



Volume 25, 2026

## FROM COMPLIANCE TO COMMITMENT: TEACHER MOTIVATION AND COMPUTERIZED ACCOUNTING ADOPTION IN SOUTH AFRICAN PRIVATE HIGH SCHOOLS

Maria Swanepoel

Tshwane University of Technology, [swanepoelmm@tut.ac.za](mailto:swanepoelmm@tut.ac.za)  
Pretoria, South Africa

### ABSTRACT

|              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Aim/Purpose  | This study investigates the motivational and systemic barriers constraining computer-aided learning (CAL) adoption in South African high school accounting education.                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Background   | Despite growing expectations for digital competence in the accounting profession, CAL adoption in South African schools remains limited. Prior research has focused on access, infrastructure, and skills, offering limited insight into the motivational dynamics shaping teachers' technology integration practices.                                                                                                                                                                                                                                                                                                     |
| Methodology  | Guided by Self-Determination Theory (SDT), this qualitative study employed structured interviews with six accounting teachers from Gauteng private schools. The data were analysed thematically to examine how psychological needs for autonomy, competence, and relatedness influence CAL implementation.                                                                                                                                                                                                                                                                                                                 |
| Contribution | This study extends prior research by applying SDT to elucidate the psychological mechanisms underlying technology resistance in accounting education. It demonstrates that addressing infrastructure and training deficits alone is insufficient to achieve sustainable CAL adoption.                                                                                                                                                                                                                                                                                                                                      |
| Findings     | The findings reveal that although teachers conceptually endorse CAL integration, their motivation is significantly undermined by structural constraints. The exclusion of computerized accounting from the formal Curriculum and Assessment Policy Statement (CAPS) assessments constrains teachers' autonomy by rendering software instruction pedagogically discretionary. Inadequate professional development limits collegial support, while unreliable infrastructure further erodes competence and relatedness, positioning teachers along a continuum from externally regulated compliance to intrinsic motivation. |

Accepting Editor Martin D Beer | Received: February 14, 2026 | Revised: May 9, June 8, 2026 |

Accepted: June 24, 2026.

Cite as: Swanepoel, M. (2026). From compliance to commitment: Teacher motivation and computerized accounting adoption in South African private high schools. *Journal of Information Technology Education: Research*, 25, Article 26. <https://doi.org/10.28945/5823>

(CC BY-NC 4.0) This article is licensed to you under a [Creative Commons Attribution-NonCommercial 4.0 International License](https://creativecommons.org/licenses/by-nc/4.0/). When you copy and redistribute this paper in full or in part, you need to provide proper attribution to it to ensure that others can later locate this work (and to ensure that others do not accuse you of plagiarism). You may (and we encourage you to) adapt, remix, transform, and build upon the material for any non-commercial purposes. This license does not permit you to use this material for commercial purposes.

|                                   |                                                                                                                                                                                                                                                                                                      |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Recommendations for Practitioners | Within adequately resourced contexts, effective CAL integration requires systemic curriculum reform that embeds computerized accounting within formal assessments, alongside context-sensitive professional development. This emphasizes pedagogical integration rather than technical skills alone. |
| Recommendations for Researchers   | Future research should further explore motivational regulation as a critical factor in educational technology adoption, particularly within subject-specific contexts and assessment-driven schooling systems.                                                                                       |
| Impact on Society                 | Without systemic reforms, high school learners remain underprepared for digital workplace demands, perpetuating skills gaps and limiting employability in the evolving accounting profession.                                                                                                        |
| Future Research                   | Further studies should examine CAL adoption across diverse school contexts and investigate how assessment policy reform may support sustained, intrinsically motivated technology integration.                                                                                                       |
| Keywords                          | computerized accounting, Self-Determination Theory, teacher motivation, computer-aided learning, digital competence                                                                                                                                                                                  |

## INTRODUCTION

The integration of computerized accounting systems into education has become increasingly vital for aligning learning outcomes with the demands of the contemporary accounting profession (Mdingi, 2024). Globally, the shift from manual bookkeeping to digital accounting is driven by Fourth Industrial Revolution (4IR) technologies. These include automation, Artificial Intelligence (AI), cloud computing, and big data analytics, which enhance accuracy, efficiency, and real-time access to financial information (Bhargava & Bhargava, 2019; Hogianto, 2023). In this context, employability in the accounting profession increasingly requires not only technical proficiency, but also digital literacy, data management, and critical thinking skills (Sledgianowski et al., 2017).

In this study, computerized accounting software refers to digital platforms used to perform accounting functions, such as *QuickBooks®* and *Sage Pastel*, while CAL in accounting denotes the pedagogical use of these technologies to support teaching, learner engagement, and the development of digital competencies. Research indicates that integrating computerized accounting software into classroom practice enhances conceptual understanding, practical skills, and learners' preparedness for digitally mediated professional environments (Abou-El-Sood, 2025; Sampaio & Silva, 2025).

Despite the widespread adoption of digital accounting technologies in higher education and industry, South African secondary schooling has been slower to integrate computerized accounting and CAL in a systematic and sustained manner. This has created a skills gap for many learners in terms of transition to tertiary education, employability, and job equity, among others (Department of Basic Education, 2011; Tiron-Tudor et al., 2025). This skills gap indicates a broader policy–practice misalignment within the education system.

This policy–practice misalignment raises a critical question about the underlying factors that sustain this divide between professional requirements and educational practice. While the accounting profession has embraced 4IR technologies (e.g., demanding digital acumen, data analytics proficiency, and familiarity with industry-standard software), South African high school accounting instruction remains anchored in manual bookkeeping methods. This creates a paradox: teachers recognize that digital competencies are essential for learner preparedness and employability yet continue to prioritize traditional approaches in their classroom practice. Understanding why this misalignment persists requires examining not only structural barriers such as infrastructure and training, but also the motivational and psychological factors that shape teachers' technology adoption decisions.

While existing research has identified infrastructure constraints and training deficits as barriers to CAL adoption (Beukes, 2016; Skhephe & Caga, 2019), there remains a limited understanding of the

motivational factors that shape teachers' willingness to integrate computerized accounting into classroom practice. Addressing this gap requires examining how teachers' professional autonomy, sense of competence, and collegial support influence their technology adoption decisions. This study, therefore, investigates the interplay between motivational dynamics and systematic constraints in shaping CAL adoption among South African high school accounting teachers.

Against this backdrop, this study investigated the factors influencing high school accounting teachers' adoption of CAL and computerized accounting software. Guided by SDT, the study examined how the participants' perceptions of autonomy, competence, and relatedness shaped their motivation to integrate computerized accounting into their classroom practice. By foregrounding teachers' experiences with contextual and systemic constraints, the study sought to generate evidence-based insights to inform curriculum reform and target professional development initiatives in secondary accounting education.

This study makes three core research contributions. First, it applies SDT to illuminate the psychological factors underlying accounting teachers' adoption of technology, demonstrating that motivation operates along a continuum from external compliance to intrinsic engagement. Second, it reveals that structural constraints, particularly curriculum rigidity and assessment misalignment, systematically undermine teachers' autonomy and competence, thereby limiting the effectiveness of infrastructure and training interventions. Third, it provides empirical evidence from private high school contexts to inform targeted policy reforms that address both motivational and systemic barriers to sustainable CAL integration in secondary accounting education.

## LITERATURE REVIEW

---

### *RELEVANCE AND INDUSTRY ALIGNMENT*

Globally, businesses rely increasingly on digital tools for accuracy, transparency, and regulatory compliance, requiring educators to adapt accounting pedagogy to a digital-first environment (Pan & Seow, 2016; Sledgianowski et al., 2017). In South Africa, however, high school curricula continue to prioritise manual bookkeeping techniques, creating a significant mismatch between classroom practices and the digital realities of the accounting profession. Tertiary institutions have already moved toward industry-relevant computerized accounting software such as *Sage Pastel*, *QuickBooks*, and *Xero*, yet most high school learners enter university with minimal exposure to such tools (Mdingi, 2024). This curricular lag undermines learners' preparedness for tertiary and workplace demands, and widens the gap between academic training and professional expectations.

Perpetual systemic shortcomings in technology integration across South African education sectors reflect the broader challenges of implementing digital initiatives effectively. Evidence suggests that even when digital platforms are available, their use is often inconsistent due to fragmented implementation strategies (Makina, 2021).

Empirical evidence from sub-Saharan Africa reveals the multifaceted challenges of adopting technology use in education. In Ghana, Abedi (2024) finds that teachers' technology integration practices diverge significantly from policy expectations, with educators primarily using digital tools to supplement traditional teaching methods rather than transforming pedagogical approaches. In this instance, teachers primarily used technology for lesson preparation and direct instruction. Similarly, Debushe et al. (2025) report that South African accounting teachers' acceptance of web-based learning is influenced by perceived usefulness, perceived ease of use, self-confidence, and subjective norms, with attitude emerging as the most influential factor. While most of the teachers in their research viewed web-based learning as part of instructional facilitation, successful implementation requires more than positive attitudes; it requires institutional support, adequate technological infrastructure, and confidence in using digital platforms. Both studies identify critical enablers for effective adoption: profes-

sional development focused on pedagogical transformation; adequate ICT resources; alignment between policy objectives and classroom realities; and mechanisms to build teachers' self-confidence in using technology. These findings confirm that technology adoption in high schools cannot rely on teacher enthusiasm or policy mandates alone, but demands comprehensive institutional support, enabling infrastructure, and clear guidelines and pathways for pedagogical integration.

The use of 21st-century educational technologies enhances learner engagement, promotes self-directed learning, and aligns accounting instruction with the demands of the 4IR (Mat Dangi et al., 2023). Integrating computerized accounting into the curriculum, therefore, serves a dual function: advancing pedagogical innovation while supporting the national workforce development goals. The White Paper on Post-School Education and Training (Department of Higher Education and Training, 2013, 2023) explicitly calls for education systems to cultivate a technologically capable and responsive workforce. Embedding digital accounting competencies at the school level aligns with this policy vision and ensures that learners acquire transferable skills that are relevant to a digital economy.

Recent research further strengthens the case for early intervention. Tiron-Tudor et al. (2025) argue for the recognition of a third category of professional competence comprising cyber, digital, and technological literacy, beyond traditional technical and enabling skills. This expanded skills taxonomy includes analytical reasoning, data-driven decision-making, programming, and proficiency in emerging technologies such as AI, robotic process automation, and blockchain. Similarly, Moll and Yigitbasiglu (2019) emphasize that digital transformation in accounting has redefined professional roles, requiring educators to integrate these capabilities into the earliest stages of learning.

In the South African context, the South African Institute of Chartered Accountants (SAICA) Competency Framework 2025 (SAICA, 2022) explicitly identifies digital acumen, critical thinking, and data literacy as essential, pervasive competencies for entry-level accountants. Early exposure to such competencies at the secondary level can bridge the gap between theory and practice. This can be achieved through simulated accounting environments, automated financial processes, and project-based digital exercises. This not only enhances learner employability but also strengthens confidence and adaptability in a technology-driven professional landscape (Landsberg, 2021; Mdingi, 2024).

While the evidence above establishes the imperative for CAL integration, demonstrating both the professional demand for digital competencies and the pedagogical benefits of technology-enhanced instruction does not explain why teachers adopt or resist these innovations. Understanding the mechanisms that drive sustained engagement with educational technology requires moving beyond arguments about what should happen to examine the psychological processes that determine whether it actually happens. Self-Determination Theory provides this explanatory framework, offering a lens through which teachers' motivational orientations toward CAL can be understood as shaped by fundamental psychological needs rather than by external mandates alone.

### ***THEORETICAL FRAMEWORK: SELF-DETERMINATION THEORY (SDT)***

The SDT, developed by Deci and Ryan (1985, 2000), provides a robust framework for analysing the motivational dynamics underpinning teachers' adoption of educational technologies. SDT posits that individuals are more likely to engage in, persist with, and internalize new behaviours, such as integrating computerized accounting, when their basic psychological needs for autonomy, competence, and relatedness are satisfied. In educational contexts, teachers who feel empowered in their instructional decision making (autonomy), confident in their technological proficiency (competence), and connected to their peers and learners (relatedness) are more inclined to adopt and sustain the use of digital pedagogies (Deci & Ryan, 2000).

The SDT conceptualizes motivational experiences along a Self-Determination Continuum (a spectrum ranging from no motivation to fully autonomous engagement), with regulatory styles (patterns of why people act) arranged from least to most self-determined (Karkkola, 2026). At the lowest end

lies amotivation, characterized by the absence of intent to act, or non-intentional behaviour. Moving along the continuum, external regulation reflects motivation driven by external contingencies such as rewards, punishments, institutional mandates, or policy directives. Introjected regulation represents a partially internalized form of motivation based on internal affective contingencies, such as guilt or pride. Further along the continuum, identified regulation occurs when behaviour is valued as personally important and aligned with one's values, even if not inherently enjoyable. Intrinsic motivation, the most self-determined form, describes engagement in activities that are inherently enjoyable or interesting, grounded in personal satisfaction and professional growth. Finally, at the continuum's most integrated end, integrated regulation emerges when external expectations become fully internalized and seamlessly aligned with one's professional identity, core values, and sense of self. Understanding where teachers position themselves along this continuum helps explain differing responses to the introduction of CAL, from resistance to proactive engagement.

SDT provides a lens for understanding teacher motivation in South African educational contexts (Ryan & Deci, 2020). Supportive environments that nurture teachers' autonomy, such as participative decision-making, mentoring, and collaborative professional dialogue, align with SDT principles and have been linked to enhanced engagement and innovation in education, including in technology use. In contrast, controlling or bureaucratic approaches, as exemplified by mandated school improvement without adequate support, can undermine motivation and lead to resistance or exhaustion (Van der Vyver & Geduld, 2022). These patterns reflect SDT's core idea that meeting an individual's needs for autonomy, competence, and relatedness fosters sustained intrinsic motivation, even amid challenges posed by technology integration. These findings reinforce SDT's central claim that motivation is most enduring when individuals perceive volition and value in their actions rather than obligation or control.

Recent empirical evidence further validates SDT's educational relevance. Howard et al. (2021) demonstrate that autonomy, competence, and relatedness remain consistent predictors of teacher engagement and innovation across diverse educational systems. Jenö et al. (2018) affirm that autonomy-supportive conditions for lecturers in higher education promote students' autonomous motivation, perceived competence, persistence, and achievement.

While SDT explains the psychological mechanisms of motivation, the Technology Acceptance Model (TAM) (Davis, 1989; Venkatesh et al., 2003) complements it by elucidating the cognitive and behavioural processes underlying technology adoption. TAM asserts that perceived usefulness and perceived ease of use shape individuals' attitudes and behavioural intentions toward technology use. Recent adaptations of TAM in accounting education (Mat Dangi & Mohamed Saat, 2021; Mat Dangi et al., 2023) reveal that institutional support, professional conscientiousness, and contextual readiness significantly moderate these relationships. Integrating SDT and TAM offers a more holistic understanding - teachers are more likely to adopt CAL when they not only perceive it as useful and manageable but also experience intrinsic motivation and institutional encouragement that align with their pedagogical values.

In sum, SDT provides the psychological foundation for understanding why teachers choose to engage with educational technologies, while TAM and complementary learning theories explain how cognitive perceptions and environmental factors shape that engagement. Combining these frameworks offers a comprehensive lens for examining the motivational and systemic dimensions of CAL adoption in South African accounting education.

Having established SDT's theoretical foundations (specifically how autonomy, competence, and relatedness shape motivational quality and behavioural persistence), the question becomes how these abstract psychological mechanisms manifest in teachers' lived experiences. While SDT identifies the conditions under which motivation is internalized, empirical research on teacher attitudes reveals the practical realities of technology adoption in classroom contexts. This body of work demonstrates that teachers' willingness to integrate CAL is neither uniform nor predetermined, but rather emerges from

complex interactions among individual agency, professional identity, institutional support, and pedagogical beliefs.

### ***TEACHER ATTITUDES AND MOTIVATION***

Teachers are critical to the successful integration of computerized accounting - their attitudes, shaped by motivation, confidence, and perceived competence, remain among the strongest predictors of technology adoption (Venkatesh et al., 2003). While many educators acknowledge that CAL enhances conceptual understanding, engagement, and learner autonomy, teachers still experience insufficient support, curricular rigidity, or limited personal efficacy (Beukes, 2016; Skhephe & Caga, 2019).

Research on teacher agency reveals that teacher motivation operates at the intersection of individual agency and institutional context, with teachers exercising influence through the choices and stances they take regarding their work and professional identities (Emans et al., 2025; Eteläpelto et al., 2013).

From an SDT perspective, intrinsic motivation, fostered by autonomy, competence, and relatedness, is essential for sustained engagement (Deci & Ryan, 2000; Howard et al., 2021). When teachers feel empowered to experiment, confident in their digital skills, and supported by collegial networks, they are more likely to internalize CAL as a meaningful component of their pedagogy (Jeno et al., 2018). Conversely, external pressures such as prescriptive curricula and high-stakes assessment can undermine autonomy, leading to compliance rather than authentic adoption.

The gap between policy aspirations and classroom realities remains a defining challenge, particularly in under-resourced schools where unreliable infrastructure, overcrowded classes, and limited technical assistance erode confidence. Beukes (2016) finds that business studies teachers, although optimistic about ICT's potential, struggle to integrate it meaningfully because training seldom addresses subject-specific pedagogy or contextual barriers. Likewise, Nel and Marais (2020) argue that professional learning must be context-responsive, iterative, and pedagogically grounded, rather than delivered through generic workshops detached from teachers' realities.

Teachers often experience identity tension when asked to implement innovations they have not fully internalized. When professional learning overlooks teachers' prior experiences or constrains their autonomy, it can provoke resistance or surface-level compliance (Mat Dangi et al., 2023; Skhephe & Caga, 2019). Peer-to-peer mentoring offers an alternative approach. Barron et al. (2009) found that peer coaching for technology integration provides differentiated, job-embedded support that respects teachers' existing expertise while building confidence in new practices. Complemented by principals' transformational leadership, which establishes vision, resources, and organizational support (Schmitz et al., 2023), such collegial leadership strengthens relatedness and shared purpose, as SDT identifies as prerequisites for lasting behavioural change.

Overall, the literature suggests that attitudinal change is both a motivational and systemic process. Teachers are most likely to adopt CAL when professional development strengthens their competence, institutional cultures nurture autonomy and collaboration, and the broader curriculum validates technology integration as essential to quality teaching and learning.

However, individual motivation and supportive professional cultures, while necessary, are insufficient to explain CAL adoption patterns in South African accounting education. The literature on teacher attitudes reveals a persistent paradox: even when teachers possess positive attitudes toward technology and demonstrate intrinsic motivation, adoption remains constrained. This suggests that motivational factors operate within and are fundamentally shaped by structural conditions beyond teachers' immediate control. Examining these contextual realities, such as curriculum frameworks, assessment policies, and systemic inequities, reveals how institutional structures can systematically enable or obstruct the satisfaction of psychological needs, thereby regulating the very motivational processes that SDT describes.

## ***CONTEXTUAL CONSTRAINTS: CURRICULUM AND EQUITY***

Beyond motivation and teacher attitudes, contextual realities and structural inequities play a decisive role in shaping the adoption of computerized accounting within South African schools. The CAPS document for accounting continues to prioritize manual bookkeeping methods, while National Senior Certificate (NSC) assessments reinforce this through examination structures that marginalize digital competencies. As a result, teachers experience pressure to prioritise examinable, traditional content over innovative, technology-enhanced instruction (Landsberg, 2021). This tension reflects a persistent misalignment between curriculum intent and the digital transformation of the accounting profession, limiting the space for teachers to incorporate authentic, computerized accounting tasks into classroom practice.

The absence of explicit learning outcomes or formal assessment criteria for digital accounting competencies within CAPS creates a clear pedagogical disincentive for innovation. Teachers may recognise the pedagogical and professional value of integrating computerized accounting software into classroom practice. However, they face structural and policy-driven barriers that render such integration risky and unrewarding (Department of Basic Education, 2011; Pargmann et al., 2023). Learners' achievement and school performance indicators remain predominantly aligned to manual accounting procedures. This discourages experimentation with computerized accounting tools that are not explicitly acknowledged in summative assessment frameworks (Bester & Brand, 2013). This curricular inflexibility reinforces a cycle of policy stagnation in which teachers' capacity and willingness to innovate are constrained by systemic inertia, accountability pressures, and high-stakes assessment regimes. This limits the responsiveness of accounting education to the ongoing digital transformation in professional practice (Fullan, 2016; Pargmann et al., 2023).

To ensure equitable progress, curriculum reform and targeted resource investment are essential. Policies such as the White Paper on Post-School Education and Training (Department of Higher Education and Training, 2013) advocate for systemic transformation that equips all learners with digital competencies aligned with economic and workplace realities. Achieving this vision requires coordinated efforts to embed computerized accounting within CAPS, revise assessment frameworks to include authentic digital tasks, and prioritise infrastructure development in under-resourced schools. Without such interventions, the benefits of computerized accounting education may remain accessible only to privileged institutions, thereby deepening existing educational inequities.

## **BARRIERS TO ADOPTION**

---

### ***SYSTEMIC AND INSTITUTIONAL CONSTRAINTS***

The integration of computerized accounting in South African high schools is strongly constrained by systemic inequalities and institutional inefficiencies. Schools, particularly in rural or low-income areas, face chronic funding shortages that limit access to, and maintenance of, essential ICT infrastructure, including hardware, software licenses, and reliable internet connectivity (Department of Basic Education, 2020; Mdingi, 2024; Prinsloo, 2020). These deficiencies, combined with challenges such as language diversity, overcrowded classrooms, and uneven learner digital literacy, make the implementation of CAL logistically difficult, even when teachers are motivated and trained.

Institutional misalignment further compounds these barriers. Schools often procure digital resources without a long-term strategy or sufficient professional development, resulting in underutilization and wasted potential (Rhodes & Taylor, 2024). By contrast, private schools benefit from smaller class sizes, discretionary budgets, and dedicated IT support, allowing them to adopt computerized accounting more effectively.

### ***TECHNOLOGICAL AND INFRASTRUCTURE LIMITATIONS***

Even in schools possessing some ICT infrastructure, quality and reliability often fall short. Common barriers include dilapidated computer laboratories, limited access to projectors or secure storage facilities, unreliable electricity, and poor maintenance of digital tools (Skhephe & Caga, 2019). These infrastructural limitations not only constrain the effective use of computerized accounting software in teaching but also contribute to teacher frustration and resistance.

### ***PEDAGOGICAL AND PROFESSIONAL DEVELOPMENT GAPS***

Teacher readiness remains a significant barrier to the successful integration of computerized accounting. Despite growing access to digital tools in some contexts, many teachers still lack the confidence, training, and pedagogical skills to use these tools effectively (Mat Dangi et al., 2023). Beukes (2016) highlights that ICT-related teacher capacity-building initiatives often focus narrowly on operational skills rather than on pedagogical application, leaving teachers ill-equipped to align digital tools with subject-specific goals.

Moreover, there is a widespread expectation among teachers that education departments should lead technology integration, which contributes to passivity and inertia (Skhephe & Caga, 2019). The perception that innovation lies beyond their professional scope reflects deeper identity tension, particularly when new technologies challenge established teaching practices and beliefs (Nel & Marais, 2020). Successful technology integration in educational settings requires educators to effectively merge Technological, Pedagogical, and Content Knowledge (TPACK). However, challenges persist in practical implementation, including educators' lack of technological knowledge, time constraints, and insufficient access to ongoing professional development opportunities (Jibril & Adedokun-Shittu, 2024).

Research by Tiron-Tudor et al. (2025) reveals a significant misalignment between market demands and students' readiness, with learners often undervaluing digital and technological skills despite their growing importance in the job market. There is a statistically significant difference between the importance of analysed skill sets in the job market and learners' self-reported possession of these skills (Swiss South African Cooperation Initiative, 2024). This disconnect underscores why teachers may struggle with CAL implementation when learners themselves do not fully appreciate these competencies.

### ***CURRICULUM CONSTRAINTS AND PSYCHOLOGICAL RESISTANCE***

A significant psychological barrier to integration is resistance to change. Many educators remain attached to the traditional, manual teaching methods they have used successfully for years. Without consistent training, access to software, and clear curricular guidelines on incorporating computerized accounting, many teachers feel overwhelmed or uncertain, reinforcing their preference for the status quo (Skhephe & Caga, 2019). As discussed in the Literature Review, the inflexibility of the CAPS curriculum and NSC assessment frameworks, which prioritise manual accounting skills while excluding digital tools from formal assessment, creates structural disincentives for CAL adoption (Department of Basic Education, 2011). This curriculum-assessment misalignment is compounded by psychological resistance to change, with many educators remaining attached to traditional manual methods. Without consistent training, access to computerized accounting software, and clear curricular guidelines on incorporating CAL, teachers feel overwhelmed or uncertain, reinforcing preference for the status quo (Skhephe & Caga, 2019).

## **IMPLICATIONS FOR LEARNERS**

---

The successful integration of computerized accounting into the high school curriculum has far-reaching benefits for learners, including improved employability, digital literacy, and equitable access to opportunities.

First, exposure to industry-relevant computerized accounting software platforms such as *Sage Pastel*, *QuickBooks*, and *Xero* equips learners with practical skills, including ledger maintenance, journal processing, VAT calculations, and bank reconciliations. These competencies reflect the digital tools and workflows that learners will encounter in tertiary education and the workplace, thereby improving both the transition to and performance in these environments (Mdingi, 2024).

The SAICA Competency Framework 2025 underscores this imperative by identifying “digital acumen” as a core professional skill, alongside critical thinking, ethical reasoning, and communication (SAICA, 2022). Early exposure to accounting information systems in high school settings enables learners to develop practical accounting competencies and confidence while strengthening conceptual understanding through simulations of authentic financial processes, such as data analysis and financial statement preparation. This exposure enhances engagement, motivation, and the application of theoretical knowledge in real-world contexts (Zamokuhle et al., 2025). Job market analysis (Tiron-Tudor et al., 2025) shows that 54% of required skills are technical competencies; 27% are cyber, digital, and technological competencies; and 19% are enabling skills. Within technical skills, accounting skills are most desirable (29%), followed by managerial accounting (13%). Analytical and data analysis skills account for 5% of all identified skills, while Accounting Information System (AIS) knowledge is in high demand at 6%. This data reinforces the likely employment outcomes for learners lacking in exposure to computerized accounting.

Second, the use of CAL in accounting education bridges the gap between abstract theory and applied practice. Digital accounting tools allow learners to see the immediate effects of their inputs and trial scenarios, enabling them to correct mistakes in real time and enhancing both engagement and retention. Mat Dangi et al. (2023) argue that 21st-century educational technologies enable differentiated and self-directed learning, which is particularly beneficial in overcrowded classrooms where individual support is limited. In this way, CAL fosters independent thinking, problem solving, and digital agility, skills that are central to the evolving knowledge economy.

Third, digital integration offers a pathway to greater equity in learning opportunities, provided that implementation is carefully managed. Learners in under-resourced schools often begin their post-school journey at a disadvantage due to limited exposure to digital tools. Integrating computerized accounting into the high school curriculum can begin to redress this imbalance, but only if teachers are adequately supported and infrastructure challenges are addressed (Nel & Marais, 2020).

Having established the multifaceted implications of integrating computerized accounting for learners, it is essential to examine the perspectives and experiences of educators responsible for implementing these digital tools. Hence, the following methodology is provided to outline how this study explored teachers’ motivations and attitudes toward the adoption of CAL in high school accounting education.

## METHODOLOGY

---

The literature review has revealed a critical gap in understanding CAL adoption in South African high school accounting education. While existing research has identified infrastructure deficits and training gaps as barriers (Beukes, 2016; Skhephe & Caga, 2019), there remains limited insight into the motivational and psychological mechanisms that explain why teachers who conceptually endorse technology integration often fail to implement it in practice. Addressing this gap requires qualitative inquiry capable of capturing the nuanced interplay between individual motivation, institutional context, and pedagogical decision-making—dimensions that quantitative surveys cannot adequately illuminate. Self-Determination Theory (SDT) provided the theoretical lens for this exploration, enabling systematic examination of how teachers’ psychological needs for autonomy, competence, and relatedness shape their willingness to integrate computerized accounting into classroom practice. This study, therefore, employed an SDT-informed qualitative design, using structured interviews and thematic analysis to explore how six accounting teachers in Gauteng private schools experienced and navigated the adoption of CAL within their respective institutional and curricular contexts.

## ***RESEARCH DESIGN***

This study adopted a qualitative research design to explore teachers' perceptions, experiences, and meaning-making processes regarding CAL integration. Qualitative research is well-suited to inquiries that seek to understand complex human behaviours, lived experiences, and social interactions through rich, contextual interpretation rather than measurement or prediction.

## ***SAMPLING AND PARTICIPANTS***

This study involved six teachers who taught accounting at private high schools in the Tshwane metropolitan area and were actively implementing CAL and computerized accounting software in their classrooms. Within the South African secondary schooling context, the sustained integration of CAL, particularly in accounting education, remains relatively uncommon. Private schools were therefore analytically significant because they are more likely to serve as early adopters of educational technologies, owing to greater access to ICT infrastructure, institutional autonomy, and ongoing professional development opportunities. From an SDT perspective, such environments are more likely to support teachers' basic psychological needs for autonomy, competence, and relatedness, which are theorized to underpin the adoption of pedagogical innovations in an internally regulated, sustained manner. The focus on private schools provides analytical insights into motivational processes under relatively supportive conditions; thus, the findings are not nationally representative but offer theoretically informed insights transferable to contexts with similar structural enablers. Rather than aiming for broad generalization across highly unequal schooling contexts, this sampling strategy enabled a nuanced exploration of how CAL is enacted when enabling conditions are present, thereby strengthening the study's explanatory depth and theoretical contribution.

The limited prevalence of authentic CAL implementation in accounting education constrained the pool of eligible participants, rendering the phenomenon under investigation both specialized and relatively rare. A pilot study was conducted with one accounting teacher to assess the feasibility and clarity of the research instruments. Feedback from the pilot led to the refinement of ambiguous and repetitive items, thereby improving the coherence of the interview schedule and enhancing the reliability of the data collection process.

In line with the qualitative nature of this research, purposive sampling was subsequently employed to ensure the inclusion of information-rich cases capable of yielding deep insight into teachers' motivational orientations and instructional practices. Data collection was discontinued once participant responses became repetitive and no substantively new themes emerged, indicating that saturation had been reached. Increasing the sample size beyond this point was neither methodologically warranted nor practically feasible, particularly given the limited number of schools implementing computerized accounting and CAL in sustained, classroom-based practice (Sharma et al., 2024).

## ***DATA COLLECTION***

Data were collected through structured interviews with six accounting teachers. While questions followed a pre-determined protocol to ensure consistency across participants, each question was posed as open-ended, allowing participants to elaborate freely and enabling the researcher to ask probing follow-up questions where emergent themes arose. This combination of standardised sequencing and open-ended questioning reflects the structured yet flexible character of the interviews. Each interview lasted approximately 45-60 minutes and was conducted face-to-face, after school hours, in a quiet space convenient to each participant during the third school term. Questions were informed by the theoretical constructs of SDT: autonomy, competence, and relatedness. The questions explored teachers' motivational drivers, experiences with CAL integration in the accounting classroom, perceptions of curriculum constraints, and access to support structures. Interviews were audio-recorded and transcribed verbatim, with participant consent, supplemented by the researcher's handwritten field notes recorded during each session to ensure data accuracy, completeness, and a reliable audit trail.

## DATA ANALYSIS AND DATA STRUCTURE

For this study, Braun and Clarke's (2006) six-phase Thematic Analysis (TA) was applied, which enabled the identification, analysis, and interpretation of patterns within the data. TA was particularly suitable as it allowed immersion in the participants' lived experiences of using CAL and facilitated the data-driven identification of themes linked to the research questions.

The analysis employed a theoretically-informed hybrid approach, using SDT constructs as the deductive organizing framework while allowing inductive theme development within each domain. Data were initially coded using a priori categories derived from the Self-determination Continuum - specifically the three basic psychological needs (autonomy, competence, relatedness) and associated regulatory styles. Within each of these theoretically defined domains, open coding was conducted to allow specific themes and patterns to emerge inductively from participants' accounts. This deductive-inductive approach ensured that the analysis remained anchored in established motivational theory while staying responsive to participants' lived experiences, with SDT providing the structural framework and participants' narratives shaping the specific themes identified within each construct.

Data structuring was an integral part of the analysis process. Figure 1 illustrates the hierarchical organization of 37 sub-themes, progressing from specific sub-themes (Relevant Regulatory Styles) at the base to broader macro- and meta-theories at the top, following a bottom-up, inductive reasoning approach (Boyatzis, 1998). This structure guided the analysis and ensured the process remained grounded in participants' responses rather than constrained by pre-existing frameworks. Figure 1 visually situates the study's analytical framework by presenting the Self-Determination Continuum, which illustrates varying forms of motivation from amotivation (no motivation) to intrinsic motivation, and by which teachers' motivational orientations toward the integration of CAL were interpreted.

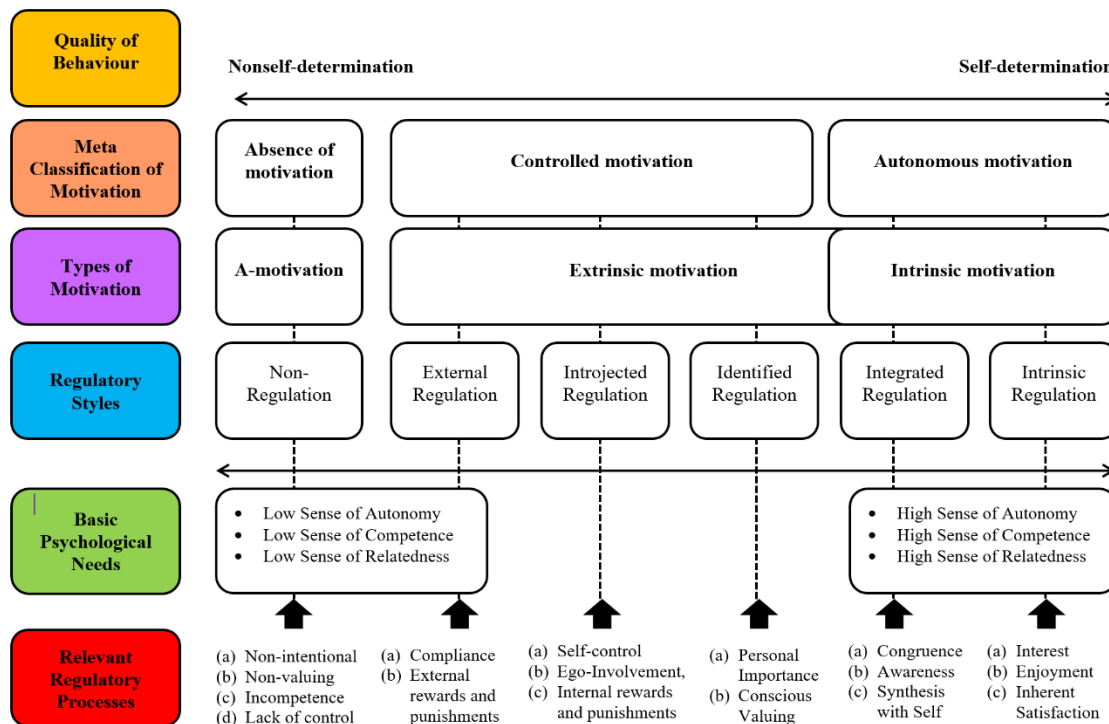


Figure 1. Data structuring (author's own)

Interpretation was conducted primarily at the latent level, identifying the underlying motivations and assumptions shaping participants' attitudes towards CAL, while also attending to the semantic-level

meanings in the participants' statements (Braun & Clarke, 2006). Six main themes were derived, informed by SDT and the Self-Determination Continuum: Quality of Behaviour, Meta Classification of Motivation, Types of Motivation, Regulatory Styles, Basic Psychological Needs, and Relevant Regulatory Processes. These themes provided a coherent framework for coding, analysing, and linking data to the theoretical and conceptual frameworks.

To ensure trustworthiness, Lincoln and Guba's (1985) criteria were applied. Credibility was enhanced through triangulation across data sources (interviews and questionnaires), theoretical frameworks, and methodological strategies. Coding was conducted solely by the researcher and iteratively refined across multiple readings of the data set to ensure internal consistency. While formal interrater reliability procedures, such as percentage agreement, were not employed, credibility was strengthened through an expert review: an independent academic specialising in ICT in Accounting education at a South African university examined the final thematic structure and assessed its content credibility in relation to the data set. This review served as an external check on the coherence and plausibility of the themes, rather than as a measure of coding agreement. Confirmability was supported by a detailed audit trail documenting coding decisions, field notes, and data storage procedures. Transferability was facilitated through rich, contextualised descriptions of participants, settings, and research procedures. Dependability was ensured through consistent data collection, transcription, and coding practices maintained throughout the study.

### ***ETHICAL CONSIDERATIONS***

Ethics approval for the study was obtained from the relevant institutional review board. Participation was voluntary, and informed consent was secured from all participants, who were assured of their right to withdraw at any stage. Measures were implemented to protect participants' safety, privacy, confidentiality, and anonymity, including the use of pseudonyms and secure data storage. Permissions were also obtained from the Gauteng Department of Basic Education and the principals of the participating schools, in accordance with the University of Pretoria's ethical guidelines.

## **FINDINGS**

This study identified a complex interplay between the motivational and systemic factors influencing accounting teachers' attitudes toward integrating CAL in South African high schools. Drawing on SDT (Deci & Ryan, 2000), the findings are presented under three interrelated psychological needs: autonomy, competence, and relatedness, followed by emergent systemic themes revealing how contextual conditions either enable or constrain CAL integration.

The study sample consisted of six accounting teachers from private high schools in Gauteng, all with access to ICT infrastructure and teaching in the Further Education and Training band within the Tshwane District. The participants were diverse in terms of gender, age, race, and teaching experience.

**Table 1. Participant demographics**

| Teacher   | Experience  |
|-----------|-------------|
| Teacher B | 11-20 years |
| Teacher C | 5-10 years  |
| Teacher D | <5 years    |
| Teacher E | 21-30 years |
| Teacher F | <5 years    |
| Teacher G | 11-20 years |

An analysis of their experiences revealed that while all of the teachers expressed conceptual support for CAL integration, their motivational orientations varied considerably along the Self-Determination

Continuum, from externally regulated compliance to intrinsic engagement. These individual differences were significantly shaped by systemic factors, including curriculum constraints, training quality, infrastructure reliability, and institutional support systems.

### ***AUTONOMY: PROFESSIONAL AGENCY AND CURRICULUM CONSTRAINTS***

Autonomy is defined as the need to experience choice, volition, and ownership over one's professional practices. This concept emerged as a critical yet frequently thwarted dimension of teacher motivation. The teachers' positions along the Self-Determination Continuum ranged from external regulation (compliance-driven behaviour) to intrinsic motivation (genuine enjoyment and value alignment), revealing how autonomy-supportive versus controlling contexts shape technology adoption. While all six participants expressed conceptual support for integrating CAL into accounting instruction, their sense of professional autonomy was significantly constrained by external factors. All six teachers expressed frustration with curriculum constraints, as Teacher D explained:

"I see the value [of computerized accounting], I really do. But when the exam has zero questions on software, and I have limited contact time, I cannot justify spending three weeks on Sage Pastel."

This sentiment was echoed across the participants, with Teacher B noting: "It doesn't lend itself to what the syllabus asks ... what you need to do in the syllabus does not easily fit."

#### **External regulation: compliance without ownership**

Three teachers described CAL adoption as primarily externally mandated, reflecting low autonomy satisfaction. Teacher B explicitly articulated resistance to imposed technology use: "Most of them have been forced upon me some or other way ... except for the JSE (share trading), most of them have been forced upon me."

This sense of coercion extended to school-wide initiatives such as DigiDay, which Teacher B described as generating widespread negativity: "It's like DigiDay, urgh, urgh, complain, complain." This pattern of resistance and negativity toward mandated initiatives appeared consistently across participants who described technology adoption as externally imposed. Interpreted through SDT, this suggests that when technology integration feels compulsory rather than volitional, teachers are unlikely to internalize its value or sustain its use beyond mandated contexts.

Teacher D, a first-year educator, similarly positioned management as the primary driver of technology integration: "It was more from management ... I am still a first-time teacher, so ... not actually really in such a place yet where I just want to bring in new stuff."

Teacher D expressed hesitation about introducing new technological innovations, citing his status as a first-year educator. This reluctance to adopt CAL innovations while simultaneously establishing foundational teaching competencies was specific to this novice teacher. From an SDT perspective, this pattern suggests that for novice teachers, autonomy may be particularly fragile, as they prioritise mastering foundational teaching competencies before experimenting with new methodologies.

Teacher F described institutional pressure in similar terms, explaining that the school itself was fairly technology-driven and that the use of technology was implicitly expected of him. However, he qualified this expectation by reflecting on his own experience, noting that he found using technology more enjoyable. Teacher F thus reported both external pressure and personal enjoyment occurring simultaneously. Viewed through SDT, this dual pattern indicates an emerging process of internalization, where an initial external expectation began to align with his own sense of satisfaction and motivation. This trajectory exemplifies identified regulation, a regulatory style in which initially external expectations begin to align with personal satisfaction, indicating a shift toward more self-determined motivation as autonomy needs are gradually met.

### **Identified and integrated regulation: acceptance and alignment**

Two teachers demonstrated higher levels of internalization, in which external expectations had been assimilated into their professional identities. Teacher C exemplified identified regulation as she recognised the instrumental value of CAL even in the absence of external mandates:

“It feels like it was just like laziness ... wanting things to be easy and streamlined ... nobody came and spoke to me, I just thought I’m at a good private school, I want to present a good image.”

Teacher C attributed her CAL adoption to wanting “things to be easy and streamlined” and presenting “a good image” at her school, with no external mandates involved. This self-initiated adoption aligned with professional values of efficiency and institutional reputation. Interpreted through SDT, this pattern reflects identified regulation, where behaviour, though self-directed, remains instrumentally motivated rather than inherently satisfying.

Teacher E described a transformational journey from external regulation to integrated regulation. While being initially resistant, “I couldn’t even send an email”, she eventually internalized CAL as central to her teaching identity: “Originally I had to ... But I found that it was the way to go ... adapt or die.”

Her narrative arc illustrates how autonomy-supportive contexts can facilitate motivational transformation. With access to training, collegial support, and institutional resources, Teacher E progressed from reluctant compliance to authentic ownership, stating: “I cannot work if it’s not there. I cannot work.”

### **Intrinsic motivation: genuine engagement**

Only one teacher, Teacher G, demonstrated intrinsic motivation, where CAL use was inherently satisfying rather than instrumentally valued. As both a technology and accounting teacher, her professional identity was deeply intertwined with digital pedagogy: “It’s me and the learners. Both of us together have seen this balance. I enjoy it, they enjoy it.”

Teacher G described her CAL use in terms of mutual enjoyment between herself and learners: “It’s me and the learners. Both of us together have seen this balance. I enjoy it, they enjoy it.” This emphasis on relational reciprocity and shared enthusiasm distinguished her account from other participants. From an SDT perspective, these characteristics represent the hallmarks of intrinsic motivation, engagement driven by inherent satisfaction rather than external rewards or internal pressures. Notably, Teacher G’s dual subject expertise (technology and accounting) likely shaped this orientation, as her Technology teaching role normalized the use of digital tools and reduced the psychological barriers experienced by other accounting teachers.

### **Assessment-driven constraints on autonomy**

Beyond individual motivational differences, all participants identified CAPS and the NSC assessment system as systemic barriers to their autonomy. Teacher B articulated this tension explicitly: “It doesn’t lend itself to what the syllabus asks ... what you need to do in the syllabus does not easily fit.”

The misalignment between curriculum demands (manual accounting methods) and professional aspirations (digitally relevant instruction) created a double bind: teachers who invested instructional time in computerized accounting risked under-preparing learners for exams, while those who prioritised exam success perpetuated pedagogical obsolescence.

These curriculum-assessment constraints constitute a controlling context in SDT terms, in which policy structures limit teachers’ ability to exercise professional judgment. Even intrinsically motivated teachers like Teacher G faced this limitation, although she managed it by compartmentalizing. Teachers lacking such flexibility experienced greater frustration as their autonomy to innovate was systematically undermined by assessment accountability pressures.

## ***COMPETENCE: CONFIDENCE AND PROFESSIONAL DEVELOPMENT***

Teachers' perceived competence in using computerized accounting software emerged as a decisive factor in CAL adoption. While all of the participants had undergone some form of ICT or CAL-related training, the adequacy and relevance of this training varied. Several participants noted that training often focused on generic digital skills rather than subject-specific applications, leaving them unsure how to integrate computerized accounting software such as Sage Pastel or QuickBooks into their CAL pedagogy.

### **Confidence spectrum**

Teachers' confidence in using CAL ranged from high to task-specific. Teacher G reported high confidence, Teacher C described moderate confidence, and Teacher B demonstrated task-specific confidence. This variability in self-reported confidence levels across participants suggests that competence perceptions were individualized rather than uniform. From an SDT perspective, this pattern demonstrates that competence is not merely a technical skill, but a psychological experience of effectiveness that directly influences teachers' willingness to persist with CAL. Teacher G, who teaches technology, reported a high level of confidence, indicating ease in integrating technology into lessons. Teacher C described moderate confidence, noting familiarity with general Microsoft Office programs but limited programming skills:

“Uhm, I would say it is good but not excellent, uhm, I can use, you know, the Windows Office programmes but no programming and things like that.”

Teacher B demonstrated task-specific confidence, acknowledging proficiency in routine tasks but uncertainty when exploring unfamiliar software features, which are explored below.

### **Training inadequacy**

Several participants highlighted gaps in training. Teacher B described annual workshops as insufficient for knowledge retention, noting that skills were easily forgotten between sessions:

“DigiDay we do once a year, every year I forget how to do it again ... by the time you do it again, you have forgotten how it works. Then you feel like such an idiot having to go ask again.”

Teacher D emphasised the need for more extensive and ongoing training to prepare CAL-based lessons efficiently, noting that insufficient training contributed to time constraints:

“I myself still need a lot of training ... if I did I would use them ... one lesson going to take you about a few hours to prepare.”

This indicates that, while preparation time was reported as a barrier, enhanced training and familiarity with CAL tools could enable this teacher to develop lessons more quickly and confidently.

### **Support quality contrast**

The availability and quality of IT support at the schools also influenced teachers' competence. Teacher B described IT support as inadequate, whereas Teacher C noted satisfactory daily support. Teacher F highlighted exemplary support, reporting that IT staff prioritised teacher assistance, even interrupting their own tasks to provide help.

### **Experiential learning preference**

Teachers valued hands-on, experiential learning opportunities. For instance, Teacher B recounted participating in a conference session that used clickers, also known as classroom response systems, which consist of hardware and software designed to support interactive teaching activities. Teacher B emphasized that this form of active engagement was far more motivating and effective than passive instruction:

“We actually used those clickers, and it was like, wow, this is a lot of fun ... that was really motivating ... actually doing it ... if you just give a teacher a write out, there is a hundred and one other things you have got to do.”

Teachers who reported higher levels of self-confidence in using computerized tools were more likely to incorporate them into their lessons, even informally. Conversely, those who felt underprepared or unsupported described feelings of anxiety, apprehension, and a fear of failure in front of their learners. This inverse relationship between confidence and adoption willingness was consistent across participants. These findings suggest that professional development must extend beyond technical instruction to include pedagogical integration and sustained post-training support.

### ***RELATEDNESS: COLLEGIAL SUPPORT NETWORKS AND FEELINGS OF ISOLATION***

Relatedness, defined as a sense of connection with colleagues, learners, and the institutional culture, significantly influenced teachers' willingness to engage with CAL (Teacher F). Teachers working in collegial environments that encouraged experimentation with technology reported higher motivation to explore digital teaching methods. In contrast, participants who experienced isolation, limited departmental collaboration, or unresponsive leadership described disengagement and reluctance to adopt CAL (Teacher B).

#### **Collegial support**

Supportive peer networks emerged as a key enabler of engagement. Teacher F highlighted the importance of collegial support, stating:

“My colleagues ... who carry you in the difficult times ... I think a big part of teaching is the colleagues.”

With this statement, Teacher F emphasized that professional relationships contribute significantly to motivation and resilience. Conversely, Teacher B, a part-time accounting teacher who was working alone, reported feelings of isolation, noting minimal interaction with colleagues:

“I don't have much to do with them because I am the only accounting teacher and I'm part-time ... I hardly sit and talk to them.”

#### **Student mentors (mobi-mentors)**

A unique finding in this study was the use of student mentors, referred to as “mobi-mentors,” to support teachers' technology use. Teacher F described how a student, more technologically adept due to generational familiarity or a special interest in IT, assisted with technical challenges, noting that this support enhanced motivation and confidence in using CAL.

“They've got mobi-mentors ... a student who helps me. He's a little bit more advanced because he is younger. So, if I get stuck ... he will assist me. So that motivates you.”

#### **Collaborative learning**

Structured collaborative opportunities also promote relatedness. Teacher C recounted a DigiDay session where teachers collectively navigated challenges, stating that the shared problem-solving and mutual encouragement “motivated people” to engage with new digital tools: “Everybody was in the same boat, and everybody struggled, and then we'd sit all together on a Friday, and everybody was laughing and just trying to figure this thing out together ... that motivated people.”

#### **Student engagement as a motivator**

Learner interaction and learner receptiveness further influenced teachers' adoption of CAL. This confirms SDT's assertion that relatedness operates both at the interpersonal level (collegial support) and through the reciprocal relationship between teacher effort and learner engagement. Some (Teacher E; Teacher G) perceived that learners were highly engaged during lessons that incorporated

digital tools, particularly when simulations and interactive features were used. Teacher B reported that learner inquiries prompted her to explore technology solutions (e.g., Share Trading), while Teacher G noted that providing learners with digital devices increased engagement, as students preferred interactive digital content over traditional paper-based tasks. However, socio-economic disparities, such as limited learner access to devices or prior digital exposure, were also cited as barriers to equitable CAL implementation.

### ***SYSTEMIC FACTORS: INFRASTRUCTURE, CURRICULUM, AND RESOURCE EQUITY***

Beyond motivational influences, systemic factors also shaped the participating teachers' engagement with CAL. They highlighted disparities in infrastructure, computer lab availability, outdated or incompatible software, and inconsistent IT support as barriers that constrained the effective integration of CAL. Misalignment between school resources and curriculum demands created tension between pedagogical intent and operational feasibility.

#### **Infrastructure challenges**

The teachers reported frequent disruptions due to unreliable internet connectivity, power outages, and malfunctioning equipment. Teacher D noted, "Sometimes the internet may be down, then the children can't access the information," while Teacher G described the unpredictability of power supply:

"Eskom putting the lights off ... no real warning signal ... if I've got a test, I get panicky."

Equipment failures were also evident, as Teacher B observed:

"Connection to my computer kept on failing ... it would flash up on the PowerPoint for like half a minute, then disappear."

#### **Time constraints**

The preparation time required for CAL implementation emerged as a critical barrier. Teacher B remarked, "It takes a lot of time to set it up, much more if we were just to write on the board," while Teacher D estimated, "One lesson is going to take you about a few hours to prepare." Similarly, Teacher F emphasized the workload: "Too much work for one teacher."

#### **Failed implementations**

The absence of CAL components in formal assessments emerged as a significant barrier to adoption. The participants expressed concern that dedicating class time to computerized accounting could disadvantage learners in NSC examinations, thereby reinforcing reliance on traditional methods. These institutional contradictions highlight the need for curriculum reform that aligns assessment practices with contemporary accounting skills and the integration of digital technologies.

## **DISCUSSION**

---

The findings reveal a critical empirical pattern: despite uniform conceptual endorsement of CAL's pedagogical value, only one of six teachers demonstrated intrinsic motivation for adoption, while most remained externally regulated. This distribution reflects systematic need frustration across SDT's three psychological dimensions. Autonomy was constrained by curriculum rigidity, specifically the exclusion of computerized accounting from formal CAPS assessments, which all participants identified as rendering CAL instruction pedagogically risky. Competence was undermined by fragmented professional development that emphasized generic digital skills over subject-specific pedagogical integration. Relatedness was weakened by inadequate collegial support, leading some teachers to experience isolation and limited collaborative learning opportunities. This convergent pattern of need frustration across autonomy, competence, and relatedness explains why teachers' conceptual endorsement of CAL failed to translate into sustained, intrinsically motivated implementation.

This study extends SDT by demonstrating that structural constraints can systematically override individual psychological need satisfaction (the fulfilment of autonomy, competence, and relatedness needs) in highly structured, assessment-driven educational contexts. Even among teachers who recognize the pedagogical and professional value of technology integration, these constraints produce externally regulated motivation. SDT has traditionally focused on individual motivation and interpersonal environments (Deci & Ryan, 2000; Howard et al., 2021). This study reveals that macro-level institutional structures, specifically curricular inflexibility and assessment-practice misalignment, function as powerful regulators of motivational internalization (the process whereby external expectations become personally valued and adopted as one's own). The findings, therefore, introduce the concept of structurally regulated motivation (controlled motivation arising from institutional policy structures rather than interpersonal factors). This describes controlled motivation, not produced by inadequate interpersonal support or individual deficits, but by systemic policy constraints that render innovation pedagogically risky and professionally unrewarded. This structural–psychological linkage represents a significant nuance to SDT's application in educational technology contexts, suggesting that sustainable adoption requires both psychological need satisfaction and structural policy alignment.”

More specifically, the findings extend SDT in three ways. First, they demonstrate that autonomy, traditionally understood as a psychological experience of volition, is simultaneously structurally mediated in institutional contexts. Teachers in this study experienced autonomy constraints not primarily through controlling interpersonal relationships, but through curriculum frameworks that positioned computerized accounting as discretionary and unexamined. Second, the study shows that systemic resource inequities and fragmented professional development structures can undermine competence and relatedness. This reveals how institutional conditions create the preconditions for need frustration independent of individual or interpersonal factors. Third, the findings suggest that in assessment-driven schooling systems, externally regulated motivation may persist even when teachers endorse innovation conceptually. This indicates that structural incentive systems beyond individual values or interpersonal climates shape motivation quality. Collectively, these insights reframe SDT's application in educational contexts by foregrounding the interplay between macro-level policy structures and micro-level psychological experiences.”

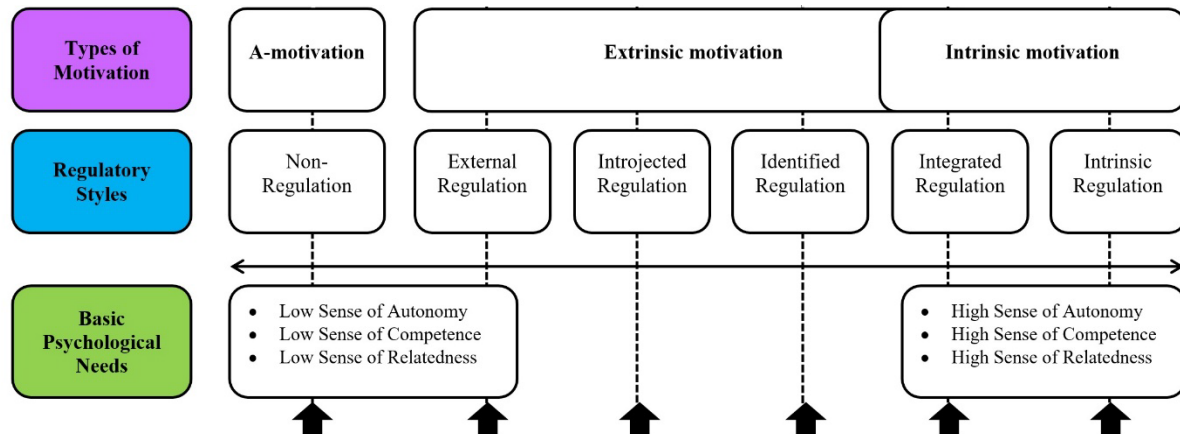
These findings have important implications for how SDT is applied to educational technology adoption. Previous research has primarily examined teacher motivation through the lens of individual attitudes, training adequacy, and school leadership (Jeno et al., 2018; Schmitz et al., 2023). While these factors remain important, this study demonstrates that structural policy barriers can attenuate their effects. When curriculum and assessment frameworks do not legitimize technology use, even autonomy-supportive leadership may prove insufficient. Robust professional development alone cannot produce sustained, intrinsic motivation without structural alignment. This suggests that interventions designed to support CAL adoption must address both psychological and structural dimensions concurrently. The study, therefore, contributes a systems-aware extension of SDT that accounts for how educational policies and institutional structures shape the conditions under which psychological needs can be satisfied, offering a more contextually grounded understanding of motivation in professional practice.

### ***MOTIVATION ALONG THE SELF-DETERMINATION CONTINUUM***

A central contribution of this study is the application of the SDT continuum to conceptualize accounting teachers' motivation toward the adoption of CAL. The findings indicate that teachers occupy various positions along Deci and Ryan's (2000) Self-Determination Continuum, underscoring the heterogeneity of motivational orientations.

Importantly, the predominance of externally regulated, compliance-based motivation suggests that CAL adoption in many contexts is primarily driven by institutional expectations rather than personal endorsement. While such regulation may initiate adoption, SDT predicts, and this study confirms, that controlled motivation typically results in fragile and surface-level integration that is unlikely to be

sustained or pedagogically transformative over time. In contrast, when CAL is internalized and aligned with teachers' professional identities, implementation tends to be more consistent, confident, and pedagogically meaningful. These findings underscore that the quality of teacher motivation, rather than mere access to technology, is the key determinant of effective and sustainable CAL adoption. The further discussion thereof is conceptually structured around Deci and Ryan's Self-Determination Continuum of regulatory styles (Figure 2).



**Figure 2. Conceptual alignment of discussion with the Self-Determination Continuum Amotivation (non-regulation)**

While no teacher exhibited complete amotivation, Teacher B approximated this state during her DigiDay experience, characterized by non-intentional, non-valuing regulatory processes. Teacher B's utterance, "DigiDay urgh urgh complain, complain," combined with avoidance behaviours ("I try to avoid the computer as much as I can") and the postponement of clicker implementation for nearly a year, positioned the teacher toward the leftmost extreme of the continuum. This aligns with Ryan and Deci's (2000) description of amotivation as lacking intentionality and reflecting incompetence or lack of control as regulatory processes.

### External regulation

Three teachers demonstrated externally regulated behaviour, where CAL adoption stemmed primarily from compliance with institutional mandates rather than internalized value. Teacher D explicitly articulated this: "It was more from management ... I am still a first-time teacher, so ... not actually really in such a place yet where I just want to bring in new stuff." Similarly, Teacher E (initially) described compliance without ownership:

"Originally, I had to ... you've got no choice. You can grumble and moan, but you're going to do it."

This regulatory style, characterized by an externally perceived locus of causality (the sense that behaviour is driven by external forces rather than personal choice), reflects what the study identifies as these teachers being at the "least autonomous level of extrinsic motivation", where behaviour is enacted to satisfy external demands or avoid confrontation.

### Introjected regulation

Teacher C exhibited introjected regulation, characterized by internal pressure to maintain self-worth through CAL adoption. Her statement, "I just thought I'm at a good private school, I want to present a good image," reflects ego-involvement as a regulatory process, in which behaviour is performed to enhance psychological health and feelings of worth. While this motivation is somewhat internalized, it remains controlled rather than autonomous.

### **Identified regulation**

Two teachers demonstrated identified regulation, where external expectations had been assimilated into their professional identities through conscious recognition of CAL's value. Teacher E's transformational journey exemplifies this progression: "I found that it was the way to go ... I'm motivated. I'm self ... just driven." Having moved from compliance ("Originally I had to") to identification ("adapt or die"), Teacher E internalized CAL as congruent with her professional goals. Similarly, Teacher F acknowledged external pressure but had begun internalizing its value. This regulatory style reflects what the study describes as behaviour carried out freely because it aligns with personal goals and identities.

### **Integrated regulation**

Teacher C demonstrated integrated regulation, the most autonomous form of extrinsic motivation, as CAL had fully assimilated into her professional identity. Her self-description as "main facilitator" and her autonomous decision making ("nobody came and spoke to me") reflect what this research terms "synthesis with self." Similarly, Teacher G's dual identity as both a technology and an accounting teacher positioned computerized teaching as central to her professional self-concept, representing complete integration in which "the internalization process is complete."

### **Intrinsic motivation**

Only Teacher G exhibited intrinsic motivation, characterized by genuine enjoyment and inherent satisfaction in using CAL. Her statement: "It's me and the learners. Both of us together have seen this balance. I enjoy it, they enjoy it," reflects the internal perceived locus of causality (the sense that behaviour arises from personal choice and interest) and personal interest that define intrinsic regulation. Her comment that "if you don't do it that way, you're old-fashioned" suggests that digital pedagogy has become integral to her teaching identity, transcending instrumental value to become inherently satisfying.

### **Theoretical implications**

This distribution along the continuum demonstrates three critical insights. First, external mandates alone (Teacher D, early-Teacher E) produce compliance without ownership, a finding that is consistent with SDT's prediction that controlling contexts undermine intrinsic motivation (Deci & Ryan, 1985). Second, autonomy-supportive contexts (Teacher C's school, which provided choice and resources) enable the internalization process from external to identified and integrated regulation. Third, the SDT continuum's (Figure 1) utility as an analytical framework is confirmed: teacher motivation is not binary (motivated/unmotivated) but exists along a spectrum of self-determination, with different regulatory processes dominating at different points, as it is not stagnant.

Accounting teachers' motivation to use CAL is influenced by extrinsic factors, with compliance as a regulatory process the main reason for implementing CAL. This finding has profound policy implications: simply mandating CAL integration without addressing needs related to autonomy, competence, and relatedness will likely yield compliance-based adoption that is fragile and unlikely to persist or deepen over time.

### ***AUTONOMY AND CURRICULUM REFORM***

Limited autonomy emerged as a significant inhibitor of CAL internalization, with teachers' motivation constrained by the curriculum-assessment misalignment detailed in the Literature Review. Empirically, this manifested as a double bind: teachers who invested instructional time in computerized accounting risked under-preparing learners for manual-focused NSC examinations, while those prioritizing exam success perpetuated pedagogical obsolescence.

From an SDT perspective, this represents an autonomy-thwarting environment where policy structures systematically constrain professional judgment. Notably, even Teacher G, who exhibited intrinsic

sic motivation, managed this constraint through compartmentalization rather than resolution, indicating that curriculum rigidity undermines autonomy across the motivational continuum. This finding extends existing critiques of CAPS (Landsberg, 2021; Rhodes & Taylor, 2024) by demonstrating how assessment policy functions as a structural regulator of motivation, not merely a content misalignment.

### ***COMPETENCE AND PROFESSIONAL DEVELOPMENT***

Perceived competence emerged as a pivotal factor influencing teachers' willingness to engage with CAL. The discussion moves beyond technical skill to emphasize competence as a psychological experience of effectiveness and confidence in one's teaching role. Where professional development was generic, fragmented, or disconnected from classroom realities, teachers' confidence was undermined, reinforcing reliance on traditional pedagogies.

These findings align with SDT's emphasis on competence satisfaction as a prerequisite for autonomous motivation, and with prior research highlighting the limitations of one-size-fits-all training models (Beukes, 2016; Skhephe & Caga, 2019). This reinforces the argument made by Nel and Marais (2020) that professional development must be practically oriented and embedded in teachers' subject contexts, rather than divorced from their classroom realities. The implication is clear: professional development initiatives must be subject-specific, pedagogically grounded, and sustained over time to support meaningful CAL adoption rather than symbolic compliance.

### ***RELATEDNESS, SCHOOL CULTURE, AND LEARNER ENGAGEMENT***

The study also highlights the role of relatedness in shaping motivational trajectories. Supportive school cultures, characterized by collegial collaboration and leadership encouragement, were associated with greater willingness to experiment with CAL. This finding underscores SDT's assertion that motivation is socially embedded and reinforced through relational contexts.

Learner responsiveness further strengthened teachers' motivation, suggesting a reciprocal relationship between digitally mediated pedagogy and classroom engagement. However, this relational dynamic is complicated by socio-economic disparities in learner access to technology, which introduce equity concerns into CAL implementation. Thus, relatedness operates not only at the interpersonal level but also within broader structural conditions that shape who can meaningfully benefit from digital learning initiatives.

### ***SYSTEMIC CONDITIONS FOR SUSTAINABLE CAL ADOPTION***

Beyond individual motivation, the findings demonstrate that systemic barriers continue to constrain CAL integration. Inadequate infrastructure, inconsistent technical support, and the exclusion of CAL from high-stakes national assessments collectively disincentivize sustained adoption. These conditions reinforce the study's argument that motivation alone is insufficient for systemic change. These structural conditions echo findings by Mdingi (2024) and Prinsloo (2020), who argue that resource inequity and outdated assessment models limit the potential of digital education.

In line with SDT, teacher motivation must be understood as embedded within institutional and policy environments. Without coherent alignment between curriculum, assessment, infrastructure, and professional development, CAL adoption risks remaining fragmented and dependent on individual initiative rather than becoming a normative component of accounting education.

### ***WHEN CAL UNDERMINES LEARNING: IMPLICATIONS FOR DESIGN AND POLICY***

Finally, the study highlights that poorly designed CAL implementations can actively undermine both motivation and learning. When computerized accounting software prioritizes rote procedures over

conceptual understanding, it contradicts the pedagogical aims of CAL and erodes teachers' and learners' confidence in technology-mediated instruction. This finding reinforces the importance of pedagogically informed design and cautions against equating digitalization with educational quality.

The implication for policy and practice is that CAL integration must be evaluated, not only in terms of access and usage, but also in terms of instructional design, assessment alignment, and learning authenticity.

## RECOMMENDATIONS AND FUTURE RESEARCH

---

Grounded in the study's SDT-informed findings, the following recommendations propose targeted interventions to support the equitable and sustainable integration of computerized accounting in South African high schools, while highlighting areas for future research. These recommendations are grounded directly in the empirical findings and aim to address the identified barriers to sustainable CAL integration.

While these recommendations are grounded in the empirical findings and theoretical insights from this study, they should be interpreted with appropriate caution given the study's scope and context. The findings emerge from a small, purposive sample of six accounting teachers from private schools in Gauteng. The context is characterized by relatively enabling conditions, including adequate infrastructure, institutional support, and professional autonomy. The patterns observed regarding the interplay between structural constraints and motivational regulation may have broader relevance for similar assessment-driven educational contexts. However, direct transferability to under-resourced public school settings would require further empirical verification. The recommendations below are therefore offered as theoretically informed, evidence-based suggestions rather than prescriptive directives, recognizing that their applicability depends on the presence of similar structural enablers and institutional support systems.

### *IMMEDIATE RECOMMENDATIONS*

**Curriculum reform and assessment alignment:** All six teachers identified the exclusion of computerized accounting from formal CAPS assessments as a decisive constraint on their autonomy. This resulted in only one teacher achieving intrinsic motivation, while most remained externally regulated. Given SDT's emphasis on the essential role of autonomy satisfaction in intrinsic motivation and sustained behavioural change, these findings suggest that sustainable CAL adoption requires structural curriculum reform. Without assessment legitimization, teachers experience CAL instruction as pedagogically risky and professionally unrewarded, systematically thwarting autonomous motivation. It follows that education authorities should revise the CAPS accounting curriculum to explicitly incorporate computerized accounting as both a content area and an assessment component. Without assessment legitimization, teachers experience CAL as pedagogically risky and professionally unrewarded, systematically thwarting autonomous motivation regardless of individual attitudes or institutional support. It follows that education authorities should consider revising the CAPS accounting curriculum to explicitly incorporate computerized accounting as both a content area and an assessment component. In contexts where enabling conditions exist, formal curriculum recognition would legitimize CAL use, incentivize teacher adoption, and align school-level practices with industry expectations and SAICA's Competency Framework 2025.

**Context-sensitive professional development:** The finding that participants reported fragmented training focused on generic digital skills rather than subject-specific pedagogical integration, which undermined their perceived competence and left them uncertain about effective CAL implementation, combined with SDT's principle that competence satisfaction is a prerequisite for autonomous motivation, suggests that professional development must be pedagogically grounded and context-specific to support internalization. Generic ICT training failed to address the specialized knowledge

needed to integrate computerized accounting meaningfully into accounting pedagogy, thereby frustrating competence needs and reinforcing reliance on traditional methods. It follows that, particularly in contexts with adequate institutional support, teacher development initiatives should prioritize subject-specific, pedagogically grounded training in computerized accounting software rather than generic ICT skills. Professional learning communities can further support sustained CAL integration by enabling peer mentoring, collaborative experimentation, and reflective practice, all of which are critical for internalizing digital pedagogies (Nel & Marais, 2020). Greater alignment between school curricula, higher education programmes, and employer expectations is also necessary to ensure coherence across the education-to-work pipeline (Tiron-Tudor et al., 2025).

**Partnerships with software providers:** The finding that teachers reported both competence constraints stemming from inadequate training and affordability barriers that limited access to industry-standard software, combined with SDT's emphasis that competence satisfaction requires both psychological support (confidence-building) and practical resources (access to tools), suggests that sustainable CAL adoption requires collaborative partnerships that address both dimensions simultaneously. When teachers lack access to affordable software or adequate technical support, competence frustration is inevitable, regardless of motivation or pedagogical intent. It follows that software providers could consider adopting differentiated, subsidized licensing models aligned with South Africa's school quintile system to address affordability barriers. In addition, free educator certification programmes, simplified educational software versions, and access to real-time technical support during school hours would strengthen teachers' competence and confidence. Collaboration between software providers, the Department of Basic Education, and professional accounting bodies (SAICA, SAIPA, and ACCA) could further support CAL implementation through curriculum exemplars, professional development initiatives, and learner exposure to authentic, industry-aligned accounting practices.

Additionally, facilitating school-business partnerships where learners engage in simulated accounting tasks for local SMEs would contextualize software skills within South Africa's entrepreneurial ecosystems. Professional bodies should complement these efforts by conducting centralized training sessions for learners, exposing students to industry standards, and reinforcing CAL's vocational relevance. These partnerships position providers as socially responsible while cultivating future professional users who develop brand familiarity during their education. This neatly aligns educational equity goals with sustainable long-term market development strategies.

### ***FUTURE RESEARCH DIRECTIONS***

It is suggested that sector-specific research should investigate whether computerized accounting software skill requirements differ by employment context (public versus private schools, entry-level versus senior positions, industry sectors). Longitudinal policy studies should track how these requirements evolve with emerging technologies, cloud-based systems, AI-driven tools, and blockchain accounting, informing curriculum agility and preventing skill obsolescence. These research directions would ensure that CAL integration becomes evidence-based, equitable, and responsive to both pedagogical needs and labour market realities in South Africa.

### ***LIMITATIONS***

This study has some limitations. Its focus on private high schools may limit transferability to public school contexts, although the findings offer analytically relevant insights. It is important to emphasize that this study was conducted in private high schools in Gauteng, South Africa. While this setting provided access to teachers implementing CAL under comparatively enabling conditions, the findings should not be interpreted as nationally representative or directly generalizable to under-resourced public-school contexts. The focus on private schools was analytically strategic, allowing for in-depth examination of motivational dynamics when structural barriers are reduced. Transferability

to other contexts depends on the presence of similar enabling conditions, including adequate infrastructure, institutional support, and professional development opportunities. The small qualitative sample, while limiting representativeness, enabled in-depth exploration and theoretical saturation within the SDT framework. Finally, data were cross-sectional and self-reported, capturing teachers' perceived motivations at a single point in time. Thus, it is posited that longitudinal studies could provide a deeper understanding of how motivation evolves.

## CONCLUSION

---

This study demonstrated that sustainable CAL adoption in South African high school accounting education requires both motivational internalization and structural policy alignment. This finding emerged through the cumulative logic of this investigation. The literature review established a critical gap: while accounting education research has documented infrastructure deficits and training limitations as barriers to technology integration (Beukes, 2016; Skhephe & Caga, 2019), the motivational and psychological mechanisms explaining why teachers who conceptually endorse CAL often fail to implement it remain underexplored. Self-Determination Theory provided the analytical lens, offering a framework through which teachers' technology adoption decisions could be understood as shaped by their satisfaction of fundamental psychological needs: autonomy, competence, and relatedness, rather than solely by resource availability or technical skills. The qualitative methodology, employing structured interviews with six accounting teachers in Gauteng private schools and thematic analysis informed by SDT constructs, enabled an in-depth examination of how these motivational dynamics intersect with institutional constraints. The empirical findings revealed a consistent pattern: despite uniform conceptual endorsement of CAL's value, only one teacher demonstrated intrinsic motivation, while most remained externally regulated, constrained by curriculum-assessment misalignment (autonomy), fragmented professional development (competence), and inadequate collegial support (relatedness). The discussion extended SDT by introducing the concept of structurally regulated motivation, demonstrating that macro-level policy structures, not merely interpersonal environments, can systematically frustrate psychological need satisfaction and produce controlled motivation even among well-resourced teachers. Together, these insights indicate that addressing infrastructure and training alone is insufficient without concurrent curriculum reform that embeds computerized accounting within formal CAPS assessments, thereby legitimizing CAL as pedagogically essential rather than discretionary. This represents the study's central theoretical and practical contribution: sustainable technology adoption in assessment-driven educational systems requires structural policy alignment that supports, rather than undermines, teachers' psychological needs for autonomy, competence, and relatedness.

This study suggests that the successful integration of computerized accounting into South African high schools hinges on addressing teacher motivation, resource availability, and systemic challenges simultaneously. This requires not only investment in infrastructure but also sustained support for teacher professional development that is subject-specific, context-sensitive, and pedagogy-oriented (Beukes, 2016). By fostering supportive environments for CAL adoption through professional learning communities, leadership support, and responsive ICT policies, South Africa can better prepare its learners for the evolving demands of the accounting profession while ensuring equitable access.

The study's application of SDT provides valuable insights into the psychological dimensions of technology adoption, revealing that autonomy, competence, and relatedness are crucial factors in teachers' willingness to embrace digital tools. However, these individual motivational factors must be supported by systemic changes, including curriculum reform, infrastructure development, and policy alignment. Only through such comprehensive transformation can South African high schools bridge the gap between traditional accounting education and the digital competencies required in the 21st-century workplace.

The computerized accounting software paradox thus reveals a fundamental tension, while CAL integration is essential for preparing students for the digitalized accounting profession, implementation quality determines whether technology enhances or undermines that preparation. This finding reinforces the study's central argument that addressing teachers' SDT needs – autonomy to reject poorly designed tools, competence through adequate training, and relatedness through collegial support – is indeed a prerequisite to successful technology integration.

This study revealed critical contradictions and unexpected patterns in teachers' motivational profiles regarding CAL. While participants expressed conceptual support for CAL's pedagogical value, practical adoption remained constrained by assessment-driven pressures and systemic rigidities, a contradiction that reflects the tension between espoused beliefs and enacted practices in controlling educational contexts. Poorly implemented technology reinforced parrot learning rather than transformative pedagogy, emerging as a particularly striking surprise that underscores the necessity of competence support within the framework of Self-Determination Theory. Even more unexpected was the heterogeneity in motivational internalization (the degree to which teachers adopted CAL as personally meaningful rather than externally mandated): despite uniform infrastructure provision and deliberate sampling of experienced educators, only one teacher (Teacher G, possessing dual expertise in both accounting and Business Studies) achieved intrinsic motivation, while the majority remained externally regulated or at identified levels. This finding challenges the assumption that resource equity alone drives motivational progression and highlights subject specialization's pivotal role, a gap insufficiently addressed in the existing TPACK literature. Furthermore, a theoretical contradiction warrants attention: while Howard et al. (2021) suggest that environments that support relatedness facilitate intrinsic shifts along the continuum, collegial support structures, such as mobi-mentors, failed to fully internalize motivation for most participants. This is likely due to the isolating nature of part-time roles and fragmented professional communities, which limited sustained relational bonds.

The motivational distribution across the SDT continuum was notably skewed: three teachers operated under external regulation, two achieved identified or integrated regulation, and only one attained intrinsic motivation, quantifiable evidence that perceptions of competence deficits, autonomy suppression, and relational isolation directly shaped motivational quality, aligning precisely with the study's objective to examine how perceptions influence CAL adoption. These findings have significant implications for both theory and practice.

This study contributes to the knowledge on educational technology adoption in three ways. First, it demonstrates that SDT provides a nuanced framework for understanding teacher motivation as a continuum rather than a binary state, revealing that external mandates produce fragile compliance while autonomy-supportive environments enable authentic internalization. Second, it shows that systemic constraints, structural policy barriers, assessment-practice disconnects, and resource inequities fundamentally limit the effectiveness of teacher training and infrastructure investments alone. Third, it provides empirical evidence from private school contexts that, while not nationally representative, offers theoretically grounded insights that are applicable to settings where enabling conditions can be established. Future research should examine how these motivational dynamics manifest in under-resourced public school contexts and explore the longitudinal trajectories of motivation as systemic reforms are implemented.

This SDT-informed insight has direct policy implications: unless CAPS and NSC assessment frameworks are reformed to embed computerized accounting as a formally examined component, teachers' autonomy will remain systematically constrained by the structural contradiction between professional aspirations (digitally relevant instruction) and accountability pressures (manual-focused examinations), perpetuating externally regulated motivation and preventing the intrinsic engagement necessary for sustained, transformative CAL integration.

## REFERENCES

---

- Abedi, E. A. (2024). Tensions between technology integration practices of teachers and ICT in education policy expectations: Implications for change in teacher knowledge, beliefs and teaching practices. *Journal of Computers in Education*, 11(4), 1215-1234. <https://doi.org/10.1007/s40692-023-00296-6>
- Abou-El-Sood, H. (2025). Integrating QuickBooks® in financial accounting classrooms: Evidence from the UAE. *Accounting Education*, 34(3), 345-365. <https://doi.org/10.1080/09639284.2024.2323038>
- Barron, A. E., Dawson, K., & Yendol-Hoppey, D. (2009). Peer coaching and technology integration: An evaluation of the Microsoft peer coaching program. *Mentoring & Tutoring: Partnership in Learning*, 17(1), 83-102. <https://doi.org/10.1080/13611260802658561>
- Bester, G., & Brand, L. (2013). The effect of technology on learner attention and achievement in the accounting classroom. *South African Journal of Education*, 33(2), 1-15. <https://doi.org/10.15700/saje.v33n2a405>
- Beukes, J. R. (2016). Business studies teachers' perceptions and experiences of the challenges in integrating ICT in the classroom. *International Journal of Social Sciences and Humanity Studies*, 8(1), 183-199.
- Bhargava, A., & Bhargava, D. (2019). Digital transformation and accounting education: Preparing students for Industry 4.0. *Journal of Accounting Education*, 48, 12-23.
- Boyatzis, R. E. (1998). *Transforming qualitative information: Thematic analysis and code development*. Sage.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101. <https://doi.org/10.1191/1478088706qp063oa>
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319-340. <https://doi.org/10.2307/249008>
- Debushe, T., Mokgosi, P., & Ntsana, M. (2025). Factors influencing the use of web-based learning in accounting education in the Capricorn District of Limpopo Province, South Africa. *International Journal of Learning, Teaching and Educational Research*, 24, 609-626. <https://doi.org/10.26803/ijlter.24.1.30>
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. Plenum Press. <https://doi.org/10.1007/978-1-4899-2271-7>
- Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11(4), 227-268. [https://doi.org/10.1207/S15327965PLI1104\\_01](https://doi.org/10.1207/S15327965PLI1104_01)
- Department of Basic Education. (2011). *Curriculum and Assessment Policy Statement (CAPS): Grades 10-12*.
- Department of Basic Education. (2020). *School monitoring survey 2019*.
- Department of Higher Education and Training. (2013). *White paper for post-school education and training: Building an expanded, effective and integrated post-school system*.
- Department of Higher Education and Training. (2023). *National plan for post-school education and training: 2021-2030*.
- Emans, A., Oolbekkink-Marchand, H., Bakker, C., & De Bruijn, E. (2025, January). Teacher agency in the dynamics of educational practices: a theory synthesis. *Frontiers in Education*, 9, 1515123. <https://doi.org/10.3389/feduc.2024.1515123>
- Eteläpelto, A., Vähäsantanen, K., Hökkä, P., & Paloniemi, S. (2013). What is agency? Conceptualizing professional agency at work. *Educational Research Review*, 10, 45-65. <https://doi.org/10.1016/j.edurev.2013.05.001>
- Fullan, M. (2016). *The new meaning of educational change* (5th ed.). Teachers College Press.
- Hogianto, M. (2023). *The role of technology in transforming traditional accounting into digital accounting*. <https://doi.org/10.2139/ssrn.4517366>
- Howard, J. L., Bureau, J., Guay, F., Chong, J. X. Y., & Ryan, R. M. (2021). Student motivation and associated outcomes: A meta-analysis from Self-Determination Theory. *Perspectives on Psychological Science*, 16(6), 1300-1323. <https://doi.org/10.1177/1745691620966789>

- Jeno, L. M., Danielsen, A., & Raaheim, A. (2018). A prospective investigation of students' academic achievement and dropout in higher education: A Self-Determination Theory approach. *Educational Psychology*, 38, 1-22. <https://doi.org/10.1080/01443410.2018.1502412>
- Jibril, M., & Adedokun-Shittu, N. A. (2024). Enhancing education: A comprehensive framework for integrating Technological Pedagogical Content Knowledge (TPACK) into teaching and learning. *Indonesian Journal of Multidisciplinary Research*, 4(1), 181–188. <https://doi.org/10.17509/ijomr.v4i1.72044>
- Karkkola, P. (2026). Illegitimate tasks and work motivation: Examining the full continuum of self-determination. *Scandinavian Journal of Psychology*, 67(1), 214–229. <https://doi.org/10.1111/sjop.70025>
- Landsberg, E. (2021). *Investigating the preparedness of the accountancy curricula for the 4th Industrial Revolution* [Master's dissertation, North-West University].
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Sage. [https://doi.org/10.1016/0147-1767\(85\)90062-8](https://doi.org/10.1016/0147-1767(85)90062-8)
- Makina, D. (2021). Corporate governance and financial inclusion. *International Journal of Finance & Banking Studies*, 10(4), 12-23. <https://doi.org/10.20525/ijfbs.v10i4.1349>
- Mat Dangi, M. R., & Mohamed Saat, M. (2021). 21st century educational technology adoption in accounting education: Does institutional support moderate accounting educators' acceptance behaviour and conscientiousness trait towards behavioural intention? *International Journal of Academic Research in Business and Social Sciences*, 11(1), 304–333. <https://doi.org/10.6007/IJARBS/v11-i1/8288>
- Mat Dangi, M. R., Mohamed Saat, M., & Saad, S. (2023). Teaching and learning using 21st century educational technology in accounting education: Evidence and conceptualisation of usage behaviour. *Australasian Journal of Educational Technology*, 39(1), 19–38. <https://doi.org/10.14742/ajet.6630>
- Mdingi, M. (2024). Computerised accounting integration into high school curriculum delivery: Benefits and barriers. *The Indonesian Journal of Accounting Research*, 27(3), 387–404. <https://doi.org/10.33312/ijar.721>
- Moll, J., & Yigitbasioglu, O. (2019). The role of internet-related technologies in shaping the work of accountants: New directions for accounting research. *The British Accounting Review*, 51(6), 100833. <https://doi.org/10.1016/j.bar.2019.04.002>
- Nel, C., & Marais, E. (2020). Preservice teachers use of WhatsApp to explain subject content to school children during the COVID-19 pandemic. *International Journal of Work-Integrated Learning*, 21(5), 629.
- Pan, G., & Seow, P. S. (2016). Preparing accounting graduates for digital revolution: A critical review of information technology competencies and skills development. *Journal of Education for Business*, 91(3), 166-175. <https://doi.org/10.1080/08832323.2016.1145622>
- Pargmann, J., Riebenbauer, E., Flick-Holtsch, D., & Berding, F. (2023). Digitalisation in accounting: A systematic literature review of activities and implications for competences. *Empirical Research in Vocational Education and Training*, 15, Article 12. <https://doi.org/10.1186/s40461-023-00141-1>
- Prinsloo, P. (2020). Educational inequality and technology access in South Africa. *Journal of Education*, 45(2), 123-145.
- Rhodes, N., & Taylor, A. (2024). Navigating the integration of IT in accounting education: A South African university case study. *Proceedings of the Future of Education*, 245–260.
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68-78. <https://doi.org/10.1037/0003-066X.55.1.68>
- Ryan, R. M., & Deci, E. L. (2020). Intrinsic and extrinsic motivation from a self-determination theory perspective: Definitions, theory, practices, and future directions. *Contemporary Educational Psychology*, 61, Article 101860. <https://doi.org/10.1016/j.cedpsych.2020.101860>
- Sampaio, C., & Silva, R. (2025). Digital transformation in accounting: An assessment of automation and AI integration. *International Journal of Financial Studies*, 13(4), 206. <https://doi.org/10.3390/ijfs13040206>
- Schmitz, M.-L., Antonietti, C., Consoli, T., Cattaneo, A., Gonon, P., & Petko, D. (2023). Transformational leadership for technology integration in schools: Empowering teachers to use technology in a more demanding way. *Computers & Education*, 204, 104880. <https://doi.org/10.1016/j.compedu.2023.104880>

- Sharma, S. K., Mudgal, S. K., Gaur, R., Chaturvedi, J., Rulaniya, S., & Sharma, P. (2024). Navigating sample size estimation for qualitative research. *Journal of Medical Evidence*, 5(2), 133-139. [https://doi.org/10.4103/JME.JME\\_59\\_24](https://doi.org/10.4103/JME.JME_59_24)
- Skhephe, M., & Caga, C. (2019). Exploring teacher readiness for ICT integration in South African public schools: A case study of e-learning in accounting classrooms. *African Journal of Research in Mathematics, Science and Technology Education*, 23(2), 200-212.
- Sledgianowski, D., Gomaa, M., & Tan, C. (2017). Toward integration of Big Data, technology and information systems competencies into the accounting curriculum. *Journal of Accounting Education*, 38, 81-93. <https://doi.org/10.1016/j.jaccedu.2016.12.008>
- South African Institute of Chartered Accountants. (2022). *CA of the Future: Competency framework*.. <https://www.saica.org.za/initiatives/competency-framework/ca-of-the-future> .
- Swiss South African Cooperation Initiative. (2024). *Identification of skills gaps in South Africa: Technical research report*. Department of Higher Education and Training, Labour Market Intelligence Programme. [LMI-1-11-C2A-Technical-ID-SkillGapSA-WEB.pdf](https://www.dhet.gov.za/Research/Technical-Research/2024/Identification-of-skills-gaps-in-South-Africa-Technical-research-report.pdf)
- Tiron-Tudor, A., Labaditis, A., & Deliu, D. (2025). Future-ready digital skills in the AI era: Bridging market demands and student expectations in the accounting profession. *Technological Forecasting and Social Change*, 215, 124105. <https://doi.org/10.1016/j.techfore.2025.124105>
- Van der Vyver, C. P., & Geduld, B. W. (2022). Self-determination theory as a lens to explore motivational factors and leadership influences in sustainable school improvement: A South African case. *South African Journal of Education*, 42(1), 1-9. <https://doi.org/10.15700/saje.v42n1a2049>
- Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27(3), 425-478. <https://doi.org/10.2307/30036540>
- Zamokuhle, M., Zikhona, S., & Ngqunguza, A. (2025). Integration of Information and Communication Technology [ICT] in accounting classroom in Chris Hani West District, Eastern Cape Province. *TWIST*, 20(2), 453-460. <https://twistjournal.net/twist/article/view/745>

## AUTHOR



**Dr. Maria Swanepoel** (ORCID 0000-0001-7619-9704) is a researcher in the Faculty of ICT at Tshwane University of Technology (TUT), Pretoria, South Africa. Her academic work focuses on technology-enhanced learning in higher education, learning management systems, blended and online learning, and ICT integration in teaching and learning. She is particularly interested in how digital tools can transform pedagogical practice and support meaningful student engagement. Her ongoing research examines the motivational, pedagogical, and structural dynamics that influence teachers' adoption of educational technology.