

**A LEARNING ANALYTICS APPROACH TO MODELLING  
STUDENT-STAFF INTERACTION BASED ON STUDENTS'  
PERCEPTION OF ENGAGEMENT PRACTICES**

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**JULY, 2022**

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PERCEPTION OF ENGAGEMENT PRACTICES**

**BY**

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**A DISSERTATION SUBMITTED TO THE SCHOOL OF  
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DEPARTMENT OF COMPUTER AND INFORMATION SCIENCES,  
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UNIVERSITY, OTA.**

**JULY, 2022**

## **ACCEPTANCE**

This is to attest that this dissertation is accepted in partial fulfilment of the requirements for the award of the degree of Master of Sciences in Management and Information Systems in the Department of Computer and Information Systems, College of Science and Technology, Covenant University, Ota, Nigeria.

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## **DECLARATION**

I, **SAMUEL, SETH (20PCH02196)** declare that this research was carried out by me under the supervision of Prof. Olufunke O. Oladipupo of the Department of Computer and Information Sciences Science, College of Science and Technology, Covenant University, Ota, Ogun State, Nigeria. I attest that this dissertation has not been presented either wholly or partially for the award of any degree elsewhere. All sources of data, scholarly information used in this dissertation are duly acknowledged.

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**Signature and Date**

## **CERTIFICATION**

We certify that this dissertation titled “**A LEARNING ANALYTICS APPROACH TO MODELLING STUDENT-STAFF INTERACTION BASED ON STUDENTS’ PERCEPTION OF ENGAGEMENT PRACTICES**” is an original research carried out by **SAMUEL, SETH (20PCH02196)** in the Department of Computer and Information Sciences, College of Science and Technology, Covenant University, Ota, Ogun State, Nigeria under the supervision of Prof. Oladipupo O. Olufunke. We have examined and found this work acceptable as part of the requirements for the award of Master of Science (M.Sc.) in Management and Information Systems.

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## **DEDICATION**

I dedicate this dissertation to the Almighty God unreservedly.

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## LIST OF ABBREVIATIONS

NSSE	National Survey of Student Engagement
LA	Learning Analytics
CL	Collaborative Learning
HO	Higher-Order Learning
DD	Discussions with Diverse Others
SE	Supportive Environment
SS/SSI	Student-Staff Interaction
LS	Learning Strategies
QR	Quantitative Reasoning
QI	Quality of Interactions
ET	Effective Teaching
RI	Reflective and Integrated Learning
HEI	Higher Education Institutions
EM	Engagement Measure
EI	Engagement Indicator
RMSEA	Root Mean Square Error of Approximation
CFI	Confirmatory Factor Index
GFI	Goodness of Fit Index
TLI	Tucker-Lewis Index
CUSE	Covenant University Survey of Engagement
SEM	Structural Equation Modelling
CU	Covenant University
DUT	Durban University of Technology

## ABSTRACT

*Numerous studies have discovered a strong correlation between student-staff interaction (SSI) and improved student and institutional outcomes, making it a prominent research topic on student engagement and quality learning in higher education. This study took a novel approach to construct a student-staff interaction model by analysing the associative relationships between the engagement indicators of the National Survey of Student Engagement (NSSE), a widely used instrument for measuring student engagement. The Frequent Pattern growth algorithm was used to identify intriguing associations between the engagement indicators, followed by structural equation modelling to investigate the most intriguing structurally modelled rules. This research pushes the boundaries of studies aimed at enhancing student engagement and outcomes by revealing the precarious factors that influence student-staff interaction. The unique contribution of this study lies not only in the methodology employed but also in the validated models of student-staff interaction that were produced. This research will therefore enable the development of ideas, policies, and best practices associated with enhancing student engagement through student-staff interaction in higher education to enhance student performance and learning quality.*

*Keywords: student-staff interaction model; student engagement; learning analytics*