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Transforming teaching evaluation through Power BI and automation

Tshepo Rabotapi, [1] Zanoxolo Dlamini,[1] Sanele Mpisi, [1] Minentle Nkebane, [1] Zikona Macibela, [1] Clever Ndebele [2]

[1]*Learning and Teaching with Technology Unit, Directorate of Learning and Teaching, Walter Sisulu University, Mthatha, Republic of South Africa*
[2]*Department of Continuing Professional Teacher Development, Faculty of Education, Walter Sisulu University, Mthatha, Republic of South Africa*

Corresponding author, email: trabotapi@wsu.ac.za

Abstract

This study examines the transformation of the Evaluation of Teaching (EOT) process at a rural South African university through the implementation of Microsoft Forms, Power Automate, Excel, SharePoint and Power BI. The study used a convergent mixed-methods single-case design, combining quantitative EOT records from 2022 to 2024 with qualitative reflections from five educational technologists involved in the system's development and implementation. Quantitative data were analysed using participation, departmental and faculty coverage, lecturer and module count, and submission totals. Qualitative data were analysed to identify participants' experiences, perceived improvements and continuing challenges. The quantitative results show an expansion from 2 faculties, 5 departments, 53 lecturers and 151 modules in 2022 to 7 faculties, 35 departments, 564 lecturers and 1,045 modules in 2024. Student evaluation submissions increased from 787 to 13,748 over the same period. Participants reported that centralised data collection, standardised workflows and Power BI dashboards made data analysis and access to evaluation results more manageable. However, individual report generation remained labour-intensive, while communication gaps, inaccurate institutional data and inconsistent departmental cooperation continued to affect implementation. The findings suggest that low-code digital tools can support the scaling and coordination of teaching evaluation processes. However, the observed growth cannot be attributed solely to automation, and the study does not establish that the system directly improved teaching quality or student learning. The study highlights the importance of combining technological infrastructure with organisational coordination and ongoing system refinement when implementing digital teaching evaluation in resource-constrained higher education contexts.

Keywords: Learning analytics; evaluation of teaching; power BI; institutional feedback; automation

Introduction

The evaluation of teaching (EOT) in higher education serves multiple key purposes, including improving the overall quality of education for both students and institutions (Quansah et al., 2024). EOT also provides constructive feedback for teachers' professional growth (Shaik et al., 2023), improves learning experiences, helps in the improvement of courses, curricula, texts, and teaching materials (Quansah et al., 2024) provides quality assurance of course (Williams, 2024), helps to inform decisions concerning tenure, promotion, and salary increases (Rolph et al., 2023) and guides decisions about programs, leading to a continual improvement of academic programs and services(Dayanghirang & Hernandez, 2022).

At the institution studied, the EOT has evolved significantly over time. Initially, paper-based forms were distributed by Heads of Departments (HoDs) during class sessions. Once completed, HoDs analysed the responses and discussed the feedback with the respective lecturers. These hard copies were then stored in physical files for future reference. However, this method had notable limitations: it was manual and time-consuming, making it difficult to track or

reflect on past performance without sorting through large volumes of paperwork.

With the introduction of the educational technology role at the institution, the institution shifted to Google Forms. A central Google account was created, housing a dedicated folder for the EOT, in which forms were organised by campus/faculty/department. When an HoD or lecturer required an evaluation, they would submit the relevant module codes and lecturers' names to the educational technologist, who would then create the necessary forms, share links with the lecturers, and upload them to the learning management system. After the evaluation period, the results page was exported as a PDF and shared with the requester for review.

While this represented an improvement, it quickly became unsustainable. The university has over 5,000 modules and only a small number of educational technologists, making this process labour-intensive and difficult to scale. Moreover, the data generated by this method was stored in fragmented files with limited capacity for analysis or strategic use, rendering its impact largely immeasurable.

These limitations highlighted the need for a more integrated and holistic approach. There was a growing demand to understand student experiences not just at the module or lecturer level, but across faculties, departments, and academic support units, so that deans, HoDs, academic developers, and lecturers could make data-driven decisions. In response, the educational technologists at South African University proposed a centralised, scalable evaluation model in 2021. It was piloted in two faculties in 2022 and extended to the whole university in 2024.

In the literature, previous efforts to improve teaching evaluation have largely concentrated on moving from paper-based to online surveys. Kanwar and Sanjeeva (2022) note that online surveys allow students to respond without disclosing their identities, which may encourage more honest feedback. However, Constantinou and Wijnen-Meijer (2022) and Rolph et al. (2023) report that online evaluations tend to attract lower response rates than in-class surveys, which weakens the representativeness of the results. Other work has turned to analytics. Ifenthaler and Yau (2020) describe learning analytics as a way of converting collected data into actionable insights, while Sufi (2023) argues that low-code/no-code platforms such as the Microsoft Power Platform allow people without programming expertise to automate data workflows. In the South African context, Lemmens and Ntshabele (2021) point to centralised data systems in institutional research practice in Gauteng.

Despite these efforts, three gaps remain. First, Sufi (2023) shows that low-code/no-code platforms can automate data workflows. However, few studies document how low-cost tools such as Microsoft Forms, Power Automate, and Power BI can be spanning the entire university. Second, much of the work on analytics-based feedback, including that of Ifenthaler and Yau (2020), does not address resource-constrained, rural university contexts, where limited staffing and infrastructure restrict what can be implemented. Third, Olmstead (2025) argues that the success of electronic system transitions depends less on technical configuration than on user adoption and sustained engagement. However, little is known about the experiences of the educational technologists who design, run, and sustain these systems in higher education.

This study addresses these gaps by examining the development and implementation of a centralised EOT system at a rural South African university using Microsoft Forms, Power Automate, and Power BI. It brings together institutional EOT records from 2022 to 2024 and descriptive reflections from the educational technologists involved in the implementation. The study contributes a practical account of how existing digital tools were combined to support centralised teaching evaluation, documents change in institutional coverage and evaluation submissions during the implementation period practitioner perspectives on the organisational and operational factors that supported or constrained implementation. It provides practitioner perspectives on the organisational and operational factors that supported or constrained implementation. It does not isolate the effect of automation from other changes occurring during the same period.

Research questions

Given the transition from fragmented manual processes to a centralised, automated EOT system, this study sought to understand both the *system-level impact* of the new approach and the *human experiences* of those who developed and implemented it. To achieve this, the study draws on two data sources: quantitative institutional EOT records and qualitative reflections from educational technologists guided by Gibbs' Reflective Cycle.

RQ1: How do educational technologists reflect on the development and implementation of the new centralised EOT system?

- RQ1a: What challenges did educational technologists encounter during the design, deployment, and adoption of the new system?
- RQ1b: How did their perceptions, emotions, and engagement with the system change over time?
- RQ1c: What strategies or actions were used to address challenges and support system adoption?
- RQ1d: What lessons and recommendations do educational technologists identify for improving future EOT processes?

RQ2: How did the implementation of Microsoft Forms, Power Automate, and Power BI change the scale and operation of the EOT process, particularly in relation to evaluation submissions, reporting workflows, and departmental engagement?

RQ3: What insights emerge when combining quantitative EOT trends with qualitative reflections, and how can these inform continuous improvement of teaching evaluation practices?

Literature review

Feedback Loops and the Learning Analytics Cycle

Learning analytics has evolved into a critical tool for enhancing teaching and learning in higher education. It involves the systematic collection, processing, and analysis of learner data to generate actionable insights (Ifenthaler & Yau, 2020). This data-driven approach supports academic success, quality assurance (QA), and institutional improvement by leveraging both structured and unstructured data.

In this study, Clow's (2013) Learning Analytics Cycle provides a conceptual lens for understanding how evaluation data can inform institutional decision-making and continuous improvement. It is used to interpret the relationship between data collection, analysis, interpretation and subsequent action, rather than as a procedure for analysing the research data. The quantitative and qualitative data analysis procedures are described separately in the methodology.

Clow's (2013) Learning Analytics Cycle remains foundational, outlining four key stages: data collection, analysis, interpretation, and intervention, a process vital for closing feedback loops in teaching evaluation systems.

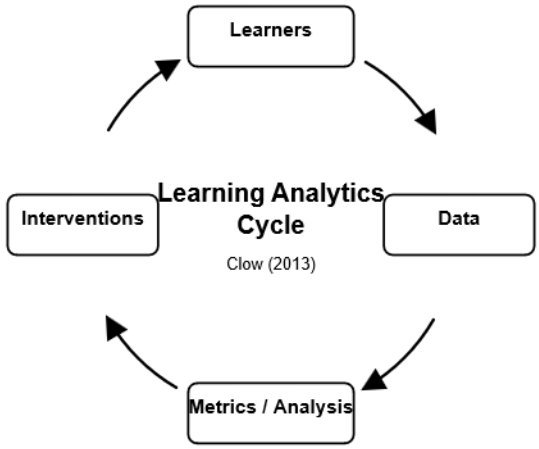


Figure 1. Clow's (2013) Learning Analytics Cycle

Data Collection: Higher education institutions (HEIs) gather data from surveys, learning management systems (LMS), assessments, and increasingly, digital footprints from online platforms (López-Pernas et al., 2021). These datasets often include student ratings, written comments, and usage patterns.

Analysis: Advanced analytics techniques, such as natural language processing (NLP) and machine learning, are used to analyse qualitative

feedback and detect sentiment or patterns. These techniques help identify recurring concerns or praise in student evaluations (Di Mitri et al., 2018).

Interpretation: The analysed data is translated into meaningful insights about instructional quality, engagement, and learning design. For instance, sentiment analysis can highlight dissatisfaction with course/ module materials or delivery modes, prompting timely reviews (Noroozi, 2023).

Intervention: Based on these insights, institutions can act by offering targeted professional development, redesigning assessments, or providing real-time feedback to students (Ifenthaler & Yau, 2020). This continuous improvement approach supports both faculty growth and student success.

Incorporating learning analytics into teaching evaluation systems enables HEIs to move beyond numeric averages and gain a deeper understanding of student experiences. Tools such as dashboards can present key performance indicators (KPIs), highlight areas requiring focused intervention, and enable more evidence-based institutional decision-making, particularly through centralised data systems (as seen in institutional research practices; the Gauteng case study by Lemmens & Ntshabele (2021). As feedback loops become increasingly digitised and data-rich, learning analytics ensures that evaluation processes are timely, actionable, and aligned with strategic goals.

Gibbs' reflective cycle

The transition from one system to a new electronic system represents a significant organisational change initiative. Success in such implementations relies less on technical configuration and more on the human element, specifically user adoption and sustained engagement (Olmstead, 2025). Gibbs' model, which is centred on Description, Feelings, Evaluation, Analysis, Conclusion, and Action Plan, provides a systematic progression that enables respondents to move from recounting events to engaging in deeper critical analysis and identifying strategies for improvement. The value of this systematic structure is strongly supported by South African scholars in educational contexts. de Klerk et al. (2024) note that Gibbs' model supports rigorous, critical reflection within the context of student-centred transformation in higher education, while the work of Maphanga (2024) demonstrates that its staged approach enhances reflective depth by providing clear guidelines for integrating emotional, analytical, and forward-looking dimensions in professional practice.

Each stage plays a distinct and crucial role in strengthening reflective quality and ensuring a comprehensive analysis:

- Description: Establishes the factual baseline of the experience. (Maphanga, 2024, P. 115)
- Feelings: Captures the emotional and psychological responses that often shape engagement with new systems. (Maphanga, 2024, p. 116)
- Evaluation: Allows for balanced consideration of positive and negative aspects. (Maphanga, 2024, p. 117)
- Analysis: Supports sense-making by probing the underlying causes of outcomes. (Maphanga, 2024, p. 117)
- Conclusion: Distils lessons learned and frames an ideal future response. (Maphanga, 2024, p. 118)
- Action Plan: Translates reflection into concrete improvement strategies. (Maphanga, 2024, p. 119)

South African applications of the model, such as in nursing education (Van Rensburg & Botma, 2015) and teacher development (Maphanga, 2024), further affirm its value for guiding professional learning and supporting continuous improvement in organisational processes.

Digital tools for evaluation and data use

The digital transformation in higher education has led to a significant shift towards adopting and integrating digital tools for evaluation and data use. This evolution is

characterised by the emergence of new technologies and methodologies, alongside persistent challenges and ethical considerations.

EOT typically involves anonymous questionnaires, often using Likert scales, along with open-ended questions for comments and suggestions (Rolph et al., 2023; Tran & Do, 2022). They cover aspects such as course organisation, clarity, teacher-student interaction, course difficulty, grading, and teaching content (Quansah et al., 2024). The shift from paper-based to online surveys is now mainstream. Online surveys allow students to participate without disclosing their identities, which helps avoid biased responses or pressure, promoting more honest feedback (Kanwar & Sanjeeva, 2022).

The increasing use of online student evaluations of teaching (SETs), however, can lead to lower response rates compared to in-class surveys. (Constantinou & Wijnen-Meijer, 2022; Rolph et al., 2023). Students may perceive little benefit from completing SETs, believing that their feedback does not lead to improvements, which contributes to low participation. Other challenges to SET completion include the frequency and length of surveys, as well as question ambiguity and a misunderstanding of the importance of SETs. Students often prefer SETs that take less than 10 minutes to complete. A low response rate can render the sample unrepresentative, thereby calling into question the validity of the assessment. For instance, a completion rate as low as 8% has been observed, which is too low for valid representation.

According to Sufi (2023), the past two decades have seen a significant evolution of algorithms from machine code towards low-code-no-code (LCNC) platforms. These platforms, such as Microsoft Power Platform, which includes Microsoft Power BI and Power Automate, have become widely adopted across sectors, including research and education. They further provide simple cloud-based interfaces that enable individuals without extensive coding experience, including non-programmer scientists or researchers, to drag-and-drop required algorithms to develop complex technology solutions.

Microsoft Power BI, a business Intelligence tool and an LCNC platform, enables dashboards that provide visual representations of big data collected from various sources, including traditional systems and social media, enabling stakeholders to monitor compliance with Quality Assurance (QA) standards. These dashboards can be configured to restrict access based on user roles and permissions, ensuring that department heads, for instance, only view data relevant to their specific department for data security and integrity.

Power Automate is designed to empower users, including non-programmers and researchers, to automate tasks and apply complex artificial intelligence (AI)-based algorithms without needing to manually write code (Sufi, 2023). A researcher can automate the process of evaluation by using Power Automate to fetch answers from Microsoft Forms, anonymise them, send them to a data store like Excel, where Power BI can read it and update dashboards for stakeholders.

Despite the substantial benefits, the automation of evaluation processes in higher education must be aware to protect Data Security and Privacy: The shift to online platforms places a significant responsibility on HEIs to ensure the security of their data. A lack of robust cybersecurity measures can lead to reputation damage from data breaches.

Although digital tools can centralise evaluation data and support analysis, their introduction does not in itself establish that evaluation processes have become more effective. Online evaluation still raises questions about student response rates and the representativeness of feedback, while the practical value of dashboards depends on whether staff can access, interpret and act on the information. These considerations are particularly relevant in the present study, which examines not only the expansion of an institutional EOT system but also the experiences of educational technologists involved in its implementation. By examining institutional records alongside their reflections, the study considers both changes in the scale of evaluation and the operational challenges that persisted after centralisation. It therefore

contributes a context-specific account of the implementation of a technology-enabled EOT process at a South African university, rather than assuming that the adoption of digital tools necessarily improves teaching quality or student learning.

Rationale for data and reflective frameworks

The use of Gibbs' Reflective Cycle provides a structured approach for educational technologists to critically examine the development and adoption of the new EOT system. By guiding participants through description, feelings, evaluation, analysis, conclusion, and action planning, the model enables a systematic exploration of both the challenges and successes encountered during the implementation process. Reflections capture insights into how the adoption of Microsoft Forms, Power Automate, and Power BI streamlined feedback collection, improved reporting efficiency, and enhanced engagement with evaluation data across departments.

While data-driven frameworks, such as Clow's Learning Analytics Cycle, offer a lens for understanding feedback loops and actionable insights, the primary contribution of this study is reflective: it illuminates the human and organisational dimensions of adopting a technology-mediated evaluation system. The combination of structured reflection and observable improvements in participation rates, report turnaround times, and stakeholder engagement underscores how reflective practice can complement technological solutions to promote continuous quality improvement in teaching evaluation.

System design and implementation

To address the limitations of previous evaluation methods and enable a more centralized, scalable, and actionable system, a new digital EOT system was designed and implemented. This system was developed in response to challenges such as paper-based data collection, fragmented Google Forms evaluations, and the lack of consistent mechanisms for analyzing and reporting on student feedback across more than 5,000 modules.

System architecture and tools

The system was built using a combination of widely available and institutionally supported tools. Microsoft Forms was used for data collection. Each academic department was allocated its own standardised evaluation form. Power Automate was used to create a flow that captures each response and formats it into a single Microsoft Excel sheet. This flow removed personal student information to ensure anonymity and standardised the data, ensuring each column contained correct information to make it suitable for analysis.

SharePoint served as the central repository for all evaluation data, enabling secure access to all educational technologists and easy collaboration. Power BI was used to develop interactive dashboards from the Excel sheet and generate automated summary reports first for the whole university, then for the faculties, departments, and lecturers. Key individuals within the university were then given access to interact with the reports, create PDFs, and share them in appropriate stakeholder meetings.

Process Workflow

The first step was Form Creation, where A master evaluation template was created with standard items as designed by academic developers, then the Departmental Forms were created using a Microsoft Forms standardised template. The data on which lecturers teach which module was requested from departmental secretaries; these forms were hosted under a central institutional Microsoft SharePoint account. The form Links were shared with students via learning management systems, WhatsApp, training interventions, and in some cases, departments had their students in lecturer halls specifically to improve participation rates.

During Data collection, responses were automatically captured and stored in Microsoft Forms, then cleaned and consolidated into a standardised master Excel file using a Power Automate flow. The master dataset was connected to Power BI, where pre-built dashboards aggregated and visualised results by module, lecturer, department, and faculty. Departmental

and individual lecturer reports were then generated and distributed by the academic development unit, quality assurance personnel, or HODs. Faculty deans and other high-ranking officials could also access high-level summaries for strategic planning.

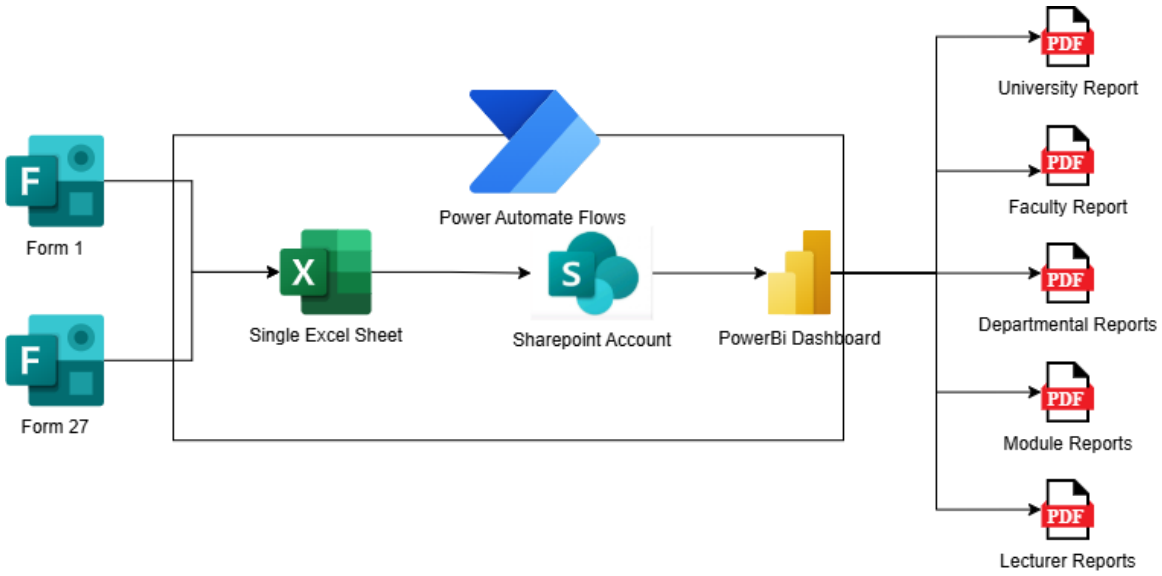


Figure 2. System Design and Tools(Author, 2026)

Implementation Strategy

The rollout followed a phased approach. For Pilot Testing, the system was first tested in selected faculty in 2022 to assess feasibility and identify usability issues. Several Stakeholders were engaged, including heads of Departments, lecturers, and academic developers, who were consulted to refine the form design and distribution process. Short training sessions and video guides were provided to department coordinators and academic staff. Participation rates and response quality were monitored during implementation, with technical support available to troubleshoot issues.

System improvements and benefits

Compared to the previous paper-based and Google Forms systems, the new EOT system provides a centralised and historical database of evaluations across years and departments and reduces administrative burden through automation and standardisation. Real-time insights via dashboards that help identify teaching strengths and areas for improvement. Data-driven decision-making for academic development, faculty support, and institutional planning. and improved transparency and feedback loops between students and teaching staff.

Methods

Research approach and design

The study adopted a pragmatic, mixed-methods approach, because the research questions required both measurable evidence of the system's reach (RQ2) and an understanding of how those who built it experienced the change (RQ1). It used a single-case design with a convergent (concurrent triangulation) mixed-methods structure. The case was the redesign of the EOT system at a South African University. Quantitative participation data and qualitative reflections were collected over the same period and analysed separately. The two sets of findings were then merged and compared to see where they agreed, where they differed, and how each helped explain the other (RQ3). A case design suited the study because the system was examined within its real institutional setting, where technology and organisational context were inseparable. A convergent design suited it because the two data types addressed different questions and neither depended on the other for its collection.

Clow's (2013) Learning Analytics Cycle (data collection, analysis, interpretation, intervention) served as the framework for how the EOT system works and for interpreting the

quantitative trends. Gibbs' (1988) Reflective Cycle informed the design of the qualitative questionnaire and the organisation of participants' responses.

Context and participants

The study focuses on the experiences of educational technologists responsible for supporting the adoption and implementation of emerging technologies across the university. These participants play a central role in researching innovative tools, providing guidance to academic departments, and facilitating transitions from traditional to digital processes. Participants were selected based on their direct involvement with the EOT system, providing insights into both the operational and strategic aspects of system adoption. Their professional expertise and engagement in multiple faculties offered a comprehensive perspective on the challenges and successes associated with transitioning from a fragmented, manual evaluation process to a centralised, automated system. This context allows the study to capture the nuanced experiences of those tasked with bridging technological innovation and academic practice within a resource-constrained environment.

Data Sources

The primary quantitative data for this study were drawn from the university's annual EOT reports. These reports provide longitudinal data on the adoption and reach of the EOT system, tracking its expansion from a single faculty to the entire institution. Key metrics captured include participation rates, the average number of feedback responses per faculty, module, and lecturer, and year-on-year trends in participation across faculties, individual lecturers, and modules. This dataset allows for an assessment of both the scale and effectiveness of the EOT system over time, providing evidence of improvements in engagement and coverage following the implementation of the new centralized, technology-enabled process.

Qualitative data. Reflections were collected through a structured, open-ended questionnaire completed by five educational technologists directly involved in developing and implementing the EOT system. The questionnaire was built on Gibbs' Reflective Cycle and had six stages: Description, Feelings, Evaluation, Analysis, Conclusion, and Action Plan. The staged structure moves respondents from recounting events to critical analysis and improvement strategies, and it supports both emotional and analytical reflection (de Klerk et al., 2024; Maphanga, 2024). To check content validity, the questionnaire was reviewed by a senior academic, who confirmed that it aligned with the requirements and depth expected within the Gibbs framework.

Data analysis

For the quantitative EOT data, Microsoft Excel was used to calculate key metrics, including participation rates, average responses per module or lecturer, and longitudinal trends across faculties and departments. These calculations enabled the identification of areas requiring attention and informed evidence-based decision-making. Relevant stakeholders, including heads of departments, faculty deans and academic developers, were engaged to contextualise the quantitative findings and assess their implications for EOT practices and institutional processes. The qualitative data consisted of open-ended responses from five educational technologists who participated in a structured reflective questionnaire informed by Gibbs' Reflective Cycle. The responses were examined and presented according to the questionnaire questions, which addressed participants' experiences of implementing the EOT system, their perceptions of the new system compared with the previous manual process, their initial feelings, and how their feelings evolved over time. Participants' views were described in the Results section and illustrated using selected quotations. Relevant literature was used to contextualise and discuss their observations. The responses were not formally coded, and themes were not systematically developed across the dataset. The qualitative findings therefore provide a descriptive account of participants' reported experiences rather than a formal thematic analysis.

The quantitative and qualitative findings provide complementary perspectives on the implementation of the EOT system. The

quantitative results document an expansion in institutional coverage, from two faculties in 2022 to seven in 2024, alongside an increase in student evaluation submissions from 787 to 13,748. Participants' accounts provide context for understanding the implementation experience, describing benefits associated with centralised form creation and analysis, as well as persistent challenges involving departmental cooperation, data collection and individual report production. Taken together, the findings indicate that the expansion of the system coincided with perceived improvements in certain aspects of the workflow, while operational and organisational challenges persisted. The study cannot establish that automation alone caused the observed increase in evaluation submissions.

Trustworthiness of the qualitative component

The trustworthiness of the qualitative component was considered using Lincoln and Guba's (1985) criteria of credibility, dependability, confirmability and transferability. Credibility was supported in three ways: participants were purposively selected because of their direct and sustained involvement in designing and running the EOT system; the reflective questionnaire was reviewed by a senior academic, who confirmed that its items aligned with the depth expected within the Gibbs framework; and participants' accounts were compared with the institutional EOT records, so that reported changes in workflow could be checked against the participation and coverage data. Dependability was supported by using a single structured instrument with the same six Gibbs stages for all participants, and by retaining participants' responses in their original form so that the sequence of questioning and reporting could be traced. Confirmability was supported by reporting participants' views in their own words through verbatim quotations and by indicating where accounts diverged, for example where one participant reported no change in experience while others reported improvement. Transferability was supported by describing the institutional context, the phased rollout and the resource constraints in sufficient detail for readers to judge the relevance of the findings to other settings. Two limitations should be noted: member checking was not undertaken, and responses were not independently coded, so inter-rater reliability was not established. The qualitative findings are therefore presented as a descriptive account of five educational technologists' reported experiences rather than as a fully verified thematic analysis.

Ethical considerations

The study adhered to institutional and national ethical guidelines for research involving human participants. For the quantitative EOT data, only aggregated participation metrics were used, ensuring that individual student responses remained confidential. For the qualitative survey, participation by educational technologists was voluntary, and informed consent was obtained prior to data collection. Responses were anonymised during analysis to protect participants' identities, and data were securely stored using institutional systems. Throughout the study, care was taken to respect privacy, maintain confidentiality, and ensure that findings were reported responsibly and ethically.

Results

These results are from the first three years of implementing the centralised EOT system, focusing on participation rates, evaluation volume, and institutional uptake. It also reflects on system impact and emerging challenges, framed by relevant learning analytics literature.

Growth in participation and coverage

Table 1 below shows a clear expansion in the institutional reach of the EOT system between 2022 and 2024. The number of participating faculties increased from 2 in 2022 to all 7 faculties by 2024. Similarly, departmental coverage grew from 5 to 35, with the number of lecturers evaluated rising tenfold (from 53 in 2022 to 564 in 2024), and the number of modules covered increasing from 151 to 1,045..

Table 1. Coverage rates for 2022–2024 (Author, 2026)

Year	faculties	departments	lecturers	modules
2022	2	5	53	151
2023	2	5	65	223
2024	7	35	564	1045

Table 3. Student Evaluation totals by year(Author, 2026)

Year	Total
2022	787
2023	1123
2024	13748

2022 and 2023 represent a starting point, where we moved from experimentation to learning and 2024 is the first university-wide implementation.

Table 2 confirms the system's overall growth by documenting the total number of individual student evaluation submissions per year. From 787 in 2022, submissions increased to 1,123 in 2023, and reached a substantial 13,748 in 2024, a seventeen-fold increase over two years. This dramatic growth signals that the centralised, automated model has significantly improved both access to and completion of evaluations.

Qualitative Analysis

Participants' experiences creating forms, collecting data, and generating reports using the EOT system

Participants reported varied experiences across the main stages of the EOT workflow. The process of creating electronic forms was generally viewed as technically accessible, with Participant 1 noting that form construction in the new system was "*straightforward*," and Participant 3 emphasising "*extensive experience… ensuring [forms] capture accurate and relevant data*." In contrast, data collection was described as the most challenging component. Yet, as Darshini (2024) shows, by incorporating data from multiple sources-ranging from demographic information to behavioural and social patterns-educators and policymakers can gain a deeper understanding of the dynamics affecting academic success. Participants in this study highlighted persistent difficulties in securing module and lecturer information from departments, characterising the process as "*frustrating*" (Participant 1) and *"tiring and draining"* (Participant 4) due to limited cooperation from some Heads of Department. For any intervention to be implemented successfully, Ndebele and Mbodila (2025) argue that consultation and regular discussion among academics, institutional policymakers, administration, and support units help to forge a stronger sense of identification with the initiative being introduced Furthermore, low student participation further compounded challenges, supporting evidence that weak coordination across stakeholders undermines implementation success (Ifenthaler & Yau, 2020) although participant 5 observed that the introduction of a single departmental link had improved data distribution and "*made departments more willing to share the link with students*."

Experiences related to reporting were mixed. Participant 1 described report generation as "*easy and pain free,"* particularly where the analysis phase had been centralised through Power BI, which reduced manual processing. However, Participant 2 experienced significant delays due to an uneven allocation of responsibilities, noting that access to reports depended on "*one person [who] was more responsible than the rest*." In this regard, Picton et al. (2024) commend that universities should devote time to developing staff understanding of roles and responsibilities within a whole university approach.

Even with improved analytical workflows, participants indicated that report production remained labour-intensive, as individual reports still had to be compiled and disseminated for each lecturer and Head of Department. Collectively, these accounts suggest that while the new system has enhanced form

creation and analytical efficiency, data collection and report dissemination continue to present substantial operational burdens.

Participants perceptions of the new EOT system compared to the previous manual process

The participants generally regarded the new EOT system as a major improvement over the former processes. Several participants highlighted enhanced centralisation, accessibility, and institutional coherence; Participant 1 described the system as "*more central, easier to search, [and] much easier to find reports when needed,*" while Participant 2 characterised it as *"very much easier than the manual"* approach previously in place consistent with literature showing centralised digital evaluations improve institutional coherence (Kanwar & Sanjeeva, 2022). The finding corroborates arguments from the technology acceptance model concept of Perceived Ease of Use (PEOU) that if a system is relatively easy to use, people will be more willing to learn about its features and eventually intend to continue using it (Usman et al., 2022). These responses reflect clear gains in workflow efficiency, data organisation, and user experience.

The contrast was particularly stark between old and new system. Participant 5 noted the earlier approach as *"challenging and highly inefficient,"* noting that form creation was *"extremely time-consuming and strenuous"* because each module required a separate form. Difficulties in obtaining accurate module and lecturer data further delayed the process, and inconsistent sharing of survey links resulted in low participation and incomplete datasets. Reporting in the previous system was described as especially burdensome, as reports "*had to be produced individually for every module"* and distributed manually, making the task overwhelming given the institution's scale.

Not all participants, however, perceived a meaningful difference. Participant 4 expressed cynicism, arguing that the experience remained *"still the same,"* largely due to weak departmental cooperation and ongoing administrative obstacles highlighting that technological gains remain mediated by organisational culture (Rolph et al., 2023). Participant 3, who had joined the institution after the transition to Microsoft Forms, reported being unable to compare systems.

Taken together, participant reflections indicate that while the new EOT system has delivered substantive improvements in centralisation, efficiency, and technical usability, its overall effectiveness continues to be shaped by organisational culture, departmental engagement, and uneven adoption practices. The issue of adoption of technology tools and practices is reported in the literature. According to Portz et al. (2019, p. 2), "Simply, users are more likely to adopt a new technology with high-quality UX design (ie, usable, useful, desirable, and credible)." In the same vein, Taherdoost (2018, p2), posits that, "a great technology and application might be designed and developed but if people do not get involve and do not use it, the project is failed.

Participants' initial feelings when the new EOT system was introduced

Participants reported a wide range of initial emotional responses upon the introduction of the new EOT system. The project initiator, experienced uncertainty; having led the development, noting that *"it was never nerve-wrecking to design and develop it,"* Other participants also expressed varying degrees of uncertainty and anxiety. Participant 2 reported feeling *"quite uncertain and overwhelmed,"* attributing this to the absence of formal communication and guidance about expectations and procedures. In this regard, Hoong, Thi, and Lin (2017) argue that emotions can occur during the impact period when the new information technology (IT) has been deployed and is being used, and emotions are generated based on individuals' perceptions of the features of the new technology and its usability. The introduction of the new EOT system is this study was perceived as disorganised, leading to confusion despite the participant's hope that the system would ultimately improve teaching evaluation a common response during poorly communicated system transitions (Gibbs, 1988; Olmstead, 2025). Participant 5 described similarly mixed emotions, explaining that they were *"hopeful that it would address the*

challenges… but also uncertain and slightly anxious" due to unclear processes, limited support structures, and concerns about departmental uptake. This respondent further reflected on broader institutional issues, observing that "a single system can be purchased or developed" to fully integrate form creation, data collection, analysis, and report generation, thereby avoiding many of the anxieties associated with manual tasks and fragmented workflows. The anxiety due to unclear processes and limited support structures identified in this study can be mitigated through provision of training, support, and resources to boost individuals' confidence in using ICT tools (Xu, Khan & Shahzad 2024).

Not all participants reported strong emotional reactions. Participant 3 indicated that he was *"unable to provide a relevant response"* due to limited involvement, while Participant 4 stated that she felt "nothing," as departmental behaviours had not changed and thus the system's introduction did not alter their working reality. Overall, participants' emotional responses were shaped largely by their roles, prior experience, and expectations of institutional support. While some approached the system with cautious optimism, others experienced uncertainty stemming from communication gaps, organisational inertia, and persistent procedural challenges. This challenge of communication gaps and concerns about persistent procedural challenges highlights the importance of institutional support concerning training which prepares the lecturers on how to handle online tools as capacity building in relation to training is the most critical support that a lecturer can tap from the institution (Ibrahim & Nat, 2019).

Evolvement of participants' feelings over time while using the new system

Participants' emotional responses evolved differently as they gained experience with the EOT system. The project initiator reported a positive trajectory, with participant 1 stating that *"I actually look forward to it,"* reflecting increased engagement and confidence with the workflow. Participant 5 added that as familiarity with the system grew, "some of the initial uncertainty decreased, and I felt a bit more confident navigating the technical side."aligning with reflective practice research showing familiarity reduces uncertainty (Gibbs, 1988). Despite improved comfort with the system itself, ongoing organisational challenges such as poor communication, low student participation, and limited departmental support sustained frustration. The participant observed that *"while my comfort with the system itself improved, my frustration with the overall process and lack of coordination grew stronger,"* highlighting the persistent influence of structural and procedural constraints. To mitigate this lack of departmental support, cconsultation and regular discussion among academics, institutional policymakers, administration, and support units can help to forge a stronger sense of identification with any new initiatives that being introduced and to overcome perceptions that policies are centrally imposed, which is sometimes the source of academic resistance (Bridge et al., 2025; Hewett et al., 2017; Ndebele & Mbodila, 2025; Stensaker, 2015)

Not all participants experienced a shift in perception. Participant 4 mentioned *"no changes"* over time, while Participant 2 reported being unable to respond due to lack of relevant experience.

Participant 3 described a gradual improvement in confidence and satisfaction as system functionality improved. One reflected that *"the process has become more organised, and some of the major challenges from the previous approach have been reduced,"* which increased their comfort and confidence using the system. The findings validate Toros, Asiksoy and Sürücü (2024) study findings which indicated that interventions aimed at enhancing the utility, ease of use, and accessibility of technology are likely to be effective in increasing their technology adoption. Nonetheless, they acknowledged remaining limitations, particularly in report generation, and suggested that a fully integrated solution would further enhance usability and efficiency: *"the system is not yet seamless, and certain tasks especially generating individual reports remain time-consuming… there is still room for further improvement."* supporting evidence that structural issues outlast technical learning curves (Ifenthaler & Yau, 2020).

Overall, participants' reflections indicate that while familiarity with the technical system generally increased confidence and engagement, ongoing organisational and procedural challenges continued to influence perceptions and emotional responses over time.

What worked well, and what challenges participants faced at each stage of the new system

Participants identified several successes and challenges across the stages of the new EOT system, reflecting both technical and organisational dimensions.

The initiator highlighted the value of incremental implementation, noting that *"what worked well is starting small, to find proof of concept," w*hile challenges were primarily linked to obtaining accurate faculty data. Similarly, participant 3 emphasised the need to enhance interdepartmental communication, suggesting that "one area for improvement could be enhancing communication between departments and the DLT team to ensure timely access to the necessary data". Some participants noted persistent structural challenges. Participant 4 expressed scepticism regarding institutional responsiveness, stating that *"challenges are on the departments… I feel like they will never be addressed as we are not even taken seriously in this unit."* Picton et al. (2024) argues that to embed a philosophy of shared understanding among all university stakeholders, universities should devote time to developing staff understanding of roles and responsibilities within a whole university approach.

Participant 5 offered a clear summary of stage-specific experiences with the system. Form creation became easier once Educational Technologists assumed responsibility and departments used a single link, though early progress was hindered by inaccurate data and the need for separate forms. Data collection improved through centralised link distribution, yet poor initial communication and limited departmental support made the process uneven. Data analysis was greatly streamlined through Power BI, despite the adjustment required for the new workflow consistent with findings that analytics dashboards streamline evaluative sense-making (Clow, 2013).. Report generation remained at the most demanding stage, as producing and distributing individual module reports was still largely manual consistent with literature that shows that partial automation redistributes rather than removes workload (Rolph et al., 2023).. Overall, while centralisation and improved tools enhanced efficiency and data quality, persistent organisational challenges, especially inconsistent departmental cooperation and heavy reporting workloads, continued to constrain the system's full impact.

Processes that became easier during the transition and processes that became more challenging

Participants identified both improvements and ongoing difficulties during the transition to the new EOT system, highlighting the interplay between technical usability and organisational factors.

Processes that became easier:

Participant 2 emphasised the system's technical usability, stating that "*the system interface for creating forms was straightforward and easy to navigate*" and that it "*allowed flexibility in customizing questions and structure*." Participant 5 described improvements in data access and distribution, noting that "*Educational Technologies could retrieve module and lecturer information more efficiently than before*" and that "*departments only needed to distribute one link, making communication simpler and improving student participation.*" As Usmanet et al.(2022) aver, if a system is relatively easy to use, people will be more willing to learn about its features and eventually intend to continue using it. Centralising data analysis using Power BI was widely recognised as a major improvement, as it *"automated most of the analysis, reducing manual work and centralising the process."* supporting evidence that digital tools simplify procedural tasks (Sufi, 2023).

Processes that became more challenging:

Despite technical improvements, several organisational challenges persisted. Participant 1 highlighted the difficulty of *"convincing colleagues that this is a worthwhile project"* and

"standardising the whole process," indicating that human factors remained a barrier. Participant 2 noted that *"lack of formal guidance or standard templates created confusion about which questions were required,"* and that *"inconsistent instructions from different stakeholders"* and the absence of a clear approval process delayed form finalisation a limitation commonly attributed to weak inter-unit governance structures (Ndebele & Mbodila, 2025). Participant 5 observed that *"adjusting to the new workflow… required time and adaptation"* and that *"generating individual reports for each module and distributing them to each lecturer and HoD remained time-consuming and labor-intensive."* Additionally, balancing workloads during the transition proved challenging, as participants navigated a hybrid system with both automated and manual components.

Overall, participants' reflections suggest that while technological centralisation and workflow automation facilitated several tasks, human and organisational factors including communication, standardisation, and report distribution continued to present challenges during the transition phase.

Why participants think certain stages or the transition itself were successful or challenging

Participants identified both technical and organisational factors that influenced the success or difficulty of various stages of the transition to the new EOT system.

Successes were often attributed to improvements in clarity, structure, and usability. Participant 2 stated that *"some stages were successful mainly because the technical aspects of the system are user-friendly."* If users believe that a technology is easy to learn and use, they are more likely to accept it (Yang & Lou, 2026). Participant 5 elaborated that *"some stages of the transition are successful because clearer structures and better tools are now in place. Using a single link per department makes communication much easier, and centralising data analysis through Power BI creates a more efficient and organised process. These improvements reduce manual work and help standardise the workflow."* aligning with research linking usability and integration to implementation success (Ifenthaler & Yau, 2020).

Challenges were predominantly linked to incomplete integration and residual manual processes. Participant 1 cited the difficulty of *"convincing colleagues"* as a barrier Participant 5 noted that *"other parts of the transition are still challenging because the system is not yet fully integrated. Report generation, in particular, is still done manually and remains time-consuming, which limits the benefits of improvements made in earlier stages."* confirming that manual dependencies disrupt analytics feedback loops (Clow, 2013). The participant further highlighted that adapting to the new workflow required time, and inconsistent support from certain units continued to complicate the transition.

Overall, participants' reflections suggest that the effectiveness of each stage depended on a combination of user-friendly technology, clear processes, and adequate support. Where these elements were present, stages were successful; where they were absent, challenges persisted, particularly in areas requiring interdepartmental coordination and manual interventions.

How participants' initial scepticism influenced their engagement with the system

Participants reported varying degrees of scepticism and its effect on engagement with the EOT system. Some participants indicated that scepticism did not influence their involvement; for example, one participant simply stated *"no."*

Other participants described a more cautious and critical approach. Participant 2 noted that *"because the system was introduced without clear communication or formal training, I was unsure whether it would actually work effectively or if it would add more work without improving the evaluation process."* The importance of supporting the individual during transformational change is stressed by Rossouw and Alexander (2015). By providing training, support, and resources to boost individuals' confidence in using ICT tools, educational institutions can potentially increase the adoption and effective utilization of technology for information and interaction (Xu, Khan & Shahzad 2024). Similarly, Participant 5 reflected that initial scepticism led to a careful, evaluative stance: *"My initial scepticism makes me approach the system cautiously and with low*

expectations. Because of the challenges experienced in the past, I am more observant and critical when engaging with each stage of the process. At the same time, the skepticism pushes me to critique the system thoroughly so I can understand its strengths and weaknesses," mirroring critiques that skepticism encourages critical but slower adoption (Rolph et al., 2023).

Overall, participants' reflections suggest that initial skepticism influenced engagement primarily by raising a more critical and cautious approach. While this sometimes-slowed initial adoption, it also encouraged careful evaluation and deeper understanding of system strengths and limitations.

Looking back, what participants would have done differently in adopting or developing the system

Participants reflected on alternative approaches that could have facilitated a smoother adoption and implementation of the new EOT system. Several participants emphasised the importance of early collaboration and strategic planning. Participant 1 suggested that working closely *"with instructional designers and academic developers from the start"* would have improved the process. Participant 2 elaborated that "I would have approached the adoption of the system more strategically and proactively. Firstly, I would have pushed for a formal introduction and orientation before implementation, including guidelines, timelines, roles, and responsibilities for everyone involved. The sentiments from participants. in this study resonate with the tenets of the stakeholder salience theory which asserts that managers of organisations and projects should consider the interests of individuals, stakeholders or groups affected by the new initiatives (Gupta et al., 2020; Shafique & Gabriel, 2022). This model is critical a guide to help these implementing interventions to identify and prioritise stakeholders to be affected by the new interventions and their interests (Crane, 2020). Stronger collaboration from the start might have improved engagement and data quality," consistent with evidence that early stakeholder alignment reduces resistance (Ndebele & Mbodila, 2025).

Other participants focused on structural limitations. Participant 4 noted that while the system itself was functioning, challenges persisted at the departmental and administrative level, stating that *"the system is working fine, but the challenges are with the departments, quality assurance directorate and teaching development specialists… none of these offices care about what is happening at our level."* de Waal et al. (2019). (2019) deplore this silo mentality where departments do not want to exchange knowledge or information, hindering internal collaboration and organizational learning, thus preventing achievement of high performance and organizational sustainability. Given today's co-dependencies of many cross-functional and agile teams with both internal and external stakeholders (Stipp et al., 2018), the emergence of a silo mentality therefore becomes a barrier to organisational success.

Participant 5 highlighted the need for a fully integrated platform, reflecting that *"ideally, we should have invested in a fully integrated and automated system that could handle data collection, analysis, and report generation in one platform. Because of limitations in institutional support, we relied on manual processes and workarounds, which made the transition much harder. Many of the current challenges, especially around reporting, could have been avoided with an advanced solution from the start."*

Overall, participants' reflections suggest that proactive planning, early collaboration, and investment in integrated technology would have mitigated many of the challenges experienced during the transition, particularly in terms of efficiency, data quality, and report generation.

Suggestions participants made to improve the system

There was a range of recommendations aimed at enhancing both the technical functionality and organisational processes associated with the EOT system by the participants. Some participants emphasised the importance of continuous improvement and strategic support. Participant 1 recommended that *"continual improvements should not stop,"* highlighting the need for an ongoing cycle of

refinement. Participant 2 proposed a more formal rollout and communication strategy, including *"clear guidance, timelines, and responsibilities for HoDs, lecturers, and students,"* as well as supplementary materials such as FAQs and short user guides. To increase student engagement, the participant suggested *"campaigns explaining the purpose of evaluations and how student feedback is used,"* along with reminders, in-class announcements, or small incentives, reflecting best-practice recommendations for end-to-end evaluation platforms (Sufi, 2023).

Other suggestions focused on interdepartmental communication and coordination. Participant 3 noted that *"one area for improvement could be enhancing communication between departments and the team to ensure timely access to the necessary data."* Participant 4 stressed that the broader EOT process requires better explanation and engagement from responsible offices, indicating that *"the system needs no improvement, but the whole EOT process needs to be explained thoroughly to all responsible offices… they need to listen to advice and improve communications,"* reinforcing findings that collaboration sustains long-term intervention success (Ifenthaler & Yau, 2020).

Finally, participants highlighted the potential of a fully integrated and automated system. Participant 5 recommended *"developing a fully integrated platform that combines form creation, data collection, analysis, and report generation in one central interface. This would eliminate manual processes and reduce workload, particularly during report generation."* Additional measures included automating report distribution, strengthening coordination between faculties and quality offices, and investing in training and support to improve staff competency and system reliability.

Overall, these suggestions reflect a combination of technical, procedural, and organisational improvements designed to enhance efficiency, user experience, and data quality in the EOT process.

Discussion

The findings illustrate both the potential and the limitations of using low-code digital tools to support the centralisation of teaching evaluation in a resource-constrained higher education context. The expansion in faculty and departmental coverage, the number of lecturers and modules evaluated, and the volume of student submissions indicates that the EOT process reached a substantially larger institutional scale between 2022 and 2024. Participants' reflections provide additional insight into the operational changes accompanying this expansion, particularly the benefits of centralised data collection and analysis, as well as the continuing challenges associated with communication, departmental cooperation and report generation. These findings suggest that digital infrastructure can support the expansion of evaluation processes, but its effective implementation also depends on organisational arrangements and sustained stakeholder engagement.

Clow's (2013) Learning Analytics Cycle provides a useful lens for interpreting these findings. The expansion of the EOT system reflects changes in data collection and coverage, while the use of Power BI supported the analysis and presentation of evaluation results. However, the findings also show that making data available does not automatically ensure that it is acted upon. Persistent reporting workloads, communication gaps and inconsistent departmental cooperation point to challenges in translating evaluation data into coordinated institutional action. In this case, the cycle highlights the importance of connecting data collection and analysis with interpretation and follow-up action, rather than treating the introduction of digital tools as the endpoint of the process.

Gibbs' Reflective Cycle served a different purpose in this study by structuring the questionnaire for collecting educational technologists' reflections. Those reflections helped identify perceived benefits, difficulties and proposed improvements. They should be interpreted as participants' accounts of implementation, rather than independent evidence

that all stages of institutional improvement were completed.

Workflow Efficiency and User Experience: The Gibbs-based reflections highlight both successes and ongoing challenges in system adoption. While form creation and data collection became more straightforward and centralised, participants consistently noted that report generation remained labour-intensive. Despite increases in participation and module coverage, producing individual reports for each lecturer and department still required significant effort. These reflections underscore that automation has improved some aspects of the system, but full integration remains a goal for further efficiency gains.

Emotional and Organisational Dynamics: Participants reported initial uncertainty, cautious optimism, and mixed feelings about system adoption. Over time, familiarity with the tools and clearer workflows increased confidence, though organisational challenges such as inconsistent departmental engagement and communication gaps continued to generate frustration. The quantitative data reinforce this narrative: the early years of the system (2022–2023) reflect experimentation and limited coverage, while the 2024 surge corresponds with institutional buy-in and process maturation.

Implications for Continuous Improvement: The integration of qualitative and quantitative findings illustrates that technology alone is insufficient for sustained impact. The success of the EOT system depends on a combination of user engagement, structured workflows, and supportive leadership. Recommendations from participants, including further automation, enhanced communication, formalised guidance, and a fully integrated platform, correspond with observed quantitative trends and point toward next steps for optimising the EOT process

Conclusion

This study examined the implementation of a centralised, technology-enabled EOT process at a South African university. Between 2022 and 2024, the system's institutional coverage expanded from 2 to 7 faculties, 5 to 35 departments, 53 to 564 lecturers, and 151 to 1,045 modules. Student evaluation submissions increased from 787 to 13,748 over the same period. These figures demonstrate a substantial increase in the scale and coverage of the EOT process. However, the increases cannot be attributed to automation alone, nor do submission totals alone establish an improvement in student response rates, teaching quality, or student learning.

Participants' reflections identified practical benefits associated with centralised data collection, standardised workflows and the use of Power BI to access and analyse evaluation results. They also highlighted persistent challenges, particularly the effort required to generate individual reports, communication gaps and difficulties obtaining accurate information from departments. The findings therefore suggest that digital tools can support the expansion and coordination of teaching evaluation processes, while organisational cooperation and further workflow improvements remain important to their effective implementation.

Limitations of the study

This study has several limitations. First, the qualitative findings are based on reflections from five educational technologists involved in the development and implementation of the EOT system. Their experiences provide insight into the operational and organisational aspects of the transition but do not represent all institutional stakeholders, including students, lecturers, and departmental managers. Second, the qualitative findings provide a descriptive account of responses to the structured questionnaire rather than a formal thematic analysis. The findings reflect the experiences of five educational technologists and should be interpreted within this context. Third, the quantitative analysis covers the period from 2022 to 2024, during which the system expanded from limited institutional coverage to university-wide implementation. Changes in coverage and participation over this period cannot be attributed solely to automation, as leadership support, departmental engagement, and implementation practices may also have contributed. Finally, because the study examines a

single university, the findings may not be directly transferable to institutions operating under different conditions. Further research involving additional stakeholder groups and institutions could provide a broader assessment of the system's effectiveness.

ORCID

Rabotapi T: https://orcid.org/0000-0003-1008-2567
Dlamini Z: https://orcid.org/0009-0002-3305-6740
Mpisi S: https://orcid.org/0009-0000-2084-9931
Nkebane M: https://orcid.org/0009-0008-0882-8108
Macibela Z: https://orcid.org/0009-0003-2195-6837
Ndebele C: https://orcid.org/0000-0002-4258-4812

Ethics statement

This study was conducted in accordance with recognized ethical standards. Informed consent was obtained from all participants, and data were collected and reported in accordance with confidentiality and anonymity.

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Conflict of interest

The authors declare no conflicts of interest related to the research, authorship, or publication of this article.

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