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# The effectiveness of a first-year module presented as an accelerated learning programme to repeating students for subsequent learning

## Abstract

*The use of an accelerated learning programme as an intervention to allow failing students to repeat a module in an accelerated format instead of having to redo a module over a semester or academic year has various academic, economic, and social benefits. Accelerated learning programmes are, however, often criticised in the literature for surface learning that may influence subsequent learning. Using a quantitative approach, this study statistically analysed the grades achieved by three distinct groups of students for a first-year financial accounting module and their subsequent second-year financial accounting module. The study found no statistical difference between students who repeated a module over the traditional academic period and those who repeated the module in an accelerated format. This study contributes to the limited research on accelerated learning programmes for repeating a module. The results provide empirical evidence that supports the questioning of the notion that accelerated learning programmes only lead to surface learning, and results are presented that advocate for the implementation of accelerated learning programmes as an effective mode for repeating students to follow to achieve academic success, given the various benefits.*

**Keywords:** *accelerated learning programme, financial accounting, first year, subsequent learning*

## 1. Introduction

The shift from high school to university is a challenge that often leads to students failing their first-year modules (Broos *et al.*, 2020; McKay, O'Bryan & Kahu, 2021). Many first-year modules act as prerequisites for subsequent modules; not passing a prerequisite can thus lead to delays in completing degrees. Within the South African context, the universally accepted challenging first-year transition to higher education is often magnified for students from disadvantaged backgrounds; for instance, first-generation students (Yorke & Thomas, 2003). South African students

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at university face challenges such as coming from households with limited financial resources and reliance on the National Student Financial Aid Scheme, which requires a certain number of credits to retain their funding (McKay, Naidoo & Simpson, 2018). The disruptions caused by load shedding, which is the term used in South Africa for the rationing of electricity (Bohlmann & Inglesi-Lotz, 2021), and the COVID-19 pandemic (World Health Organization, 2020) created increased challenges with the swift move from residential learning to online learning (McKay *et al.*, 2021).

In the face of the challenges, tertiary institutions expected an increase in first-year repeating students and proposed various interventions to increase the success rate of the first attempt at a module. Interventions to assist students in successfully navigating the first year of university studies include peer mentoring programmes, as addressed by Du Preez Steenkamp and Baard's (2013) study, and providing additional resources in the form of extra classes such as tutorials, extra lessons, and mentoring sessions, as addressed by Ontong, Bruwer and Dreyer (2020). These interventions, however, fall short in assisting students who, at the end of the academic year, are still unable to pass their modules. For these students, an accelerated version of the module was created. The literature is, however, limited on the effect of accelerated learning programmes on subsequent learning. This study therefore aimed to contribute to the existing literature to address this research gap.

## 1.1 Background to the design of the first-year accounting module's accelerated learning programme

Students are able to obtain grades of 0% to 100% for the first-year financial accounting module. A grade of 50% is required to pass the module. The accelerated learning programme provides an opportunity for students who failed the first-year financial accounting module to complete the module as an alternative to repeating the module over an entire year. Only students who registered for the previous academic year and failed with a final grade below 50% (but at least 40%) are eligible to register for the accelerated learning programme. This therefore creates a group of students who failed the module but demonstrated a limited level of understanding of the module. The authors acknowledge the limitation in terms of the participants of this study; however, this is suggested as an area for future research. The accelerated learning programme covers the same content as the full year module and has moderated assessments of the same standard as the traditional module. Participants passing the accelerated learning programme are able to register for the second-year financial accounting module, for which the first-year financial accounting module is a prerequisite.

The accelerated learning programme that forms the focus of this study is a first-year financial accounting module for which the accelerated learning programme was introduced for the 2019 academic year onwards. Anastasi (2007) found that accelerated learning programmes yielded similar academic performance as full-semester modules. Austin and Gustafson (2006) found that improved grades in accelerated learning programmes compared to traditional-length semester programmes; specifically, a four-week programme was demonstrated as being the most beneficial. Eames, Luttman and Parker (2018) found no significant difference between candidates who attempted the Certified Public Accountant (CPA) examination for those who completed an accelerated versus a traditional undergraduate programme. While previous studies have compared the success of students in traditional versus accelerated learning programmes (Austin & Gustafson, 2006; Anastasi, 2007; Eames *et al.*, 2018), this study investigates the performance of students who repeated the first-year financial

accounting module over a full year and in an accelerated format, in a second-year module that requires the first-year module as a prerequisite, while using students who achieved the passing minimum as a control group – this is an area of limited focus in the existing literature.

The first-year accelerated learning programme traditionally runs in the recess period, prior to the start of the subsequent academic year, normally for around a two-and-a-half-week period. This accelerated period allows contact hours equivalent to the hours spent on a module over an entire academic year. The content and assessment are the same in the accelerated learning programme as in the full year module. In addition, the lecturers who facilitate the accelerated learning programme remain the same as those involved in the full year module. Hearing the principles a second time from the same perspective assists students to reflect on their previous learning experience. The only aspect that changes in the accelerated learning programme is that the accelerated learning programme is concentrated and a level of adult learning and high-level preparation are expected from students to include all the content in the shortened duration without condensing any of the learning material.

The second-year financial accounting module is grounded in the principles taught in the first-year financial accounting module; consequently a sufficient understanding of the principles of the first-year financial accounting module is deemed crucial for success in the second-year financial accounting module (York, Gibson & Rankin, 2015). Accelerated learning programmes result in more students passing the module and thus has a positive impact on the success rate of first-year students.

Accelerated learning programmes are often criticised for potentially allowing students to cram knowledge and engage in surface learning, which may affect knowledge retention (Beattie, Collins & McInnes., 1997; Eames *et al.*, 2018). The intervention proposed in this study does not recommend an accelerated learning programme as an alternative for a full academic year of studies but seeks to understand whether the accelerated learning programme sufficiently prepares students, after failing a full academic year, for the subsequent second-year accounting module.

There are many student motivations for this accelerated learning programme in a first-year financial accounting module at a South African residential university. Firstly, the completion of the first-year financial accounting module, referred to as the base module, is a prerequisite module for the subsequent second-year financial accounting module in the second year of studies for many students. Repeating a first-year module often leads to various clashes between classes and assessments of second-year modules, which leads to students having to manage a complicated workload and potentially having to decide between assessments and success in certain modules.

This research seeks to contribute to the existing literature by investigating if accelerated learning programmes, which are often critiqued in the literature (Eames *et al*., 2018), will affect future performance in succeeding modules. The specific focus is on comparing the grades of students who attended accelerated learning programmes to the grades of students who repeated the traditional-length introductory accounting module. This study contributes to the literature and theory on accelerated learning programmes in accounting and may assist decision making by institutions regarding accelerated learning programmes by providing empirical results on the impact of accelerated learning programmes in an introductory accounting module on the subsequent performance of students in successive modules.

The objective of this study is to evaluate the effectiveness of an accelerated learning programme by analysing the performance of participating students in a subsequent module, namely a second-year financial accounting module, of which the module included in the accelerated learning programme (first-year financial accounting) is a prerequisite. The analysis of the accelerated learning programmes was performed by comparing all the students included in the programme, referred to as Group 1, to two other student groups, namely Group 2, students who failed the first-year financial accounting module and repeated the module for an entire subsequent academic year, and Group 3, students who passed first-year financial accounting with an overall final grade of 50%. Group 3 was considered a control group to assist in understanding whether there is a difference between students who repeat the module in an accelerated and the traditional format. Consequently, two research questions were identified:

- Research Question 1: Does the grade of the second-year module differ significantly for students of the accelerated learning programme versus students who repeated the full year module?
- Research Question 2: Is there a difference between the final grades obtained for the three groups in the second-year financial accounting module, adjusting for the students' performance in the first-year financial accounting module?

## 2. Literature review

The literature review commences with defining student success in order to frame what constitutes success in terms of an accelerated learning programme. Secondly, the review investigates theories on deep learning versus surface learning constructs. Finally, the literature review concludes with a review of the effect of future performance on subsequent modules when considering an accelerated learning programme.

### 2.1 Academic success following an accelerated learning programme

Academic success is a widely used term in educational research in higher education although it has no distinct definition (York *et al.*, 2015). In their aim to provide a more precise definition of academic success, York *et al.* (2015) performed a literature review of the term "academic success" in higher education. York *et al.* (2015) included 31 research articles in their review and found academic achievement in the specific module to be the most prevalent metric used in the literature to measure academic success. Specifically, in 21 (67.7%) of the research articles, academic achievement in the form of grade point averages and grades was used as a measure of academic success. There is often a lack of consideration of the impact of passing one module on a subsequent module's grades. This is problematic as researchers often use the term "academic success" when only one narrow metric, namely academic achievement in a specific module is considered (York *et al.*, 2015). This study focused on the academic success in a second-year financial module, considering previous academic success in the prerequisite first-year financial module, which therefore contributes to existing literature on academic success.

## 2.2 Theories on deep learning versus surface learning constructs in accelerated learning programmes

York *et al.* (2015) provide a theoretically grounded definition of academic success, of which academic achievement is one of six components, namely (1) academic achievement, (2) satisfaction, (3) acquisition of skills and competencies, (4) persistence, (5) attainment of learning objectives, and (6) career success. York *et al.* (2015) found academic achievement to be a proxy for the achievement of learning and the attainment of skills and competencies. This study uses academic achievement to evaluate the acquisition of skills and competencies and the attainment of learning objectives.

This study considers the principle that academic achievement in an accelerated learning programme is not purely academic achievement in the form of passing a module but also the acquisition of skills and competencies and the attainment of learning objectives, which will be used in a subsequent module. Academic achievement is often burdened by the argument that in an accelerated learning programme, students are able to, on a short-term memory basis, do surface learning in order to study the work that will be assessed (Beattie *et al.*, 1997; Eames *et al.*, 2018). This study contributes to the existing literature by evaluating whether an accelerated learning programme can provide academic success, as measured through deep learning.

Eames *et al.* (2018) point out that accelerated programmes give students less time to absorb and internalise concepts, which often requires critically analysing information and large volumes of technical material. It is thus important to understand the efficacy of accelerated programmes within the accounting field of study (Beattie *et al*., 1997; Eames *et al.*, 2018). Beattie *et al.* (1997) provide an overview of the literature on deep learning versus surface learning and specifically highlight the need for empirical research into these in accounting education. Deep learning refers to learning with understanding, as opposed to surface learning, i.e., rote learning (Beattie *et al.*, 1997). The authors argue that the deep learning versus surface learning literature often oversimplifies these in opposing the learning approaches in two ways (Beattie *et al.*, 1997). Firstly, the specific context in which the deep versus surface learning distinction is made needs to be defined as aspects of learning (Beattie *et al.*, 1997). Beattie *et al.* (1997) also argue that one cannot assume that a deep learning approach is always preferred as the nature of the knowledge that one wishes to learn dictates whether deep learning or surface learning is required. Secondly, deep learning versus surface learning is only one of the components that affects a student's learning orientation (Beattie *et al.*, 1997). As such, several learning orientations, which refer to the learning style and learning approach, rather than only two approaches, i.e., deep learning versus surface learning, provide insights into students' learning processes (Beattie *et al.*, 1997). Beattie *et al.* (1997) highlight the need for empirical research on accounting education in terms of these matters. As this study focuses on a second-year financial accounting module and the population of the study only focused on students who need the base module as a prerequisite for the subsequent year of study, students who applied surface learning to pass were removed from the study. It is, however, necessary to consider whether students who have limited time still take into account the need for deep learning in their learning process during an accelerated learning programme.

Beattie *et al.* (1997) argue that, in order to move towards a more conceptual form of learning, rather than a procedural form of learning, deep learning rather than surface learning is required for accounting education. In the call for empirical research into deep learning

versus surface learning in accounting education, Beattie *et al.* (1997) note that accounting often attracts reproducing (surface) learning and achievement orientated students. Dolmans *et al.* (2016) provide an overview of the literature regarding deep learning versus surface learning with regard to problem-based learning. From reviewing 21 studies, Dolmans *et al.* (2016) concluded that problem-based learning did seem to enhance deep learning only, although the studies included in the review provided conflicting results. Dolmans *et al.* (2016) further concluded that further research into the effect of problem-based learning on deep learning over longer periods of time and using high-quality measuring instruments is needed.

During written assessments, students' conceptual understanding of the accounting subject matter is assessed and since the focus of the accelerated learning programme is on the concepts that students struggle with the most, one can conclude that, as noted by Beattie *et al.* (1997), deep learning is considered to be the required form of learning for the introductory accounting module. Furthermore, since students need to approach the accelerated learning programme with their prior knowledge of completing the introductory accounting module, although unsuccessfully, and bearing in mind the concepts with which they struggled the most, it is concluded that deep learning occurs.

## 2.3 The effect of an accelerated learning programme on future performance

In order to address the declining number of candidates who attempt the CPA examination in the United States of America, Santa Clara University introduced accelerated accounting certificate programmes in order to increase opportunities for students to attempt the CPA examination (Eames *et al.*, 2018). When studying the candidates who completed the accelerated accounting certificate programmes versus candidates who completed an undergraduate accounting programme, Eames *et al.* (2018) found no significant difference between the candidates in terms of passing the CPA examination or the number of attempts required to pass the CPA examination. From Eames *et al.*'s (2018) results, one can infer that deep learning, as described by Beattie *et al.* (1997), did in fact take place in the accelerated accounting certificate programme. This study differs from Eames *et al.*'s (2018) research, which addressed the results of a professional examination, whereas this study aimed to analyse the results of a subsequent second-year financial accounting module. The accelerated accounting programme in Eames *et al.*'s (2018) research also served as a substitute for an undergraduate accounting programme, whereas the accelerated learning programme in this study served as an additional programme for students who, albeit unsuccessful, completed the traditional-length programme with a minimum grade to enter the accelerated learning programme.

Van Rooyen, Ontong and Mitchell (2021) investigated the perceptions of first-year accounting students regarding accelerated learning programmes for repeating students. Contrary to previous literature, the authors found that the accounting students had an overall positive perception of accelerated learning programmes with regard to finance-related modules as the perceived benefits of accelerated learning programmes outweighed their costs (Van Rooyen *et al.*, 2021). The main perceived benefit of completing an accelerated learning programme was not having to repeat the module in a subsequent academic year and thus reducing the students' second-year workload. The literature is limited in terms of examining the effect of repeating a previously failed module on an accelerated basis rather than a traditional-length module.

## 3. Methodology

The research project will be based on the positivist paradigm of exploring social reality which is centred on the idea that one can best gain an understanding of behaviour through observation and reason. A deductive approach will be followed using archival research which is grounded in theory. A quantitative research approach, using a longitudinal approach over a period of two years. In order to answer the research questions, quantitative data in the form of class lists and final grades were obtained. The sample in the research study comprised all students enrolled in the second-year financial accounting module in the 2020 and 2021 academic years, and either enrolled in the first financial accounting accelerated learning programme during January 2020 or January 2021, or who repeated the first-year financial accounting module preceding enrolment in the second-year financial accounting module. As a control group, students who obtained an exact grade of 50%, which constitutes a pass grade in the first-year financial accounting module, were also included in the sample.

In order to answer Research Question 1, this study analysed the final module grades of the students through the use of parametric test, namely an analysis of variance (ANOVA), as well as a further evaluation of the module grades of the subsequent learning modules through the use of analysis of covariance (ANCOVA). To enable the researchers to apply the parametric tests the data needs to conform to the requirement of normality. Due to the spread of grades of the students, a result of multi-peaked data was obtained through the test of normality. In order to normalise the data an angular transformation was performed to obtain the arcsine transformed values of the data. The results of the parametric tests using the arcsine data was similar to the original data thus the data results were used in the result discussion. The data results as presented in a grade format is a clearer interpretation of the results as the interpretation of the arcsine values could lead to misinterpretation of the spread of the results. The grades for the first-year financial accounting module, as well as the accelerated programme and second-year financial accounting module, were used in the analysis. ANOVA was applied to evaluate the variance between the grades for the base module, first-year financial accounting, and the grades obtained during subsequent learning in the second-year financial accounting module as the study focused on the subsequent performance per group, which was performed in a similar manner as the study conducted by Anastasi (2007).

To evaluate the difference in variance of the groups, Fisher's least significant difference (LSD) test was performed. A 95% confidence level was used and all items with p-values of $<0.05$ were deemed statistically significant. In addition to using ANOVA to evaluate the performance, and changes thereto, ANCOVA was used to evaluate the difference in the performance of the groups in the population in the subsequent learning module while considering the base module as the covariant.

## 4. Results

The presentation of the results commences with a descriptive analysis of the sample, followed by the results of the ANOVA, and conclude with the results from the ANCOVA.

### 4.1 Descriptive analysis

The descriptive analysis of the final grades achieved by the sample as divided into the three groups are presented in Table 1.

**Table 1:** Student performance measured through final module grades

| Category | N | Mean | | Std. Err. | |
|---|---|---|---|---|---|
| | | First-year financial accounting grade in the year of passing the module | Second-year financial accounting final grade | First-year financial accounting in the year of passing the module | Second-year financial accounting final grade |
| Group 1: Students who participated in the accelerated learning programme | 15 | 63.40% | 40.8% | 1.61% | 5.05% |
| Group 2: Students who failed the module and repeated the first-year module over an equivalent length of time | 33 | 59.61% | 44.21% | 1.08% | 3.40% |
| Group 3: Students who passed the first-year module with a final grade of 50% (without repeating it or participating in the accelerated learning programme) | 75 | 50.00% | 47.33% | 0.71% | 2.26% |

From the table above the population of the different groups, Group 1 (n = 15), Group 2 (n = 33), Group 3 (n = 75), are noted. To evaluate whether the results presented are sufficiently large enough to obtain reputable results from the statistical tests the statistical power of the test was evaluated. The results of the comparison of the different groups and the different modules indicated a statistical power of 0.9842. The observed power of the statistical tests performed as described in the methodology was above 0.8 and it is considered that the data is sufficient for statistical analysis. From Table 1, it is noted that the mean final grade of the students who participated in the accelerated learning programme was 63.4% for the first-year module, while the other groups did not achieve a similar result above 60%. This suggests that attending the accelerated learning programme results in an overall basis in higher grades for the first-year module compared to students who repeated the module over an entire year. As Group 3 was used as the control group, the mean of 50% will not be analysed further.

It is, however, noted that while Group 1 had the highest mean in the first-year financial accounting module, the group returned to having the lowest mean module grade in the subsequent second-year module, while the group that repeated the first module over the entire year also experienced a significant drop in the mean grade achieved when comparing the first- and second-year financial accounting module grades. The results suggest a reflection of the learning approach in accounting, as suggested by Beattie *et al.* (1997), who state that a form of surface learning occurs during the accelerated learning programme intervention and that deep learning, which may be required in order to be successful in the second-year financial accounting module, may not have taken place. This occurrence is evaluated further in the second section of the results where the impact that the results of the first-year financial accounting module performance could have on subsequent performance is isolated through the use of the ANCOVA. The change in the module grades, as well as the difference between the different groups, will be evaluated for significance of the changes further in the next section.

## 4.2 Statistical analysis of academic achievement in the subsequent year module

A repeated-measures ANOVA was performed to analyse the change in the final module grades of the first-year and subsequent second-year financial accounting module. The results are presented in Table 2.

**Table 2:** Change in final module grades, including the p-value of Fisher's LSD test

| Category | First-year financial accounting grade in the period of passing the module | Second-year financial accounting final grade | p-value |
|---|---|---|---|
| Group 1 | 63.40% | 40.80% | **0.000*** ** |
| Group 2 | 59.61% | 44.21% | **0.000*** ** |
| Group 3 | 50.00% | 47.33% | 0.219 |

From the results in Table 2 it is noted that the decrease in the grades of Groups 1 and 2 is considered to be significant (p-values <0.05) in both scenarios, which suggests that neither repeating the first-year financial accounting module nor the use of an accelerated learning programme is given a final grade in the first-year financial accounting module that could accurately predict their performance in the second-year financial accounting module. This suggests that students who must repeat the first-year financial accounting module should, on average, expect a significant decrease in their final grades for the second-year financial accounting module. The control group, however, did not experience a significant change in their final grades for the first-year financial accounting grade versus their second-year financial accounting grade, as the p-value amounted to 0.219.

The results discussed above regarding the change from first- to second-year financial accounting grades are presented in Figure 1. Significance (p-values <0.05) is displayed via the plot-point items having corresponding letters assigned to them on the ANOVA graph.

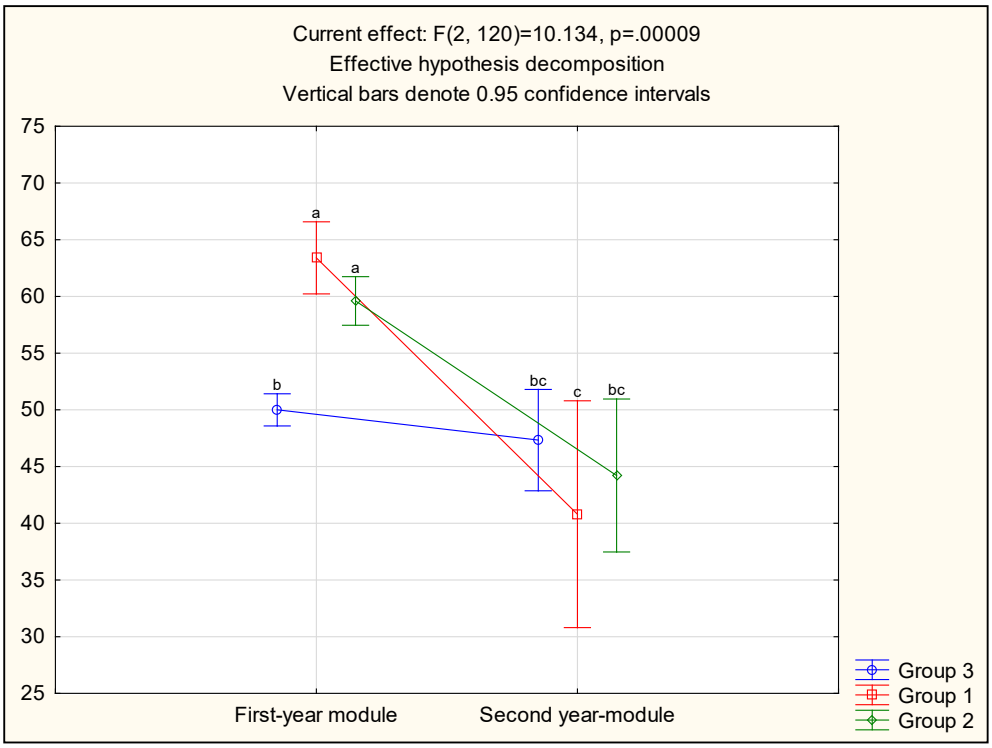


**Figure 1:** Graphical representation of the results of the ANOVA for the change in final module grades

From Figure 1 it is evident that the module grades of the first-year financial accounting module for Groups 1 and 2 are significantly different than those of the control group. Both Groups 1 and 2 had a consistent a-indicator, while the control group had a differing b-indicator. It is, however, noted that the change from an indicator a-level to the b-level and bc-level in the subsequent module shows a significant decrease in the final module grades of Groups 1 and 2. Furthermore, it could be suggested that the accelerated learning programme is the least successful in preparing students for the subsequent second-year financial accounting module as the students of Group 1 experienced the largest decrease in their second-year financial accounting grades. The similarity of the c-indicator in the module grades of the second-year financial accounting module for all three groups indicates that there was no significant difference in the final results. This could suggest that with both the use of an accelerated learning programme and repeating a module, there is no significant difference in the academic performance of the different students in the subsequent module. To evaluate whether the study reflects Eames *et al.*'s (2018) results, a further evaluation was performed. While acknowledging that both groups attending the accelerated learning programme, as well as the students who repeated the first-year financial accounting module, have experienced a significant decrease in grades, the results of the evaluation, regarding whether the final module grade after the decrease was significantly different, are reflected in Fisher's LSD analysis as presented in Table 3.

**Table 3:** Fisher's LSD test indicating the significance of differences between final second-year financial accounting module grades

| Group | Second-year financial accounting mean grade | Group 1 | Group 2 | Group 3 |
|---|---|---|---|---|
| Group 1 | 40.80% | | 0.4509 | 0.1127 |
| Group 2 | 44.21% | 0.4509 | | 0.3042 |
| Group 3 | 47.33% | 0.1127 | 0.3042 | |

As shown in Table 3, there is no significant difference in the performance of the students of the different groups in the subsequent module and the intervention therefore does not impact on the students' academic performance. This reflects the results as found by Anastasi (2007). As all the groups reflected an average final module grade of below 50%, the pass rate of the different groups in the subsequent module was compared, as shown in Table 4.

## 4.3 Statistical analysis of academic success, measured through pass rates in the second-year financial accounting module

In order to answer Research Question 2, the students' academic success in the subsequent second-year financial accounting module was analysed. We first compare pass rates per group and follow by further statistical analysis of the results.

**Table 4:** Pass rates of students in the second-year financial accounting module

| Group | N | Second-year financial accounting module pass rate |
|---|---|---|
| Group 1 | 15 | 46.67% |
| Group 2 | 33 | 57.57% |
| Group 3 | 75 | 69.33% |

From the pass rate analysis, it is evident that while the mean final grade in the second-year financial accounting module was below 50% for all three groups, the pass rates of the second-year financial accounting module were 46.67% for the group that attended the accelerated learning programme, 57.57% for the group that repeated the first-year financial accounting module, and 69.33% for the control group. While these results suggest a lower success rate for the accelerated learning programme, an evaluation was further performed by taking into account the size difference in the population of the different groups, as well as the impact that academic performance and learning in the first-year module could have on future academic performance.

To evaluate whether a form of deeper learning occurred, the students' grades for the second-year financial accounting module were evaluated through ANCOVA. The ANCOVA used the academic achievement of the students in the three different groups in the base module as a covariant, considering the impact of prior academic achievement on subsequent academic achievement. The study included the principles of York *et al*. (2015), who address controlling for the impact of base module academic achievement on subsequent module success.

Using the ANCOVA, the mean of the groups was recalculated using the final module grades in the second-year module and the base first-year module as the covariate. The ANCOVA therefore aimed to evaluate whether the format of learning, either repeating the module or attending the accelerated learning programme, affected the students' performance in the

subsequent second-year financial accounting module; excluding the impact of the students' final grades for the base first-year financial accounting module. If the effect of the base first-year financial accounting module is statistically removed from the analysis, the effect of the intervention is more evident through the calculation of the estimated marginal means, as shown in Table 5.

**Table 5:** Student performance mean final grade adjusted for covariate

| Category | N | Adjusted mean | Pre-adjusted mean |
|---|---|---|---|
| | | Second-year financial accounting | Second-year financial accounting |
| Group 1 | 15 | 34.69% | 40.80% |
| Group 2 | 33 | 40.50% | 44.21% |
| Group 3 | 75 | 50.47% | 47.33% |

From the results shown in Table 5, it is suggested that while the grades as shown in Table 2 for Group 1 in the base-year module were higher than that of Group 2, this could indicate that the academic performance achieved in the base-year module could be due to possible surface learning and the absence or limited occurrence of deep learning. This would thus not lead to improved academic performance in the subsequent second-year financial accounting module as is evident in the lower adjusted mean after the first-year financial accounting results are controlled for; 34.69% of Group 1 when compared to the adjusted mean of 40.50% of Group 2. These estimated marginal means were compared in an LSD test and the returned p-value of 0.33 indicates that while a difference of 5.80% is noted between the final module grades, the difference between the two groups is not considered to be significant. The overlapping of the confidence intervals of the adjusted means is indicated in Figure 2.

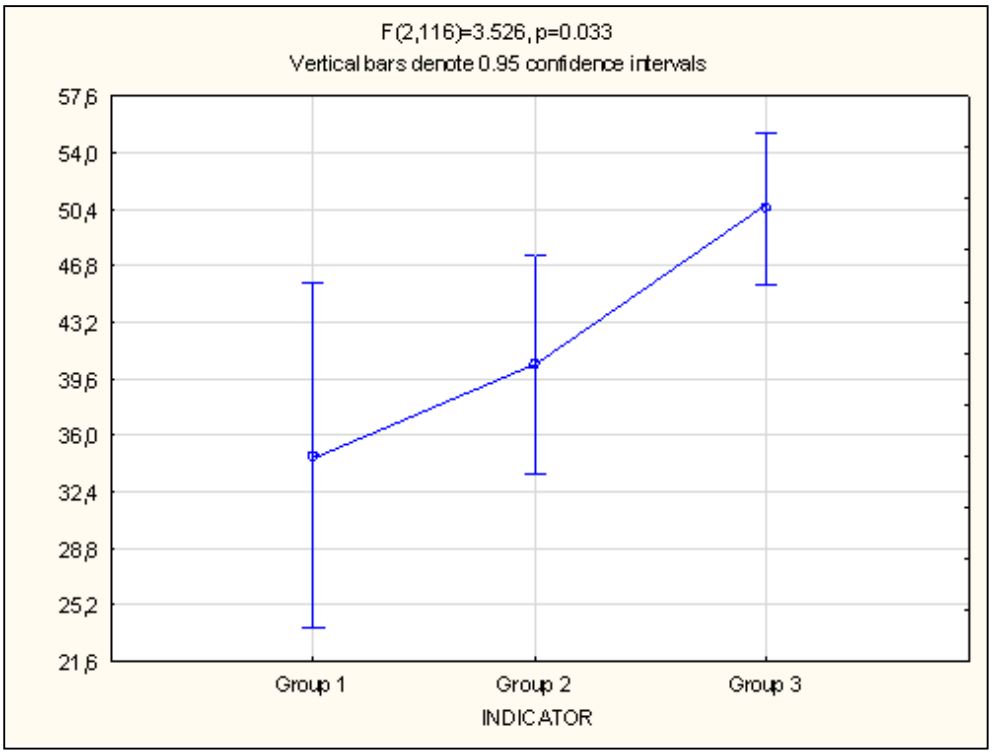


**Figure 2:** Graphical representation of the results of the ANCOVA for the final module grades in the subsequent second-year financial accounting module, while controlling for the base first-year financial accounting module

The impact of the academic achievement in the first-year financial accounting module in its various forms on the grades achieved in the subsequent second-year financial accounting module is evident when considering the differences between the accelerated learning programme and the repetition of the full academic year as a means to pass the first-year financial accounting module. The impact of the duration would be the first consideration as the students in Group 1 attended the accelerated learning programme for two and a half weeks, while the students in Group 2 repeated the module in a full academic year. In addition, students who attend the accelerated learning programme are expected to work through certain parts of the content before the accelerated learning programme commences. This programme's main focus is similar to the year module, but it allows students the opportunity of dedicated teaching and learning for a short period, while the students who repeat the module receive guidance on the content throughout the academic year and complete the module in conjunction with other modules. As this study was programme focused and not student-focused, individual student characteristics and other contextual factors that drive student learning orientation, as pointed out by Beattie *et al.* (1997), could not be controlled for.

As illustrated by Figure 2, the results indicate that there is no significant difference in the students' performance ($F(2,12) = 3.53$, $p = 0.03$) in a subsequent second-year financial accounting module among the three different study groups. Thus, regardless of the form of learning, the academic performance in the subsequent module was similar and not statistically

different. It is, however, noteworthy that the sharp decrease in the mean of Group 1, the group that attended the accelerated learning programme, after controlling for the performance in the base module, could suggest that a form of surface learning took place during the shorter duration of the accelerated learning programme, which is consistent with Dolmans *et al.*'s (2016) results.

## 5. Conclusion

The results of this study suggest that the performance of students in a subsequent second-year financial accounting module is not significantly different for repeating students regardless of failing the first-year module and having to repeat the accelerated or year-long module. Although all students, regardless of the programme followed, experienced a significant decrease in academic performance from the first-year module to the second-year module, and while students who repeated the first-year module over an entire year achieved a higher pass rate than the students who attended the accelerated learning programme, the final results of the subsequent second-year module for both groups after controlling for population size and performance were not significantly different. Thus, based on the results, it is suggested that an accelerated learning programme that aims to allow students to repeat a module in an accelerated instead of a traditional repetition mode is an appropriate and effective alternative.

The results from this study could, however, suggest that the skills acquired or objectives achieved in the base module are not different for the two groups in the study; however, the final module mean grade could suggest that neither of the groups achieved the objectives. The results on an accelerated learning programme in accounting could thus imply that while it could address the cross-over from a base module to a subsequent module without requiring a full academic year repetition, the aimed objectives need to be highlighted and addressed in the accelerated programme. Module planners of accelerated programmes should critically evaluate whether the aimed objectives and skills required in the base module are not only addressed by the programme but also taken into account in assessments that determine a student's access to subsequent programmes.

## Ethical considerations and declaration of interest

This article followed all ethical standards for research of the Humanities and Social Sciences Research Ethics Committee at the relevant University, which granted full approval for this research. No conflict of interest was noted by the authors.

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