Navigating the Integration of IT in Accounting Education: A South African University Case Study

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Abstract

This paper reports on the processes and strategies followed to integrate information technologies (IT) into the accounting curriculum at a university in South Africa. The academic department implemented a new accountancy programme in 2020 that was developed to embed IT, as a key differentiating characteristic from other similar programmes on offer in South Africa. The IT integration was focused on software technologies relevant to the accounting profession and not on educational technologies. The design of this new programme was in response to the need for accounting education to adapt to ensure that workers are prepared for the workplaces of the future. The beneficial outcomes for accounting graduates that had an IT integrated course was attested to in a 2019 impact study of the integration of IT and accounting education. The first cohort of students exited the academic programme at the end of 2023, and a critical analysis will be undertaken to determine the effectiveness of the processes followed. Due to COVID-19, digital disruptions and challenges were encountered. This paper will highlight the insights and perceptions of the processes followed, to reach new heights in the integration of IT. A convergent parallel mixed method research design will be employed. Quantitative and qualitative data will be collected from lecturers as they were tasked with implementing IT in their respective subjects. The findings from the interviews of the lecturers will be presented in this paper. Lessons learnt from this critical analysis are set to enhance the effectiveness of the integration of IT, thereby ensuring that the knowledge and skills of the accounting graduates keep pace with the dynamics of the finance workplace. It is imperative that digital disruptions be overcome to continue to add value to the graduate employability attributes.

Keywords: *Accounting education, information technology, accounting curriculum, graduate employability attributes*

1. Introduction

The world of work for financial specialists has kept pace with the dynamics of 4IR [5,6]. In recognition of the fact that technology has become more prevalent in all areas of life, there is an ever-present need for higher education to embrace 4IR to ensure the employability of its finance graduates [5,6]. This paper reports on the processes and strategies followed to integrate information technologies (IT) into the accounting curriculum at an university in South Africa. The academic department implemented a new accountancy programme in 2020 that was developed to embed IT, as a key differentiating characteristic from other similar programmes on offer in South Africa. Information Technology (IT) in this paper will relate to software technologies used in industry by accounting professionals. These technologies include Enterprise Resource Planning software (for example SAGE 200), Spreadsheets (like Excel), Tax Planning Software and Working Papers (like Draftworx). Specifically excluded from this definition is educational technologies like Blackboard.

1.2 Stages of processes and strategies followed.

This paper focuses on the findings from the interviews of the lecturing staff specifically on the new academic programme that was implemented in January 2020. The first cohort of students exited the academic programme at the end of 2023. The processes and strategies followed will be presented in three stages. The pre-implementation stage, being 2019, focuses on the preparation of the lecturing staff and their readiness for the implementation that commenced at the start of the academic year in January 2020. The next stage includes the steps taken to overcome the digital disruptions and challenges that were encountered due to the COVID-19 global pandemic. The final stage that will be

analysed will be the past COVID-19 stage to the end of the academic programme for this first cohort of students.

1.3 Academic Programme

It is important to phrase this study against the appropriate context of the academic programme in which the IT integration occurred. The Department of Accounting and Auditing is part of the broader faculty of Management Sciences at the Central University of Technology, Free State, South Africa. This department rolled out a new offering in 2020: the Bachelor of Management Sciences in Accountancy, a 4-year, 517 credit professional degree levelled at the National Qualifications Framework (NQF) Level 8 [1]**.** This degree is offered at two delivery sites: Bloemfontein and Welkom.
The programme has been developed to embed information technology as key differentiating characteristic from other similar programmes on offer in South Africa. This is for instance reflected in the rationale of the programme, which states, "...students will have to practically convert embedded knowledge into different software programmes relevant to professional accountants." [2]

The first cohort of students have exited this programme at the end of 2023, providing the ideal opportunity to reflect on the actual integration of IT in the programme.

3. Research Methodology

3.1 Design and subjects

Like the Dhillion and Murray (2021) [3] study investigating a similar theme, a convergent parallel type of mixed method research design was applied. This mixed method approach was considered appropriate as it allows for the collection of detailed, rich data about how IT was implemented in the academic programme, the effectiveness of the implementation, and lessons learned from the experience. Convergence was achieved by collecting both Quantitative and Qualitative data, analysing it separately and then triangulating the results of both types of data to enhance the veracity of the interpretation.
The population of the study consisted out of lecturers teaching in the programme, as they were primarily tasked with implementing the integration of IT in their respective subject fields. However, only full-time lecturers, irrespective of delivery site, were invited to participate in the study. The reasons are that full-time lecturers are the predominant employment type in the department and the researchers wanted to exclude human resource factors, such as organisational commitment, to influence the results.

3.2 Instrument

Data was collected by means of a semi-structured interview of lecturers in the academic programme. This semi-structured interview contained a mixture of Likert-scale and open-ended questions which allowed the participants the freedom to express, in their own terms, their experiences on the integration of IT in their subjects.
The study was conducted in line with the protocol approved by the Faculty Research and Innovation Committee and the ethical clearance as obtained by the institutional Research Ethics Committee of the Central University of Technology.
Full-time lecturers were invited to participate in the study via email. A face-to-face meeting was then scheduled with those that responded positively. Participants provided informed consent before the interview started. The interviews were audio-recorded and then transcribed. All contributions have been anonymised.

The quantitative data obtained as part of the interviews were statistically analysed and presented. The responses on the open-ended questions, which constituted the qualitative data, were manually coded, and prominent themes identified. After both these processes were concluded, data were triangulated, paying attention to convergence of emergent themes [4].

4. Analysis of interviews.

*4.1 Profile of interviewees***.**

Of the 13 full time staff members that lectured in the programme, three left the employment of the university. In the convenience sample, 6 (60%) out of the 10 remaining full time staff members that lectured in the programme were interviewed. All the lecturers, except one, interviewed were employed at the university prior to the start of the new program and were therefore able to contribute valuable insights to the pre-implementation stage.

Table 1. Interviewee demographic information

Participant	AGE	Gender	Highest Qualification	Professional Designations	Subject Field	Years of experience in Higher Education	Years of experience in Industry
P1	40	Female	Masters	No	Cost and Financial Management	15	0
P2	62	Male	Hons./B.Tech	No	Accounting Information Systems	34	7
P3	44	Female	Masters	Yes	Taxation	15	5
P4	36	Female	Masters	Yes	Auditing and Internal Control	9	2
P5	50	Female	Masters	Yes	Financial Accounting	16	6
P6	60	Male	Masters	Yes	Taxation	20	30
						109	50

The participants' age ranged between 36 and 62 (mean = 49), represent in gender-composition the department and covered all four main subject areas in accounting. Their lecturing experience totaled 109 years and their industry experience over 50 years in total. There was unanimous support for the need for and importance of developing the skills needed in IT for enhancement of the graduate's employability.

4.2 Processes and strategies pre-implementation.

The focus in this stage will be the staff training and the necessary staff buy-in that was undertaken before the start of the programme in January 2020. The staff expressed their concern that management was too prescriptive in their selection of the accounting software that was to be the core programme for the four levels of financial accounting. Although all staff received training in the accounting software programme, the training was described as inadequate and rushed as it was completed in two days. The staff in other disciplines were encouraged to find software in use in industry and excel was found to be in extensive use and integrated successfully in the cost and management disciplines. The taxation lecturers found that the payroll software required an additional license fee and was not supported by management at the time. The lecturers in the disciplines besides the financial accounting subjects would have preferred more relevant and in-depth exposure in the accounting software programme. One lecturer commented that they were told to break down the silo effect of the different subjects, but the training was too short, too theoretical, and not sufficient for them to be confident enough to integrate IT into their subject. Another concern was management's disregard of the lecturers' increased workload with the professional accreditation that was sought at the same time as the increased workload in designing and developing the IT integration material.

4.3 Implementation and effects of COVID-19.

A key factor in the design of the programme was that students acquire their own laptops at the start of their studies. This unfortunately, was not enforced and was considered a major drawback in the implementation of the IT integration. South Africa was officially in lockdown due to COVID-19 approximately four weeks into the start of the 2020 academic year. The move to on-line classes and assessments meant that there was no access to the computer labs. As the students had not acquired their own laptops the university issued students with tablets to facilitate the on-line classes. However, the accounting software programme was not suited to tablets nor for that matter, smart cell phone devices. With the added digital disruptions of a lack of data, lack of free wi-fi off campus and the increased load shedding the IT integration, come to a standstill. Other challenges experienced during

the pandemic were the low level of computer skills among the students, the lack of self-study skills, poor on-line class attendance and disconnecting with students.

4.4 Post COVID-19 to the end of academic program, December 2023.

Since the IT integration had not had the opportunity to become the norm for the lecturers, the emphasis on completing the required content material took preference. The mode for the self-reported level of IT integration in a subject on a 5-point Likert scale was 2 (little integration). The highest level for a subject was in the use of excel in the cost and financial management subjects (level = 3 (moderate)) and was estimated at being used by the lecturer 50% of the time. The percentage time spend in other subjects on IT ranged from as low as 5% but would like to have the percentage increase to a high of between 30% and 60% of class time.

***4.5 Management support during the three stages*.**

Management support was not directly evident, and the staff were expected to use their own initiatives to integrate IT into their subjects. No incentives were offered, there was no monitoring and no feedback required from staff and lastly the leadership of the department changed hands a few times over the four-year period.

***4.6 The way forward from the lessons learnt*.**

All the staff support the need for graduates to have the IT skills to add value to the graduate employability attributes. Some of the comments recorded clearly indicate their support and enthusiasm for the IT integration:

- "…integration enhances learning and prepares them for work".
- "…you cannot carry on without IT. It's impossible".
- "…skills will add value to the working environment".
- "…crucial part of workplace that graduates have IT skills".
- "...gratifying when students not only get knowledge but skill as well".

Lessons learnt from this critical analysis are set to enhance the effectiveness of the integration of IT. The following suggestions from the lecturers should be considered:

- Management support for any IT integration should be evident. The appointment of a champion to monitor, provide feedback and support should be considered by management.
- There was unanimous support that the integration of the accounting software be a separate subject.
- There should be constant use of IT, particularly the accounting software, in all four years of the programme. As its application, by its very nature, can be integrated in all disciplines of a finance specialist.
- The blended approach, including specific software suited to the various disciplines should continue. For example, payroll software in the taxation module, or excel in the cost and management modules.
- The computer labs should be adequately maintained and updated with the latest technologies particularly if the students are not required to acquire their own laptops.

3. Conclusion

This study's aim was to critically assess the integration of IT in an accountancy program in South Africa. The lecturers concurred on the need for greater IT integration in the programme as it contributes to graduate employability. However, also reported was a marked difference between the planned - and actual implementation of IT in their subjects. In the pre-implementation phase lecturers reported the choice of the main accounting software to be autocratic and that the training therein was too theoretical and irrelevant to their subject field to compensate for insufficient prior exposure to the software. Insufficient resources for other software licenses were also mentioned as a stumbling block. In contradiction with good change management practice, lecturers could not just focus on the integration of IT in their subjects as a concurrent process took place from management's directive for an additional professional body accreditation which resulted lecturer's time and workload gravitating towards this.

The first year of the qualification was highly impacted by the onset of COVID-19. Lecturers' attention moved away from IT integration towards adapting required content to be delivered online. When lectures returned in the third year, post-Covid-19, IT integration lost steam and primarily relegated to a separate accounting software subject in computer labs. This was compounded by the lack of students having their own laptops, a requirement in the original program design which could not be enforced.
The lessons learnt from this critical analysis include enhanced management support and leadership during the planning process, a core accounting software program be taught as a separate subject in all the years with integration elements from other subjects, other subjects enhanced use of discipline specific software (such as Excel) and up-to-date computer labs. When addressed these factors should enhance the effectiveness of the integration of IT.
The limitations of the study included self-reported measures of IT integration. The nature of interviews and the small sample size limit generalizability.
Future research should focus on similar assessments of IT integration from the perspectives of management and students. This could aid in the compilation of a framework for the implementation of IT in accounting programs.

REFERENCES

[1] Central University of Technology, "CUT Student Calendar 2024", accessed 30 April 2024, https://cms.cut.ac.za/Files/Froala/d6148da8-688e-4447-a4d8-4ab3b20fd492.pdf, 2024, pp. 433-435.
[2] South African Qualifications Authority, "Registered Qualification", accessed 3 May 2024, https://allqs.saqa.org.za/showQualification.php?id=104529
[3] Dhillon, S.; Murray, N. "An Investigation of EAP Teachers' Views and Experiences of E-Learning Technology", Education Sciences, 2021, v11, pp. 54.
[4] Creswell, J.W.; Creswell, J.D. "Research Design: Qualitative, Quantitative Mixed Methods Approaches", 5th ed.; SAGE: Los Angeles, CA, USA, 2018.
[5] Rhodes, N. Rhodes, R. J. (2019). Enhancing Graduateness and Employability in Accounting Students Through the Integration of Information And Communication. *Proceedings of EDULEARN 19 Conference 1st – 3rd July 2019. Palma, Mallorca, Spain.*
[6] Rhodes, R. (2019) Evaluating the impact of integrating information and communication technologies in accounting education: a case study at the University of Johannesburg, *Johannesburg: University of Johannesburg.*