



Identifying the Future Skills Requirements to Better Prepare Accounting Graduates

Nadia Rhodes

University of Johannesburg, South Africa

Abstract

This paper reports on an investigation into the current practice in the fourth industrial revolution (4IR) finance industry. There is an ever-present need for further research into the dynamic workplace, 4IR and the future of accounting education. Research is needed into the alignment of the knowledge and skills in accounting education to continue to add value to the graduate employability attributes. Emerging technologies, such as AI, are casting doubt into the roles that human workers will play in the near future. It is therefore imperative that these roles and the applicable skills and knowledge are identified as soon as possible. Education needs to adapt to ensure that workers are prepared for the workplaces of the future. The 2019 impact study of the integration of ICT and accounting education highlighted the beneficial outcomes for the accounting graduates that had an ICT integrated course. It is argued that the framework of the iterative cycles of design-based research is the best fit for this study. The findings from interviews with suppliers of accounting software programs and their associated business partners, alumni, recruitment agencies, a software engineer and an interface accounting software designer will be presented. In conclusion, education will need to realign and evolve the accounting graduate's knowledge, ICT skills and other critical skill sets at a pace that surpasses the evolution in the industry 4.0 world of work to enhance the graduate's employability.

Keywords: *Accounting, Education, Information and communication technology (ICT), 4IR, industry 4.0, Skills*

1. Introduction

The modern world is changing with technology becoming more prevalent in all spheres of life. There is a greater reliance on digital software in all spheres of life, including the workplace, in the management of finances, in education, communication and entertainment. [5,7] Technology has become more user friendly, affordable, and accessible. In the world of work of finance specialists, the dynamic influences of the fourth industrial revolution (4IR) have a significant influence on the knowledge and skills needed for young professionals to add value. Education needs to keep abreast with the dynamics of change for finance graduates to be prepared for the digitised workplace. The 2019 impact study of the integration of ICT and accounting education highlighted the beneficial outcomes for the accounting graduates that had an ICT integrated course [1,2,4]. However, with the increased pace of change, research is needed to ensure that education keeps pace [6] and that the graduate employee attributes remain relevant.

1.2 Research methodology

The framework of the iterative cycles of design-based research is the best fit for this investigation for the promotion of the continuous evolution of accounting education [3,7]. The first analysis phase presented in this paper is the investigation into the current practices of 4IR in the finance work of work. The findings from interviews with suppliers of accounting software programs and their associated business partners, alumni, recruitment agencies, a software engineer and an interface accounting software designer will be presented. The provisional and summarised findings will be presented under the following themes:

- Current practice in 4IR
- Graduate employability attributes and
- Human role in the workplace

1.3 Profiles of interviewees

All the participants work for international and or global companies except for one of the alumni. The interviewees' have a total of more than 81 years' experience in working with information and communication technologies (ICTs) across the wide spectrum of industries. Valuable insights in the change of graduate employability attributes were gained from the employment agency interviewee who has over 30 years' global experience, head-hunting for senior executive placements, covering



the whole spectrum of industries including financial services, FMCG manufactures and mining industries.

2. Current practice in 4IR

All the participants agreed that the current practice in 4IR is all about automation and leveraging of data to make data-driven decisions whether it's routine repetitive tasks or more complex procedures. It was maintained that "everybody is wanting to be able to leverage their data to make better decisions across the business. The industry has changed, it's moved from pricing and better products to centre around the customer experience and the use of data analytics to be able to manage their customers."

COVID was the impetus for many companies to shift to cloud-based technology and even after the COVID pandemic employees that work from home constantly need to make use of cloud computing.

Automation in accounting systems includes the production of documentation in the accounting cycle. The documents that are generated on the system are available immediately to all users and filed according to the document number, the vendor number, or other criteria and may be linked to other related documentation such as the quote or the contract. This facilitates further automated process like the payment process. Bank reconciliations can also be automated as well as the entries originating from the bank reconciliation. Automation of workflow and procedures has become a current practice where human intervention is minimal with the added advantage of reduced capturing and processing errors.

An alumni commented that Visual Basics Application prompted him to study a coding language to automate most of their tasks and that, "any recurring type of action, we've automated with the click of a button. I think if we move from sequel and Visual Basics Application to JavaScript and Python programming languages we could do so much more."

Python has become a very popular programming language and this example was given by an interviewee, "One of the larger auditing companies wanted changes made to the vendors. They also wanted to know all the changes made to the customers for the entire fiscal year. They gave us python scripts that are run on our SQL database. The scripts extracted all the relevant data from the general ledger transactions. Once the auditors that file, they integrated the data their system that was being used for the audit process."

The planning of all resources needed and the scheduling of processes of business has become automated with software such as SYSPOR. Similar project management and scheduling of worker daily tasks, known as short interval, change control management software is currently being programmed as a smart phone application.

Automated intelligent routing in warehousing management has become a current practice.

AI examples given include the self-help support centres where clients are first assisted by chatbots and only if the query is of a more complex nature are the calls transferred to a staff member eliminating the long wait in a queue.

ChatGPT, as an AI, was mentioned by all participants as a very beneficial resource to research on how to perform coding tasks or obtaining information on any related work topic.

3. Graduate employability attributes

Of the 10 top skills sought in IT graduates [8], 9 were highlighted as essential finance graduate employability attributes by the interviewees.

1. Communication and collaboration
2. Security skills
3. Soft Skills and noble thought
4. Automation skills
5. Cloud skills
6. Understanding tools
7. Coding and scripting
8. Proactiveness
9. Customer-focused approach

Other important attributes include critical thinking, analytical and problem solving skills, cultural awareness, leadership skills and to a lesser degree, time management. The top highlighted attribute was communication and collaboration and as one participant said, "You need to come to the table with new ideas and you need to convey them in a logical sense to everyone. You need confidence to do that and that only comes from learning proper communication." Collaboration and soft skills like emotional intelligence, positive and proactive attitude, management of change, build strong



relationships and manage conflict are essential in building trust in teams thereby aligning the team efforts to the business goals. Contributions to decision making and problem solving are expected across the whole business including the customer service experience. Day-to day operations include constant use of skills around cloud computing and storage especially if the employee is working from home. Understanding other relevant tools, like accounting packages are essential to apply critical thinking skills and to be able to analyse and interpret the nature of the problem. Finance graduates' skills sought include some form of coding and python scripting skills and the alumni interviewed believed that coding should be included in the school curriculum from a young age and are just as important as a subject like mathematics.

4. Human role in the workplace

Emerging technologies, such as AI, are casting doubt into the roles that human workers will play in the near future and all the participants agreed that the only 'jobs out there that are safe is where physical human intervention is needed'. The one important area where, human intervention is needed, is in setting up the business rules as companies still need to run within their business rules and parameters. With the onset of automation and accounting systems managing more of the workflow, management by exception has become paramount skill and a function that would need human intervention. It was maintained that, the business owner wants the accountant to confirm that all the costs are accounted for and are sold at the correct price and if there's any variance, they have to account for it. The accountants role now to ensure that the monies paid are justified. As the one participant emphasised, "The endpoint was invoicing, now the endpoint is looking at the profitability and closing off the job with the style."

5. Conclusion

The findings from the interviews confirm that 4IR has transformed the workplace for finance specialists. In the next phase of this study, further research will be undertaken to determine how higher education will need to realign and evolve the accounting graduate's knowledge, ICT skills and other critical skill sets to enhance the graduate's employability attributes.

References

- [1] 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.*
- [2] Rhodes, N. (2012). Gateways to positioning information and communication technology in accounting education. *South African Journal of Higher Education, vol. 26, no. 2, pp. 300-316.*
- [3] Rhodes, N. (2015). Creating value in accounting education with a qualitative research methodology. *Journal of Economic and Financial Sciences, vol. 8, no. 3, pp. 728-741.*
- [4] 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.*
- [5] Razali, F.A. Jusoh, M.A. Talib, S.L.A. Awang, A. (2022). The Impact of Industry 4.0 Towards Accounting Profession and Graduate's Career Readiness: A Review of Literature. *Malaysian Journal of Social Sciences and Humanities (MJSSH), 7(7), e001624. <https://doi.org/10.47405/mjssh.v7i7.1624>.*
- [6] Birt, J. Safari, M. de Castro, V. B. (2023). Critical analysis of integration of ICT and data analytics into the accounting curriculum: A multidimensional perspective. *Accounting & Finance, 00, 1–28.* Available from: <https://doi.org/10.1111/acfi.13084>
- [7] Rhodes, N. (2019) Sustaining the Integration of ICT in Accounting Education. *Conference Proceedings of The Future of Education 9th Edition 2019.*
- [8] Veritis Group Inc webpage. <https://www.veritis.com/blog/top-10-skills-that-make-a-perfect-devops-engineer/> [Accessed June 2023].