 0.01 | .21** | .21** | .16** | .14** | - | - |

*Note: N=370, *p<0.05: **p<0.01, Gender 1=female, 2= male, Marital status 1=married, 2= unmarried, Age 1=Below 25, 2=26-30 years, 3=31-35 years,4=36-40 years,5= 40 onward, Education 1=inter, 2=Bachler, 3= master, 4=PhD, 5=another, Technology used in institution 1= Zoom, 2=Moodle, 3=Go to meetings, 4=any other*

method of Hayes. Researcher also analyzes how much shared variance presents across the independent

variables (which make two models for testing) in multi-collinearity by using the linear regression in which the tolerance value is greater than 10% acceptable and the VIF value is less than 4 are acceptable which is shown in table 3. The standardize regression values or direct and indirect effect of the variables at N=340 is shown in the table 3.

According to the table, ITBR has positive and significant impact on SAC with (β=.1433 at ρ-value> .05) it means hypothesis 1 is accepted. In the hypothesis 2 UEI has positive but significant impact on SAC with (β=.1054 at ρ-value> .05) hypothesis 2 is also accepted. The indirect effect between implement brand technology reputation/University external image and student adoption to change via student university identification can also be predict in the hypothesis 3 and hypothesis 4 through indirect effect of these variables. Table 4 show that the indirect effect between implement brand technology reputation and student adoption to change via student university identification is significant with (β=.630 at ρ-value>0.05) which means student university identification show partial mediation (because both direct and indirect effect are significant) between implement technology brand reputation and student adoption to change but implement technology brand reputation has positive and significant impact on student university identification with (β=.123 at ρ-value 0.04). The indirect effect between University external image and student adoption to change via student university identification is also positive and significant with (β=.21 at ρ-value 0.01) which means Student university identification partially mediate (because both direct and indirect effect is significant and positive) the relationship between University external image and student adoption to change. Researcher analyzes the moderation and mediating moderation among the variable with the help of Hayes process method in SPSS. According to the temples of, Model 7 is match with the research model. After run the process method Table 3 show the conditional indirect effect of implement brand technology reputation/University external image and student adoption to change in the presence of Collectivism (moderator).

**Table 3 Direct and indirect effect of independent variables on dependent variables**

| Independent Variables | Dependent Variable | | | |
|---|---|---|---|---|
| | Student university identification | Student adoption to change | | |
| | Direct Effects | Direct Effects | Indirect Effects | Mediation |
| Implement technology brand reputation | .1433** | .1234* | .0630** | Partial |
| University external image | .1054* | .388*** | .2144*** | Partial |
| Student university identification | - | .4716*** | - | |
| Collectivism | .6643*** | - | - | |
| Collectivism × Implement technology brand reputation | .0227*** | | | |
| Collectivism × University external image | .0325*** | | | |
| Perceived ease of use © | - | .116 | - | |
| Perceived usefulness© | - | .35*** | - | |

*Note: N=370, *ρ<0.05: **ρ<0.01, ***ρ<0.001, © = control variables*

*The cell values are the standardized regressions weights*

For testing the hypothesis 5 and 6 process method of used in SPSS which predict that in the hypothesis 5 implement technology brand reputation and university external image either play an important role to increase the student adoption to change in different ways and more specifically whether (Collectivism) experience of students about a specific brand moderate the relationship between implement technology brand reputation and student adoption to change. In the hypothesis 5 and 6 result also predict that the moderation of collectivism also strength the effect of student university identification on implement technology brand reputation and student adoption to change. Data shown that the moderation of Collectivism strengthen the impact of Implement technology brand reputation has (β=.36 at ρ-value .000). Interaction value (ITBR ×Col) is also significant with (β=.02 at ρ-value .003) and Interaction value (UEI ×Col) is also significant with (β=.03 at ρ-value .000) which means moderation is also present between the implement technology brand reputation/university external image and student adoption to change as shown in table 3. Result shown that collectivism strength the effect of implement technology brand reputation (r=.62) on student adoption to change and their low level effect is (.91) and upper level effect is (.37) value is also positive and significant

which is also shown in table 4.

**Table 4 Moderation of collectivism**

| Independent Variable | Moderator | Dependent Variable |
|---|---|---|
| | | Student university identification |
| Implement technology brand reputation | Low collectivism | .91*** |
| | High collectivism | .37*** |
| University external image | Low collectivism | .58*** |
| | High collectivism | .39*** |

*The cell values are unstandardized regression weights *** Significant at 0.001*

## DISCUSSION

The findings of this study proposed that the implementing technology brand reputation and university external image positively increased the student's adoption to change and their relationship are also importance for the better performance of university and when student's deification with university are high and when they are loyal to their institution then they easily adopt the changes whatever technology is being implement in their institution. This study confirms the findings of (Corkindale & Belder, 2009) who purposed that corporate brand reputation may also influence the customer to adopt the new innovation and technology which is provided by the corporate during services. This study also confirms the findings of (Saleem et al., 2017) and (Sugiyono, 2016) which prove that at a broader level reputation (complexity, compatibility, observability and tri-ability) play a significant role in the adoption of technology and changes and according to the findings of university external and internal image, identity and culture play an important role in the adoption of changes implement in the organization but this study is slightly different from the study of. First of all the data of the study of (Sugiyono, 2016) was collected from the case study of CARE International organization in USA whereas the data of this study was collected from the students of educational sector in Pakistan.

The study of (Sugiyono, 2016) was conducted with respect to the change in organization, image and culture whereas this study give influence on the technological changes in the university and how students adopt these changes. (Çetin & Sadik, 2020) study ignored the role of collectivism culture orientation as a moderator and teacher-organization identity as a mediator in the studying the impact of implement technology brand reputation and university external image on student adoption to change . The findings of this also prove that brand reputation of technology which is implement in university has greater impact on the student adoption to change (Yuen et al., 2003). The reason of this impact is that when the new technology is implement in the university which has strong reputation with respect to complexity, compatibility, observability and tri-ability which is in turn effect the student university identification and student easily adopt the new technologies (changes) implement in the university that's why this study reveals that student university identification play a mediating role between implement technology brand reputation and student adoption to change.

This study also has some important contributions. First of all, this study is conducted in the highly collectivist South Asian country (Pakistan) whereas other studies related to technology adoption or adoption to change have been conducted mostly in the western countries. The findings of this study also contribute in the literature by knowing that reputation of technological brand which is implementing in the university and their external image play a significant and important role in student adoption for change perspectives and also that social identity perspective model leads students to quickly adopt this technological change which play a mediator role in this effect. The findings of this study also support the moderating role of collectivism on the relationship between implemented technology brand reputation and student adoption to change. The findings of this study determine that individuals with high collectivism easily adopt the changes (by intra group relationship) implement in the organization because most of the Pakistani individuals are relies on the intra group relationship.

**Managerial Implications**

This investigation has suggestions for supervisors in the Asian setting, where individuals will in general be more collectivist and workers more inspired by group objectives than their own objectives. The education sector in Pakistan is developing and quickly refreshing its innovation and technologies. Along these lines, the executives of the financial segment are profoundly worried about how to successfully actualize improved and implement new technologies which also have strong reputations. The findings of this study revealed that an organization or educational institution which has no corporate brand and looking to bring and implement a new innovation into the organization than the students of that sectors will experience issues related to the adoption of new technology. The findings of this proposes that all other factors which add value to the corporate brand according to the customer expectation, it is the more passionate what's more, perceptual ones, similar to image, credibility and reputation which easily influence the students to easily adopt the innovation (changes) implemented in the university.

If the university implemented a well-known technology brand which has strong reputation may be help the students in adoption for changes but it is not sufficient in the process of gaining influence of students towards university without the university own external image and identification of student with the university. Another finding which was reveled from this study is that university external image and student university identification also play an important role to influence the students to easily adopt the changes which is implemented in the university and also help the students to take decision about adoption. According to the (Fuller et al., 2006) social identity and identification of student with university is an important component for the university to gain the adoption of students.

As per the managerial implication this study also revealed that two type of students are present in the university, one is collectivist and other are individualist. From the cultural point of view, the findings of the current analysis recommend that cultural impact does make a difference inside particular social gatherings, regardless of whether as regularizing convictions or in the panel support. For instance, people higher on collectivist (i.e., Pakistan), gave a higher significance to abstract standards and the senior manager support at the group level to establish the behavior of students through the student university identification. In light of the moderation impact the management can devise techniques to improve the reception conduct with the assistance of partners and neighborhood the executives. This may incorporate, yet isn't restricted to, the arrangement of gathering preparing programs, organized learning openings inside gatherings, the accessibility of assets at a neighborhood authoritative level, and sharing the future responsibility and vision of innovation through nearby administration, partners and companions. The findings of this study shows positively responses of students towards technology products of which is used in their institution than it helps heads and other faculty to use this strategy to increase the student achievement, positive behavior and reputation of the university. When collectivism of students high than it also increased the loyalty and identification of the students with university which is ultimately increased student adoption for change or students easily adopt the changes which is implement in their institution.

**Theoretical Contribution**

In the past literature, adoption of technology and student’s technology acceptance behavior are mainly focus on the technology acceptance model (Arshad et al., 2019) but this study present the new perspective of research by suggesting the social identity theory as an another context to explain the student adoption to change in the educational sector of Pakistan. According to the knowledge of researcher, this is the first study in Pakistan which explain the role of implemented technology brand reputation and university external image in the student adoption of changes. By providing the alternative framework, this study also contributes in the past literature. In addition to this framework past researchers play no more attentions towards other factors which also influence the student’s adoption to change as in the study of. This study addresses this gap and includes the university culture (i.e. collectivism) to explain the impact of implemented technology brand reputation and university external image on the student adoption to change and also explain that how the students of different cultures differently behave towards the new implement technology which is also a unique contribution. In this study researcher also explain the mediator role of student university identification between implemented technology brand reputation and university external image on the student

adoption to change which is also a important theoretical contribution.

### Limitation and Future Research Direction

The findings of this study also have some limitation for further research, as the findings of this study shows positively responses of students towards technology products of which is used in their institution than it helps heads and other faculty to use this strategy to increase the student achievement, positive behavior and reputation of the university. When collectivism of students high than it also increased the loyalty and identification of the students with university which is ultimately increased student adoption for change or students easily adopt the changes which is implement in their institution. Nevertheless, this study limited to the Pakistan country further study can be conducted in other countries for analyzing their responses towards technology implementation their reputation. The data of this study was collected at once (cross-sectional time series) that's why the findings of this study is not generalizable on the other sector rather the educational sector, other countries rather than Pakistan because of the legal, social and cultural difference and this limitation can be used as future direction. As per the limitation this study used the cross sectional series data to examine the causal relationship between variables than in the future researcher could use longitudinal data for effective and generalized causal relationship between the variables. In this study researcher mainly used the quantitative research techniques to collect and analyze the data in the future researcher may use qualitative and mixed method to know the impact of implemented technology brand reputation and university external image on the student adoption to change.

## CONCLUSION

In this latest ere of research, technology play an important role in educational sector for different activities or most popularly for online classes during an epidemic situation which is need to study the role of brand reputation and university image in the student identification and adoption behavior. This study contributes to the literature by addressing two main questions one is how reputation of technological brand which is implementing in the university and their external image play a role in student adoption for change perspectives and second is how social identity perspective model leads students to quickly adopt this technological change. The analysis of this study suggests that the implementing technology brand reputation and university external image positively increased the student's adoption to change and their relationship are also importance for the better performance of university and when student's deification with university are high and when they are loyal to their institution then they easily adopt the changes whatever technology is being implement in their institution. The findings of this study also have some implication and limitation for further research, as the findings of this study shows positively responses of students towards technology products of which is used in their institution than it helps heads and other faculty to use this strategy to increase the student achievement, positive behavior and reputation of the university. When collectivism of students high than it also increased the loyalty and identification of the students with university which is ultimately increased student adoption for change or students easily adopt the changes which is implement in their institution.

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