

TRANSFORMATIVE DIGITAL LITERACY AND LEADERSHIP CAPACITY BUILDING AMONG EDUCATIONAL ADMINISTRATORS IN PUBLIC UNIVERSITIES WITHIN CALABAR METROPOLIS, CROSS RIVER STATE

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Abstract

The digital technologies emergence in the 21st century has influenced the operational dynamics of tertiary institutions all over the world. This study investigated the relationship between transformative digital literacy and leadership capacity building among educational administrators in public universities within Calabar Metropolis, Cross River State. This study adopted Correlational survey design. The population comprised 5,395 universities staff from the two public universities. Stratified random sampling technique was adopted in selecting 1,079 participants from various levels of the universities. Two research instruments: Transformative Digital Literacy Questionnaire (TDLQ) and Leadership Capacity Building among Educational Administrators Questionnaire (LCBEAQ) were used for data collection. The instruments were validated by two experts in departments of Educational Management, and Measurement and Evaluation; Faculty of Educational Foundation Studies, University of Calabar. The instruments were trial-tested using Cronbach alpha reliability scale with the range of 75 to 92. The data collected were subjected to descriptive statistical analysis. The findings revealed that the relationship between Critical Digital Literacy and sub variables of Leadership capacity and overall Leadership capacity were all statistically significant whereas the relationship between Socio-Emotional Digital Literacy, Instructional Leadership capacity, and collaborative Leadership capacity were statistically significant. Based on these, it was concluded that a comprehensive approach that considers Leadership capacity, with focus on Instructional Leadership capacity and Collaborative Leadership capacity is crucial for optimizing Leadership capacity in public Universities in Calabar metropolis. It was recommended that universities administrators should integrate the Critical Digital Literacy and socio-emotional digital literacy with digital technology for effective universities management.

Keywords: Transformative, Digital literacy, leadership capacity, Innovative

Introduction

21st century is defined by rapid technological advancement, when the capacity of educational leaders is expected to engage meaningfully with digital tools and platforms as critical determinant for institutional effectiveness, competitiveness, and relevance (Scherer & Teo, 2019). Here, transformative digital literacy is the ability to critically, creatively, and purposefully engage with digital technologies to achieve meaningful change. It has emerged as an indispensable competency for educational administrators that seek building and sustaining leadership capacity in contemporary tertiary education settings (Gilster, 2017; Ng, 2021). In Nigerian higher education sector, there has been considerable expansion over the past years, especially with public universities playing a central role the national development (Obasi & Okeke, 2022). However, public universities in Nigeria continue to battle with significant challenges over managerial effectiveness, digital infrastructure, and the leadership capacity of educational administrators unto the

transformative ability. These challenges are quite pronounced in Cross River State, with compounding pressures of inadequate digital resources, inadequate professional development opportunities for administrators, with the increasingly demand on student population with evolving digital expectations (Bassey & Okon, 2022).

Calabar is in the heart of Cross River state, located in Nigeria's South-South geopolitical zone. In Calabar metropolis are the University of Calabar (UNICAL) and Cross River University of Technology (UNICROSS) hosting thousands of students, with staff (academic or administrative) in hundreds, necessitating the need for transformative digital literacy in a bid to attain leadership capacity building among the administrators. Calabar Metropolis occupies a historically significant position in the Nigerian educational landscape as one of the earliest centres of Western formal education in the country, tracing its educational heritage to the missionary activities of the Hope Waddell Training Institution established in 1895 (Effiong & Ekpenyong, 2021). This rich educational tradition has continued to shape the development of higher education in the metropolis, which today hosts two major public universities (University of Calabar; UNICAL and the University of Cross River; UNICROSS) that serve as the primary tertiary educational institutions for the people of Cross River State and the broader South-South region of Nigeria (Bassey & Okon, 2022).

The significance of this study lies in its ability to offer comprehensive insights into the current state of digital literacy and the leadership capacity of the administrators in public universities within Calabar Metropolis of Cross River State to identify possible challenges assess stakeholder opinions and propose recommendations for transformative digital literacy enhanced leadership capacity. Transformative digital literacy is in terms of Critical and Socio-Emotional Digital Literacy with leadership capacity building in terms of Instructional, Innovative and Collaborative Leadership Capacity among administrators of the public universities. This transformative digital literacy entails the ability to critically navigate, evaluate, and create digital content, leveraging technology in order to foster social change, equity, and inclusive knowledge production (Gutiérrez, 2017). It is driven by technological advancements and shifting societal needs, encompassing skills, knowledge, and practices that enable individuals to effectively engage with digital technologies, analyze information critically, then produce meaningful content (Hobbs, 2017) with emphasis on empowerment, creativity, and social responsibility. In university settings, robust technological infrastructure is very important for data analytics, intelligent tutoring systems, and administrative automation. Notably, various ICT resources can be used for AI utilization effective management (Nnaji and Unamba, 2024).

Critical Digital Literacy being the ability to critically search, evaluate, filter, and ethically use digital information for informed decision-making and leadership effectiveness in higher education settings is also the ability to critically analyze, evaluate, and challenge power dynamics, biases, and social injustices in digital environments (Gutiérrez, 2017). It involves recognizing and resisting oppressive systems, thereby promoting social justice, and amplifying marginalized voices (López, 2020). In Socio-Emotional Digital Literacy we are looking at the ability to communicate, collaborate, network, and build relationships effectively through digital platforms while maintaining ethical, empathetic, and inclusive digital interactions with staff and students. It is all about understanding and managing emotions, empathy, and relationships in digital environments (Goleman, 2017) with skills like: emotional awareness and regulation online (Kashmir, 2019), Digital empathy and compassion (Konrath, 2017) as well as Online conflict resolution and digital Citizenship (Ribble, 2017) On the other hand, Leadership capacity

building is the systematic process of developing the knowledge, skills, attitudes, and competencies required for effective leadership. It is a strategic priority for higher education institutions seeking to navigate the complexities of the digital era (Bush & Middlewood, 2019). When educational administrators possess strong digital literacy competencies, they are better positioned to foster innovative learning environments, drive institutional change, and inspire both staff and students for higher levels of academic and professional achievement (Fernandez & Shaw, 2020; Mhlana & Moloi, 2020). Drawing from related studies, Leadership Capacity Building can be in terms of : Instructional Leadership Capacity, Innovative Leadership Capacity and Collaborative Leadership Capacity.

While Instructional Leadership Capacity dwells on the ability of educational administrators to use digital literacy to improve teaching and learning processes, support academic staff development, and enhance student learning outcomes in public universities, Innovative Leadership Capacity is the capacity of educational administrators to leverage digital literacy in generating, implementing, and sustaining innovative ideas, programmes, and practices that drive institutional transformation and global competitiveness. Then Collaborative Leadership Capacity is the ability of educational administrators to use digital platforms and tools to foster teamwork, shared decision-making, and distributed leadership practices that build collective institutional capacity. This study draws from Shields' (2010) transformative leadership theory that emphasizes the role of leaders in challenging inequitable practices to foster deep, meaningful change within educational institutions. Also, Eshet-Alkalai's (2017) digital literacy framework of digital literacy as a multidimensional competency that encompasses photo-visual, reproduction, branching, information, and socio-emotional skills for a robust theoretical lens through which the relationship between transformative digital literacy and leadership capacity building can be studied and understood within Nigerian public universities especially within Calabar Metropolis, Cross River State.

Statement of the Problem

Digital transformation in tertiary institutions has placed unprecedented demands on educational administrators to display not only managerial competence but also robust digital literacy skills capable of effecting transformative institutional change. In public universities across Nigeria, educational administration remains largely disconnected from the demands of this digital era, whereas many administrators continue to operate traditional leadership frameworks which are not equipped enough for the complexities and opportunities presented by emerging digital technologies. This disconnect between the digital demands of contemporary higher education and the actual digital competencies of educational administrators leaves a critical leadership gap capable of confronting the competitive, innovative, and responsive capacity of Nigerian public universities in an increasingly digital global environment. In Cross River State, public universities face a compounding set of challenges that further expose this leadership capacity deficit. The educational administrators in the state struggle with limited access to digital infrastructure, inadequate exposure to transformative digital tools, and insufficient professional development of programmes, which could build their digital leadership competencies. These undermine the ability of administrators to provide effective digital leadership with far-reaching consequences for the quality of teaching, learning, and institutional governance within public universities in the Calabar Metropolis. This makes their students to be increasingly digital natives whereas their learning environments should reflect the technological realities of the 21st century. Despite the studies on digital literacy and

leadership capacity building globally, most existing studies focused on the digital competencies of teachers and students, with little attention given to the digital literacy needs and leadership capacity of educational administrators in public universities. This gap is particularly Cross River State, where no known empirical study has systematically investigated how transformative digital literacy predicts leadership capacity building among educational administrators in public universities within the Calabar Metropolis.

Purpose of the study

The objective of the study was to investigate the relationship between the transformative digital literacy and leadership capacity building among educational administrators in public universities within Calabar Metropolis, Cross River State. Specifically, the study sought to find out the:

1. relationship between Critical Digital Literacy and instructional, innovative and collaborative leadership capacity leadership capacity of educational administrators in public universities within Calabar Metropolis,.
2. relationship between Socio-Emotional Digital Literacy and instructional, innovative and collaborative leadership capacity leadership capacity of educational administrators in public universities within Calabar Metropolis.

Research Questions

1. How does Critical Digital Literacy relate with leadership capacity of educational administrators in public universities within Calabar Metropolis.
2. How does Socio-Emotional Digital Literacy relate with leadership capacity of educational administrators in public universities within Calabar Metropolis

Hypotheses

Ho₁: Critical Digital Literacy does not relate with leadership capacity of educational administrators in public universities within Calabar Metropolis

Ho₂: Socio-Emotional Digital Literacy does not relate with leadership capacity of educational administrators in public universities within Calabar Metropolis

Methods

Correlational survey, a design that focuses on examining the relationship between two or more variables was adopted for this study. It was carried out in Calabar metropolis; the location for the two public universities: University of Calabar (UNICAL) and University of Cross River State (UNICROSS). The study population was five thousand and eight (5,395). The sample comprised one thousand and seventy-nine (1,079) respondents including (626) staff members and, (453) students randomly selected from different departments of different faculties of the universities. The instruments used for the data collection were questionnaires titled “Transformative Digital Literacy Questionnaire” (TDLQ) and “Leadership Capacity Building among Educational Administrators Questionnaire” (LCBEAQ). They were validated by experts in administration in higher education from the Departments of Educational Management, and Measurement and Evaluation of the Department of Educational Foundations in the Faculty of Educational Foundation Studies, College of Education University of Calabar, Calabar. The instrument were divided into sections A and B. Section A measured the demographic variables of the respondents while Section B measured the Transformative Digital Literacy: Critical and Socio-Emotional Digital Literacy with 12 items; (6 items per sub-variables of the independent variable) and was administered to staff. The second instrument, “Leadership Capacity Building among Educational Administrators Questionnaire” (LCBEAQ) with 18 items (6 items per selected sub variables of leadership capacity) measured three sub

variables of the dimensions of leadership capacity of the educational administrators: universities: instructional, innovative and collaborative leadership capacity which was administered to students.

Results

Table 1: Cronbach Alpha reliability coefficients for all sub-scales in the study instrument (N=50)

Sub-scales	No. of items	X	SD	α
Critical Digital Literacy	6	15.87	2.42	.75
Socio-Emotional Digital Literacy	6	16.01	3.01	.86
Instructional Leadership Capacity	6	12.58	2.29	.79
Innovative Leadership Capacity	6	13.92	2.37	.91
Collaborative Leadership Capacity	6	12.56	2.63	.89

The scoring of the items in the questionnaire was constructed using ideas from literature related to the variables measured. The respondents were required to respond objectively based on their degree of agreement or disagreement on the attributes and phenomena measured was such that four to one point(s) were for positively worded. A total of 1,079 questionnaires were administered but 1,057 retrieved and used for data analysis in this study. Data obtained from field work were coded accordingly. The questionnaires were organized in the order of the variables that they were designed to measure and the responses of the respondents duly coded. Descriptive statistics was used to summarize the data generated from the questionnaires.

Table 2: Summary of descriptive statistics of the research variables N=626

S/N	Variables	$\bar{X}$	SD
1.	Critical digital literacy X_1	15.07	2.92
2.	Socio-emotional digital literacy X_2	14.51	2.39
3.	Instructional Leadership capacity Y_1	16.60	3.07
4.	Innovative Leadership capacity Y_2	17.42	2.81
5.	Collaborative Leadership capacity Y_3	16.88	2.95
6.	Overall Leadership capacity (Y_1-3)	50.84	5.89

Table 2 presented the means and standard deviations of the research variables. The highest mean value for the sub-variables of the independent variable was 15.07 for Critical digital literacy; This indicated that teachers sampled for this study engaged Critical digital literacy more than others. On the other hand, the highest obtained mean values for the sub-variables of the dependent variable was $\bar{X}=17.42$ for Instructional Leadership capacity, followed by Collaborative Leadership capacity ($X = 16.88$), and Innovative Leadership capacity ($X = 16.60$). However, the overall Leadership capacity indicated a mean value $\bar{X} = 50.84$. The standard deviations obtained for all the sub-variables were moderate, with equal spread on the pattern of the responses of staff sampled for this study.

Research Question one: How does Critical Digital Literacy relate with leadership capacity of educational administrators in public universities within Calabar Metropolis. To analyze this research question, the Pearson Product Moment Correlation analysis was employed and the results are as shown in Table 3.

Table 3: Summary of the analysis of the relationship between Critical Digital Literacy and leadership capacity of educational administrators in public universities within Calabar Metropolis

Variables	$\bar{X}$	SD	R
Critical digital literacy (X_1)	15.07	2.92	
Innovative Leadership capacity (Y_1)	16.60	3.07	.252
Instructional Leadership capacity (Y_2)	17.42	2.81	.084
Collaborative Leadership capacity (Y_3)	16.88	2.95	.338
Overall Leadership capacity ($U_1 - Y_3$)	50.84	5.89	.384

Table 3 showed that relationship between Critical digital literacy and all the sub variables of Leadership capacity were positive. However, it was weak for Innovative Leadership capacity ($r = .252$) and Instructional Leadership capacity ($r = .184$); whereas for Collaborative Leadership capacity and overall Leadership capacity the relationship was moderate ($r = .338$ & $r = .384$) respectively. In other words, as Critical digital literacy increases, all sub-variables of the Leadership capacity increased too.

Research question two: How does Socio-Emotional Digital Literacy relate with leadership capacity of educational administrators in public universities within Calabar Metropolis. To answer this research question, the Pearson Product Moment Correlation analysis was employed and the results are as shown in Table 4.

Table 4: Summary of the analysis of the relationship between Socio-Emotional Digital Literacy and the sub variables of leadership capacity of educational administrators in public universities within Calabar Metropolis

Variables	$\bar{X}$	SD	R
Socio-Emotional Digital Literacy (X_2)	14.51	2.39	
Innovative Leadership capacity (Y_1)	16.60	3.07	.016
Instructional Leadership capacity (Y_2)	17.42	2.81	.210
Collaborative Leadership capacity (X_3)	16.88	2.95	.177
Overall leadership capacity ($Y_1 - Y_3$)	50.84	5.89	.009

Table 4 showed that the relationship between Socio-Emotional Digital Literacy and Innovative Leadership capacity ($r = .016$) and Collaborative Leadership capacity ($r = .177$), were weak and positive. On the other hand, the relationship between Socio-Emotional Digital Literacy and Instructional Leadership capacity ($r = -.210$) and overall leadership capacity ($r = -.009$) were negative. This means that increase in Socio-Emotional Digital Literacy results in a decrease in both Instructional Leadership capacity and overall leadership capacity of the staff sampled for this study.

Hypothesis one:

H₀₁: Critical Digital Literacy does not relate with leadership capacity of educational administrators in public universities within Calabar Metropolis

In this hypothesis, the independent variable is **Critical Digital Literacy**, while the dependent variable is leadership capacity of educational administrators (Instructional Leadership capacity, Innovative Leadership capacity and collaborative Leadership capacity and overall Leadership capacity). To test this hypothesis, the Pearson Product Moment correlation analysis was employed and the results are as shown in Table 5

Table 5: Summary of the analysis of the relationship between Critical Digital Literacy and the sub-variables of Leadership capacity (N=626)

Variables	$\bar{X}$	SD	R	Sig
Critical Digital Literacy (X_1)	15.07	2.92		

Innovative Leadership capacity (Y ₁)	16.60	3.07	.25*	.0017
Instructional Leadership capacity (Y ₂)	17.42	2.81	.18*	.001
collaborative Leadership capacity (Y ₃)	16.88	2.95	.034*	.001
Overall Leadership capacity (Y ₁ - Y ₃)	50.84	5.89	.38*	.001

*Significant at $p < .05$, $df = 624$.

Table 5 showed the correlation coefficients of the relationship between Critical Digital Literacy and Leadership capacity in terms of Innovative Leadership capacity, Instructional Leadership capacity, collaborative Leadership capacity and overall Leadership capacity.

The results revealed that the relationship between Critical Digital Literacy and Innovative Leadership capacity ($r = .25^*$) Instructional Leadership capacity ($r = -.18^*$), collaborative Leadership capacity ($r = .34^*$) and overall Leadership capacity ($r = .38^*$) were all statistically significant at .05 level with 624 degrees of freedom. Hence, the null hypothesis was rejected for all the sub variables of Innovative Leadership capacity, Instructional Leadership capacity, collaborative Leadership capacity and overall Leadership capacity. This means that as Critical Digital Literacy increases, all the sub variables of Leadership capacity increase for the staff sampled for this study and vice versa.

Hypothesis 2

H₀₂: Socio-Emotional Digital Literacy does not relate with leadership capacity (Instructional Leadership capacity, Innovative Leadership capacity, collaborative Leadership capacity and overall Leadership capacity) of educational administrators in public universities within Calabar Metropolis. In this hypothesis, the independent variable is Socio-Emotional Digital Literacy, while the dependent variable is **leadership capacity**: Instructional Leadership capacity, Innovative Leadership capacity, collaborative Leadership capacity and overall Leadership capacity. To test this hypothesis, the Pearson Product Moment correlation analysis was employed and the results are as shown in Table 6.

Table 6: Summary of the analysis of the relationship between Socio-Emotional Digital Literacy and the sub-variables of Leadership capacity (N = 626)

Variable	$\bar{X}$	SD	R	Sig
Socio-Emotional Digital Literacy	14.51	2.39		
Innovative Leadership capacity	16.60	3.07	.02	.092
Instructional Leadership capacity	17.42	2.81	-.21*	.001
collaborative Leadership capacity	16.88	2.95	.18*	.001
Overall Leadership capacity	50.84	5.89	.01	.813

*Significant at $p < .05$, $df = 624$.

Table 6 showed the correlation coefficient of the relationship between Socio-Emotional Digital Literacy and Instructional Leadership capacity and Leadership capacity in terms of Innovative Leadership capacity, Instructional Leadership capacity, collaborative Leadership capacity and overall Leadership capacity. The results revealed that the relationship between Socio-Emotional Digital Literacy and Instructional Leadership capacity ($r = -.21^*$) and collaborative Leadership capacity ($r = .18^*$) were statistically significant at .05 level with 624 degrees of freedom. Hence, the null hypothesis was rejected for Instructional Leadership capacity and lesson delivery. On the other hand, the results revealed that the relationship between **Socio-Emotional Digital Literacy** and Innovative Leadership capacity ($r = -.02$) and overall Leadership capacity (r

=-.01) were not statistically significant. Hence, the null hypothesis was upheld for the variables of Innovative Leadership capacity and overall Leadership capacity. This means that as Socio-Emotional Digital Literacy increases, Instructional Leadership capacity decreases and collaborative Leadership capacity increases for the staff sampled for this study.

Discussion

The findings of this study revealed that the relationship between Critical Digital Literacy and Innovative Leadership capacity, Instructional Leadership capacity, collaborative Leadership capacity and overall Leadership capacity were all statistically significant at .05 level with 624 degrees of freedom thereby rejecting the null hypothesis for all the sub-variables of the dependent variable in terms of Innovative Leadership capacity, Instructional Leadership capacity, collaborative Leadership capacity and overall Leadership capacity in public universities within Calabar Metropolis. The next finding indicated correlation coefficient of the relationship between Socio-Emotional Digital Literacy and Instructional Leadership capacity and Leadership capacity in terms of Innovative Leadership capacity, Instructional Leadership capacity, collaborative Leadership capacity and overall Leadership capacity. The results revealed that the relationship between Socio-Emotional Digital Literacy, Instructional Leadership capacity, and collaborative Leadership capacity were statistically significant. Hence, the null hypothesis was rejected for Instructional Leadership capacity and collaborative Leadership capacity. On the other hand, the results revealed that the relationship between Socio-Emotional Digital Literacy and instructional planning and overall Leadership capacity were not statistically significant. Hence, the null hypothesis was upheld for the variables of Innovative Leadership capacity and overall Leadership capacity. This means that as Socio-Emotional Digital Literacy increases, Instructional Leadership capacity decreases and collaborative Leadership capacity increases for the staff sampled for this study.

The significance of Socio-Emotional Digital Literacy on Instructional Leadership capacity and collaborative Leadership capacity may underscore the importance of addressing these specific aspects to enhance Leadership capacity. And the insignificance of Innovative Leadership capacity may suggest that when the integration of Socio-Emotional Digital Literacy is excessively focused on Innovative Leadership capacity alone, it might not contribute positively to Leadership capacity or could even have a counterproductive effect. The implication of this finding is that a comprehensive approach that considers Leadership capacity, with focus on Instructional Leadership capacity and instructional delivery is crucial for optimizing Leadership capacity in public universities within Calabar Metropolis.

Conclusion

Based on the results of the study, it was conclude that as Socio-Emotional Digital Literacy increases, Instructional Leadership capacity decreases and collaborative Leadership capacity increases for the staff sampled for this study. In addition, a comprehensive approach that considers Leadership capacity, with focus on Instructional Leadership capacity and Collaborative Leadership capacity is crucial for optimizing Leadership capacity in public Universities in Calabar metropolis

Recommendations

Based on the findings of this study, the following recommendations are proposed:

1. The universities administrators should integrate the Critical Digital Literacy in order to effectively manage the universities.

2. The public universities (UNICAL and UNICROSS) administrators should adopt the critical and socio-emotional digital literacy in their leadership capacity building.
3. The public universities should embrace the relevance of digital technology in educational administration with instructional, innovative and collaborative capacities across all the departments.

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