

Non-Traditional Students' Perceptions of Devices for Student-Centred Online Learning

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Abstract

Higher education institutions (HEIs) rely on online learning to support diverse student populations, including non-traditional students. While access to digital devices has been examined, limited research has explored how different devices are perceived in relation to student-centred learning. This study investigates non-traditional students' perceptions of digital devices used for online learning and examines whether these perceptions differ when devices are evaluated through a student-centred learning lens. Using a questionnaire administered at a South African HEI, quantitative data were collected from 139 respondents. Descriptive analysis indicates that laptops are consistently perceived as the most suitable device for online and student-centred learning. Importantly, students differentiate between devices that facilitate access and those that support student-centred engagement, with tablets viewed as pedagogically desirable but less accessible and smartphones regarded as access tools. The findings highlight the importance of aligning device affordances with student-centred pedagogy and addressing access-related inequities in online learning environments.

Keywords: *Blended learning; Digital devices; Non-traditional students; Online learning; Student-centred learning.*

1. Introduction

Higher education institutions (HEIs) increasingly rely on online and blended learning to respond to growing, diverse student populations. Among these populations, non-traditional students — often characterised by lower socio-economic backgrounds, first-generation university participation, challenges with English as the medium of instruction, and diverse prior educational experiences — now constitute a significant proportion of enrolments at many HEIs (Van Zyl et al., 2020). This shift necessitates a re-examination of how digital learning environments are designed and supported to ensure meaningful student engagement and learning (Nkosi & Keevy, 2025).

While access to digital devices has been widely examined in the context of online learning, much of the existing literature focuses on technology adoption, device availability, or frequency of use (Denoyelles et al., 2023). Less attention has been paid to how different devices support pedagogical approaches that emphasise active engagement, autonomy, and collaboration — core principles of student-centred learning (Weimer, 2013).

Student-centred learning positions students as active participants in the learning process, emphasising self-direction, interaction, and the construction of knowledge (Hoidn & Reusser, 2020). In online environments, the successful implementation of student-centred learning is influenced not only by instructional design but also by the technological tools that mediate learning activities (Salmon, 2023; Nkomo et al., 2021).

Despite the growing emphasis on student-centred approaches in higher education, there is limited empirical research examining how non-traditional students perceive the suitability of different digital devices for supporting student-centred learning in online contexts. Existing studies often assume that devices commonly used for online learning are equally effective in facilitating student-centred pedagogies, without explicitly interrogating students' perspectives on this alignment (Nkomo et al., 2021; Getenet et al., 2024).

The purpose of this study is to explore non-traditional students' perceptions of digital devices used for online learning and to examine whether these perceptions differ when devices are evaluated in relation to student-centred learning in an online environment. The study is guided by the following research questions:

1. Which digital devices do non-traditional students use for online learning?
2. Which digital devices do non-traditional students perceive as most supportive of student-centred learning in an online environment?

2. Literature Review

2.1. Non-traditional students in online higher education

The profile of higher education students has shifted substantially over recent decades, with non-traditional students forming an increasingly significant proportion of enrolments. For these students, online and blended learning environments are often positioned as mechanisms for increasing access and flexibility (Nkosi & Keevy, 2025). Prior research indicates that non-traditional students often prioritise practicality, efficiency, and ease of access when engaging with digital learning environments. As a result, their interaction with educational technologies may be driven less by pedagogical considerations and more by situational demands (Sutherland, et al., 2024). This raises important questions about whether commonly used technologies in

online learning environments adequately support pedagogical approaches that emphasise active participation and learner autonomy.

2.2. Digital devices and online learning

The use of digital devices in online higher education has been widely examined, particularly in relation to access, ownership, and patterns of use (Nkomo et al., 2021; Denoyelles et al., 2023). Studies consistently report high levels of laptop and smartphone use among university students, reflecting both institutional expectations and broader trends in personal technology adoption (Getenet et al., 2024). Within this body of literature, digital devices are frequently treated as neutral conduits for accessing learning management systems, instructional materials, and assessments (Bond et al., 2020).

However, a focus on access and frequency of use often obscures important differences in the affordances of specific devices. While smartphones and tablets may enhance portability and convenience, laptops and desktop computers typically offer greater functionality for content creation, multitasking, and sustained interaction (Denoyelles et al., 2023).

2.3. Student-centred learning in online environments

Student-centred learning has been widely advocated in higher education as an approach that promotes active engagement, learner autonomy, and deeper understanding (Getenet et al., 2024). In online environments, student-centred learning is commonly associated with interactive activities, collaborative tasks, and opportunities for self-directed exploration. The successful implementation of student-centred learning online depends not only on instructional design but also on the technological tools that mediate learning activities (Hoidn & Reusser, 2020).

The literature highlights a growing reliance on digital devices in online higher education alongside increased emphasis on student-centred pedagogies. Nevertheless, a gap exists in empirical research examining how non-traditional students perceive the suitability of different digital devices for student-centred learning, as distinct from general online learning.

3. Research design and methodology

This study adopted a mixed-methods research design, incorporating both quantitative and qualitative elements through a self-administered questionnaire (Creswell, 2009). A mixed-methods approach enables the integration of numerical trends with contextual insights, thereby providing a more comprehensive understanding of the research problem than a single-method approach (Doyle et al., 2009). For the purposes of this paper, only the quantitative findings are reported. The questionnaire comprised both closed-ended and open-ended questions. The closed-ended section employed Likert-scale items to capture students' agreement with the use

of digital devices for online learning and the digital devices perceived as most supportive of student-centred learning in an online environment. With regards to the second question, students were provided with the following general principles of student-centred learning (Hoidn & Reusser, 2020):

- The student is active rather than passive in their learning.
- The student constructs their own knowledge.
- The student takes responsibility for their learning.
- There is an emphasis on deep learning and understanding for the student.

Likert-scale questions were selected for their clarity, ease of completion, and suitability for analysing attitudinal data. Responses were measured on a five-point scale ranging from 1 (strongly disagree) to 5 (strongly agree).

The study was conducted at a South African public HEI and focused on a cohort of non-traditional students enrolled in a structured academic support programme. These students are typically characterised by factors such as first-generation university attendance, financial constraints, and additional academic support needs, which distinguish them from traditional full-time cohorts. Following institutional ethics approval, the questionnaire was distributed via email to all students enrolled in the academic support programme after they completed their examinations. This timing was selected to minimise academic pressure and to encourage voluntary participation. At the time of data collection, the cohort comprised 231 students across different levels of study (from first year to postgraduate diploma). A total of 139 students completed the questionnaire, resulting in a response rate of 60%.

4. Results and Discussion

The findings of this study reveal a clear distinction between devices used for online learning and those perceived as most supportive of student-centred learning among non-traditional students. While laptops emerged as the most highly rated device across both contexts (Tables 1 and 2), clear differences are evident in students' evaluations of desktops, iPads/tablets, and smartphones when learning was explicitly framed as student-centred.

Table 1: Online learning devices used. Source: Authors' analysis

Learning devices	1	2	3	4	5	N	M	Md	SD
Laptop	0.0%	1.4%	0.7%	12.9%	85.0%	100%	4.81	5.00	0.50
Desktop	5.0%	7.2%	6.5%	34.5%	46.8%	100%	4.11	4.00	1.13
Smartphone	6.5%	12.2%	12.9%	38.9%	29.5%	100%	3.73	4.00	1.20
iPad/tablet	17.2%	31.7%	13.7%	19.4%	18.0%	100%	2.89	3.00	1.39

Note. N = number of respondents; M = mean; Md = median; SD = standard deviation.

The consistently high ratings for laptops indicate that non-traditional students prioritise devices that enable sustained engagement, content creation, and multitasking. Laptops offer a balance between portability and functionality, which is particularly important for students managing multiple academic and personal responsibilities. This finding aligns with recent research highlighting the central role of laptops in supporting complex learning activities in online and blended higher education environments (Bond et al., 2020). Importantly, the present study extends this work by demonstrating that laptops are perceived not only as access devices but also as well aligned with the requirements of student-centred learning.

A notable shift is observed in the evaluation of iPads/tablets, which show an increase in perceived suitability when considered in relation to student-centred learning, despite lower reported use for online learning. This pattern indicates that students associate iPads/tablets with interactive and participatory learning activities, such as multimedia engagement and collaborative work. However, this perceived suitability does not translate into equivalent levels of use, suggesting that access constraints may limit their practical adoption. This finding highlights a misalignment between pedagogical value and accessibility, particularly within the context of non-traditional students.

Smartphones, while widely used for accessing online learning, are rated lower in terms of their ability to support student-centred learning. This reflects their more limited functionality for sustained or complex academic tasks, including content creation and extended engagement. For non-traditional students, smartphones primarily serve as access and communication tools rather than devices that facilitate deeper engagement with learning activities. This is particularly significant given that smartphones are often used as substitutes for laptops or desktops when access to these devices is constrained.

Table 2: Supportive online learning devices for student-centred learning. Source: Authors' analysis

Learning devices	1	2	3	4	5	N	M	Md	SD
Laptop	0.0%	0%	0.7%	14.4%	84.9%	100%	4.84	5.00	0.39
Desktop	0.7%	4.3%	9.4%	35.3%	50.3%	100%	4.30	4.00	0.87
Smartphone	2.2%	9.4%	15.1%	43.2%	30.1%	100%	3.90	4.00	1.01
iPad/tablet	0.7%	5.0%	17.3%	41.0%	36.0%	100%	4.06	4.00	0.89

Note. N = number of respondents; M = mean; Md = median; SD = standard deviation.

Overall, the findings demonstrate that non-traditional students make a clear distinction between devices that enable access to online learning and those that support student-centred learning processes. This distinction provides a more nuanced understanding of device use, which is often treated as pedagogically neutral in existing literature or examined primarily in terms of access and participation (Bond et al., 2020). By explicitly identifying differences between device usage and perceived pedagogical suitability, this study contributes to a more differentiated understanding of technology use in online learning environments. The results underscore the need for a more nuanced approach to technology use in the design of online learning environments, particularly for students facing structural access constraints.

5. Conclusion and Limitations

This study contributes to the higher education literature by examining non-traditional students' perceptions of digital devices across both online learning and student-centred learning contexts. The findings demonstrate that while certain devices — particularly laptops — are valued across contexts, students perceive meaningful differences in the pedagogical suitability of various devices.

The results suggest that HEIs and educators should avoid assuming that devices commonly used for online access are equally effective in supporting student-centred pedagogies. Instead, greater attention should be paid to aligning device affordances with learning activities designed to promote active engagement, learner autonomy, and deeper learning. While laptops and desktops appear essential for supporting student-centred learning, many non-traditional students may lack consistent access to these devices, raising important equity considerations for online learning design and institutional support strategies.

As a conference study, the findings are based on self-reported perceptions from a specific student cohort, which may limit their generalisability. In addition, the exploratory design focused on identifying patterns of device use and perceived suitability, rather than examining the underlying reasons for device choice or the extent of students' prior experience across

multiple devices. These factors may influence both usage patterns and perceptions and should therefore be interpreted with caution. Nevertheless, the study provides valuable insights into an underexplored dimension of online learning for non-traditional students. Future research could build on these findings by investigating the factors influencing device selection, examining students' experiences across a broader range of technologies, and exploring how specific student-centred learning activities interact with device use. Further research could also examine comparative analyses of traditional and non-traditional student cohorts, as well as institutional strategies to mitigate access-related constraints in technology-mediated learning environments.

References

- Bond, M., Buntins, K., Bedenlier, S., Zawacki-Richter, O., & Kerres, M. (2020). Mapping research in student engagement and educational technology in higher education: A systematic evidence map. *International journal of educational technology in higher education*, 17(1), 2.
- Creswell, J. (2009). *Research design: Qualitative, Quantitative, and Mixed Methods Approaches* (3rd ed.). New York: Sage Publications.
- Denoyelles, A., Brown, T., Seilhamer, R., & Chen, B. (2023). *The evolving landscape of students' mobile learning practices in Higher Education*. EDUCASE. Available: <https://er.educause.edu/articles/2023/1/the-evolving-landscape-of-students-mobile-learning-practices-in-higher-education>.
- Doyle, L., Brady, A. M. & Byrne, G. (2009). An overview of mixed methods research. *Journal of Research in Nursing*, 14(2): 175-185. <https://doi.org/10.1177/1744987108093962>
- Getenet, S., Cante, R., Redmond, P., & Albion, P. (2024). Students' digital technology attitude, literacy and self-efficacy and their effect on online learning engagement. *International Journal of Educational Technology in Higher Education*, 21(1), 3. <https://doi.org/10.1186/s41239-023-00437-y>
- Hoidn, S. & Reusser, K. (2020). Foundations of student-centered learning and teaching. In S. Hoidn & M. Klemenčič (Eds.), *The Routledge International Handbook of student-centered learning and Teaching in Higher Education* (pp. 17-46). New York: Routledge.
- Nkomo, L. M., Daniel, B. K., & Butson, R. J. (2021). Synthesis of student engagement with digital technologies: a systematic review of the literature. *International Journal of Educational Technology in Higher Education*, 18(1), 34.
- Nkosi, P., & Keevy, M. (2025). Thuthuka students' online learning experiences. In: *Southern African Accounting Association Biennial International Conference Proceedings*, Cape Town, 25-27 June 2025 (p. 28-42)
- Salmon, G. (2013). *E-tivities: The key to active online learning* (2nd ed.). Routledge.
- Sutherland, K., Brock, G., de Villiers Scheepers, M. J., Millear, P. M., Norman, S., Strohfeldt, T., ... & Black, A. L. (2024). Non-traditional students' preferences for learning technologies and impacts on academic self-efficacy. *Journal of Computing in Higher Education*, 36(2), 298-319.

Weimer, M. (2013). *Learner-centered Teaching: Five Key Changes to Practice*. San Francisco: John Wiley & Sons.

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