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RESEARCH PAPER

Learners' Perceptions of Use Your Own Device Practices and Targeted Learning Applications in Public Universities of Punjab, Pakistan

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ABSTRACT

This study investigates university-level learners' attitudes toward the Use Your Own Device (UYOD) initiative and mobile learning applications in Punjab, Pakistan, focusing on its impact on academic purposes, study habits, and collaborative learning. Digitalisation of education is increasing, and UYOD provides a flexible, cost-effective solution for public universities with limited infrastructure. While it improves access to learning materials and autonomy, the potential for distractions is a concern in this local context. A quantitative, cross-sectional design was used, collecting data from 1,051 students across nine divisions of Punjab using a 76-item structured questionnaire with a 5-point Likert scale. The survey assessed UYOD use, study habits, self-approbation, and collaborative learning. Data was analyzed using descriptive statistics via SPSS. Participants moderately used UYOD for academic purposes, showing positive study habits, self-approbation, and collaborative learning. However, concerns about distractions highlight the need for focused device integration. Future studies should incorporate longitudinal mixed methods to better understand UYOD's long-term effects and address distractions in its integration.

KEYWORDS Use Your Own Device (UYOD), e-Devices, Higher Education, Collaborative Learning, Pakistan

Introduction

Digital technology is advancing quickly and is changing how educators teach and how students learn in higher education. The increasing prevalence of portable and internet-enabled computing devices sparked the increasing Digital Education Integration Movement (Schmitz et al., 2024; Sokolova et al., 2021). Schmitz and Sokolova further hypothesise the shift of educational pedagogies that includes the use of personal computing devices, the so-called "Use Your Own Device" policy (UYOD), which allows students to use digital learning devices, such as cellphones, laptops, and tablets, to enable easier and more streamlined education (Al-Said, 2023; Sanchez et al., 2020; Shukry et al., 2023). The Zamindar education system in underdeveloped countries, such as Punjab, Pakistan, marches to the increasing non-institutional Zamindar system of YOD (Barlette et al., 2021; Shukry et al., 2023). The systems of education at the university level require e-learning devices that incorporate systems and applications that instigate self-learning, collaborative learning, and confidence building within digital learning environments (Al-Said, 2023; Clark et al., 2021; He & Zhao, 2020).

The student educational and behavioural outcomes are the outcomes of the system's educational and behavioural supports and are described using social cognitive

theory and collaborative learning theory (Sanchez et al., 2020; Schmitz et al., 2024). To increase educational behavioural outcomes, the educational institutions within the system, the educational system, and the support system need to understand the student educational outcomes of the YOD system to improve support of educational behavioural systems and mitigate negative system educational outcomes, including educational distraction and systems educational inefficiencies (Keane & Keane, 2022; Ntwari et al., 2022). Therefore, this research aims to explore the e-learning device applications and YOD systems within the academic institutions in Punjab Public University. The current study investigates device usage patterns, study behaviours, collaborative learning, and self-reflective assessment to provide insights to educators, decision makers, and institutions on how closely personal digital devices can be integrated in the classroom for beneficial use in post-secondary education in a more meaningful way.

Literature Review

The rapid development of digital technologies has greatly influenced the field of higher education, more specifically the use of personal digital devices for educational purposes. The UYOD strategy has a great deal of potential to be highly beneficial in situations where educational institutions lack necessary resources because the system allows students to use their phones, tablets, and/or laptops for learning purposes (Othman et al., 2020; Schmitz et al., 2024; Shukry et al., 2023). Previous works highlight the fact that UYOD greatly improves learning materials accessibility, fosters flexible learning and enhances learning autonomy and self-regulation, which is crucial in huge public universities and developing parts of the world (Demeke, 2023; Sanchez et al., 2020; Watts & Andreadis, 2022). Learners largely use their own digital devices when they need to go online for educational purposes, for online class discussions, and for academic communications with their peers and educators (He & Zhao, 2020; Ntwari et al., 2022; Upadhayaya, 2023).

Some studies show how students' use of e-devices has large impacts on learning outcomes, while other studies show how e-devices on their own don't show learning outcomes (Schmitz et al., 2024; Solch et al., 2024). e-devices in note-taking, reviewing and other academic purposes lead to better learning outcomes and fuller academic engagement than students who use e-devices for social interaction and entertainment purposes (Demeke, 2023; He & Zhao, 2020; Watts & Andreadis, 2022). Also, students who tend to use e-devices for leisure purposes during class show more disengagement from class (Barlette et al., 2021; Doargajudhur & Hosanoo, 2023).

The incorporation of digital devices has made collaborative learning more feasible. Drawing from previous literature, Othman et al. (2020), Sanchez et al. (2020), and Shukry et al. (2023) note that electronic devices and educational applications enable learners to interact, discuss, and resolve issues collectively, thus achieving a more advanced and critical mastery of the subject content. Online and mobile cooperative applications enhance participants' communication and social learning (Schmitz et al., 2024; Upadhyaya, 2023), and this is even more so when these technologies are used for learning activities designed and supervised by a teacher. Disparities in digital competencies, including limited and/or inconsistent institutional support, can mitigate the collaborative features of UYOD (Halim et al. 2024; Ntwari et al. 2022).

Having high self-approbation, or positive self-perceived mastery and confidence in digital learning environments, is pivotal for the acceptance and utilisation of such technologies. Schmitz et al. (2024) and Shukry et al. (2023) assert that such predisposition

enhances learners' willingness to engage and motivates them to pursue more positive learning outcomes. By contrast, a low confidence level, insufficient guidance, and/or a combination of both can limit the extent to which learners can benefit from educational technology (Doargajudhur & Hosanoo, 2023; Othman et al., 2020; Watts & Andreadis, 2022).

Social Cognitive Theory, theories of collaborative learning, and self-commendation theories have a considerable influence on this research. They show how personal characteristics, types of learning, and digital settings integrate to influence students' academics. These theories point to self-efficacy, engagement, and perceived ability to work with others as the most significant influences on the extent to which individuals practise self-regulated learning. Just as the literature on UYOD is increasing, the empirical literature on the intersection of self-initiative UYOD and study habits, collaborative learning, and self-approval is conspicuously absent, particularly in public universities in Punjab (Al-Said, 2023; Sajid & Javed, 2022; Shukry et al., 2023). Such a gap calls for context-rich studies to complement existing evidence and enhance the evidence basis for policies and instructional strategies.

Material and Methods

Nature

This study followed a positivist philosophy and a deductive reasoning approach, utilizing social cognitive theory and self-appraisal as the theoretical framework. A cross-sectional survey research design was employed to collect quantitative data from students in higher education institutions.

Population

The study targeted students from public universities in the nine administrative divisions of Punjab, Pakistan, all of which are recognized by the Higher Education Commission (HEC). The students from these universities were enrolled in various disciplines, providing a representative sample of the university population.

Sample Size

The number of participants in the study was 1,051, which was a large enough sample to conduct statistical analyses and to generalise the findings to a larger population.

Sample Collecting Technique

The researchers utilised a multi-stage sampling approach. From every one of Punjab's nine administrative divisions, one public university was chosen which has been recognised by HEC, thus a total of nine universities. At each university, students were selected by simple random sampling, which is the most unbiased way of selection. The data was collected through both face-to-face and the online Google Forms questionnaires, which facilitated the obtaining of a great number of responses and the correctness of them.

Instrument

The method employed for gathering data was a structured questionnaire consisting of 76 items that were developed with a 5-point Likert scale (ranging from Strongly Disagree to Strongly Agree). The questionnaire included five subscales

- Use Your Own Device Extent of Usage (16 items)
- Use Your Own Device Extent to be True (4 items)
- Use Your Own Device Study Habits (25 items), adapted from Limniou (2021)
- Self-Approbation (23 items), based on the framework by Sulaiman & Dashti (2018)
- Collaborative Learning (8 items), adapted from So & Brush (2008) The questionnaire items were tailored to reflect the specific context of the study.

Pilot Testing

Before the actual survey, a small pilot test was done in which the questions were assessed for clarity and relevance. Based on the feedback given, the necessary modifications were made to enhance the effectiveness of the instrument.

Validity and Reliability

The questionnaire was validated through expert reviews which made certain of its content accuracy. Reliability was estimated using Cronbach's alpha, which authenticated the internal consistency of the subscales.

Data Analysis Technique

The data obtained was processed utilising SPSS software. Descriptive statistics that included frequencies, percentages, means, standard deviations, and variances were calculated to assess patterns in UYOD usage, study habits, self-approbation, and collaborative learning among university students.

Ethical Considerations

The ethical approval was granted by the corresponding institutional review boards. Participants provided informed consent, and their anonymity and confidentiality were maintained throughout the study.

Results and Discussion

Table 1
Gender and Age-wise Distribution of the Respondents

		Frequency	Percentage
Gender	Male	233	22%
	Female	818	78%
Age Group	18–20	456	43.4%
	21–25	573	54.5%
	26–30	20	1.9%
	31–35	2	0.02%

The majority of the respondents for this study were female, at 78%, while the male demographic made up the remaining 22%. The ages of the participants were also primarily in the 21-25 range (54.5%), the other identifiable group being the youngest range, 18-20 (43.5%), both categories pointing toward the respondents being the traditional age group found in most universities.

Table 2
Respondents Distribution across HEC-Affiliated Public Universities of Punjab

S. No.	University	No. of Participants
1	University of Education Lahore	93
2	University of Sialkot	187
3	University of Sargodha	182
4	Fatima Jinnah Women University	177
5	Bahauddin Zakariya University Multan	71
6	University of Layyah	119
7	University of Faisalabad	136
8	University of Bahawalpur	62
9	University of Sahiwal	24

The response rate for the three institutions was the highest the University of Sialkot (187), the University of Sargodha (182), and Fatima Jinnah Women University (177). These figures cover and showcase the response of many public colleges in the province of Punjab, giving a fair sample for the representation of public universities.

Table 3
Department, Semester and CGPA-wise Distribution of the Respondents

		Frequency	Percentage
Department	Education	251	23.9%
	Psychology	364	34.6%
	Mass Communication	86	8.2%
	Sociology	194	18.5%
	International Relations	133	12.7%
	English	23	2.2%
Semester	1–2 Semesters	318	30.3%
	3–4 Semesters	259	24.6%
	5–6 Semesters	343	32.6%
	7–8 Semesters	131	12.5%
CGPA Range	Below 2.5	47	4.5%
	2.6–3.0	221	21.0%
	3.1–3.5	492	46.8%
	3.6–4.0	291	27.7%

Most of the participants who responded were from the 5-6 semester range (32.6%), and they were from the Psychology (34.6%) and Education (23.9%) departments, whom the mid-level semesters of the university were largely speaking about. Looking at the CGPA figures, we can see excellence was the norm, as most of the students had a CGPA of between 3.1 and 3.5 (46.8%) and 3.6 and 4.0 (27.7%).

Table 4
Usage & Availability of Device

		Frequency	Percentage
Device Type	Smartphones	516	49.1%
	Tablet / iPad	6	0.6%
	Non-Smartphone	13	1.2%
	Laptop	25	2.4%

	Multiple Devices	470	44.7%
	Others	21	2.0%
Internet Speed	Fast	391	37.2%
	Moderate	568	54.0%
	Slow	92	8.8%
Technical Problem	Never	165	15.7%
	Sometimes	695	66.1%
	Often	191	18.2%
Daily Usage	Less than 1 hour	194	18.5%
	1–2 hours	333	31.7%
	3–4 hours	270	25.7%
	5–6 hours	148	14.1%
	7 hours or above	106	10.1%
Features	Games	65	6.2%
	Social applications	402	38.2%
	Study purposes	142	13.5%
	Explore new information	115	10.9%
	Multiple uses	327	31.1%
Learning Method	Search for information on the internet	636	60.5%
	Find information through books	54	5.1%
	Use software to take notes	80	7.6%
	Use e-learning software	67	6.4%
	Multiple methods	214	20.4%

The results also show that smartphones (49.1%) and having access to multiple devices (44.7%) were also popular, with most respondents reporting moderate access to the internet (54.0%) at the time. Most reported experience technical difficulties from time to time (66.1%), and the majority of respondents reported most of their time spent on their devices in the 1-2 hour (31.7%) and 3-4 hour (25.7%) time brackets. The students primarily used their devices for social media (38.2%) and other academic-related activities, mainly searching for information on the internet (60.5%) and using a combination of different learning systems (20.4%).

Table 5
Item-wise Frequency, Percentage, Mean, Standard Deviation, and Variance of UYOD (Extent of Usage)

UYODE	Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree				
	F	%	F	%	F	%	F	%	F	%	Mean	Std. Dev.	Variance
UYOD E1	48	4.6	56	5.3	195	18.6	401	38.2	351	33.4	3.9	1.066	1.136
UYOD E2	27	2.6	43	4.1	143	13.6	465	44.2	373	35.5	4.06	0.94	0.883
UYOD E3	32	3.0	55	5.2	237	22.5	428	40.7	299	28.4	3.86	0.988	0.975
UYOD E4	51	4.9	88	8.4	160	15.2	385	36.6	367	34.9	3.88	1.123	1.261
UYOD E5	70	6.7	88	8.4	178	16.9	349	33.2	366	34.8	3.81	1.191	1.418
UYOD E6	68	6.5	67	6.4	113	10.8	330	31.4	473	45.0	4.02	1.181	1.396
UYOD E7	36	3.4	60	5.7	132	12.6	327	31.1	496	47.2	4.13	1.058	1.118
UYOD E8	48	4.6	53	5.0	217	20.6	400	38.1	333	31.7	3.87	1.059	1.121

UYOD E9	89	8.5	85	8.1	283	26.9	347	33.0	247	23.5	3.55	1.178	1.389
UYOD E10	48	4.6	43	4.1	221	21.0	379	36.1	360	34.3	3.91	1.059	1.121
UYOD E11	60	5.7	135	12.8	246	23.4	324	30.8	286	27.2	3.61	1.176	1.383
UYOD E12	52	4.9	72	6.9	215	20.5	366	34.8	346	32.9	3.84	1.108	1.228
UYOD E13	47	4.5	73	6.9	189	18.0	368	35.0	374	35.6	3.9	1.099	1.208
UYOD E14	39	3.7	34	3.2	127	12.1	317	30.2	534	50.8	4.21	1.024	1.049
UYOD E15	39	3.7	64	6.1	229	21.8	295	28.1	424	40.3	3.95	1.094	1.198
UYOD E16	41	3.9	112	10.7	153	14.6	323	30.7	422	40.2	3.93	1.149	1.32

The mean score (3.55–4.21) show that the personal digital devices are used for academic engagement, especially in communication. The overall and the low disagreement along with the low dispersion confirm that the devices are widely and consistently used across the student population.

Table 6
Item-wise Frequency, Percentage, Mean, Standard Deviation, and Variance of UYOD (Extent to be True)

UYOD T	Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree				
	F	%	F	%	F	%	F	%	F	%	Mean	Std. Dev.	Variance
UYOD T1	84	8.0	131	12.5	239	22.7	330	31.4	267	25.4	3.54	1.219	1.487
UYOD T2	67	6.4	95	9.0	258	24.5	341	32.4	290	27.6	3.66	1.158	1.341
UYOD T3	58	5.5	66	6.3	302	28.7	380	36.2	245	23.3	3.65	1.072	1.150
UYOD T4	75	7.1	105	10.0	306	29.1	316	30.1	249	23.7	3.53	1.163	1.352

Mean values ranging from 3.53 to 3.66 show the student's agreement to the statements, indicating the academic and the distraction impact created by the devices. The findings determine that both the positive and the negative aspects of UYOD are recognised by the students.

Table 7
Item-wise Frequency, Percentage, Mean, Standard Deviation, and Variance of UYOD (Study Habits)

UYODSH	Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree				
	F	%	F	%	F	%	F	%	F	%	Mean	Std. Dev.	Variance
UYOD SH1	47	4.5	14	1.3	184	17.5	339	32.3	467	44.4	4.11	1.032	1.064
UYOD SH2	72	6.9	114	10.8	254	24.2	323	30.7	288	27.4	3.61	1.190	1.415
UYOD SH3	39	3.7	37	3.5	212	20.2	450	42.8	313	29.8	3.91	.984	.968
UYOD SH4	58	5.5	78	7.4	240	22.8	400	38.1	275	26.2	3.72	1.098	1.206
UYOD SH5	57	5.4	57	5.4	328	31.2	324	30.8	285	27.1	3.69	1.092	1.192

UYOD SH6	76	7.2	113	10.8	244	23.2	369	35.1	249	23.7	3.57	1.170	1.369
UYOD SH7	55	5.2	63	6.0	270	25.7	383	36.4	280	26.6	3.73	1.079	1.164
UYOD SH8	72	6.9	138	13.1	280	26.6	358	34.1	203	19.3	3.46	1.144	1.309
UYOD SH9	65	6.2	64	6.1	232	22.1	348	33.1	342	32.5	3.80	1.143	1.307
UYOD SH10	99	9.4	89	8.5	297	28.3	333	31.7	233	22.2	3.49	1.195	1.429
UYOD SH11	59	5.6	106	10.1	208	19.8	383	36.4	295	28.1	3.71	1.143	1.306
UYOD SH12	68	6.5	98	9.3	366	34.8	336	32.0	183	17.4	3.45	1.082	1.171
UYOD SH13	43	4.1	57	5.4	238	22.6	382	36.3	331	31.5	3.86	1.052	1.107
UYOD SH14	58	5.5	59	5.6	210	20.0	429	40.8	295	28.1	3.80	1.079	1.164
UYOD SH15	70	6.7	98	9.3	327	31.1	299	28.4	257	24.5	3.55	1.151	1.324
UYOD SH16	52	4.9	80	7.6	246	23.4	422	40.2	251	23.9	3.70	1.066	1.136
UYOD SH17	49	4.7	68	6.5	280	26.6	373	35.5	281	26.7	3.73	1.068	1.141
UYOD SH18	60	5.7	137	13.0	282	26.8	356	33.9	216	20.6	3.51	1.125	1.265
UYOD SH19	85	8.1	124	11.8	220	20.9	311	29.6	311	29.6	3.61	1.246	1.553
UYOD SH20	28	2.7	84	8.0	171	16.3	302	28.7	466	44.3	4.04	1.079	1.165
UYOD SH21	38	3.6	68	6.5	293	27.9	419	39.9	233	22.2	3.71	.999	.999
UYOD SH22	67	6.4	68	6.5	298	28.4	344	32.7	274	26.1	3.66	1.122	1.260
UYOD SH23	35	3.3	91	8.7	261	24.8	336	32.0	328	31.2	3.79	1.079	1.164
UYOD SH24	94	8.9	26	2.5	269	25.6	294	28.0	368	35.0	3.78	1.210	1.465
UYOD SH25	62	5.9	60	5.7	233	22.2	342	32.5	354	33.7	3.82	1.135	1.288

The responses indicate constructive academic conduct is associated with the UYOD, as mean scores of 3.45 to 4.11 show regular use of the devices for acquiring information, for learning and for revision. The differences across the items reflect the differences in personal study techniques and self-correction.

Table 8
Item-wise Frequency, Percentage, Mean, Standard Deviation, and Variance of Self-Approbation

Self-approbation	Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree				
	F	%	F	%	F	%	F	%	F	%	Mean	Std. Dev.	Variance
SA1	70	6.7	38	3.6	162	15.4	364	34.6	417	39.7	3.97	1.138	1.295
SA2	59	5.6	74	7.0	208	19.8	447	42.5	263	25.0	3.74	1.082	1.170
SA3	44	4.2	49	4.7	231	22.0	409	38.9	318	30.3	3.86	1.034	1.068
SA4	57	5.4	101	9.6	338	32.2	345	32.8	210	20.0	3.52	1.081	1.168
SA5	86	8.2	151	14.4	256	24.4	306	29.1	252	24.0	3.46	1.228	1.508
SA6	65	6.2	87	8.3	248	23.6	383	36.4	268	25.5	3.67	1.127	1.270
SA7	72	6.9	53	5.0	276	26.3	396	37.7	254	24.2	3.67	1.103	1.217
SA8	64	6.1	86	8.2	222	21.1	386	36.7	293	27.9	3.72	1.135	1.289

SA9	98	9.3	92	8.8	248	23.6	344	32.7	269	25.6	3.57	1.222	1.494
SA10	50	4.8	101	9.6	284	27.0	358	34.1	258	24.5	3.64	1.095	1.200
SA11	61	5.8	88	8.4	306	29.1	339	32.3	257	24.5	3.61	1.115	1.243
SA12	54	5.1	91	8.7	208	19.8	365	34.7	333	31.7	3.79	1.132	1.281
SA13	69	6.6	97	9.2	232	22.1	337	32.1	316	30.1	3.70	1.180	1.392
SA14	42	4.0	71	6.8	173	16.5	335	31.9	430	40.9	3.99	1.098	1.205
SA15	42	4.0	87	8.3	222	21.1	449	42.7	251	23.9	3.74	1.037	1.075
SA16	72	6.9	82	7.8	204	19.4	384	36.5	309	29.4	3.74	1.162	1.350
SA17	130	12.4	230	21.9	241	22.9	234	22.3	216	20.6	3.17	1.316	1.732
SA18	73	6.9	80	7.6	281	26.7	335	31.9	282	26.8	3.64	1.156	1.337
SA19	72	6.9	97	9.2	236	22.5	352	33.5	294	28.0	3.67	1.174	1.379
SA20	76	7.2	167	15.9	310	29.5	241	22.9	257	24.5	3.41	1.219	1.485
SA21	70	6.7	89	8.5	310	29.5	331	31.5	251	23.9	3.57	1.137	1.292
SA22	63	6.0	90	8.6	252	24.0	348	33.1	298	28.4	3.69	1.145	1.312
SA23	93	8.8	93	8.8	349	33.2	290	27.6	226	21.5	3.44	1.177	1.386

With respect to digital device use, the positive self-approbation shown by the mean scores of 3.17-3.99 shows that it resulted in enhanced self-esteem, motivation and learning efficiency. The items with lesser scores show the differences in the perceptions of social and organisational support being mixed.

Table 9
Item-wise Frequency, Percentage, Mean, Standard Deviation, and Variance of Collaborative Learning

Collaborative Learning	Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree				
	F	%	F	%	F	%	F	%	F	%	Mean	Std. Dev.	Variance
CL1	101	9.6	136	12.9	225	21.4	265	25.2	324	30.8	3.55	1.304	1.701
CL2	55	5.2	70	6.7	283	26.9	400	38.1	243	23.1	3.67	1.064	1.131
CL3	50	4.8	84	8.0	292	27.8	326	31.0	299	28.4	3.70	1.106	1.224
CL4	56	5.3	103	9.8	271	25.8	368	35.0	253	24.1	3.63	1.110	1.232
CL5	50	4.8	88	8.4	266	25.3	408	38.8	239	22.7	3.66	1.064	1.132
CL6	47	4.5	76	7.2	290	27.6	415	39.5	223	21.2	3.66	1.031	1.064
CL7	39	3.7	136	12.9	316	30.1	358	34.1	202	19.2	3.52	1.057	1.116
CL8	66	6.3	104	9.9	204	19.4	376	35.8	301	28.6	3.71	1.165	1.356

The positive perception of collaborative learning using digital devices is shown by a mean rating of 3.52-3.71 and the agreement of the students with respect to UYOD for stimulating the engagement of members in the collaborative learning activities. The collaborative activities that the students participated in were shown to have a moderate range of experiences.The current study analyses students' perspectives concerning in-class e-device usage with the UYOD model and specific educational applications in Punjab Higher Education. Generally, results indicated that UYOD is perceived positively, with students indicating a moderate to high level of in-class and educational device usage (Al-Said, 2023; Clark et al., 2021; Shukry et al., 2023). The results of the study show that access and use of smartphones were the highest in addition to the access of other learning devices, as aligned with previous studies that show mobile devices, and particularly smartphones, were the most available and highly used learning devices in higher education and in most underdeveloped countries (Baidoo-Anu et al., 2024; Sophonhiranrak, 2021). Results of the study Extent of Usage ranged from 3.55 to 4.41, indicating that students do use their portable digital devices for communication and learning, as well as for educational task management. This supports prior empirical evidence that UYOD that state UYOD does enhance the flexibility and immediacy of information use, and therefore, the autonomy of learners (Al-Said, 2023; Clark et al., 2021; Melliti & Henchiri, 2024). The Extent to be True subscale, however, indicated moderate

agreement of concern regarding diversion/distraction and impact of UYOD, indicating to this researcher that students were aware of the advantages of UYOD, as well as the disadvantages. Concerns regarding unregulated use of technology devices and their impact on concentration and multitasking have also been mentioned in earlier studies (Barlette et al., 2021; Ntwari et al., 2022; Soubhagyalakshmi & Reddy, 2021). UYOD and study habits correlated positively as respondents' mean scores exceeded the midpoint. Students utilised technological devices for study preparation, accessing study materials, and organising their academic work. This is consistent with literature that indicates that there is purposeful and goal-orientated use of technology and that device usage fosters self-directed learning (Feng et al., 2020; Shukry et al., 2023). Despite the mean scores on several items, the variability on the scale indicates that there is a range of measured self-discipline and distinct individual learning approaches. Based on self-approbation results, there is a predominantly positive self-image concerning confidence and flexibility in using digital learning tools. This is consistent with the theory in the literature that self-efficacy is the primary catalyst that brings about positive and productive outcomes of technology use for learning activities (Almarhabi, 2024; Han & Geng, 2023; Wang & Chu, 2023). The low scores obtained on some of the items may represent the lack of system-wide support as well as digital disparity that may exist among the learners. The Collaborative Learning data shows that there is a positive perception, with mean scores ranging from 3.52 to 3.71. Most participants support the claim that UYOD helps interact and exchange ideas and helps participants learn in groups, supporting the prior empirical research that emphasised that digital instruments, when purposefully included in teaching practices, promote peer cooperation and social learning (Ajani, 2025; Gundaboina, 2025). Overall, the research affirms that UYOD is a learning mechanism in the public universities of Punjab, providing its instructional use is supported at the institutional level.

Conclusion

This research investigates the use of e-devices through the UYOD approach and specific learning applications within universities of Punjab. Findings show that UYOD usage is highly favourable due to its flexibility in retrieving educational materials and enhancing self-efficacy. Students expressed beyond positive UYOD perceptions. Results show above-average moderate/high device usage for educational purposes. Students understand the advantages and disadvantages of using personal educational devices. While UYOD offers flexibility, autonomy, and peer collaboration, distractions and inconsistent usage patterns surfaced as issues. Therefore, the study reveals that UYOD, with its adaptable format, is an innovative educational framework that can be utilised in public universities. It encourages the use of personal devices in a supportive educational setting to promote self-directed and collaborative learning in students.

Recommendations

From using longitudinal and experimental research methods to study UYOD and its influence on the behavioural and academic outcomes, the research would have progressed. Adding the mixed methods approach to capture participants lived experiences would extend this study. Investigating the use of UYOD in other disciplines, organisations, and regions would add sufficient evidence and create an excellent foundation for research. More evidence could be provided for the use of digital literacy and UYOD to improve educational outcomes.

References

Ajani, O. A. (2025). Enablers, Barriers, and Pedagogical Strategies in Diverse Learning Environments. In *Enablers, Barriers, and Challenges for Inclusive Curriculum* (pp. 1-24). IGI Global Scientific Publishing.

Almarhabi, K. A. (2024). An improved smart contract-based bring your own device (BYOD) security control framework. *Alexandria Engineering Journal*, *105*, 598-612.

Al-Said, K. (2023). Effect of Bring Your Own Device '(BYOD) on student behavior, well-being, and learning economic disciplines. *International Journal of Information and Education Technology*, *13*(4), 658-663.

Baidoo-Anu, D., Asamoah, D., Amoako, I., & Mahama, I. (2024). Exploring student perspectives on generative artificial intelligence in higher education learning. *Discover Education*, *3*(1), 98.

Barlette, Y., Jaouen, A., & Baillette, P. (2021). Bring Your Own Device (BYOD) as reversed IT adoption Insights into managers' coping strategies. International journal of information management, 56, 102212.

Clark, K. A., Welsh, K. E., Mauchline, A. L., France, D., Whalley, W. B., & Park, J. (2021). Do educators realise the value of Bring Your Own Device (BYOD) in fieldwork learning?. *Journal of Geography in Higher Education*, *45*(2), 255-278.

Demeke, W. (2023). Adoption and use of smart devices as clickers in classrooms in higher education. *Computer Applications in Engineering Education*, *31*(4), 963-982.

Doargajudhur, M. S., & Hosanoo, Z. (2023). The mobile technological era insights into the consequences of constant connectivity of personal devices by knowledge workers. *Information Technology & People*, *36*(2), 701-733.

Feng, H., Hu, W., & Wu, J. (2020). Bring your own device (BYOD) based flipped classroom in primary school. In *2020 IEEE International Conference on Smart Cloud (SmartCloud)* (pp. 154-158). IEEE.

Gundaboina, A. K. (2025). Securing BYOD (Bring Your Own Device) in Education Endpoint Management for School Networks. *Journal of Engineering and Applied Sciences Technology, 307*(7), 2-6.

Halim, I. I. A., Buja, A. G., Zain, J. M., Ngah, A. H., & Bansal, R. (2024). BYOD security policy model a systematic literature review. *Journal of Advanced Research in Applied Sciences and Engineering Technology, 62*, 170-186.

Han, J., & Geng, X. (2023). University students' approaches to online learning technologies The roles of perceived support, affect/emotion and self-efficacy in technology-enhanced learning. *Computers & Education*, *194*, 104695.

He, W., & Zhao, L. (2020). Exploring undergraduates' learning engagement via BYOD in the blended learning classroom (Eulebyodblc). *International Journal of Information and Education Technology*, *10*(2), 159-164.

Keane, T., & Keane, W. F. (2022). The missing link The parental voice in Bring Your Own Device (BYOD) programs. *Education and Information Technologies*, *27*(6), 7699-7719.

Limniou, M. (2021). The effect of digital device usage on student academic performance A case study. *Education Sciences*, *11*(3), 121.

Melliti, M., & Henchiri, M. (2024). Advancing autonomy in Tunisian higher education Exploring the role of technology in empowering learners. *Educational Technology Quarterly*, *24*(4), 456-483.

Ntwari, R., Habinka, A. E., & Kaggwa, F. (2022). Enhancing bring your own device security in education. *Journal of Science & Technology, 2*(4), 1-18.

Othman, Z., Sepli, M., Mokhtar, U., & Yeop, Y. (2020). BYOD implementation model in Malaysian schools The perception and readiness of parents, schools, and teachers. *Int. J. Adv. Appl. Sci*, *7*(6), 57-68.

Sajid, A., & Javed, Y. (2022). Sector-wise Investigation of BYOD Security Policies in Pakistan. In *2022 IEEE 19th International Conference on Smart Communities Improving Quality of Life Using ICT, IoT and AI (HONET)* (pp. 099-104). IEEE.

Sanchez, S., López-Belmonte, J., Moreno-Guerrero, A. J., Sola Reche, J. M., & Fuentes Cabrera, A. (2020). Effect of bring-your-own-device program on flipped learning in higher education students. *Sustainability*, *12*(9), 3729.

Schmitz, M. L., Consoli, T., Antonietti, C., Cattaneo, A., Gonon, P., & Petko, D. (2024). Examining 21st century skills in BYOD schools From programs to practice. *Zeitschrift für Bildungsforschung*, *14*(2), 299-322.

Shukry, A. I. M., Rosman, M. R. M., Rosli, N. N. I. N., Alias, N. R., Razlan, N. M., & Alimin, N. A. (2023). Bring-Your-Own-Device"(BYOD) and Productivity Instrument Development and Validation. *International Journal of Interactive Mobile Technologies*, *17*(11), 83-100.

So, H. J., & Brush, T. A. (2008). Student perceptions of collaborative learning, social presence and satisfaction in a blended learning environment Relationships and critical factors. *Computers & education*, *51*(1), 318-336.

Sokolova, A. P., Gromova, L. Y. E., Tekucheva, I. V., Kocherevskaya, L. B., & Dmitrieva, E. G. (2021). The Influence of BYOD Concept on Development of Learning Process in Universities. *Propositos y representaciones*, *9*(2), 60.

Solch, M., Paulsen, M., & Krusche, S. (2024). Transforming Computer-Based Exams with BYOD An Empirical Study. In *Proceedings of the 24th Koli Calling International Conference on Computing Education Research* (pp. 1-11).

Sophonhiranrak, S. (2021). Features, barriers, and influencing factors of mobile learning in higher education A systematic review. *Heliyon*, *7*(4), 1-10.

Soubhagyalakshmi, P., & Reddy, K. S. (2021). SWOT Analysis of BYOD (Bring Your Own Device). In *Emerging Technologies in Data Mining and Information Security Proceedings of IEMIS 2020, Volume 3* (pp. 681-688). Singapore Springer Singapore.

Sulaiman, A., & Dashti, A. (2018). Students' satisfaction and factors in using mobile learning among college students in Kuwait. *EURASIA Journal of Mathematics, Science and Technology Education*, *14*(7), 3181-3189.

Upadhayaya, P. R. (2023). Information communication technology in education bringing innovation in classroom. *Ganeshman Darpan*, *8*(1), 96-110.

Wang, Z., & Chu, Z. (2023). Examination of higher education teachers' self-perception of digital competence, self-efficacy, and facilitating conditions An empirical study in the context of China. *Sustainability*, *15*(14), 10945.

Watts, M., & Andreadis, I. (2022). First-Year Secondary Students' Perceptions of the Impact of iPad Use on Their Learning in a BYOD Secondary International School. *Journal of Open, Flexible and Distance Learning*, *26*(2), 91-106.