Exploring the Perceptions and Experiences of Some Freshmen Using Online Registration System in Niger

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Web-based services offer users convenient access to and the ability to manipulate information that is of concern to such services. Not only does online registration address the manageability issue of a growing student population, but it also ensures greater constancy and reusability of information. These advantages in turn lead to better productivity and hence better quality of the overall registration system. Furthermore, online system can be used not only for registration, but also for making payments, accessing school record, and updating information. Using a descriptive sequential qualitative-quantitative method, this paper investigated the perceptions and experiences of some freshmen concerning online registration system as opposed to traditional paper-based central registration system. Data were collected from 28 participants at a medium size public university in Niger via online questionnaires and online group discussions. The study found that participants are in general very receptive to online registration system and that Computer Skills positively correlated with Perceptions. These results have implications for Niger's public institutions of higher education wishing to innovate or revolutionize their registration system to better manage the growing number of incoming freshmen each year.

Keywords:
Online registration, Computer skills, Perception, University, Niger.

1. INTRODUCTION

Many studies have looked at the integration of technology in various educational settings around the planet (Lowenthal & Mulder, 2017; Song et. al, 2004; Kastanakis, 2014), but there is a dearth of research examining the use of web-based online registration system in Niger in particular. The general objective of this study is to fill in that gap by exploring participants' perceptions of the advantages and disadvantages of online registration with the hope to improve both the registration process and students' record keeping. Specifically, the study investigated freshmen's perceptions of the benefits of online registration and whether there is relationship between participants' perceptions and their computer skills scores.

"Perceptions are defined as complex mental processes by which people understand, interpret, evaluate, and form a picture of social phenomena" (Curelaru et al., 2022, p. 2). Furthermore, perceptions are studied by exploring

individual voices that can be expressed, from example, through "narratives, storytelling, behavior, and reaction to individuals or groups" (Munhall, 2008, p. 606). In the context of this study, perceptions are operationalized through views, ways of understanding, and personal perspectives developed within the processes of social interaction and communication about online registration. Since perceptions represent interpretation of reality with truth value for many people, negative perceptions of online registration system could lead to a decrease in academic performance while positive perceptions could have the opposite effect of increasing performance. These perceptions can also influence students' behavior in classrooms, both in relation to learning objectives and with peers and teachers. Attention, motivation, emotions, and satisfaction in response to learning can also be modulated by students' perceptions. Furthermore, by studying perceptions of the online registration system, we can access students' views, evaluations, and interpretations which, when corroborated with those of education professionals, can form the basis for the quality of registration by replacing the fastidious and everlasting paper-based registration with online registration at Université Dan Dicko Dankoulodo

(UDDM) in particular and in Niger public institutions of higher education at large.

1.1. Contextual Background of the Study

The proposed study examines the perceptions and challenges of the implementation of online registration system at Université Dan Dicko Dankoulodo (UDDM), the third largest tertiary institution in Niger after Université Abdou Moumouni and Université André Salifou with the overall objective of improving efficiency in the student registration process. Dan Dicko Dankoulodo University of Maradi (UDDM) is a public scientific, technical and cultural institution endowed with legal personality and financial autonomy. Initially called the University of Maradi (UM), it was created by Ordinance n ° 2010-40 of July 1, 2010 modified by Ordinance 2010-79 of December 9, 2010. It takes the current name by law n ° 2014-49 of October 16, 2014 in tribute to the eminent professor Dan Dicko Dan Koulodo. The UDDM's mission is threefold: (a) initial continuing, and distance training, (b) scientific research, and (c) technological innovation. In addition to the University Institute of Technology, this institution comprises the Faculty of Agronomy and Environmental Sciences, the Faculty of Science and Technology, and the Faculty of Health Sciences. With a total number of 213 workers, all categories combined as of November 2022, the university also comprises 80 faculty members, 133 administrative and technical staff, and more than of 6700 students including 700 freshmen at the time of the study with.

In view of the growing number of incoming freshmen each year, UDDM policy makers felt the need to speed up the process of registration by opting for a web-based pre-registration system. Like all other universities in Niger, UDDM's new students manually filled their course registration forms by collecting them from the Registrar's office in the past. This has wasted much time for students and money as they sometimes travel only to register and some have failed to meet the stipulated deadlines. Since there are many steps that need to be followed in the manual registration process chances are high that mistakes can be made. These mistakes compounded by the monotony involved in the manual registration process has got a huge impact to the university in terms of administration and efficient running of the university, because registration is the crucial starting point of all other processes in an academic year. UDDM's lecturers complain on time lost during the first weeks of a semester because students spend time in long queues trying to register thereby failing to attend lectures since teaching would have commenced yet students will be still registering. This paper examines students and administrators' experience in using an online course registration system at UDDM. In this system, students pre-register to choose their school and major of study online, which are processed automatically to provide a set of reports to the administrative staff at registrar's office, where

the information is used. To achieve the aforementioned objectives, the study sought the answer to the following questions:

RQ 1. What are the surveyed participants' perceptions of online registration system?

RQ 2. Do computer skills affect participants' perceptions of online registration system?

2. LITERATURE REVIEW

Online registration systems are websites that allow users to sign up for memberships, events, and training by completing a form (Wall, 1990). Online registration systems are replacing manual processes, such as registering by telephone, mail, or at events using paper forms. Many universities and educational institutions have a wide range of courses, students, and faculty (Wells, 2001). Registering foe classes online reduces paper work, personnel and costs, and conserves resources.

Today, many institutions of higher education offer an online course registration system where students can search the web for majors, courses, or information about a given program of study. This system plays an important role in attending to students' needs in a country where course registration involves traveling long distances. For example, without this system some students will spend time and money to register. Human interaction is one of the characteristics of the traditional paper-based registration. Studies have revealed that in the old system of face-to-face registration, students have the opportunity of asking questions and making enquiries on the registration system, most of the system operators do not know anything about the university system or process (Stein, 2009). Stein carried out a study on the effect of online registration on the students of Amsterdam University in South Africa. The author used a sample of 200 students who were asked to describe their experiences in the use of online registration and how it affected them. He found that the majority of the students explained that online registration denied them the opportunities of interacting with members of their faculties.

A similar study was conducted by Udofia (2015). Udofia used the Pearson Product Moment Correlation to test the five hypotheses formulated for the research. The author specifically evaluated the effects of online registration on participants' *academic performance*, *student-staff relationship*, *education cost*, *ICT knowledge*, and *conservation of registration time*. He found that there is a significant relationship between online registration and all the five aforementioned dependent constructs. On the basis of these findings, the researcher concluded that online registration has a positive relationship with face-to-face interaction with faculty members. It was further revealed that online registration positively correlates with ICT knowledge acquisition by participants. Similarly, it was found online

registration is significantly related to time reduction for students.

A study conducted by Gunawardena et al. (2008) reported that the online registration system has not only reduced the burden of all parties involved in the course registration process, but also improved the process by reducing errors. Another study conducted by Chaka (2013) in a public university in Zimbabwe. The researcher randomly selected a sample of 50 students from Computer Science department. Based on the results, he deduced that the introduction of online registration system will go a long way in improving efficiency of the university as a whole because a considerable number of respondents supported the idea of doing registration online. The study further revealed that online registration helps the students in reducing the cost on their side and also helps the university authorities in improving their operations in terms of having up to date records where customized reports can be generated.

3. METHODOLOGY

The primary methodology adopted for this exploratory research is sequential qualitative-quantitative in nature. Data were collected from 26 freshmen and two administrators using a modified Technology Adoption Model survey questionnaire and a focus group discussion via WhatsApp for a period of two weeks. The data collection took place between October 25 and November 8, 2022. At that time, the majority of the first year students were not on site yet due to student union's strike. This state of affairs justifies the small sample size as most freshmen live in remote rural areas without a proper Internet connection.

3.1. Sample and Sampling Strategy

A snowball sampling strategy was used to identify the 28 participants. First, an information letter explaining the purpose of the study was sent to an administrative assistant, who also was the focal point for the study. Next, the focal point contacted individuals who in return invited other people to join. Those who had internet connection and accepted the invitation completed the survey and were enrolled in a WhasApp discussion group created in that respect.

3.2. Participants

There were 23 males (82.1%) and 5 females representing 17.9% of the total sample. More than half (53.6%) of them are aged between 21 and 25 years old and 28.6% of them are under 20. There are 26 students and two administrators. The students were drawn from four different schools and the two administrators from the administrative and technical staff. Eleven respondents were from the Faculty of Science and Technology, 7 from the University Institute of Technology, and 5 from the Faculty of Health Sciences and the Faculty of Agronomy and Environmental Sciences respectively. The participant's general profile is given below.

Table 1. **Participant's General Profile by Age, Gender, Status, and School**

Variables	Frequency	Percent
Age Range		
Under 20	8	28.6
21-25	15	53.6
26-30	3	10.7
31-35	2	7.1
Total	28	100.0
Gender		
Male	23	82.1
Female	5	17.9
Total	28	100.0
Status		
Student	26	92.9
Administrator	2	7.1
Total	28	100.0
School		
Faculty of Science and Technology	11	39.3
Faculty of Agronomy and Environmental Sciences	5	17.9
Faculty of Health Sciences	5	17.9
University Institute of Technology	7	25.0
Total	28	100.0

3.3. Data Analysis

The qualitative data were primarily analyzed using content analysis technique and the quantitative data were analyzed using the Statistical Package for the Social Sciences version 22. Prior to analysis, data were screened for missing values or outliers and no concern was recorded. The normality check

was also performed and the data were not normally distributed due to the small sample size. Next, the instrument reliability coefficient was computed and the overall result suggests a strong internal consistency between items with a Cronbach alpha value of .95 as summarized in the table below.

Table 2. Reliability Scale Statistics

Mean	Variance	Std. Deviation	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
105.68	458.745	21.418	.955	.957	29

4. RESULTS AND DISCUSSION

This section presents the major findings of the study by research question for clarity purpose. For each question the method of analysis is described first and the findings are reported next.

4.1. Results for Research Question 1. What are the participants' perceptions of online registration system?

This question was analyzed both quantitatively and qualitatively. The quantitative analysis consisted in computing means and standard deviation scores to measure the participants' perceptions about online registration system while the qualitative analysis a content analysis technique was used. Overall, the selected participants expressed positive to very positive perceptions towards online registration system.

The mean scores on the quantitative items ranged from 2.68/5 to 4.25/5. More specifically, five items received a medium score of 3 or above, seven items received a score of 4 or above, and only two items (Items 11 & 12) were ranked low with respectively a mean of 2.68 and 2.96 out of 5. The table below presents the major findings.

Table 3. Means and Standard Deviation Scores of the Dependent Variable (Perceptions)

Item N°	Sub-scale items	N	M	SD
8	The online registration system can be used in the future.	28	3.61	1.257
9	I have not had any reports of difficulties accessing the system.	28	3.46	1.232
10	Registration in the past had been more difficult and had many challenges.	28	3.21	1.197
11	I think that using the system will eliminate the pressure and clutter of students, which will give more time for learning.	28	2.68	1.249
12	I think it's a good idea to use the system at the institution now.	28	2.96	1.319
13	This system should be implemented in the institution.	28	4.25	1.005
14	The online registration system is cost-effective for the institution to a greater extent.	28	4.25	.887
15	This system is cost-effective for students to a greater extent.	28	3.21	1.166
16	This system is user-friendly and easy to use.	28	3.18	1.090
17	I find online registration useful at my university.	28	4.07	1.184
18	Using the online registration allows me to complete the registration faster.	28	4.21	.833
19	Using online registration increases my understanding of registration.	28	4.07	.940
20	Using online registration increases my chances of registering on time.	28	4.04	.744
21	My interaction with the online registration system is clear and understandable.	28	4.00	.981
22	It is easy for me to become adept at using the online registration system.	28	3.86	.970
	Valid N (listwise)	28		

For the qualitative part, both inductive and deductive analyses were used to explore the views and the perspectives of students about online registration (items 30 to 31). To process this type of data, the researcher opted for a thematic

analysis characterized by alternating the deductive and inductive approaches. Therefore, this work and questions were based on previous experiences and findings in this area. Similarly, to identify and name the codes, themes, and subthemes, findings from previous studies were used. In this sense, the analysis can be regarded as deductive. At the same time, the inductive approach was also used because most of the components of the analysis emerged from the data through a bottom–up approach.

The qualitative results are organized in tables, each table containing all the themes and subthemes resulting from the analysis of data obtained from each single item. Five themes were identified. After reviewing and refining, two themes were retained: (a) Benefits of online registration and (b) Challenges of online registration.

The first theme is mainly associated with the benefits of using web-based registration for its comfort and accessibility (from anywhere and anytime), economy (saving time, money, and resources), and reliability, which would not be possible when doing paper-based registration. This theme refers to positive aspects of online registration perceived by students and is the richest in content. Given that online registration was not an option freely adopted by the students, the elements associated with this theme must be judged in the light of the technological and economic context of this institution. Not surprisingly, it was noted that some students experienced increased levels of stress and anxiety due to the lack of a high speed Internet connection and necessary computer skills needed to accomplish the registration task by themselves. This may be due to the novelty of the situation, lack of preparation, lack of an effective training, and the adoption of new web-based technologies, all of which increased the degree of difficulty in completing academic tasks.

Table 4. Themes and subthemes defining participants' perceptions towards online registration.

Themes and sub-themes
1. Challenging aspects not everyone has the means to do it (Affordance); online registration is a very, very complex task; unstable network, lack of connectivity in remote areas, and affordance
2. Positive aspects an evolution, a positive change, preference online registration system nowadays is much better than at the registrar's office, an advantage for the country, very good initiative, it is simple, fast and reliable, excellent, easy and fast, reduce the clutter at the level of filing files, no need to travel to fill out a file, makes registration easy, fast, on time, it's easy and it saves time, super cool
3. Neutral aspects not bad, alright.

Theme 1: Benefits of Online Registration

The analysis of the benefits of learning from the students' perspective revealed the following main themes: Comfort and accessibility, Economy (time and money), and Innovation (see Table 5). Initially, a larger number of themes was identified. However, these themes were reduced to three. For example, Saving time, Convenience, Saving money and Affordance are all integrated into one theme, Economy (time and money). As a main theme for advantages, Comfort and accessibility includes subthemes related to the possibility of completing the registration from home without having to travel long distances to do the registration. Finally, the theme of Innovation was also listed under the broad theme « Benefits of Online Registration » as summarized in Table 5 below.

Table 5. Themes and subthemes defining the benefits of online registration as perceived by participants.

Themes and sub-themes
1. Comfort and accesibility Faster registration process, clutter reduction, freedom to organise one's personal time, faster and more efficient.
2. Economy (saving time, money, and resources) no need to travel to fill out forms, it's easy and it saves time,
3. Innovation advantageous innovation,

Theme 2 : Challenges of Online Registration

The main themes regarding the challenges of online registration refer to financial and affordability problems, technical problems, and lack of basic computer skills, (see Table 6)

Table 6. Themes and subthemes defining the challenges of online registration as perceived by participants.

Themes and sub-themes
1. lack of basic computer skills low knowledge and skills to use web-based environments and technologies associated with online registration among students,
2. technical problem Unstable internet connection, power cuts, lack of one-on-one training, absence of internet connectivity in remote rural areas, and lack of adequate technology.
3. financial and affordability problems not everyone owns an android phone

4.2. Results for Research Question 2. Do computer skills affect participants' perceptions of online registration system?

The second question was analyzed using one of the inferential statistical methods: a linear regression technique. To justify the choice of this method, correlation and directionality test of the data were performed. Next, the model (fitting the line) was estimated and finally validity and usefulness of the model were evaluated. During the first stages of analysis (correlation check), it was found both variables are very strongly correlated ($r = .896$, with $p < .0001$) as summarized in the table below.

**Table 7. Correlations Scores of the Endogenous and Exogenous Variables**

		Computer Skills	Perceptions
Basic Computer Skills	Pearson Correlation	1	.896**
	Sig. (2-tailed)		.000
	N	28	28
Perceptions	Pearson Correlation	.896**	1
	Sig. (2-tailed)	.000	
	N	28	28

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

The second step of analysis consisted in checking the multivariate normality to make sure there is a good linear relationship between the endogenous or dependent variable (Perceptions Scores) and the exogenous or predictor variable (Computer Skills). An observation of the Q-Q plots for the variables shows that they are not perfect, but are close enough as can be seen in the figures below. Most points are on or close to the straight diagonal line, thus the results confirm that the Computer Skills scores and the Perceptions scores have good linear relationship as shown in Figures 1 and 2 below.
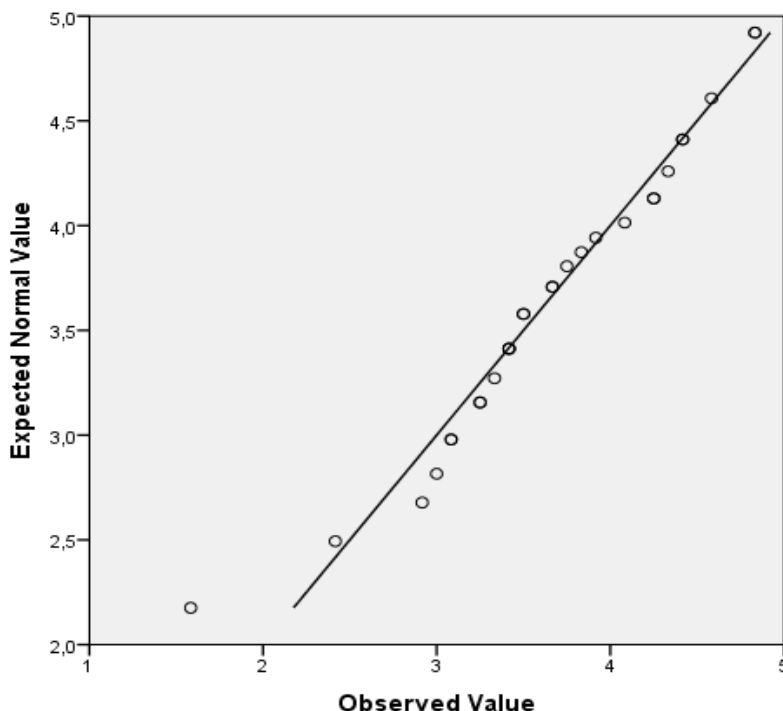

Figure 1. Normal Q-Q Plot of Computer Skills
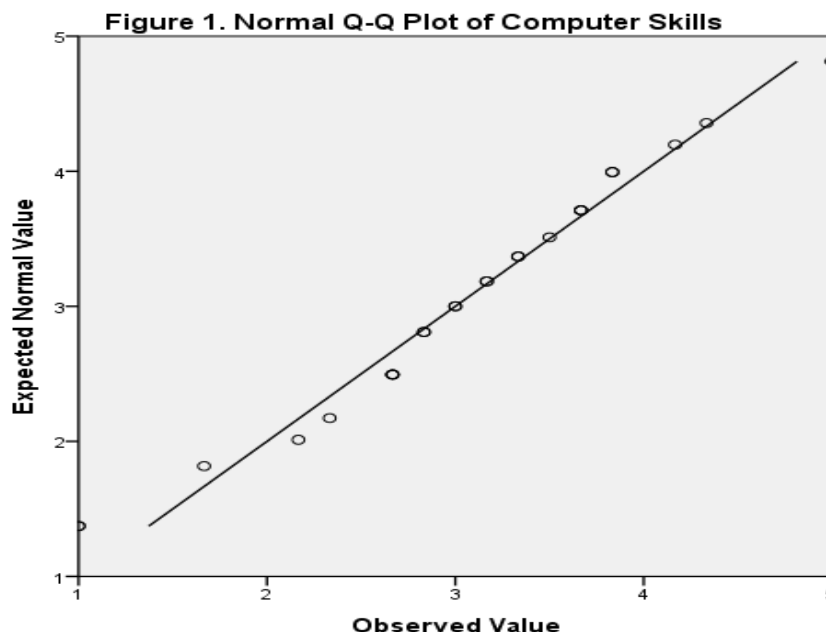
Figure 2. Normal Q-Q Plot of Perceptions

Lastly, a one-sample Kolmogrov-Smirnov test was conducted which has the null hypothesis that the variables approximate normal distribution. The results confirm that both **Computer Skills (CS)** scores and **Perceptions** scores can be assumed to

be mutivariate normal with a *p*-value of respectively .735 and .981. Therefore, the conditions for choosing the linear regression analysis were all met as shown in the table below.

Table 8. One-Sample Kolmogorov-Smirnov Test

		Computer Skills	Perceptions
N		28	28
Normal Parameters[a,b]	Mean	3.18	3.64
	Std. Deviation	1.034	.729
Most Extreme Differences	Absolute	.130	.088
	Positive	.087	.078
	Negative	-.130	-.088
Kolmogorov-Smirnov Z		.686	.467
Asymp. Sig. (2-tailed)		.735	.981

a. Test distribution is Normal.
b. Calculated from data.

Next the table below further shows the model summary and overall fit. It is found that the adjusted R^2 value is .795 and the R^2 is .803. This means that the linear regression explains 80.3% of the variance in the data. The Durbin-

Watson *d* of 1.987 is within the two critical values of $1.5 < d < 2.5$, thus, it can be assumed that there is no first order linear autocorrelation in the data.

Table 9. Model Summary[b]

Model	*R*	*R Square*	*Adjusted R Square*	*Std. Error of the Estimate*	*Durbin-Watson*
1	.896[a]	.803	.795	.330	1.987

a. Predictors: (Constant), Computer Skills
b. Dependent Variable: Perceptions

The next table is the *F*-test. The linear regression's *F*-test has the null hypothesis that there is no linear relationship between the two variables (in other words $R^2 =$ 0). With $F = 105.668$, $df = 27$, and $p < .0001$, the test is highly significant. Thus, it can be assumed that there is a linear relationship between the variables in our model.

Table 10. *ANOVA*[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11.524	1	11.524	105.668	.000[b]
	Residual	2.835	26	.109		
	Total	14.359	27			

a. Dependent Variable: Perceptions

b. Predictors: (Constant), Computer Skills

Note : *df* = degree of freedom ; *F* = Fisher's variance ratio

In summary, this question investigated the relationship between the perception scores and the basic computer skills scores of 28 participants in this study. The correlation analysis found a high positive correlation between the two variables ($r = .896$). Next, a simple linear regression analysis was conducted to substantiate the suspected relationship. The estimated regression model of the BCS Score is 1.630. Next, a Chi square test of independence was conducted to measure whether Computer Skills predicted participants' perceptions towards online registration system. The contingency table shows that more novice than expected expressed negative views (12 vs. 7.3) and more experts than expected hold positive views (11 vs. 6.3) about online registration.

Table 11. Computer Skills * Perceptions Crosstabulation

			Perceptions		Total
			Negative View	Postive view	
Computer Skills	Novice	Count	12	5	17
		Expected Count	7.3	9.7	17.0
	Expert	Count	0	11	11
		Expected Count	4.7	6.3	11.0
Total		Count	12	16	28
		Expected Count	12.0	16.0	28.0

4.3. Discussion

The aim of this study was to provide an exploratory analysis of the transition between paper-based registration and online registration systems as experienced by a sample of Nigerien university students during the academic year 2022-2023. The findings suggested that moving from the traditional paper-based registration to web-based registration was associated with a wide range of perceptions and perspectives, behaviors, and affective experiences. To begin with, it can be argued that students' representation of online registration, as seen from their open-ended responses, was polarized; the semantic field of this representation was organised around two major themes. Some elements have positive connotations and generally refer to comfort, savings (time and money), which is consistent with previous findings (Dung, 2020; Khan et al., 2020; Mukhtar et al., 2020). Others have negative connotations and generally refer to challenges, anxiety, and stress associated with the online registration process.

Further analyses considered the disadvantages or challenges of online registration. Firstly, students mentioned negative aspects such as a lower Internet connection, and lack of financial means to purchase an android phone to connect from home. Other studies reported similar findings (Kock, 2005), for example, the sudden shift (without any previous training) from traditional paper-based registration to online registration. Students were unfamiliar with web-based environments and associated registration platforms, and they were not ready for accomplishing these new demands without being stressed out. These were followed by technical issues (e.g., poor internet connection, power cuts, and poor technical resources) that impacted media naturalness (Kock, 2005).

5. CONCLUSION

This study explored the students' perception about online registration and its possible benefits and challenges in a predominantly low-tech environment. The study found that participants are in general very receptive to online registration system and that Computer Skills positively correlated with Perceptions. The economic benefits of online registration (e.g., saving time and money) mentioned in this study support

previous findings regarding the contribution of online registration system to increasing access to education and narrowing the gap between the rich and the poor. However, in countries with low minimum income and significant regional economic differences, online registration could be negatively impacted by factors such as inadequate space to connect from home, poor internet connection and electronic devices, unsuitable houses for home offices, and poor computer skills. These results have implications for Niger's public institutions of higher education wishing to innovate or revolutionize their registration system to better manage the growing number of incoming freshmen each year.

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