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ORIGINAL RESEARCH ARTICLE

Assessing students' perceptions and preferences for Blackboard at a South African public university

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This study examines students' perceptions and preferences for Blackboard at a South African public university. When the South African government, driven by COVID-19, announced the closure of schools in March 2020 for high school learners, home-schooling became the only option despite challenges such as lack of internet access, family support and computer access. This paper argued that learners were not prepared for home-schooling, which would negatively affect those in rural areas. It would be worse when they enrol for higher education as most universities in SA had adopted online learning. A quantitative research approach was used, and a sample of 370 first-year students was selected. The result showed that most first years found Blackboard easy and very easy to use. Moreover, the results show that despite this, some students preferred face-to-face learning more than Blackboard. This suggests that whilst Blackboard had its appeal, students still found comfort in familiar learning systems, especially considering that they had used such systems for most of their learning lives.

Keywords: Blackboard; university; education; policy

Introduction

Immediately after the newly elected African National Congress (ANC) government took over in 1994, many challenges had to be addressed to drive this need for inclusive development. One was the need to ensure access to primary and higher education. Whilst the government immediately signalled the importance of higher education as a catalyst for inclusive development, there was a general view that there was a need to first focus on basic education, which was broken and dysfunctional after years of apartheid neglect (Pretorius, 2014), especially schools in rural areas. Without addressing such, there was likely to be a generational cohort of learners pursuing higher education without adequate training, which would have significant implications for the country's development. Exemplifying this notion, Guo, Huang & Zhang (2019) comminated that China invested tremendously in basic educational development via infrastructure provision, modern curricula that spoke to the developmental challenges

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of the country and increased financial support for education. Hence, it has been able to spur inclusive development and half the poverty rate by half.

With the above, when the COVID-19 pandemic gained a footprint in South Africa, drastic action was taken by the government. Concerning education, schools were shut down, and online learning was instituted. Clercq (2020) argues that the inequality in South Africa's education sector spans from primary education to higher education. Private schools could implement online learning with their infrastructure and financial muscle, whereas public schools, especially those in rural areas, struggled to implement effective online learning systems (Soudien et al., 2021). With public schools being the majority, this raised concern amongst experts regarding the quality of learners produced by public schools. Whilst the government argued that such steps (lockdown and shutdowns) were in the country's best interest, the implications for the country's quest for inclusive economic development would be called into question, considering the importance of quality education to ensure such development. From March 2020, schools were shut down, and those attending public schools were doing so on a rotational basis (this was when the spread of the pandemic was beginning to subside) (Reddy, 2021). School learners in the years 2020 and 2021 felt the actual brunt of COVID-19, and those who enrolled in higher education institutions in 2021 and 2022, respectively, were confronted with another problem, the use of online learning systems, and to some who were never exposed to such, this became a considerable challenge.

The University under study uses Blackboard Learn as an online learning platform. To access this, a student must have a tablet, smartphone or laptop and a steady internet connection. Nevertheless, considering the above discussion, one would argue that after 2 years of suspension of face-to-face classes in high schools, the rurality of government schools coupled with the lack of telecommunication infrastructure and poverty, there was bound to some difficulty in students (first-year students [FYSs]) navigating the use of Blackboard, and this could impede their educational progress. Therefore, this study seeks to understand how FYSs at a University in South Africa's Gauteng province (who enrolled for their first year in 2022) have navigated using Blackboard as an online learning portal. It seeks to examine the challenges they have encountered, how they have responded to these and whether they feel these challenges have thus far had a negative bearing on their academic development and progress. Some FYSs have been exposed to online learning, whilst some have not. Hence, this will present some form of challenge. Consequently, the need to examine whether such challenges can affect the student's academic progress.

In this regard, the study's research questions were:

- What are students' perceptions of Blackboard's ease of use?
- How do students' preferences for Blackboard use compare with their preferences for conventional learning?

These research questions were explored across students of different age groups, genders and disciplines as well as devices used in accessing Blackboard.

Literature review

The COVID-19 crisis forced education systems worldwide to find alternatives to face-to-face instruction (Tadesse & Muluye, 2020). As a result, teachers and students have used online teaching and learning on an unprecedented scale (Hossain, 2021).

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Globally, including in the developed world, one of the topical issues surrounding education under COVID-19 was the unequal access to online education across races. In the United States, Smith and Reeves (2020) reveal that Black, Hispanic and Asian students are, on average, around 15% points more likely than white students to live in a 'remote-only' school district. Without aggressive policy interventions, this online learning gap could widen educational disparities by race. Collis and Vegas (2020) communicated that 1 in 10 of the poorest children in the US has little or no access to technology for learning. The lack of internet connection and the lack of technological devices (smartphones, laptops or tablets) further exacerbated the dire situation.

The pandemic was far worse for poor countries that did not have the resources to implement online learning rapidly. In Asia, for example, in Indonesia, since March 2020, students, parents and teachers in Indonesia have been grappling with school closures affecting 62.5 million students from pre-primary to higher education (Gupta & Khairina, 2020). The United Nations Children's Fund communicated that school closures in South Asia due to the COVID-19 pandemic have interrupted the learning of 434 million children. In India, 80% of children aged 14–18 reported lower learning levels than when physically at school. Similarly, in Sri Lanka, 69% of parents of primary school children reported that their children were learning 'less' or 'a lot less' (United Nations Children's Fund, 2021). The negative implications of this, coupled with the unequal development of Asia, meant that homeschooling would be challenging. School closures in South Asia have forced millions of children and their teachers to transition to remote learning in a region with low connectivity and device affordability (United Nations Children's Fund, 2021). Despite significant government efforts, low connectivity and access to digital devices have severely hampered efforts to roll out remote learning. In India, 42% of children between 6 and 13 years reported not using remote learning during school closures. In Pakistan, 23% of younger children did not have access to any device that could support remote learning (United Nations Children's Fund, 2021). Poor and disadvantaged households have been the worst hit, with many families struggling to afford a single device.

Material and methods

This study was conducted at a particular university in South Africa based in Gauteng, South Africa. This study adopted a quantitative approach, informing this was the need to ensure that this study would produce valid and reliable data sets that could be generalisable. Quantitative research is most efficient in getting the structural aspects of social life (Bryman, 2003). The selected University had 50,718 students as of 2018, and the School of Public Management, Governance, and Public Policy, which falls under the College of Business and Economics (which has 6 departments), had 731 FYSs in 2022. This study's target population was FYSs registered at the School of Public Management, Governance, and Public Policy, who were first exposed to online learning system called Blackboard. FYSs at the School of Public Management, Governance, and Public Policy at the selected University are split between two campuses. In total, there were 731 FYSs. Similarly, this study randomly drew a specific sample size to represent the population. This was done to avoid unnecessary financial costs and timewasting to meet timeframes.

From the above, the Research Advisors (2006), (see Figure 1) as one of the popular methods for determining sample size, was used to compute the appropriate sample size for the study. The total population of the study area and the highest confidence

Population Size	Confidence 95.00%				Confidence 99.00%			
	Degree of Accuracy/Margin of Error				Degree of Accuracy/Margin of Error			
	0.05	0.035	0.025	0.01	0.05	0.035	0.025	0.01
10	10	10	10	10	10	10	10	10
20	19	20	20	20	19	20	20	20
30	28	29	29	30	29	29	30	30
50	44	47	48	50	47	48	49	50
75	63	69	72	74	67	71	73	75
100	80	89	94	99	87	93	96	99
150	108	126	137	148	122	135	142	149
200	132	160	177	196	154	174	186	198
250	152	190	215	244	182	211	229	246
300	169	217	251	291	207	246	270	295
400	196	265	318	384	250	309	348	391
500	217	306	377	475	285	365	421	485
600	234	340	432	565	315	416	490	579
700	248	370	481	653	341	462	554	672
800	260	396	526	739	363	503	615	763
900	269	419	568	823	382	541	672	854
1,000	278	440	606	906	399	575	727	943
1,200	291	474	674	1067	427	636	827	1119
1,500	306	515	759	1297	460	712	959	1376
2,000	322	563	869	1655	498	808	1141	1785
2,500	333	597	952	1984	524	879	1288	2173
3,500	346	641	1068	2565	558	977	1510	2890
5,000	357	678	1176	3288	586	1066	1734	3842
7,500	365	710	1275	4211	610	1147	1960	5165
10,000	370	727	1332	4899	622	1193	2098	6239
25,000	378	760	1448	6939	646	1285	2399	9972
50,000	381	772	1491	8056	655	1318	2520	12455
75,000	382	776	1506	8514	658	1330	2563	13583
100,000	383	778	1513	8762	659	1336	2585	14227
250,000	384	782	1527	9248	662	1347	2626	15555
500,000	384	783	1532	9423	663	1350	2640	16055
1,000,000	384	783	1534	9512	663	1352	2647	16317
2,500,000	384	784	1536	9567	663	1353	2651	16478
10,000,000	384	784	1536	9594	663	1354	2653	16560
100,000,000	384	784	1537	9603	663	1354	2654	16584
264,000,000	384	784	1537	9603	663	1354	2654	16586

Figure 1. Research advisors sample table.
Source: Research Advisors (2006).

that would result in a minimal margin of error during the collection of data served as the fundamental facts that informed the sample size. Being mindful of this, the study considered 95% as the highest level of confidence. Similarly, this study randomly drew a specific sample size to represent the population.

According to the calculations by the Research Advisors, the total population is 731 (rounded off to the nearest hundred, equalling 700), and the confidence level is 95%. At a 0.035 degree of accuracy, the appropriate sample size is 370. This means that the sample size for the study is 370. The distribution of the respondents is shown in the table illustrating the formula used to determine the required sample size that would be an allowable representation and allow the researcher to generalise about the

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population. This study, therefore, targeted 370 participants (students) from selected university's schools of Public Management, Governance, and Public Policy who are in their first-year and who are based at the Auckland Park Kingsway and Soweto campus. In this study, quantitative data were collected through questionnaires. The questionnaire consisted of two main categories of questions, that is, open-ended and closed-ended questions. The questionnaires were purpose-designed according to structured theoretical knowledge and collected only necessary information.

IBM SPSS was used for descriptive and inferential data analysis. In addition to descriptive tests, other analysis tests used were the Kruskal–Wallis, Spearman correlation and Chi-square. Adams and McGuire (2021) define the Kruskal–Wallis as a non-parametric test used to assess whether there were statistically significant differences between the medians of three or more independent groups. These groups were age, gender and discipline. Spearman correlation (Rho) is a measure of the strength and direction of the linear relationship between two variables. Its scores range from -1 to 1, where 1 indicates a perfect positive linear relationship (Adams & McGuire, 2021). In this study, it measured the relationship between Blackboard rating by ease of use versus student experiences and perceptions. Chi-square tests assess whether there is a significant association between two categorical variables by examining whether the frequencies of observations in one variable are independent of the frequencies in another variable (Adams & McGuire, 2021). In this study, it examined Blackboard preferences by gender.

Before the data collection commenced, the research ethics committee approved the study (Ethical clearance code: 21PMGPP65). This study abided by the ethical requirements of confidentiality, informed consent, protection from harm and voluntary participation (Kumar, 2020).

Results

Sample description

The survey collected data from 223 students across various disciplines at the Public University. Table 2 shows the FYSs' primary demographics.

Out of 223 survey respondents, 59.2% were male, and 40.8% were female. By age, 56.5% were below 19 years, and 43.5% were above 19 but below 20. In terms of race, out of 220 respondents, 90.9% were African, 3.2% Indian/Asian, 2.3% mixed races and another 2.3% White. The remaining 1.4% classified themselves as 'Other' without giving further details. The students' sample was therefore mostly young and African.

Discipline and study areas

Table 3 shows the students' distribution by discipline. The students came from various degree courses who were grouped into the four disciplines.

Table 1. Distribution of the respondents.

Respondent(s)	Number
First year student (SWC)	123
First year students (APK)	608
Total population size	**731**

Source: Researchers compilation.

Table 2. Key demographics.

Variable	Observation	Frequency	Valid percent	Cumulative percent
Gender	Male	132	59.2	59.2
	Female	91	40.8	100
	Total	223	100	
Age	Below 20	126	56.5	56.5
	20–29	97	43.5	100
	Total	223	100	
Race	African	200	90.9	90.9
	Indian/Asian	7	3.2	94.1
	Mixed races	5	2.3	96.4
	White	5	2.3	98.6
	Other	3	1.4	100
	Total	220	100	
Missing	System	3		
Total		223		

Table 3. Discipline and study areas.

Variable	Observation	Frequency	Valid percent	Cumulative percent
Discipline	Public Admin/Mgt	71	31.8	31.8
	Management/Comm	59	26.5	58.3
	Info Sciences	27	12.1	70.4
	Humanities	66	29.6	100
	Total	223	100	

The sample was split across four disciplines. Out of 223, 31.8% were from public administration and management (PADM), 26.5% from management and commerce, including economics (MNGC), 12.1% from information sciences-related disciplines (INFS) and 29.6% from the humanities (HUM).

Blackboard use prevalence and access

One of the survey's most important questions was establishing Blackboard use prevalence amongst the surveyed students. Table 1 shows data on this. Table 4 also shows responses on the types of devices the students used to access Blackboard and the physical locations they mostly accessed this system.

Out of the 217 students who used or had used Blackboard, 71.4% accessed it from a laptop, 47% from a mobile phone, 8.3% from a desktop computer and 4.6% from a tablet. The largest percentage of the students (42.9%) accessed it from home whilst 39.6% from university residents and 24.9% from a private residence.

Blackboard ease of use

The students rated Blackboard's ease of use. Table 5 shows their responses.

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Table 4. Blackboard use prevalence and access.

Question	Response	Frequency	Per cent
Do you use Blackboard online portal?	Yes	217	97.3
	No	6	2.7
How do you access Blackboard?	Laptop	155	71.4
	Mobile phone	102	47.0
	Desktop	18	8.3
	Tablet	10	4.6
Where do you access Blackboard?	Home	93	42.9
	University residence	86	39.6
	Private residence	54	24.9
	Public places	7	3.2

Table 5. Blackboard's ease of use.

Response	Frequency	Valid percent
Very easy	39	17.5
Easy	130	58.3
Neither/not certain	3	1.3
Difficult	42	18.8
Very difficult	9	4
Total	223	100

Close to a majority of the students (58.3%) found it easy to use the system, whilst 17.5% found it very easy to use. In the sample, 18.8% found it difficult, whilst 4% found it very difficult to use.

Blackboard and studying advantages

Table 6 describes the students' responses to the time-management and self-sufficiency advantages. Skewness and Kurtosis statistics applied indicated that the data were not normally distributed.

In total, 80.8% believe that Blackboard allowed them to study at their own pace versus 7.6% who disagreed. Also, 75.3% thought that Blackboard was excellent for time management versus 10% who disagreed with this. Out of the 223, 79.4% agreed that Blackboard enhanced student sufficiency, whilst 8% disagreed. The findings show that the major of the students held positive views that the system enabled them to study at their own pace, manage time better and be self-sufficient in their studying.

Out of 223, 57% preferred face-to-face learning compared to 37.2% who preferred Blackboard. The remaining 5.8% were indifferent to either the use of Blackboard for face-to-face methods in teaching and learning purposes. Table 7 explains preferences between black board and conventional learning.

Further Likert scale questions assessed the students' preferences (Table 8). As shown by the data skewness and kurtosis, the responses were not normally distributed to reliably assess using a mean, and frequencies were therefore applied.

Out of 223 students, 45.7% strongly agree, and 35.9% agree that Blackboard should stay compared to 4% and 4.5% who, respectively, disagree and strongly

Table 6. Blackboard and studying advantages.

Discipline	Blackboard allows me to study at my own pace		Blackboard is excellent for time management		Using Blackboard allows students to be self-sufficient	
	n	%	*n*	%	*n*	%
Strongly disagree	9	4	14	6.3	11	4.9
Disagree	8	3.6	6	2.7	7	3.1
Neither agree/disagree	26	11.7	35	15.7	28	12.6
Agree	86	38.6	89	39.9	92	41.3
Strongly agree	94	42.2	79	35.4	85	38.1
Total	223	100	223	100	223	100
Skewness	-1.4		-1.2		-1.3	
Std. Error of Skewness	0.2		0.2		0.2	
Kurtosis	1.7		1.2		1.6	
Std. Error of Kurtosis	0.3		0.3		0.3	

Table 7. Do you prefer Blackboard or conventional learning?

Responses	*n*	%	Valid %
Face-to-Face learning	127	57.0	57.0
Blackboard	83	37.2	37.2
Either	13	5.8	5.8
Total	223	100.0	100.0

Source: Researchers compilation.

agree. Also, 39.9% agree and 36.8% strongly agree that Blackboard should be used in tandem with conventional learning. In the same group, 45.3% strongly agree that Blackboard should be integrated with conventional learning, whilst 35.4% agreed with the same statement. This was in comparison to 4.9% who disagreed and 3.1% who strongly disagreed. Finally, 34.1% strongly agreed whilst 22% agreed that Blackboard should be used in times of uncertainty in comparison to 20.2% who were neutral to the statement, 16.6% who disagreed with it and 7.2% who strongly disagreed.

The findings show a general interest towards the continued use of Blackboard albeit in tandem or integration with conventional systems.

Of the 220 students who responded to the question – *Do you think high school background affects the use of Blackboard?* 74.1% agreed whilst 14.1% did not. The remaining 11.8% were not sure.

Further to that, 66.5% of the 161 students who had agreed with the question pointed to the lack of exposure to computer facilities/internet in high school as a determinant of how first years interacted with Blackboard. Another factor that determined this was a lack of previous exposure to smart devices. Only 3.1% and 1.9% listed the lack of telecommunication systems in schools and the rurality of communities as determinants. Also, 12.4% stated that all the above factors were determinants of how first years were affected by Blackboard. Table 9 explains the Use of Blackboard in relation to ones high school history.

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Table 8. Continued use of Blackboard.

Discipline		*n*	%	Valid %	Skew.	Kurt.
Blackboard should stay	Strongly disagree	9	4	4	-1.4	1.7
	Disagree	10	4.5	4.5		
	Neither agree/disagree	22	9.9	9.9		
	Agree	80	35.9	35.9		
	Strongly agree	102	45.7	45.7		
	Total	223	100	100		
Blackboard should be used in tandem with conventional learning	Strongly disagree	4	1.8	1.8	-1.0	0.4
	Disagree	19	8.5	8.5		
	Neither agree/disagree	29	13	13		
	Agree	89	39.9	39.9		
	Strongly agree	82	36.8	36.8		
	Total	223	100	100		
Blackboard should be integrated with conventional learning	Strongly disagree	7	3.1	3.1	-1.3	1.4
	Disagree	11	4.9	4.9		
	Neither agree/disagree	25	11.2	11.2		
	Agree	79	35.4	35.4		
	Strongly agree	101	45.3	45.3		
	Total	223	100	100		
Blackboard should be used in times of uncertainty	Strongly disagree	16	7.2	7.2	-0.5	-1.0
	Disagree	37	16.6	16.6		
	Neither agree/disagree	45	20.2	20.2		
	Agree	49	22	22		
	Strongly agree	76	34.1	34.1		
	Total	223	100	100		

Table 9. Use of Blackboard in relation to ones high school history.

Statement	Response	*n*	%	Valid %
Do you think high school background affects the use of Blackboard?	Yes	163	73.1	74.1
	No	31	13.9	14.1
	I'm not sure/I don't know	26	11.7	11.8
	Total	220	98.7	100
	System	3	1.3	
	Total	223	100	
If yes, why is this so?	Lack of exposure to computer facilities/ Internet in high school	107	48.0	66.5
	Lack of exposure to smart devices in high school	24	10.8	14.9
	All of the above	20	9.0	12.4
	Lack of telecommunications at high school	5	2.2	3.1
	The rurality of one's high school	3	1.3	1.9
	Lack of ICT skills amongst high school teachers	2	0.9	1.2
	Total	161	72.2	100
	System	62	27.8	
	Total	223	100	

Source: Researchers compilation.

Reliability test

Table 10 shows the scale reliability (construct validity) test using Cronbach's alpha.

An alpha of 0.76 indicated that the above statements captured more or less the same construct, this being students' perceptions and experiences with Blackboard. Table 12 describes the Chi-square tests.

Perceptions and Experiences with Blackboard at a South African public university

Using Chi-square tests, to test the association between age, gender and discipline on the one hand, and Blackboard use preferences and experiences on the other hand yielded few statistically significant relationships at $p < 0.05$. This is shown in Table 11.

Statistically significant relationships were determined for the following:

1. Gender*Do you prefer Blackboard or conventional learning?
2. Discipline*Do you think high school background affects the use of Blackboard?
3. Discipline*Blackboard should stay

Table 10. Cronbach's alpha test.

Discipline	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Cronbach's alpha if item deleted
Blackboard allows me to study at my own pace	23.9	17.2	0.6	0.7
Blackboard is excellent for time management	24.1	17.6	0.5	0.7
Using Blackboard allows students to be self-sufficient	24.0	18.1	0.5	0.7
Blackboard should stay	23.9	17.2	0.6	0.7
Blackboard should be used in tandem with conventional learning	24.0	17.6	0.6	0.7
Blackboard should be integrated with conventional learning	23.9	17.4	0.6	0.7
Blackboard should be used in times of uncertainty	24.4	19.4	0.2	0.8
Cronbach's alpha				0.76

Table 11. Summary of statistical significance – Chi-square tests.

Discipline	Age	Gender	Discipline
Blackboard rating by ease of use	no	no	no
Blackboard allows me to study at my own pace	no	no	no
Blackboard is excellent for time management	no	no	no
Using Blackboard allows students to be self-sufficient	no	no	no
Do you think high school background affects the use of Blackboard?	no	no	sig.
Do you prefer Blackboard or conventional learning?	no	sig.	no
Blackboard should stay	no	no	sig.
Blackboard should be used in tandem with conventional learning	no	no	no
Blackboard should be integrated with conventional learning	no	no	no
Blackboard should be used in times of uncertainty	no	no	no

Source: Researchers compilation.

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Table 12. Statistically significant Chi-square tests.

Relationship	Chi-square	Df	Sig.	Eta
Gender*Do you prefer Blackboard or conventional learning?	7.841	2	0.02	0.188
Discipline*Do you think high school background affects use of Blackboard?	15.344	6	0.018	0.041
Discipline*Blackboard should stay	22.046	6	0.037	0.205

Source: Researchers compilation.

Table 13. Gender*Do you prefer Blackboard or conventional learning?

Gender	Backboard (%)	Face-to-Face learning (%)	Either (%)	Total (%)
Male	43.9	49.2	6.8	100.0
Female	27.5	68.1	4.4	100.0
Total	37.2	57.0	5.8	100.0

Source: Researchers compilation.

Table 14. Discipline*Do you think high school background affects the use of Blackboard?

Discipline	Yes (%)	No (%)	I'm not sure/I don't know (%)	Total (%)
Public Admin/Mgt	78.6	14.3	7.1	100
Management/Comm	69.0	10.3	20.7	100
Info Sciences	53.8	23.1	23.1	100
Humanities	81.8	13.6	4.5	100

Eta coefficient shows that these associations were, however, very weak to moderately weak i (0.04 to 0.26). Contingency tables show that these associations were as follows:

Gender*Do you prefer Blackboard or conventional learning?

Table 13 shows responses to the question Do you prefer Blackboard or conventional learning by gender.

Also of all males, 43.9% preferred Blackboard compared to 27.5% of all females, whilst 49.2% of all males preferred face-to-face learning compared to 68.1% of all females. Finally, 6.8% of all males preferred either compared to 4.4% of all females. The data show that the majority of the female population preferred face-to-face learning with both groups being less eager to use either system at the same time.

Discipline*Do you think high school background affects the use of Blackboard?

Table 14 shows responses to the question Do you think high school background affects the use of Blackboard? By discipline.

Table 15. Discipline*Blackboard should stay.

Discipline	Strongly disagree (%)	Disagree (%)	Neither (%)	Agree (%)	Strongly agree (%)	Total (%)
Public Admin/Mgt	8.5	2.8	8.5	40.8	39.4	100
Management/Comm	1.7	1.7	5.1	32.2	59.3	100
Info Sciences	0.0	0.0	11.1	37.0	51.9	100
Humanities	3.0	10.6	15.2	33.3	37.9	100
Total	4.0	4.5	9.9	35.9	45.7	100

Table 16. Kruskal–Wallis H tests – gadget used versus Blackboard perception (Levels of sig.).

Discipline	Cell phone	Tablet	Laptop	Desktop
Blackboard allows me to study at my own pace	0.15	0.03*	0.00*	0.40
Blackboard is excellent for time management	0.95	0.24	0.00*	0.93
Using Blackboard allows students to be self-sufficient	0.06	0.08	0.02*	0.23
Blackboard should stay	0.10	0.01*	0.01*	0.43
Blackboard should be used in tandem with conventional learning	0.38	0.06	0.07	0.68
Blackboard should be integrated with conventional learning	0.67	0.09	0.01*	0.67
Blackboard should be used in times of uncertainty	0.07	0.56	0.31	0.28
Blackboard rating by ease of use	0.15	0.78	0.09	0.61

As shown, 81.8% of all HUM students were agreeable that one's high school background affects Blackboard use followed by 78.6% of all public management students, 69% of management students and 53.8% of information sciences students. Thus, HUM students subscribed more to this view than the other sample groups.

*Discipline*Blackboard should stay*

Table 15 shows responses to the question Do you think high school background affects the use of Blackboard? By discipline.

Whilst there is a general agreement that Blackboard should stay, 13.6% of HUM students ascribed the opposite view that it should not. This is in comparison to 0% of information sciences students, 3.4% of management students and 11.3% of public administration students. HUM had the largest percentage of students who were not sure whether Blackboard should stay or not (15.2%) and the lowest (37.9%) of those strongly agreeing whilst the management students' group had the largest strongly agreeing percentage (59.3%).

Kruskal–Wallis H tests – gadget used versus Blackboard perception

Table 16 shows Kruskal–Wallis H tests with gadgets used to access Blackboard as an independent variable of Blackboard use perceptions.

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Table 17. Tablet use and Blackboard perceptions.

Perception	Tablet	N	Mean rank
Blackboard allows me to study at my own pace	No	213	113.84
	Yes	10	72.75
	Total	223	
Blackboard should stay	No	213	114.16
	Yes	10	66.05
	Total	223	

Table 18. Laptop Use and Blackboard Perceptions – mean ranks.

Perception	Laptop	*N*	Mean rank
Blackboard allows me to study at my own pace	No	68	89.71
	Yes	155	121.78
	Total	223	
Blackboard is excellent for time management	No	68	83.43
	Yes	155	124.54
	Total	223	
Using Blackboard allows students to be self-sufficient	No	68	97.74
	Yes	155	118.25
	Total	223	
Blackboard should stay	No	68	96.57
	Yes	155	118.77
	Total	223	
Blackboard should be integrated with conventional learning	No	68	94.87
	Yes	155	119.52
	Total	223	

Cell phone use

Kruskal–Wallis H tests showed no statistically significant mean rank differences between the perceptions of students who mainly used a cell phone to access Blackboard and those who did not predominantly rely on this device. Thus, perceptions of Blackboard users relying on cell phones did not differ significantly, and any differences recorded were generally random.

Tablet use

Table 10 shows statistical significance between tablet use on the one hand, and Blackboard allows me to study at my own pace [$H(1) = 4.5$, $p = 0.03$] and Blackboard should stay [$H(1) = 6.2$, $p = 0.01$] on the other. Table 17 further explores this relationship using mean ranks and crosstabulations.

Mean ranks show that in both instances, cell phone users had lower mean ranks than non-users (113.84 vs. 72.75) and (114.16 vs. 66.05), respectively. Thus, students who mostly relied on a tablet to access Blackboard recorded lower agreeability with the views that the system empowered them to study at their own pace and that it should stay.

Laptop use

Table 18 shows the mean ranks of students who predominantly relied on a laptop to access Blackboard versus the various perceptions they have relating to the system.

For laptop use, there were statistically significant mean rank differences between laptop and non-laptop users on the following: Blackboard allows me to study at my own pace [H(1) = 13.5, p = 0.00), Blackboard is excellent for time management [H(1) = 21.6, p = 0.00], Using Blackboard allows students to be self-sufficient [H(1) = 5.5, p = 0.02], Blackboard should stay [H(91) = 6.5, p = 0.01] and Blackboard should be integrated with conventional learning [H(1) = 8, p = 0.01]. In all the aforementioned instances, laptop users recorded more positive experiences and perceptions with Blackboard use than students who predominantly used other means to access the system.

Desktop use

Kruskal–Wallis H tests showed no statistically significant mean rank differences between the perceptions of students who mainly used a desktop to access Blackboard and those who did not predominantly rely on this device. Thus, perceptions of Blackboard users relying on desktops did not differ significantly, and any differences recorded were generally random.

Kruskal–Wallis H tests – use environment versus Blackboard perception

The study collected data on the perceptions of Blackboard users who mostly used it from different environments, and the significance values for this are shown in Table 19.

Generally, when it came to perceptions, there were no statistically significant differences in mean ranks of students predominantly using Blackboard from various environments. Significance values above 0.05 indicate this further highlighting that any differences in perception or experience were more likely to be.

Table 19. Kruskal–Wallis H tests – use environment versus Blackboard perception (Levels of significance).

Discipline	Home	University residence	Private residence	Other public places
Blackboard allows me to study at my own pace	0.29	0.38	0.17	0.17
Blackboard is excellent for time management	0.77	0.47	0.00*	0.78
Using Blackboard allows students to be self-sufficient	0.06	0.10	0.09	0.53
Blackboard should stay	0.03*	0.59	0.92	0.96
Blackboard should be used in tandem with conventional learning	0.10	0.64	0.53	0.55
Blackboard should be integrated with conventional learning	0.33	0.30	0.68	0.92
Blackboard should be used in times of uncertainty	0.19	0.25	0.81	0.21
Blackboard rating by ease of use	0.60	0.23	0.81	0.20

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Table 20. Use environment and Blackboard perceptions – mean ranks.

Perception	Place	*N*	Mean rank
Blackboard should stay (home)	No	130	104.45
	Yes	93	122.56
	Total	223	
Blackboard is excellent for time management (Private residence)	No	169	104.66
	Yes	54	134.97
	Total	223	

Table 21. Spearman's correlations (Rho) – Blackboard rating by the ease of use versus preferences.

Discipline	Blackboard rating by the ease of use		
		Statistic	*n*
Blackboard allows me to study at my own pace	Rho	0.246**	223
	Sig. (2-tailed)	0.000	223
Blackboard is excellent for time management	Rho	0.313**	223
	Sig. (2-tailed)	0.000	223
Using Blackboard allows students to be self-sufficient	Rho	0.167*	223
	Sig. (2-tailed)	0.012	223
Blackboard should stay	Rho	0.266**	223
	Sig. (2-tailed)	0.000	223
Blackboard should be used in tandem with conventional learning	Rho	0.142*	223
	Sig. (2-tailed)	0.034	223
Blackboard should be integrated with conventional learning	Rho	0.148*	223
	Sig. (2-tailed)	0.027	223
Blackboard should be used in times of uncertainty	Rho	0.116	223
	Sig. (2-tailed)	0.084	223

*Correlation is significant at the 0.05 level (2-tailed).
**Correlation is significant at the 0.01 level (2-tailed).

The only differences were between home versus Blackboard should stay [H(1) = 5.0, $p = 0.03$], and private residence versus Blackboard is excellent for time management [H(1) = 10.2, $p = 0.00$]. The mean ranks for these are shown in Table 20.

In both cases, students who mostly used Blackboard in homes and private residents were generally more agreeable to the two presented views. Those who mostly used it from home were more convinced that Blackboard should stay than those who mostly used it from other environments.

Blackboard ease-of-use versus student preferences/perceptions

Table 21 shows Spearman's correlations (Rho) between Blackboard rating on ease-of-use versus Blackboard use advantages and preferences.

There were statistically significant correlations between Blackboard's ease of use perception and the following views: Blackboard allows me to study at my own pace

(Rho = 0.25, $p = 0.00$); Blackboard is excellent for time management (Rho = 0.31, $p = 0.00$); Using Blackboard allows students to be self-sufficient (Rho = 0.167, $p = 0.01$); Blackboard should be used in tandem with conventional learning (Rho = 0.14, $p = 0.03$) and Blackboard should be integrated with conventional learning (Rho = 0.15, $p = 0.03$).

In all respects, the positive correlations indicate that as one's perceived ease of use increased, one's preference for Blackboard tended to increase as well. However, the weak correlations (below Rho = 0.3) suggest that other factors outside perceived ease of use also affected use preferences.

Discussion

The majority of first years found Blackboard easy and very easy to use. This runs against several studies, including Moonsamy and Govender (2018), who studied the phenomenon from a South African university perspective. Regardless, the less than majority of students who found the system challenging to use need to be considered. It was often the case that disadvantaged students were left behind in the digital academic transition. The worry was that where few students appeared to be left behind, intervention processes tended to be weak. Other interesting associations were between Blackboard's ease of use on one dimension and Blackboard's (1) self-paced study, (2) time management and (3) self-sufficiency advantages, as revealed by Spearman's Rho correlations. This further confirms arguments by Matarirano et al. (2021) that the advantages of e-learning systems were most likely to be felt by those familiar with the systems, and these were mainly students who had widely used them earlier in their education life. This incites educators to not imply the universality of Blackboard advantages across all student groups. These were a function of ease-of-use experiences. Not surprisingly, those who found the system easy to use were more likely to want it to stay.

The findings that the majority of students (over 66.6%) found the self-paced study, time management and self-sufficiency advantages of Blackboard replicate previous studies. Mshayisa and Ivala (2022) argue that FYSs adapted well to the technology despite the newness of Blackboard and its imposed use due to COVID-19. Hashim and Fattouh (2023) also note the time management advantages of Blackboard as an essential aspect that made students like the system better than face-to-face learning in some instances.

The results show that despite the stated advantages, some students preferred face-to-face learning more than Blackboard. This suggests that whilst Blackboard had its appeal, students still found comfort in familiar learning systems especially considering that they had used such systems for most of their learning lives. Bringman- Rodenbarger and Hortsch (2020) also suggest that familiarity with an e-learning system was a vital adoption factor even in cases where students found systems easy and convenient to use. Also, even when students consider systems easy to use, facilitating conditions outside the system may make it less preferred than manual systems (Raza et al., 2022). This puts change management dynamics into perspective, specifically how one adopts change. Having said this, it is essential to note that Blackboard use amongst students was quite abrupt and forced by COVID-19 restrictions. Such rapid changes afford students limited adjustment and familiarisation times.

Notably, even with their stronger preference for face-to-face learning, most students reported wanting Blackboard to remain in an instructional mode. The same majority agreed that they also preferred Blackboard to blend with traditional learning

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in future. It could also be used in times of crisis. This shows a general acceptance that Blackboard was becoming part of the academic landscape, and as a system, it cannot be discarded without consequences. A study by Matarirano et al. (2021) found that computer use experience affected e-learning perceived usefulness, ease and enjoyment. These filtered to affect students' overall preferences for Blackboard versus face-to-face learning.

Using Chi-square tests and Eta scores, the findings revealed that Blackboard continuity perceptions either varied insignificantly or significantly but with few effect sizes. This points to very little perception differences by age, gender and discipline. In terms of Blackboard use perception by gadget, laptop users were more agreeable to the system's advantages, and this confirms findings that point to this type of gadget as most suitable for e-learning use. A study by Wilson and Djamsabi (2019) explains that the relationship between learning and research software and devices user (device-software user experience) can influence usability perception and system preferences.

Coming to previous digital experiences, especially those at high school levels, the data confirm Matarirano et al.'s (2021) views that structural inequality factors disadvantaged some users from fully understanding and exploiting e-learning systems.

Conclusion and recommendations

This study shows that, in general terms, FYSs found Blackboard to be an easy system to use. Nonetheless, there were risks of some students being left behind because they found the system rather difficult to use. Whilst Blackboard uses perception was positive, it was important to consider the few cases of students who shared rather negative experiences and views of this system. This is important for reducing further marginalisation of students from digitally disadvantaged backgrounds. With ease-of-use perceptions being associated with Blackboard's utility perceptions (self-paced study, time management and self-sufficiency), it was essential to facilitate user training amongst students who felt challenged by the system. It was also crucial to ensure that students used laptops as primary access tools for Blackboard as this tended to increase their perceptions of Blackboard's ease of use. Regarding systems familiarity, universities need to appreciate the change management dynamics associated with abruptly switching from one system to another and stand ready to offer technical support for students during such processes.

Limitations

This study looked at Blackboard use cross-sectionally. It did not investigate user preferences with time. This study looked at the phenomenon of interest quantitatively, and this might have suppressed the communication of in-depth perceptions and experiences that could have helped to create an even better understanding of the Backboard versus conventional learning phenomenon.

Recommended studies

The researchers recommend studies that examine Blackboard preferences and experiences amongst students with time. Also, studies that examine Blackboard use from a qualitative, more in-depth perspectives are required.

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