

**The influence of compulsory class  
attendance on module success rates:  
The University of the Free State case**

by

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Dissertation in fulfilment of the degree

**Master of Arts in Higher Education Studies**

in the

**School of Higher Education Studies, Faculty of Education**

at the

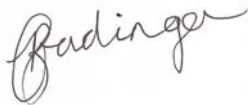
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**July 2014**

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Signature

A handwritten signature in cursive script, appearing to read "Radinger".

Date

*July 2014*

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## Acknowledgements

An acknowledgement cannot adequately express my gratitude towards everyone who went on this journey with me.

To Dr. Saretha Brüssow, my supervisor, my line manager, colleague and mentor for teaching me everything I know today. Thank you for giving me wings, allowing me to test it, to fall down a few times and eventually learning to fly. An acknowledgement in the front of a dissertation could never express how thankful I was for everything you have done for me.

Secondly, I would like to thank the University of the Free State, the Rectorate, and the Vice-rector: Academic and the Directorate for Institutional Research and Academic Planning in including and entrusting me in this project. It has moulded me into a person I never thought I could be. Thank you for all the monetary, resource and general support.

To Jacques, Vaaitjie and Wilma, who were always willing to assist me in getting the data I needed, even at short notice. Thank you, Jacques, for teaching me to ask the right questions. Wilma, you were usually on the receiving end of the short-notice request and I will be forever thankful for that. To *oom* Vaaitjie, your wealth of institutional knowledge still amazes me. I have never heard someone recite a curriculum outline of a programme presented 20 years ago.

To the student assistants, thank you for putting everything you had into this project. You became my best friends and I hope that most of you got something out of this project and enjoyed it as much as I did.

As a first generation student, I would like to thank my parents for embracing my inquisitive nature and supporting me in accomplishing this task. Even though you mostly thought I was out of my mind, you nevertheless supported me, loved and trusted me. Thank you for providing me with the necessary means and allowing me to take every opportunity I could get to develop myself.

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# Chapter 1 Introduction

## 1 Background and orientation to the study

In the first semester of 2010, under new management, a list of priorities was proposed by the Rectorate<sup>1</sup> to be addressed at the University of the Free State (UFS). This was formulated according to the needs identified by management in addressing academic excellence, research capacity and outputs, and community engagement. One of the first priorities stipulated was the implementation of compulsory class attendance as an intervention to improve success rates in low performing modules<sup>2</sup> at the UFS on the Bloemfontein campus (University of the Free State, 2010).

The decline in module success rates<sup>3</sup> is ascribed to the fact that over the past few years, the UFS enrolment numbers have grown substantially, inevitably leading to larger classes. Since 2008 enrolments have increased from just over 26 000 in 2008 to 32 000 in 2012 (University of the Free State, 2013). With the UFS success rate<sup>4</sup> below the target of 73% (2011) as set by the Department of Higher Education and Training (DHET), the need arose not only to investigate this issue, but also take counteractive measures.

Higher enrolment numbers subsequently meant, as previously mentioned, larger classes as well as the need for more teaching academics<sup>5</sup>. Currently, more than half of the employees at the UFS are classified as non-lecturing staff. The lecturing or teaching academics only

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<sup>1</sup> At the UFS, specific governance structures exist. The Rectorate includes the Rector and Vice-Chancellor as well as all Vice-Rectors. It has the following powers and duties:

- Mutual consultation and strategic conversation between members of the Rectorate.
- Consultation and strategic conversations may be aimed at matters related to planning or which are of an operational nature.
- The testing of opinions and mutual provision of information by members of the Rectorate.
- Advice on/or exchange of ideas regarding any matter that occurs within the portfolios of the Rectorate, for which time must be set aside within the cadre of senior management.

(University of the Free State, 2014)

<sup>2</sup> The UFS (and the broader South African context) defines a module as: "A coherent, self-contained learning unit designed to achieve a set of particular learning outcomes." (University of the Free State, 2013, p. 11).

<sup>3</sup> Module success rate refers to the percentage of enrolled students passing a specific module. The module success rate for a specific module is calculated by dividing the number of students who passed the module by the total number of students enrolled for the module.

<sup>4</sup> Success rate in this sentence refers to the overall success rate of the university. The calculation is made at institutional level as opposed to modular level. The success rate for the institution is calculated by dividing the number of students who passed by the total number of students enrolled.

<sup>5</sup> The term teaching academic refers to, what is commonly known in the South African higher education context as lecturers or lecturing staff.

account for a third of the total number of employees. Furthermore, the UFS is a parallel medium institution offering lectures in both English and Afrikaans. Students have a choice to attend lectures in their preferred language. It is necessary to mention that this division also puts a significant strain on the class sizes, specifically due to the high enrolment numbers of students preferring English as medium of instruction even though this is not their mother tongue. This also contributes to the fact that class sizes are growing on a yearly basis, with the workforce not necessarily doing the same.

As part of a number of interventions staged by the UFS, the case study presented in this dissertation focuses on the implementation of compulsory class attendance as an intervention to improve module success rates at the UFS. The research was driven by the following question:

*What is the influence of compulsory class attendance on module success rates at the UFS?*

The objective of this case study is two-fold, namely to:

1. Identify and understand the influence of class attendance on module success rates at the UFS on the Bloemfontein campus; and
2. Describe the educational effect, which is the magnitude of the difference in modules' success rates observed during the intervention.

As a starting point literature on attendance and academic performance is presented as a foundation for this case study. The first important reference is made to the study by Credé, Roch and Kieszczynka (2010), undertaking a meta-analytic review of articles which referred to the correlations between class attendance and Grade Point Average (GPAs), or obtained grades. It is stated by the authors that "class attendance is a better predictor of success than any other known variable of academic performance<sup>6</sup>" (Credé, *et al.*, 2010, p. 288).

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<sup>6</sup> Academic performance (also referred to as academic achievement, achievement and performance) refers to an indication of proficiency of academic work as reflected by the marks/grades attained.

In addition, to the mentioned correlation between class attendance and academic performance an overview of the South African higher education context is included in the second chapter. One key contributor to change in the higher education sector was the publication of the White Paper for Post-school Education and Training. It outlines the importance of increasing access to higher education, the number of graduates, and decreasing the drop-out rates in institution of higher learning in South Africa (DHET, 2013, pp. 27-28). Higher enrolment numbers imply larger class sizes. Therefore the literature review also includes large class teaching and the negative effect it has on performance since the popular assumption amongst higher education practitioners rests on the notion of active participation and engagement as contributing to academic success, two approaches that are not easily met in a large class setting.

The investigation into the influence of class attendance on module success rates presented in this case study followed a mixed methods approach. By employing both quantitative and qualitative data, this dissertation attempts to provide a more elaborate view of the problem under investigation. The identified problem is that the module success rates at the UFS are low.

This case study commenced by firstly running a pilot project in 2010, after which the intervention was fully employed in 2011. Modules' success rate data was collected for the selected modules between 2008 and 2013. The analysis included determining the effect size between the years prior to the intervention and the interventional year as well as the years after the intervention was concluded. To investigate the influence of attendance on module success rates, careful consideration was needed in terms of capturing attendance data. This was the aim of the pilot. Accuracy, efficiency and cost-effectiveness were some of the main considerations in choosing the instrument. Qualitative data, as previously mentioned, is also included in this case study, based on information from students and staff on their experience of compulsory class attendance as an intervention aimed at improving module success rates.

The results from this case study yielded valuable data specific to the UFS, but also presented some interesting challenges, ranging from over-populated classes, administrative hurdles as well as issues in relation to the complexity of analysing and presenting the data.

## **2 Value of the research**

The value of the research lies in the potential to contribute to the managerial and decision-making structures and processes pertaining to academic success at the UFS. “Steps-to-action” embedded in a case study (see Cohen, Manion and Morrison, 2007, p. 255) adds additional value to the research, since it could set these processes in motion. Moreover, the mixed methods approach followed provides rich descriptions through qualitative feedback, highlighting specific understandings relating to attendance and academic performance, supporting the findings of the quantitative results.

An additional value of the research, presented in the format of a case study follows the premise that, in general, case studies aim to provide research in a more accessible tone, serving multiple audiences allowing them to feel part of the research process, building on the outcomes of the research and further questioning the implication of the study themselves (Cohen, et al., 2007, p. 256). This could provide introductory information to other institutions researching the educational effect of interventions aimed at increasing student success.

## **3 Layout of the chapters**

### *Chapter 1: Introduction*

In this chapter, chapter one, a background to the study is provided. It highlights management’s concerns related to low academic performance at the UFS, which lead to the investigation into the influence of compulsory class attendance on module success rates. The chapter also includes the potential value this case study could add to the institution and the broader South African higher education context in terms of success rates and concludes with the layout of the dissertation.

### *Chapter 2: Literature review*

Chapter two provides a literature review, laying the foundation of this case study. It outlines similar and relevant studies and projects undertaken by other institutions nationally and internationally, as well as literature in relation to the effects of large class teaching. Since the sample selection was based on modules with an enrolment number of more than 150 (*cf.* chapter 3), literature on large class sizes are discussed based on the popular assumptions in higher education that large classes might have an adverse effect on performance. The literature covers important studies that researched the relationship between attendance and performance, large classes as well as investigations into the influence attendance has on performance in an engaged and interactive learning environment.

### *Chapter 3: Research design and methodology*

Chapter three outlines the research design and methodology used. It provides the sampling, data collection and ethical consideration pertaining to the study. The chapter further explains the pragmatic approach followed and linking it to the flexibility needed to conduct the research and presenting it as a case study. A brief discussion on the pilot study is also included in this chapter. The method of analysis of the quantitative data is explained in sufficient detail, including a scale to interpret the effect size. The objectives are further contextualised culminating into the associated hypotheses, concluding with the ethical considerations.

### *Chapter 4: Data analysis and research findings*

The data analysis and research findings are dealt with in chapter four. It presents the quantitative results of modules investigated, providing context, explaining the attendance and success data as well as the effect sizes. The analysis of the qualitative data follows, relating to the staff and student experiences of compulsory class attendance. The chapter concludes with a discussion of the findings of both the quantitative and qualitative results.

*Chapter 5: Summary, limitations and conclusion*

The dissertation concludes in chapter five, summarising the case study and outlining the limitations. The concluding remarks lay emphasis on the lessons learned and offer a reflection on the findings and processes involved to contextualise and concretise the outcomes of the research.

## Chapter 2 Literature review

### 1 Introduction

The literature review presented in this chapter aims to provide an overview on class attendance and the influences it has on academic performance, within the higher education environment. Furthermore, an overview is provided of the influence of large classes and the potential adverse effect it might have on students' active engagement.

Studies in relation to class attendance and academic performance are not new to the higher education sector. However, these types of studies are limited, since it encompasses complex measuring instruments and a number of variables that are difficult to track and explain (amongst others, the lack of control groups, cohort differences year after year, teacher-learner relationships, curricular changes etc.). Cleary-Holdforth (2007) highlighted the complexity in explaining attendance and performance by stating that:

*One need only consult the literature on this subject to appreciate the magnitude of this phenomenon. It is a phenomenon that is both intriguing and frustrating and yet there is very little evidence of university or governmental policy on it (Cleary-Holdforth , 2007, p. 1).*

Available studies provide interesting and thorough cases to support the importance of investigating the relationship between attendance and performance in higher education institutions. Researching this phenomenon started as early as the late nineteen seventies and early eighties, aiming to explain attendance as an additional positive influence on performance where lectures were still the main method of instruction. In 1993, Romer presented the following question in the title of his article: "Do students go to class? Should they?" The study included three American universities, taking roll-call in an undergraduate Economics class at the end of the first semester of 1992 (Romer, 1993, p. 168). The study focussed on the effects of absenteeism on performance and offered evidence that there is a causal relationship between the two, showing the benefits of attendance on grades (Romer, 1993, pp. 173-174). Citing the work of Romer (1993), Durden and Ellis (1995) did a similar

study in an Economics course, concluding that attendance does matter for academic achievement.

## **2 Literature review**

### **2.1 Studies on compulsory class attendance**

One of the most well-known studies on attendance and performance was presented by Credé *et al.* (2010). They undertook a meta-analytic review of articles which referred to the correlations between class attendance and the grades obtained by students. Credé *et al.* (2010, pp. 273-285) analysed three studies looking at the impact of a compulsory attendance policy on grades. They suggested that “class attendance is a better predictor of success than any other known variable of academic performance” (Credé, et al., 2010, p. 288). Their study concluded that class attendance had a strong influence on grades. However, they also note that a policy enforcing attendance had little effect on the marks (Credé, *et al.*, 2010, p. 285), thus, implying that attendance overall, without enforcing a policy or rule, had a greater impact on marks.

Focussing on the strong influence class attendance had on academic success, as presented by Credé *et al.* (2010), it is important to highlight that the reasons the influence is so strong, put forward by the authors is because some academics use class session to provide students with additional information and sources to refer to, not necessarily “explicitly” included in the module outline. In addition, lecturers bring a wealth of information and experience to class session, not included in class notes or reference books. In conclusion their study states that there should not be a need to enforce a policy to dramatically improve performance. Simply by highlighting the importance and positive effect of class attendance should be enough to show an increase in performance (Credé, *et al.*, 2010, p. 286).

This conclusion is shared by Moore (2003, pp. 367-371) in a similar study. Another important issue addressed by the author, suggests that as soon as attendance is incentivised (e.g. getting a mark for attending) attendance is higher. The same conclusion was reached by research done on attendance and grades at a Texan University by Le Blanc (2005). He



conducted a comparative study over a fourteen year period including four higher education institutions. He concluded that using class attendance as an extrinsic motivator should not be seen as the only factor to describe the relationship between attendance and grades. The outcome of the influence of attendance on grades should be the same, whether a policy is enforced or not (Le Blanc, 2005, p. 14).

This notion by Le Blanc (2005, p. 14) relates to Marburger (2001), who raised the question whether instructors should track performance without some or other policy requirement being enforced. As a point of departure in an attempt to provide some insight into attendance, performance and the effect of an enforced policy, Marburger (2001) followed a micro approach and conducted a study which included 60 students in a microeconomics course to investigate absenteeism and examination performance. The micro approach refers to a basic approach to investigate the question at hand. He did this by excluding investigations such as motivational aspects that could influence student performance and only focussed on the outcomes of tests. Furthermore, only one course, presented three times per week was included. The course had three scheduled tests, made up of 28 multiple choice questions each. These questions were formulated on the work discussed during the class session (Marburger, 2001, pp. 99-101). He collected detailed information on dates each student failed to attend and which exam question corresponded to these missed dates. Students who missed classes were more likely to be unable to answer the question in the examination related to that specific session (Marburger, 2001, pp. 104-105). The author found that absenteeism significantly influenced the scores achieved by students, recording a lower mean score of students who were absent more regularly. He also concluded that studies such as these, trying to explain what effects absenteeism has on student performance, are "institution specific" (Marburger, 2001, p. 107).

In follow-up to his own study, Marburger (2006, p. 148) conducted a study investigating how an enforced policy will affect absenteeism and performance. His study was an experiment based on suggestions Romer (1993) made concluding a study that investigated whether students should go to class. He divided the students into two groups, one where attendance was mandatory and the other not. Marburger (2006, p. 154) again concluded that students with higher absenteeism were more likely to be unable to answers the

examination questions related to these missed sessions. Furthermore, he discovered that the absenteeism in the non-policy classes rose significantly towards the end of the semester. Considering that the study found that students' unlikeliness to answer questions related to classes they missed correctly and the higher rate of absenteeism recorded towards the end of the semester, he found that the students in the non-policy class were only two percent less likely to answering incorrectly than their policy-enforced counterparts (Marburger, 2006, p. 154). This coincides with article by Le Blanc (2005) who suggests that the outcome of performance should be similar, with or without a policy. Credé *et al.* (2010) and Moore (2003) also noted in their conclusions that the notion of the benefit of attendance should be as valuable as enforcing a policy, also supporting the results of Marburger (2006, pp. 148-154).

Based on Pintrich's well-known theoretical model of motivation, St Clair (1999, p. 174) states that other factors such as student characteristics and motivation have a stronger influence on grades than class attendance *per se*. To elaborate on her point, she refers to Pintrich's model and the aspects of choice. If a student has no choice in the matter of attending, they might feel a loss of control over the environment, thus influencing their attendance (St Clair, 1999, p. 177). The article argues that student's active decision to attend classes is set on the basis of motivation for, e.g. to do well and enforcing a policy could take away that feeling of "control" a student might have towards their studies and negatively influence the way they perceive a higher education setup (St Clair, 1999, p. 178). Stanca (2006, p. 252) also later commented on this notion of motivation and that it would be possible to motivate students to attend classes without enforcing a rule or policy. The problem he has with an enforced policy is related to the freedom of choice students should have whether to attend or not. This choice, according to him, is influenced by "unobservable" factors such as motivation and cognitive ability. The focus should rather be on the positive aspects that class attendance offers the student as incentive to attend. He also mentions that the better performing students work harder overall and suggested to be more motivated to attend (Stanca, 2006, p. 252).

To elaborate, Stanca (2006, pp. 252-253) conducted a study which included 766 students in a first-year Micro Economics course, using a large panel-data set to account for the

mentioned “unobservable” variables. He collected data available on the students’ GPA, proficiency in Mathematics, effort in terms of hours spent studying as well as motivational levels recorded by the lecturer evaluations, assuming these variables are unchanging over time. After considering all of these variables against performance, Stanca (2006, p. 262) investigated the effect of attendance on performance. The results showed that attendance had a statistical significant effect on performance, even with the unobservable variables taken into account (Stanca, 2006, p. 263).

An experiment conducted by Chen and Lin (2008, p. 214) also aimed to investigate the effect of attendance on academic achievement, indicated that class attendance has been viewed as a good indicator of examination performance, reflecting the comments made by Credé *et al.* (2010). The study done by these researchers indicates that the more class sessions a student attended the greater the chance the student has to be successful in the examination and to perform better (Chen & Lin, 2008, p. 224).

In line with previously mentioned authors, amongst others, Stanca (2006, p. 252), Cheung (2009, p. 974) presented some interesting findings at the 20th Australasian Association for Engineering Education conference. He indicates that students, who have the potential to perform well, usually have a better attendance record and subsequently perform better. This opposed to a student entering the course as a potential low performer, who attends classes less frequently and subsequently performs badly. These suggestions echo the point Stanca (2006, p. 252) mentioned. The results of the study presented by Cheung (2009, p. 978) were divided into four groups: 1. the very low attendance group, 2. the low attendance group, 3. the high attendance group, and 4. the very high attendance group. He observed that students, who were grouped in the “very low” attendance group, accessed online materials uploaded by the course presenter more frequently than the “low attendance” group of students. The “very high” attendance group accessed online material as frequently as the “very low” attendance group, and that these two groups (“very high” and “very low” attendance groups), performed significantly better than the “low attendance” group (Cheung, 2009, p. 978). The moment that the online material was taken away, the attendance pattern was not effected but the student who were in the “very low” attendance group performed significantly worse than they did before. These groups’ marks

dropped to an average of below 50% for the assignment set after the online material was withdrawn and the information was solely provided in class (Cheung, 2009, p. 978).

Devadoss and Foltz (1996) conducted a study in an attempt to quantify attendance and the influences thereof on performance. Their study included 400 students from four American universities enrolled in Agricultural Economics. They identified that motivation serves as a tool of encouragement for students ascribing this to the fact that students face financial constraint, motivating them to work harder to achieve a pass mark. Another indication by the study as to why attendance improves performance was dedicated to the lecturer being prepared and not necessarily only providing information as per the text book. In the view of Devadoss and Foltz (1996, p. 505), providing additional information in class may result in students being more attentive, as information that is not provided in the text book is communicated. Higher levels of concentration are also present in the class room due to the fact that students have to take clear notes on the lecture, thus also encouraging them to come to lectures more prepared in order to understand and participate in lectures (Devadoss & Foltz, 1996, pp. 505-506). They presented a list of suggestion to address issues on attendance and performance. They suggest that lecturers explain the value of attendance to students in the beginning of each semester and the introduction of small random class tests contributing to the final mark in the module. The suggestions also included some insights to lecturers and their teaching abilities and the creation of an environment where students feel that they are being stimulated on an intellectual level and will be rewarded for attending classes (Devadoss & Foltz, 1996, p. 506).

Drawing on findings presented by Marburger (2001), Devadoss and Foltz (1996), Durden and Ellis (1995) and Romer (1993), Rodgers (2001, pp. 284-295) conducted a study using panel-data including approximately 200 students enrolled in an introductory statistics course. An observational set of data were kept on individual student performance and examination performance, drawing on the methodology used by Marburger (2001, p. 101). Rodgers' (2001, p. 285) study takes account of the unobservable variables similar to motivation and intelligence. It was based on a panel of four observations, each drawing on the performance of each student on a test, covering a specific set of class sessions. A small, but statistically significant effect of attendance on performance was observed in this study. It concluded

that students with an average of 74% attendance, scored between 1.3 and 3.4 percent less than student who attended all classes. In conclusion, Rodgers (2001, p. 293) reiterated that these findings were course specific and the effect of attendance on performance might be better visible in the courses that follow on this course. He explains that courses that build foundational knowledge for follow-on courses might be a better indicator if absenteeism has a negative effect on performance due to a gap in foundational knowledge. In theory, he suggests students with better attendance in the first course should perform better in a follow-on course (Rodgers, 2001, p. 293).

An interesting project in the Management and Business Sciences' writing courses at the University of West Florida resulted in the implementation of the so-called "Seven Principles in Action". The foundation of their strategy was based on attendance focused on different attendance settings, employed through these seven principles. The seven principles of good teaching practice were developed by Chickering and Gamson (1987, pp. 1-5) as a result of a study supported by the America Association for Higher Education (AAHE). The background of the establishment of these principles goes back to the mid 1980's. The AAHE consulted with experts in the field by means of a series of conferences and published a set of seven principles characterising what practices are employed by institutions that are viewed as "educationally successful undergraduate institutions" (Page & Mukherjee, 2000, p. 549). These seven principles are used by several universities in the United States as a tool to encourage better performance, even after its publication almost two decades ago. The principles were identified as follow:

1. *Encourage student-faculty contact*
2. *Encourage cooperation among students*
3. *Encourage active learning*
4. *Give prompt feedback*
5. *Emphasise time on task*
6. *Communicate high expectation*
7. *Respect diverse talents and different ways of learning*

Chickering and Gamson (1987, pp. 1-5), Page and Mukherjee (1998, p. 16) and Page and Mukherjee (2000, p. 557).

Page and Mukherjee (2000, pp. 551-557) used these principles, adapted it slightly to fit their courses and implemented it in the Management and Business Sciences. The first principle was employed by offering 10-hours every week in which students may make appointments to discuss issues they have been experiencing related to the work done in classes. To reach the goal set by the second principle, students were encouraged spending time with other class mates in and out of class settings and were encouraged on two specific occasions to work together before a test. In addressing active learning, problems related to the course work were identified for students to solve as activities. The course instructors decided on a feedback time frame as an important contributor to principle four. Class discussions after tests and assignments were also included. To emphasise “time on task”, lecturers rated tasks on level of importance. By highlighting the expectations the lecturer has for the students and assuring them that they, as the instructors are there to assist them in achieving these goals, a sense of confidence is created in order for students to realise that they could succeed if they do what is expected of them. Lastly, it is very important for a lecturer to be aware of the diverse student population attending a class and addressing the needs these different students might have in an appropriate manner (Page & Mukherjee, 2000, pp. 551-555).

By employing these seven principles, attendance gradually increased as students became more involved in their learning. Page and Mukherjee (2000, pp. 555-557) observed a few changes, importantly the students’ attitude changed towards the courses, as well as their performance. The raised curiosity and attentiveness experienced amongst the academically weaker students were very prominent. Class sessions also encouraged a peer-to-peer learning setting, where the academically stronger students assisted the weaker students. As students became more confident, more questions were being asked during class sessions. The final conclusion made by Page and Mukherjee (2000, pp. 555-557) is that as students’ participation in class sessions increased, their performance also increased, making a case that attendance does contribute to performance.

Linked with these findings by Page and Mukherjee (2000) and the suggestion made by Devadoss and Foltz (1996) in line with the principles presented by Chickering and Gamson (1987), the University of Indiana in Indianapolis outlined a set of very practical “tips” on

conveying the importance of class attendance without necessarily enforcing a policy (Centre for Teaching and Learning, 2011). These tips emphasise the necessity of attendance and the benefits thereof for the student as well as the lecturer. Firstly, instead of enforcing a policy or rule the Centre proposes that the expectation of class attendance are communicated to students, emphasising that a lecturer takes the time to prepare and attend and therefore an expectation is created that the students do the same. The second tip notes the importance of accentuating the benefits of class attendance. The third tip implies because of the lecturers' emphasis on the importance of attendance, in turn they need to structure lectures in such a way that the students could not afford to miss it. Lastly the Centre focuses on the lecturer, stating the attendance also puts them in touch with their students (their lives, backgrounds, etc.). Knowing the students they teach, assists in the structuring of lectures, which in turn steer the focus to the importance of attendance for the students and the price for missing it (Centre for Teaching and Learning, 2011).

This set of rules and principles presented by the University of India implies that it would be possible to motivate students to attend classes without enforcing a rule or policy, but rather focussing on the positive aspects that class attendance have to offer the student as incentive to attend. For example to structure a lecture in such a way to encourage a student to attend, focuses more on teaching and learning aspects and good practices. This coincides with what St Clair (1999, p. 174) suggests in relation to motivation and characteristics of the student and the influence that has on performance. In addition, these rules and principles also make a case for attendance and the value thereof, echoing the outcomes of the study presented by Page and Mukherjee (2000, pp. 555-557).

Agreeing with St Clair (1999, p. 174) and Le Blanc (2005, p. 14), Macfarlane (2013, pp. 358-373) strongly speaks out against the use of policies to enforce attendance. He refers to this as an "infantalisation"<sup>7</sup> of students. The notion of compulsory attendance is seen as taking away academic freedom and choice and is contradictory to most institutions' visions to cultivate independent learners. Moreover, he states that higher education is a choice (voluntary) and attendance policies inhibit academic freedom. Students are to be seen as

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<sup>7</sup> In Macfarlane (2013, pp. 258-373) "infantalisation" refers to students being treated as children rather than adults.

“customers”, and therefore should have the freedom to decide (Macfarlane, 2013, pp. 358-373). Furthermore, he argued that attending classes at university is like joining a gym: “[...] you only get out of it what you put in.” (Macfarlane, 2013, pp. 358-373).

Building on the notion of voluntary participation presented by Macfarlane (2013, pp. 358-373), Nyamapfene (2010, p. 64) also conducted a study to establish the impact of class attendance on performance. His study was done in a setting where no formal policy on attendance existed and class notes were readily available online. Amongst other outcomes, attendance trends were tracked and assumptions were made on student attendance habits. The electronic engineering module chosen was selected on the basis that attendance was not mandatory and class notes were electronically available. Furthermore, students could arrange to meet with the lecturer out of class. Without a policy advocating mandatory attendance, the recorded attendance percentage in the study was 56%. Nyamapfene (2010, p. 65) further explains that the attendance trends indicated that a decrease in attendance was experienced during times where students were under pressure to submit assignments and write tests. Even though the lecture attendance was average, his study yielded a positive result in terms of statistical significance, similar to the studies of Credé *et al.* (2010, p. 273) and Chen and Lin (2008, p. 224). A strong correlation was found between attendance (including out-of-class contact) and performance (Nyamapfene, 2010, p. 66).

With a bit of a different perspective than that of Macfarlane (2013, pp. 358-373), a Construction Management lecturer presented a paper in which he describes to what extent a policy on attendance can have a positive effect (Senior, n.d.). Similar to the aforementioned study, the negativity towards an attendance policy is highlighted, specifically the fact that an attendance policy does not necessarily mean a student will perform better than a non-attending student (Senior, n.d., p. 3). It recognises that the quality of the instructor plays a critical role in the performance of the student. Relating to the suggestions made by Macfarlane (2013, pp. 358-373), Senior (n.d., p. 6) shares the point of view that establishing a policy on attendance undermines academic freedom and raises ethical and philosophical issues. However, from a logistical point of view, Senior (n.d., pp. 6-7) argues that learning should be “a journey undertaken by the students and the instructors



to be enriched” and from a more practical stance, learn from each other through class participation in discussions and projects conducted together as a group.

To conclude this section on attendance and performance, reference is made to Zhao and Stinson (2005, p. 7) who conducted a study to provide concrete evidence on the relationship between attendance and performance and to use this data to motivate students to attend. They posted interesting concluding remarks in the article presented in the Journal of Learning in Higher Education:

*Class attendance does affect individual student’s performance. [...]Attending class is important for learning and may be one of the easiest things that students can do to improve their grades. (Zhao & Stinson, 2005, p. 7)*

Since the above statement describes attendance as one of the factors students can control in an effort to increase their performance, another concern in relation to attendance is raised in terms of enrolments into classes. Building onto the literature presented on the influence of attendance on performance, the following paragraphs discuss the effects of large class teaching and the influence it has on student performance.

## **2.2 Class attendance and large class teaching**

In the first chapter, it was briefly mentioned that higher education institutions are under pressure to enrol more students each year, due to growing demand (DHET, 2013, p. 27). Larger enrolment numbers in combination with compulsory class attendance policies inevitably implies larger classes. If attendance is perceived to have an influence on success as suggested by authors in the previous sections, attention should be given to literature in relation to large class and the effects it has on performance. The implication of compulsory attendance is that it increases the number of feet entering a class room.

Hornsby, Osman and De Matos-Ala (2013, p. 7) investigated large-class teaching in the South African context and suggested that government’s ability to provide funding to keep up with the increasing number of enrolments in higher education institutions in South Africa

left much to be desired. As with many other developing countries, funding for higher education is not adapted upwards, alongside the steadily increasing enrolment numbers. This puts institutions under immense pressure to ensure that the teaching environment motivates the students and to provide enough resources for them to learn, ranging from space to teach and enough electronic equipment to serve students (Hornsby, *et al.*, 2013, p. 10). Hornsby, *et al.* (2013, p. 11) suggest that adapting to the changing environment, provides institutions with opportunities to adapt their teaching and assessment methods, re-aligning the curriculum to speak to a large-class setup and encouraging independent learning, as well as reminding the reader that the ability of students to adapt to the changing teaching environment should not be underestimated (Hornsby, *et al.*, 2013, p. 11).

As an example of speaking to the needs of the changing higher education environment, a case study presented by Carpenter (2006, pp. 13-14), investigated which teaching methods students find preferable in addition to regular face-to-face contact time, specifically enrolled in large classes. The study found that students prefer methods which involved active engagement with the materials (such as doing case studies) and actively sharing this with class mates. However students indicated that they are not favourable towards teamwork and prefer to take “sole responsibility in the dissemination of materials” (Carpenter, 2006, p. 18). Students indicated that they are indifferent on the notion of attending classes, but indicating a stronger preference towards independent study, such as conducting case studies, presenting the cases and being active in their learning (Carpenter, 2006, p. 19). Students indicated that they liked the traditional teaching method as well as the additional activities promoting independent learning. Students, however, indicated that they prefer smaller group settings to larger group settings (Carpenter, 2006, pp. 17-18).

With a bit of a different approach, Gump (2005) presented interesting findings in relation to attendance and class size. He was not the formal lecturer in the course, but the facilitator of the weekly discussion session. The lecturer, who instructed the main lectures emphasised to the students that it would be beneficial for them to attend these discussion sessions (Gump, 2005, p. 24). The study was conducted by using a class with 350 students enrolled in the course. Students had the opportunity to attend smaller discussion session. These sessions were presented with only 25 students in a given time slot and attendance for these sessions

were compulsory. Even though attendance was not monitored in the main lectures, the instructor noticed a decline of students attending. Gump (2005, p. 25) concluded that capping the number of students attending the discussion session seemed more attractive to students than the main lecture where they were seated in an auditorium with 350 other students. He suggests that this provides a “more ideal situation” to impose attendance than in a main lecture because the perceived benefit by the student is higher (Gump, 2005, p. 25).

Cuseo (n.d., p. 1) presented a case against large classes and the negative effects it has on first-year students’ performance and motivation. The study indicated that large classes are mostly associated to first year courses and that these courses are “gateway” courses to prepare students for their major field of study. This, however, presents a problem in terms of the class experience and leads to high dropout rates and low success rates (Cuseo, n.d., p. 1). The negativity towards large classes lies within the fact that it does not promote active and interactive learning (Cuseo, n.d., pp. 1-2). The student experience of courses is influenced in large classes to the extent that they feel “disengaged” and do not value attendance to be beneficial to them in a large class setting (Cuseo, n.d., pp. 10-12). Cuseo (n.d., p. 2) outlined eight consequences of large class teaching, founded on empirical evidence. One of these consequences included the risk of excluding the student in the active learning process and relying on the “lecture” method to teach. The adverse effect in relation to this point stresses the importance of active participation to avoid the students drifting off and losing concentration. Cuseo (n.d., p. 4) suggests that by actively engaging students their concentration levels tend to stay higher for longer.

Moreover, large class settings inhibit interactive and participative learning as well as the depth of learning (Cuseo, n.d., p. 2). This leads to passivity by students and does not foster growing an engaging relationship between students and their lecturers (Cuseo, n.d., p. 5). The assignments and test in courses presented in large classes are reduced to surface activities to ease assessment loads of the lectures (Cuseo, n.d., p. 2). The problem with this is the importance of writing at tertiary level. By not including larger components of written activities, these skills are not developed as thoroughly in the first year, disadvantaging the students further down the line (Cuseo, n.d., p. 7). The final three issues identified in relation

to large classes relate to low performance and satisfaction rates of students in terms of the course (Cuseo, n.d., p. 2). Similar to the aforementioned conclusions presented by Gump (2005, pp. 21-26), Cuseo (n.d., p. 14) emphasises the employment of smaller group settings such as seminars and tutorials to supplement traditional lectures to provide a setting where participation and engagement are promoted.

If a large class setting is not seen by students as an interactive environment and high teaching loads prevent lecturers or facilitators to teach multiple sessions in smaller groups, how could the large class issue be addressed in a practical manner? Arguments put forth by Page and Mukherjee (2000, pp. 547-557) earlier, suggested that employing the seven principles of good teaching practice encourage student learning and participation. This included encouraging the students to make use of out-of-class engagements as well as actively participating in class sessions, amongst others. However, their study was done with a group of only 57 students. The arguments by Page and Mukherjee (2000, pp. 547-557), along with the suggestions by Hornsby *et al.* (2013, p. 11) as well as the findings by Carpenter (2006, pp. 13-18), Gump (2005, p. 25) and Cuseo (n.d., p. 14), require a discussion of peer-to-peer facilitation. Peer-to-peer facilitation provides for a smaller class setting, speaks to the students' preference and encourages engagement amongst them.

Unver, Akbayrak and Tosun (2011, p. 1091) conducted a study on the value peer-to-peer facilitation adding to the learning process for both the tutor and the student. A traditional hierarchical structure where a lecturer teaches a formal lecture is supplemented with a tutorial or peer-to-peer facilitation session. This offers both the student and tutor the opportunity to learn from each other in an environment where the gap between the tutor and student is smaller than between a lecturer and student, easing communication (Unver, *et al.*, 2011, p. 1092). The study yielded positive results and one of the conclusions made indicated that the peer-to-peer setup reduced anxiety amongst student, enabling them to ask questions to explain and clarify concepts which they did not fully grasp in the main lecture, ultimately improving their performance in the assessments (Unver, *et al.*, 2011, pp. 1097-1098).

At the National University of Ireland a study on large class teaching was conducted. Similar to the discussion presented by Cuseo (n.d., p. 1), the report presented by the Centre for Teaching and Learning at the National University of Ireland, also mentioned the fact that most introductory first year courses are those presented *en masse*. This has an effect on the student experience, since this is the first time they are introduced to such a large setting. This might contribute to feelings of anonymity, anxiety and vulnerability. Students tend to be passive participants, not actively asking question and not seeking assistance when experiencing difficulty to grasp materials (Waddington & McCaffery, 2010, p. 2). As part of their study staff and student experiences, of a large class setting were investigated. The use of technology was highly regarded by both students and staff to aid students in a large class setting. The Staff was reluctant to make too much available online, since this might encourage student to not attend, which they (the staff) view as an important part of the learning process. Staff agreed that should assistance be provided to them in terms of additional staff to be employed; it could contribute to improving their feelings towards large class teaching (Waddington & McCaffery, 2010, p. 5).

Another approach tested in their study, was by providing a flexible, walk-in service to students studying mathematics. With experienced tutors occupying the centre for 18 hours per week, students seeking additional assistance had the opportunity to be assisted, with the only requirement being that they brought their materials along to the centre (Waddington & McCaffery, 2010, p. 7).

The growing number of enrolments into higher education institutions world-wide as well as the student to lecturer ratio increasing on a yearly basis, make small group lecturing virtually impossible (Carpenter, 2006, p. 13). This is also reflected by the Department of Higher Education and Training (DHET), aiming to have over 1.5 million students enrolled in the 23 universities in the South Africa and an additional 4 million students in other higher education institutions in the country by 2030 (DHET, 2013, p. 27). To better understand the case presented in this dissertation, it is important to provide a context of the current higher education demands in South Africa.

### 2.3 South African higher education context

After 20 years of democracy there are still major divides within the South African schooling system. South Africa with its diverse cultures and communities and the shadow of post-apartheid issues lurking, still face many inequalities regarding primary education (Boughey, 2008, p. 193). Rural area schools are still not performing on the level of the former Model C schools. This is mainly due to the socio-economic status of learners not being able to pay large amounts of school fees resulting in a lack of funding to provide these areas with equal schooling opportunities, including relevant and updated learning material as well as, having the ability to attract highly trained professionals to teach. Some students also do not have the opportunity to be taught in their mother tongue and are confronted by a third or fourth languages (for them) of instruction (Badat, 2009, pp. 6-11; Boughey, 2008, p. 193). This problem is further fuelled when students enter university where English serves as the language of instruction at most South African institutions (Boughey, 2008, p. 193).

Since the focus of this case study is the influence of attendance on module success rates, the importance of also discussing pressures related the massification of higher education and school performance need to be brought into context. The pressure to enrol more students into institutions of higher learning, which ultimately influences class size, might be contributing to low performance. In addition, the quality of the students applying and enrolling at higher education institutions is also brought under the spotlight due to difficult questions posed by the general education and training sector.

The Grade 12 pass rate of 2012 in South Africa showed an overall decrease in full time learners completing their final school year, thus leaving a smaller pool of students who qualify for university. This number is further decreased by fewer students passing mathematics and science (Snyman, 2012, p. 10). The weekly Sunday newspaper, *Rapport*, published an article raising the concern of the rapidly increasing matric pass rate increasing yearly and whether the continuous increase is in fact realistic (Myburgh & Prince, 2014, p. 1). In 2009, 60.6% of the enrolled grade 12's passed the matric examination. The following year, the pass rate increased to 67.8%, a 7.2% increase. The year 2012 yielded a pass rate of 73.9% (Myburgh & Prince, 2014, p. 1). The concern Myburgh and Prince (2014, p. 1) raises is whether these marks are a true reflection of competence or whether it is artificially

adapted. Furthermore, the National Benchmark Test (NBT)<sup>8</sup> results concluded that more than half of the prospective students for the 2013 enrolment year were not declared proficient in Mathematics and only about 30% of these students were proficient in the Academic Literacy Component of the test (Myburgh & Prince, 2014, p. 1).

Emergent from the article by Myburgh and Prince (2014, p. 1), two distinct questions arise: 1. what distinguishes higher education from other educational settings; and 2. what new demands are students faced with when entering university. Morrow (2009, p. 114) describes the difference between higher education and other educational settings by stating that higher education should offer “higher knowledge”. He defines “higher knowledge” as ‘specialised’, ‘advance’ and ‘discursive’ knowledge, presupposing that other levels of knowledge have been achieved by these students (Morrow, 2009, p. 116). Thus, Morrow argues that students who arrive at university should have acquired knowledge up to the level needed to form a foundation for attaining the “next level” of knowledge, i.e. higher knowledge.

The second question relates to the new demands on the students’ ability when they enter university. Students coming to higher education institutions are confronted by new demands on their language ability, knowledge and the dissemination thereof, argumentative skills, independent learning, abstract and hypothetical thinking, and a multi-cultural environment. Related to the argument of Morrow (2009, p. 116), Boughey (n.d., pp. 2-4) elaborates that assumptions are made by lecturers that students know and possess knowledge about the field. Furthermore, they assume students do prior reading to have possessed the above-mentioned knowledge of the field. Boughey (n.d., p. 7) suggests that lecturers must ease students into the academic environment, teaching them how to obtain academic knowledge, but that this method of teaching must be adapted according to the needs presented by students in different institutions, faculties and departments. This relates back the point made by Hornsby *et al* (2013, p. 9) that a large class setting might influence the student’s ability to develop critical thinking and problem-solving skills. A large class

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<sup>8</sup>The National Benchmark Tests (NBTs) were designed to test the level of proficiency of prospective students in Academic Literacy and Mathematics. This test is compulsory to prospective students intending to study at the UFS. Prospective students who do not perform on a proficient level (65% +) in the Academic Literacy Component, are required to enrol for a compulsory academic literacy module in their first year of study.

setting influences the level of engagement between lecturer and student, as put forth by Cuseo (n.d.), making it more difficult for the student entering the class room with issues as mentioned. If students do not possess the foundational knowledge as assumed or the necessary language and argumentative skills, they face the possibility of “getting lost in the crowd” before having learnt the ability to work independently.

Students’ abilities coupled with the rising pressure to enrol more students into South African higher education institutions, ultimately contributing to larger class sizes, complicates this study even further in that it contributes additional “unobservable” variables as mentioned previously by Rodgers (2001, p. 285) and Stanca (2006, p. 263).

### **3 Concluding remarks**

The literature overview presented in this chapter, put forth important studies conducted in relation to attendance and performance in both the national and international context. Furthermore, issues experienced in the higher education sector was highlighted and included cases investigating the influence an engaged and interactive learning environment have on academic performance. In addition, cases underscored the diversity of the student body enrolling in institutions and the level of preparedness of students when entering university and its potential impact on attendance or success. As a reflection of the value the literature adds to this dissertation the following paragraphs highlights key elements presented in this chapter.

The argument presented by Credé *et al.* (2010, p. 273) and the notion of attendance as the best predictor of success forms the foundation of this dissertation. In relation to other research on attendance and performance discussed in this chapter, it is mention-worthy to highlight that these studies draw on a specific field of study and focusses mostly on a specific course. Romer (1993), Devadoss and Foltz (1996), Rodgers (2001), followed by Marburger (2001) and Marburger (2006) as well as Stanca (2006) all focussed on a specific course within a specific field of study, the latter building on the work of the former. The case study presented in this dissertation attempts to provide information on a broad spectrum of



modules from the major fields of study, in an effort to understand and describe the influence of attendance of a range of modules and whether they are equally effected or not.

A study by Hornsby *et al.* (2013) was discussed as part of the section on large classes and the influence on performance within the South African context. Their study concluded that a culture of encouraging independent learning needs to be established. This provides only for a short answer to a complex problem. To establish such a culture, the notion of compulsory attendance and the difficulties assessing its value, needs to be addressed, which this dissertation attempts to do.

Gump (2005) investigated small group teaching as a practical way of encouraging engagement. Carpenter (2006) focussed on what the student preference in relation to class setup is and concluded that a formal lecture was still the preferred method. Cuseo (n.d.) investigated the possible adverse effects large class teaching has on the students and concluded that risks of large class teaching include feelings of exclusion and anxiety among students. Internationally enrolment numbers are growing, making it more difficult to decrease class sizes. Within the South African context, higher education institutions are under constant pressure to enrol more students. The case study presented in this dissertation attempts to provide some comments on issues related to large classes, possibly further intensified by compulsory attendance, and the effects thereof on performance.

The changing higher education environment relating to increasing student enrolment numbers and low performance forces researchers to re-think interventions to accommodate these changes. In theory, attendance should contribute to success. If attendance is perceived to have an influence on success, the bigger question is whether the influence is necessarily for the better. In an effort to increase module success rates, this dissertation investigates whether compulsory attendance is as successful as it might seem to be in theory.

The literature review related to attendance and success, for the most part, covered studies that investigated a specific module or course, rarely focussing on a spectrum of courses while the case study presented in this dissertation attempts to provide an analysis of a

broad range of modules within the general fields of study, including Business Economics, Science, Mathematics, the Social Sciences and Humanities.

This dissertation focusses on the UFS as a specific case. To build on prior investigations as presented in this chapter, this case study includes modules with larger enrolment numbers from different fields of study (*cf.* chapter 3). Unlike studies presented by the likes of Credé *et al.* (2010), Cheung (2009) and Chen and Lin (2008), identifying a causal or correlational relationship between attendance and academic performance, the objective of this dissertation is to identify and understand the influence of class attendance on module success rates as well as to report on the observed magnitude of difference in academic performance during the experimental year as indicated by the effect size analysis.

## **Chapter 3 Research design and methodology**

### **1 Introduction**

The literature overview provided a glance into the complexities related to conducting studies such as the one presented in this dissertation. It mentions the complex nature of the measuring instruments needed, variables that are sometimes difficult to track and the overall magnitude and complexity of studies such as these. Methodologies used in previous studies included examples of meta-analysis as done by Credé *et al.* (2010), micro approaches followed by amongst others, Marburger (2001) as well as studies trying to quantify and correlate attendance and success as done by Devadoss and Foltz (1996).

Drawing on the methods used and findings discussed in chapter two, this dissertation aims to provide a view on the influence of compulsory class attendance in the case of the UFS, thus presenting a research design and methodology best suited for this case. The research design and methodology are outlined in this chapter. It provides the sampling, data collection and ethical consideration pertaining to this case study. The chapter further explains the pragmatic approach followed and linking it to the flexibility needed to conduct the research and presenting it as a case study. The objective of this study is further contextualised culminating into the associated hypotheses. A brief discussion on the pilot study is also included in this chapter. The method of analysis of the quantitative data is explained in sufficient detail, including a scale to interpret the effect size. The chapter also includes an explanation of the qualitative data collection employed and concludes with the sampling techniques and ethical considerations.

### **2 Approach**

This study followed a pragmatic approach. As put forth by the research done by Credé *et al.* (2010), Chen and Lin (Chen & Lin, 2008), Devadoss and Foltz (1996) a study such as this study, attempting to measure attendance and the influence it has on success, is a complex endeavour. The employment of a pragmatic approach allows for the research to be conducted in a manner that prefers a framework that permits emphasis on the research problem and attempts to answer the research question by using as many approaches as possible in an attempt to provide a clearer understanding of the problem identified

(Creswell, 2009, p. 10). This research was conducted with the vision that “the pragmatist researcher looks for the ‘what’ and ‘how’ to research [...]” (Creswell, 2009, p. 11). In an article presented by Putnam (1999), pragmatism is jestingly described as: “[...] an approach one ought to use if one wants one’s beliefs to agree with the facts” (Putnam, 1999, p. 51).

The pragmatic approach sets forth that one does research in a manner which relates to trial and error, which implicates that if one wants to see whether a hypothesis is positive or negative one needs to test it. Within the education sector, John Dewey (1859-1952) applied a pragmatic approach and claimed, for example that students adapt to their immediate environment. The father of the pragmatism, Charles Sanders Peirce (1839-1914), as stated by Cohen (1999, p.2) believed that: “[...] thought must produce action, rather than linger in the mind and lead to indecisiveness” (Cohen, 1999, p. 2).

This approach sets the tone for the compulsory class attendance case study. By testing the hypotheses in a pragmatic manner, it provides the opportunity to re-fine and re-think methods during the course of the study. An advantage of following this approach is that it provides the opportunity to change certain aspects during the study should the need arise.

### **3 Problem statement**

#### **3.1 Identification of the problem**

The primary identified problem is that the module success rates at the UFS are low and under the norm. The 2011 institutional success rate was 73.05%; in line with the national target set by the DHET for the university. The target for 2013 is 74.06% and the target for 2019 is 78%.

The identified problem:

*Module success rates at the UFS are low and under the norm.*

To address the above issue, a decision was made, driven by the strategic priorities as mentioned in chapter one, to make class attendance compulsory at the UFS in the selected

low performing modules. The following research question was formulated to address the identified problem.

The research question:

*What is the influence of compulsory class attendance on module success rates at the UFS?*

The investigation goes “beyond” measuring attendance and observing the influence thereof, but also includes accounts of the experiences students and teaching academics had relating to compulsory class attendance. This will contribute to the richness of the descriptions in the findings, echoing what Creswell (2009, p. 11) proposed. He suggested that employing different approaches in an attempt to provide answers, ultimately contributes to a clearer understanding of the problem at hand.

### **3.2 Purpose and objectives of the study**

The purpose of this study, derived from the identified problem and research question, is to explore compulsory class attendance as an intervention to improve module success rates at the UFS. As presented in the first chapter, the objective of this case study is two-fold, namely to:

- Identify and understand the influence of class attendance on module success rates at the UFS on the Bloemfontein campus; and
- Describe the educational effect, which is the magnitude of the difference in modules’ success rates observed during the investigation.

To address the research question and achieve the objective, the quantitative analyses are driven by the following associative hypotheses:

*Null Hypothesis ( $\mu_0$ ): Compulsory class attendance has no positive influence on module success rates.*

*Alternative Hypothesis ( $\mu_1$ ): Compulsory class attendance has a positive influence on module success rates.*

## **4 Research design**

### **4.1 Methodological overview**

Following the principles of a pragmatic approach, the research, as previously mentioned, is presented as a case study. Creswell (2009, p. 13) suggests that a case study suites research conducted over a set time period aiming to yield descriptive results, as is the case of this investigation. Cohen, Manion and Morrison (2007, p. 253) states that case studies are used in specific settings such as a group or community in order to investigate something in a “real life” setting. This type of study is conducted to provide a better understanding and insight into the investigated situation in a deeper sense, not only relying on abstract and numerical analysis, but merging that with methods not necessarily adapted for quantitative analysis. Moreover, case studies are usually bound to a set of characteristics unique to the situation under investigation (Cohen, et al., 2007, pp. 253-254). The points mentioned above accord with a pragmatic approach, highlighting that pragmatism revolves around “real-world practice”. A pragmatic approach leaves the researcher to employ more than one method of data collection and presenting it in a way suitable to answer the research question (Creswell, 2009, p. 6). Cohen *et al.* (2007, p. 253) identified advantages of a case study. The advantages include that it

- Thoroughly and chronologically describe events related to the study;
- Seeks to understand the group and their perceptions regarding the issue at hand;
- Highlights events relevant to the case; and
- Provides the researcher with the opportunity to form an integral part of the report and attempts to provide “the richness of the case when writing the report.”

The case study presented in this dissertation further employs a mixed methods approach, more specifically a sequential mixed method approach. A sequential mixed method approach is defined by Creswell (2009, p. 15) as a procedure which seeks to use one method and expand on the findings with another method. In this case study, a sequential explanatory strategy was followed, by collecting and analysing quantitative data first and will then move along to the collection and analysis of the qualitative data.

A mixed methods approach also compliments a pragmatic approach, as both quantitative and qualitative data are used to better understand the research problem (Creswell, 2009, p. 11). Mouton (2008) and Cohen, Manion and Morrison (2005) support this approach stating that it tends to provide a better understanding of the problem at hand and provides some depth to the findings presented by the research.

Moreover, in following a pragmatic approach and presenting the research as a case study, the opportunity exists to use a purposefully selected group of modules to collect a variety of data, using different methods suitable at the time. This supports the effort to try to address the complex nature of the research question, as “truth is what works at the time” (Creswell, 2009, p. 11).

Prior to commencement of the investigation, a pilot study was conducted to select a suitable class attendance monitoring instrument and to air out initial class monitoring problems. Conducting a pilot study is endorsed by Teddlie and Tashakkori (2009, p. 203) as it provides an opportunity to identify problems and test ideas.

## **4.2 Pilot study**

The Compulsory Class Attendance pilot project was introduced in the second semester of 2010, as part of the Rector’s Academic Turnaround Strategy, Priority 1. To successfully monitor student attendance it was important to investigate all the possible measures to ensure that the students attended their classes and that the measurement thereof was accurate (University of the Free State, 2010).

To implement a system to monitor class attendance, the main aspects that the system needed to address was accuracy, efficiency and it should be easy to use. In the first attempt, a paper-based system of monitoring attendance was used. It aimed to spread expenditure over a period but did not necessarily prove to be the most cost-effective way to monitor attendance. Capturing and processing data manually is very labour intensive and errors could easily slip in.

An electronic system proved to be the better choice, especially with regards to the accuracy of data. The biometric fingerprinting device proved to be a successful instrument in classes with more than 150 enrolments. The main benefits of this system are that it is a time-saving, cost-effective and accurate way to track students' class attending habits.

The value of the data generated by the biometric system is impeccable. Further development was done during the course of the study and the following hardware and software specifications were met to ensure smooth running of the system:

- The attendance monitor should be a mobile device. This is necessity as the device should move swiftly through large class set-up (200 plus students per class session).
- Hardware and software should be able to store more than 20 000 fingerprint templates.
- Hardware and software should include monitoring devices and software as well as hardware and software related to the registration of fingerprints. This needs to be able to integrate with the current UFS IT platform.
- The system should have the option of manually logging students for sessions on the hardware and software interfaces.
- A secure electronic system, adhering to national legislature and specifications, should be in place to store the fingerprint templates.
- The system should be a "real-time, live" internet based system, also available off line, working on a Wi-Fi network.

To ensure that the students were aware of the use of the biometric fingerprinting system with the sole purpose of collecting attendance data, as well as adhering to regulations in



terms of the use of fingerprints, they were required to give permission, by signing an attendance agreement form, which was captured with the information on the Biometric System software interface indicating that permission was given by the student.

### **4.3 Data collection and analysis**

As explained earlier, data collection is based on a sequential explanatory mixed methods approach, that is collecting and analysing the quantitative data in the first phase and expanding on the findings by collecting and analysing qualitative data in the second phase.

#### *a Quantitative data collection and analysis*

##### *Student attendance data collection*

Student attendance was captured and monitored by the fingerprint device, as identified by the pilot study. Although the UFS offers three different class types, only formal lecturer-contact time was included in this study (*cf.* section on sampling), since it is not a small group teaching setting and no formal monitoring of these classes exist. The main lectures are the classes presented by teaching academics and are described as formal lecturer-contact time. In addition to this, some modules also include academic facilitation sessions, practical sessions and/or tutorial sessions. Academic facilitation sessions are sessions the teaching assistants or senior students undertake on behalf of the lecturer. This includes re-capping the work completed during the main lectures. These sessions are not formally compulsory. Practical sessions are mostly included in the fields of study that require students to do field work and/or experiments. The sessions are done in smaller groups. It usually culminates into the students receiving marks after completion of the report. The New Academic Tutorial Programme (NATP) is driven by the Centre for Teaching and Learning (CTL) at the UFS. These sessions are small-group classes of no more than 25 students per session, monitored and tracked by the CTL.

##### *Enrolments, module success rates and attendance data collection*

The data relating to enrolments and module success rates provided in this case study were collected from the Higher Education Management Information System (HEMIS) as recorded on 24 March 2014 (unless indicated otherwise). The data was provided by the Directorate for Institutional Research and Academic Planning (DIRAP) from the unit responsible for

management information systems, as per request from the researcher and supervisor. Attendance data for the case study was captured by a biometric device circulated in class.

### *Effect size analysis*

Module success rates data was collected from 2008 to 2010 to identify continues low performing modules. This case study is focussed on observing whether the intervention employed in 2011 influenced the module success rates. To provide a less rigid view and avoid reporting in terms of statistical significance, an effect size analysis is used. By interpreting the data in terms of effect size it is possible to determine practical significance, also referred to educational significance (Cohen, et al., 2007, p. 520). Effect size analysis provides a simple and straightforward way to quantify whether an “experimental intervention” was influential and to which extent it was influential (Cohen, et al., 2007, p. 521). Cohen *et al.* (2007, p. 521) explains the following on the use of effect size: “It tells the reader ‘how big the effect is, something that the p value [statistical significance] does not do.” (Cohen, *et al.*, 2007, p. 521). The following definition was presented in the late eighties: “[...] an effect size represents the strength or magnitude of a relationship between the variables in the population, or a sample-based estimate of that quantity (Cohen, 1992). Also in favour of effect size analysis is the American Psychological Association (APA) stating that: “[...] for the reader to appreciate the magnitude or importance of a study’s finding, it is almost always necessary to include some measure of effect size in the results section” (American Psychological Association, 2010, p. 34).

The practical significance analysis, educational significance or effect size, measures the magnitude of the difference observed in the experimental group and is mostly used because statistical significance “does not necessarily imply that the result is important in practice [...]” (Ellis & Steyn, 2003, p. 51). Cohen *et al.* (2007, p. 520) mentions that within the sphere of education research, effect size analysis has gained international preference, as to the fact that it is not as arbitrary as statistical significance. Statistical significance could either be related to a large sample and a small coefficient or *vice versa*. Effect size differs in that it can deduce whether the difference is because of the sample size or the coefficient. Thus, effect size analysis is not primarily influenced by sample size changes. This measure is particularly helpful when trying to observe influence, since it provides a measure indicating the

magnitude of the difference observed between two groups (Cohen, *et al.*, 2007, p. 521). The effect size is thus a descriptive statistic, focussing on a specific case, without making generalisations to the entire population. The effect size in this case study was yielded from the statistic known as Cohen's *d*.

It is important to note that Cohen's *d* does not indicate correlation or relationship, which indicates cause. It is merely a measure indicating the magnitude of the difference observed. For example when an intervention is introduced, a positive or negative influence is observed in the treated group. The intervention does not necessarily cause the difference, a difference was merely observed during the intervention (Cohen, *et al.*, 2007, pp. 520-529). Cohen *et al.* (2007, p. 531) presents the example of the "hand and feet analogy": "Do not assume that correlations imply causal relationships (i.e. simply because having large hands appears to correlate with having large feet does not imply that having larger hands causes one to have large feet)." (Cohen, *et al.*, 2007, p. 531).

The statistical data was calculated using the Statistical Packages for the Social Sciences (SPSS) software package by an independent statistician. The calculation uses the numerical values calculating the mean and standard deviation of each group. Cohen's *d* is calculated by subtracting the mean of the control group from the experimental group and dividing it by the added standard deviation of the two groups (Cohen, *et al.*, 2007, p. 521).

For each module, the data of the 2010 groups (control) were measured against the 2011 groups (experimental) as well as measuring the 2011 groups (experimental) against the data of the 2012 groups (no intervention). Only first-time entering<sup>9</sup> students for the control and experimental groups were included. Excluding repeating students implied that the groups are independent. Cohen's *d* also provides for a directional indicator (positive or negative) of calculated measure indicating the magnitude of the difference observed.

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<sup>9</sup> A first-time entering student is a student who has not enrolled for a specific module before, entering it for the first time.

The scale to interpret Cohen's  $d$  varies. In Cohen (1992, pp. 99-100) the scale is presented as follows:

- $d=0.2$ : small effect
- $d=0.5$ : moderate effect
- $d=0.8$ : large effect

The above effect size scale was introduced by Cohen (1992, p. 98) to serve as a guideline, but pointed out that scales might differ depending on the type of study. Another scale of interpretation put forth by Field (2005, p. 7) used slightly different numbers:

- $d=0.1$ : small effect
- $d=0.3$ : medium effect
- $d=0.5$ : large effect

For the purpose of this case study, a more nuanced scale presented by Cohen *et al.* (2007, p. 521) was used to interpret the data. The interpretation of the data will rest on the following scale:

**Table 1: Interpretation scale for effect size**

Cohen's $d$	Effect size
+/- 0 - 0.2	Weak effect/ very small
+/- 0.21 - 0.5	Modest effect/ small
+/- 0.51 - 0.8	Moderate effect/ large
+/- >0.8	Strong effect/ very large

Adapted from Cohen *et al.* (2007, p. 521)

### *b Qualitative data collection and analysis*

The qualitative section of the case study focusses on collecting data from the teaching academics and students relating to their experiences of compulsory class attendance. Data was collected by interviewing teaching academics and a questionnaire was sent to students.

### *Students' experiences*

An online structured questionnaire was administered to the students in the selected modules to establish their experiences towards class attendance. The questionnaire was developed by a researcher in the former office of the Centre for Higher Education and Development (CHED) at the UFS. The structured questionnaire used a Likert Scale to address students' experiences towards compulsory class attendance, framing the questions in both negatively and positively. Completion of the questionnaire was voluntary.

### *Teaching academics' experiences*

The interviews were based on an interview guide approach (Cohen, *et al.*, 2007, p. 353). Following this approach provides the interviewer with a guideline to ensure all necessary information is extracted. It provides structure to the interviews without hampering conversational flow. This provides the interviewer with the freedom to elaborate on issues identified and request more information if needed (Cohen, *et al.*, 2007, p. 353). The aim of the interviews is to collect the teaching academics' experiences and views on compulsory class attendance as an intervention in an attempt to improve module success rates.

The information gathered from the interviews was dealt with anonymously and teaching academics gave consent to take part. The interviews were conducted, recorded and transcribed by a researcher in DIRAP. The analysis was done using *NVivo* software. *NVivo* is a software package specifically designed to provide researchers an electronic platform to do detailed qualitative data coding and analysis. The data was coded and emerging themes identified and reported on. Identified themes were categorised and the frequencies for each category reported on. This provided information relating to recurring themes and patterns in the narratives of the participating teaching academics (Cohen, *et al.*, 2007, p. 368)

## **4.4 Sampling**

The sample of modules included in the study was carefully selected using a purposive sampling technique. This sampling technique is used in cases when the researcher has an interest in a specific set of characteristics (Johnson & Christensen, 2004, p. 215) or where a specific group or case is the focus of the study and "depth" of information is needed

(Teddlie & Tashakkorri, 2009, p. 174). The case study targeted modules with a low success rate and high enrolments on the Bloemfontein Campus of the UFS.

The sample included consistently low performing modules between the years 2008 and 2010 (<50% module success rate) as well as modules with a consistent large number of enrolments. In addition, only 16-credit<sup>10</sup> modules (semester modules) presented on the Bloemfontein campus of the UFS were included. For the purpose of this case study, a large class is defined as a module with more than 150 students enrolled. Only modules between 2008 and 2010 were included due to modular changes that were activated in 2008. These changes included some modules, which were previously pegged at 8 credits, increasing to 16 credits. These changes were not only related to increased credits, some also combined modules forming new modules with a higher credit value than the previous ones. Therefore, only modules from 2008 were included to ensure consistency of content and credits.

The faculties included in this case study were based on the fact that no formal internal requirement on attendance exists within that specific faculty, thus excluding the Faculties of Law and Health Sciences. The Faculty of Theology was excluded due to the fact that they account for a very small number of students and do not teach large classes.

The limitations of this technique of sampling include that generalisation of the findings would be difficult (Johnson & Christensen, 2004, p. 215). As this study was conducted as a case study, generalisation of the findings is not an objective of this study. The value of this study lies within understanding a specific case at the UFS. A secondary limitation identified, states that by setting specific inclusion characteristics, a researcher might end up with an insufficient number of participants. This study was suggested and approved by the UFS management, therefore participation was mandatory.

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<sup>10</sup> The UFS (and the broader South African context) defines a credit as follow: "A student obtains academic credit for the modules registered for and passed. One credit is equivalent to ten notional learning hours. Notional learning hours imply the informed estimate of the average learning time an average student will require to achieve the minimum learning outcome(s). Such learning time includes contact time, practical work, independent and guided study and examination time." (University of the Free State, 2013, pp. 11-12)

During the course of the case study, some teaching academics and faculties requested to use the biometric systems for various reasons in their internal capacity. To present results for the purpose of this case study only eight modules, which were chosen according to the set out selection criteria, are reported on to ensure consistency.

The sample in this case study included the following first and second semester modules: Business Management, Accounting, Biochemistry, Mathematics, Political Science, English, Sociology and Marketing. These names are pseudonyms to avoid specific identification of the included modules. The names selected are general descriptors to identify the broader field of study the module content refers to.

## **5 Ethical considerations**

The nature of this case study determines that certain ethical issues needs to be addressed. The following considerations have been taken into account:

*Informed consent*

*Confidentiality*

*Data integrity*

Fingerprints were used to capture student attendance data and it was therefore necessary for an informed consent form to be signed by the students prior to the case study. The consent form clearly stipulated that the fingerprints will only be used for capturing attendance and was secured on an inaccessible database. The informed consent also disclosed that attendance was compulsory for the modules within the case study as approved by the Vice-Chancellor and applicable Dean.

Individual student attendance and marks was dealt with in a confidential and anonymous manner, in line with the rules prescribed by the UFS.

Teaching academics were informed via the Deans of the applicable faculties and orientated by DIRAP. The case study was formulated on the bases of a research need as per request and approval of the study by management of the University (University of the Free State, 2010).

The interviews conducted with the selected modules' teaching academics were done by a DIRAP staff member. Information gathered from the interviews was dealt with anonymously and teaching academics gave consent to take part. Interviews was recorded and transcribed and these are electronically, only accessible by the researcher and the supervisor.

The online questionnaire administered to the selected modules' students was voluntary and conducted anonymously. The questionnaire did not ask any biographical or identifying data.

The attendance and success rate data was provided by a secure electronic system. In cases where human involvement was concerned (regarding the processing of appeals) each case was considered on merit and according to general rules outlined by the UFS. In addition, confidentiality and data integrity was sustained by the fact that a data capturing programme exclusively designed for the UFS to deal with fingerprinting data was used. Data was dealt with ethically, protecting the identity of the individual participants during and after the data collection phase. Attendance, module and student data was stored securely on a password encrypted database.

## **6 Concluding remarks**

This dissertation rests on a pragmatic approach, which enabled the researcher to adapt to changes during the course of the study. This also favoured the use of a case study. As mentioned, a case study tends to work well in situation where specific set characteristics are present. In this dissertation these unique set of characteristics include low performance and large classes.

In addition, this chapter provided an explanation for the methods employed to collect data. This dissertation followed a mixed methods approach. The importance of collecting



qualitative and quantitative data was primarily based on the fact that the former adds to the richness of the description of the findings.

Furthermore, a discussion on the analysis of the quantitative data was included. The analysis was done using an effect size measure (Cohen's *d*) indicating the magnitude of the difference between the control and experimental group. Using this analysis contributes to the richness of the description, since this measure is a descriptive statistic, providing information relating to a specific case, without making generalisations to the entire population.

The sampling technique used in this dissertation was purposive. This was done because the researcher was interested in observing and describing a specific case, with a specific set of characteristics. In relation to the research design and methodological overview provided in this chapter, it is important to reiterate that the objective of this study is to identify, understand and describe a specific case. It does not focus on providing information that could be generalised to the population. It aims to provide an account of observations made in relation to the collected data, to provide some insight into low performing modules at the UFS.

## **Chapter 4 Data analysis and research findings**

### **1 Introduction**

The modules included in this case study were chosen on the basis of underperformance and enrolment numbers, as discussed in chapter three. The module data was collected from HEMIS as recorded on 24 March 2014, unless indicated otherwise (*cf.* chapter three) and the attendance data using the biometric fingerprinting device.

By providing the collected modular data and recorded observations in relation to the modules, students and lecturers and regulatory changes at the UFS, this case study presents findings in relation to the influence of compulsory class attendance on module success rates at the UFS. Again, it should be emphasised that the purpose of an effect size measure is not an indication of a causal relationship or correlation. As captured in chapter three of this study, it is important to remember that the effect size indicates a magnitude of the difference between the intervention and the influence it had on the treated group (Cohen, *et al.*, 2007, pp. 520-529). This dissertation is case-specific and focusses on a once-off intervention in controlled environment without the intention to generalise findings to the rest of the higher education population.

### **2 Case study data: Quantitative modular data**

The case study data will be presented per module, providing an introduction to the module, followed by enrolment and success data, as well as attendance data. To capture attendance data only main lectures or lecture-contact time was included. Facilitation sessions, practical session and tutor session were not included since these session are all based on a small class setting (*cf.* chapter three). Only modules between 2008 and 2010 were included due modular changes that were activated in 2008 as explained in chapter three. This was done to ensure consistency in content and credits.

Cohen's  $d$  is calculated for each module in relation to effect size. The intervention was staged during the two semesters of 2011, thus being called the experimental year or group. To calculate the effect size for each module, the data of the experimental group (2011) is

measured against two control groups, the year prior to the intervention (2010) and the year the intervention was suspended (2012). The first control group includes the first-time entering students in the applicable modules in the two semesters of 2010 and the second control group includes the first-time entering students in the two semesters of 2012. The experimental group (2011) includes the first-time entering students of the two semesters. The descriptions of the results are based on the following intervals as presented by Cohen *et al.* (2007, p. 521):

$d = +/- 0 - 0.2$ : Weak effect/very small

$d = +/- 0.21 - 0.5$ : Modest effect/small

$d = +/- 0.51 - 0.8$ : Moderate effect/large

$d = +/- > 0.8$ : Strong effect/very large

Cohen's  $d$  also provides for a directional indicator (positive or negative) of calculated measure indicating the magnitude of the difference observed.

In the figures depicting the attendance and module success rate data, the experimental year (2011) will be indicated in a different colour.

## **2.1 Business Management**

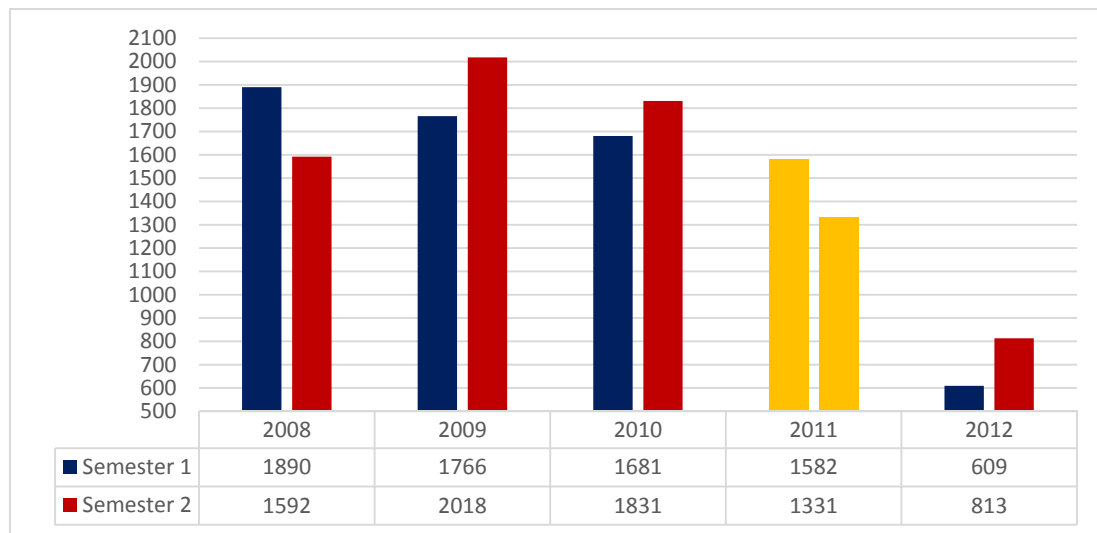
### **2.1.1 Introduction to the module**

Business Management is hosted by the Faculty of Economic and Management Sciences. In both the first and second semester, these modules contribute to 16 credits each. Three teaching academics taught the main lectures which included two classes of 50 minutes each per week in both semesters. Although the performance of these two modules were average over the last couple of years, they were selected on the premise that they had consistently high enrolment numbers between 2008 and 2010, that is, 1700 students on average, constituting a large class, in line with the selection criteria as presented in chapter three.

### 2.1.2 Enrolments

The enrolment numbers for both the first and second semester Business Management modules varied. The figure below provides an overview of the enrolment numbers from 2008 to 2012.

**Figure 1: Business Management enrolments 2008-2012**

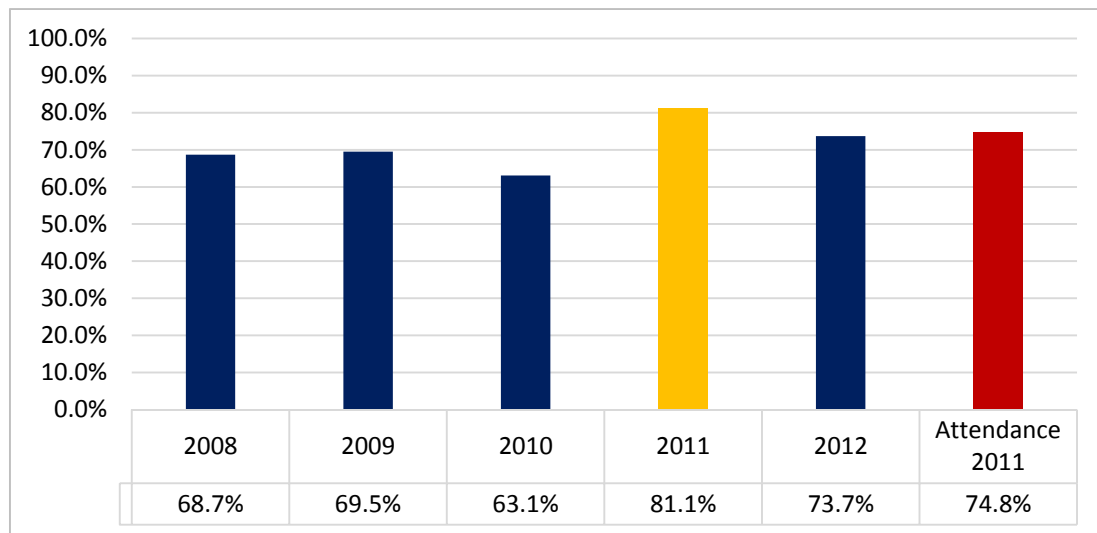


The enrolment numbers for the Business Management module were quite high over the past years, recording 1890 enrolments in the first semester and 1592 in the second semester of 2008. The 2009 enrolments for the first semester went down from the previous year to 1766. The second semester of 2009, however, soared to 2018 enrolments, making it the highest enrolment number recorded for this module. In 2010 and 2011 the first semester module followed the prior trend of enrolments with 1681 (2010 control group) and 1582 (2011 experimental group) respectively. The second semester module still had a fairly large number of students enrolled in the 2010 control group (1831), showing a decrease in enrolments in the experimental year (2011) to 1331 students in the second semester. The enrolment numbers in control group of 2012 were recorded at 609 in the first semester module and 813 in the second semester module. The significant drop in enrolments in 2012 was due to admission and curricular changes impacting on programmes in the Faculty of Economic and Management Science.

### 2.1.3 Module success rates and attendance data

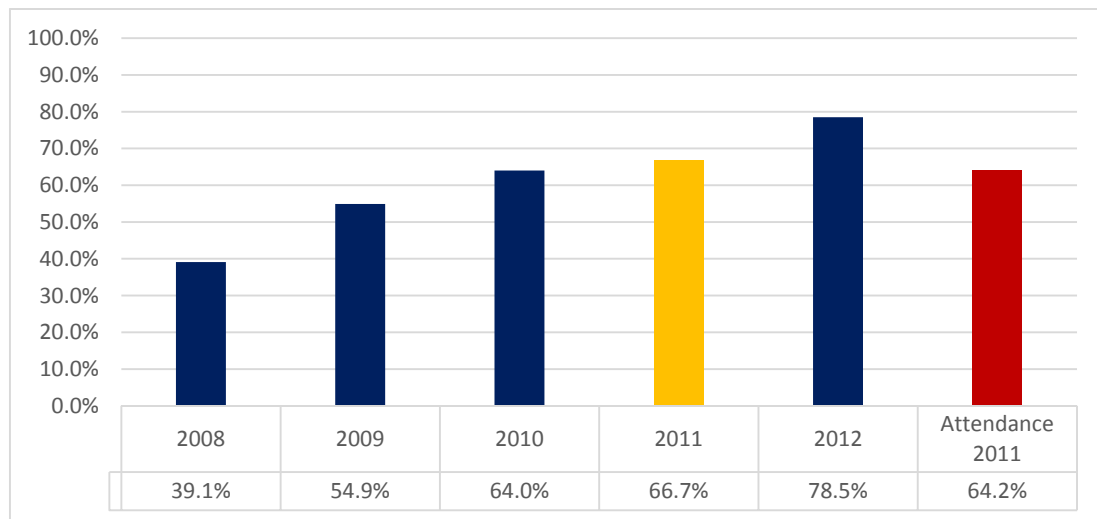
The following figures and tables provide an overview of the success rates per module in the respective semesters from 2008-2012 including the average attendance percentage of the experimental group of 2011.

**Figure 2: Business Management first semester module success rates and attendance**



The Business Management module presented in the first semester proved to be a consistent performer between 2008 and 2010, with a success rate of 68.7% (2008), 69.5% (2009) and 63.1% (2010 control group) respectively. In the experimental year, the module success rate increased with 18% to its best ever performance at 81.1%. The attendance percentage of the module was recorded at an average of 74.8%. The module success rate for the control group of 2012 in the first semester was 73.7%, 7.4% less than the experimental group (2011).

**Figure 3: Business Management second semester module success rates and attendance**



The module presented in the second semester in Business Management illustrates a different picture in terms of past performance. The module gradually showed an increase in the success rates since 2008, recording 39.1% to 54.9% in 2009 with the control group of 2010 breaking the 60% barrier (64%). In the experimental year (2011), there was a 2.7% increase in the success rate (66.7%). The attendance percentage of the experimental group (64.2%) was under the prescribed average of 75%. The 2012 control group had a module success rate of 78.5%, more than 10% higher than the experimental year.

#### 2.1.4 Effect size analysis

The effect size analysis was done between the control group of 2010 and the experimental group of 2011, as well as the experimental group and the 2012 control group. The following tables present the analysis:

**Table 2: Business Management first semester group statistics**

Effect size between 2010 (control) and 2011 (experimental)				
Year	N	Mean	Standard deviation	<i>Cohen's d</i>
2010	1389	54.81	14.89	0.48
2011	1252	60.88	12.62	
Effect size between 2012 (control) and 2011 (experimental)				
Year	N	Mean	Standard deviation	<i>Cohen's d</i>
2011	1252	60.88	12.62	0.00
2012	740	60.85	15.63	

In relation to the group statistics, the first semester module yielded an effect size of 0.48, measured against the first-time entering students of 2010 (control group). The effect size is described as modest/small. The mean score increased in the experimental group of 2011 (60.88), indicating that the students in the module performed better than the control group of 2010.

The effect size analysis between the control group of 2012 and the experimental group (2011) indicates that no difference was present between the intervention and the influence on the experimental group (0.00). The mean score decreased slightly to 60.8, indicating that the average marks of the students were similar between the control and experimental groups.

**Table 3: Business Management second semester group statistics**

Effect size between 2010 (control) and 2011 (experimental)				
Year	N	Mean	Standard deviation	Cohen's d
2010	1277	55.65	14.88	0.02
2011	999	55.91	14.79	
Effect size between 2012 (control) and 2011 (experimental)				
Year	N	Mean	Standard deviation	Cohen's d
2011	999	55.91	14.79	0.05
2012	266	55.2	16.19	

The effect size between the 2010 (control) and 2011 (experimental) is 0.02. The analysis of the experimental group (2011) and the 2012 control group yielded an effect size of 0.05. Both of these recorded effect sizes are described as very small/weak.

## 2.2 Accounting

### 2.2.1 Introduction to the module

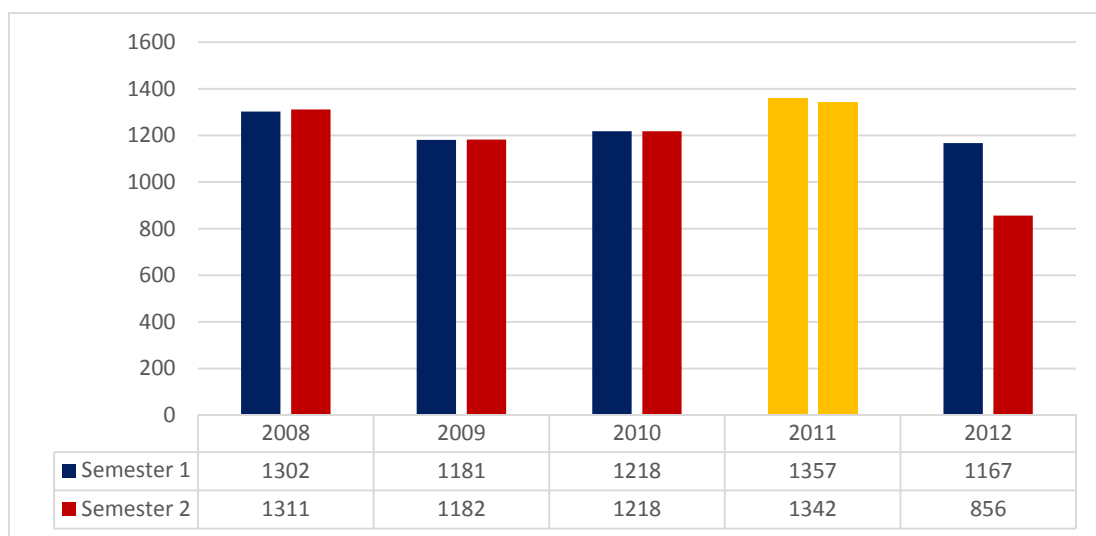
The Accounting modules also reside within the Faculty of Economic and Management Sciences. In both the first and second semester, three main lectures of 50 minutes each were scheduled. The first and second semester Accounting modules were presented by one lecturer. Each of the semester modules accumulated 16 credits. The two semester modules

in Accounting were included because of its consistently high enrolment numbers as well as low modules success rates between 2008 and 2010.

### 2.2.2 Enrolments

As in the case of the Business Management modules, Accounting enrolled more than 1 000 students in each semester. **Error! Reference source not found.** depicts the enrolments for 2008 to 2011.

**Figure 4: Accounting enrolments 2008-2012**



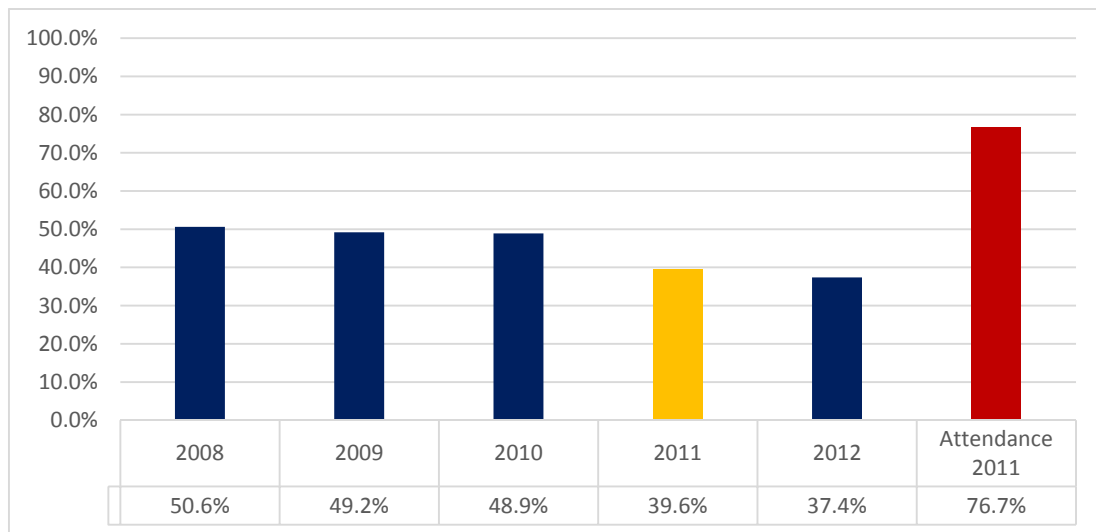
The first semester Accounting module presented enrolments of 1302 (2008), 1181 (2009), 1218 (2010 control group) and 1357 in the experimental year (2011). The second semester mostly followed a similar enrolment pattern with 1311 in 2008, 1182 in 2009, and 1218 in 2010 (control group). The experimental year's enrolment was 1342 (second semester). In the control group of 2012 the second semester enrolments decreased to 856. The significant drop in enrolments in 2012 was due to admission and curricular changes impacting on programmes in the Faculty of Economic and Management Science.

### 2.2.3 Module success rates and attendance data

Accounting did not show an increase in success rates with the implementation of compulsory class attendance in 2011 or after the suspension of the intervention in 2012.

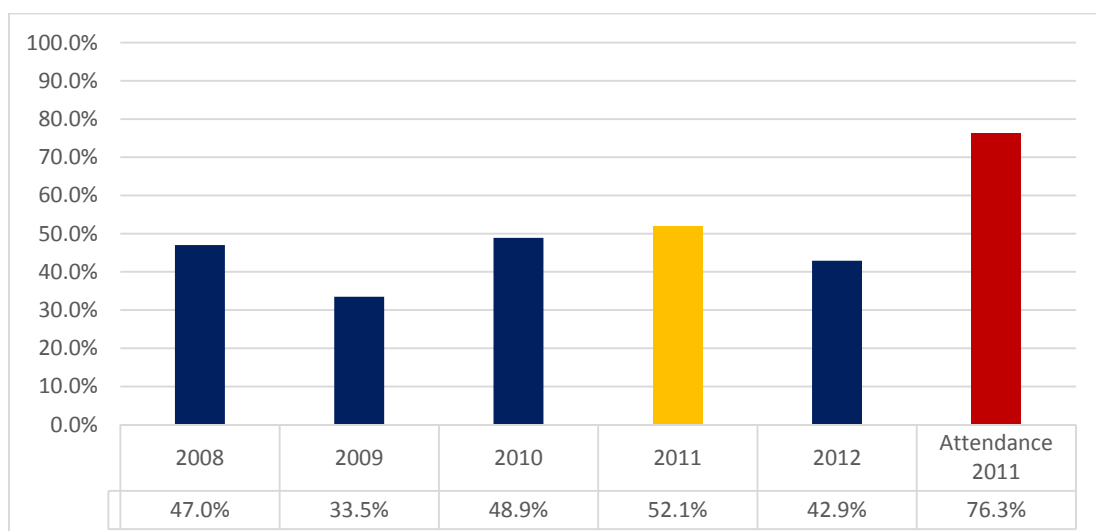


**Figure 5: Accounting first semester module success rates and attendance**



The first semester Accounting module’s performance gradually decreased from 2008 to 2010, dropping slightly from 50.6% (2008) to 49.2% (2009), and 48.9% in 2010 (control). Even though attendance in the module was more than the recommended 75% in the experimental year (2011), the success rate declined from 48.9% (2010 control group) to 39.6% in 2011. The first semester Accounting module showed a further decline in module success rate in 2012 to 37.4% after the intervention was suspended.

**Figure 6: Accounting second semester module success rates and attendance**



The Accounting module presented in the second semester yielded a better result than in the first semester in the experimental year (2011). The module success rate slightly increased,

from 48.9% in 2010 (control) to 52.1% in 2011 (experimental) with an average attendance of 76.3%. However, the module success rate did not yield an increase in success rate in 2012 after the intervention was suspended, declining to 42.9%, 9.2% lower than the second semester of 2011.

#### 2.2.4 Effect size analysis

The Accounting module in the first semester yielded an unsatisfactory result when the experimental group was measured against the control group of 2010 as indicated by the table below.

**Table 4: Accounting first semester group statistics**

Effect size between 2010 (control) and 2011 (experimental)				
Year	N	Mean	Standard deviation	Cohen's <i>d</i>
2010	809	49.69	17.82	-0.27
2011	939	44.72	18.94	
Effect size between 2012 (control) and 2011 (experimental)				
Year	N	Mean	Standard deviation	Cohen's <i>d</i>
2011	939	44.72	18.94	0.24
2012	717	39.81	21.8	

The effect size between the 2010 and 2011 groups indicated a negative result of -0.27. This is described as a modest/small negative result. This means that the mean score achieved by the experimental group was lower than that of the control group of 2010.

The measurement between the experimental group and the control group of 2012 recorded a positive effect size of 0.24. The magnitude of the difference between the two groups is described as modest/small. The mean score decreased from 44.72 in 2011 to 39.81 in 2012.

**Table 5: Accounting second semester group statistics**

Effect size between 2010 (control) and 2011 (experimental)				
Year	N	Mean	Standard deviation	Cohen's <i>d</i>
2010	747	45.74	16.91	0.29
2011	822	51.09	19.39	
Effect size between 2012 (control) and 2011 (experimental)				
Year	N	Mean	Standard deviation	Cohen's <i>d</i>
2011	822	51.09	19.39	0.34
2012	470	44.33	20.26	

The second semester Accounting module yielded positive results in terms of the magnitude of the difference between the control group of 2010, the experimental group, as well as the control group of 2012 and the experimental group. The effect size analysis between the 2010 control and experimental groups is 0.29 and also described as modest/small. The effect size between the experimental and 2012 control groups also presented a modest/small result of 0.34.

## **2.3 Biochemistry**

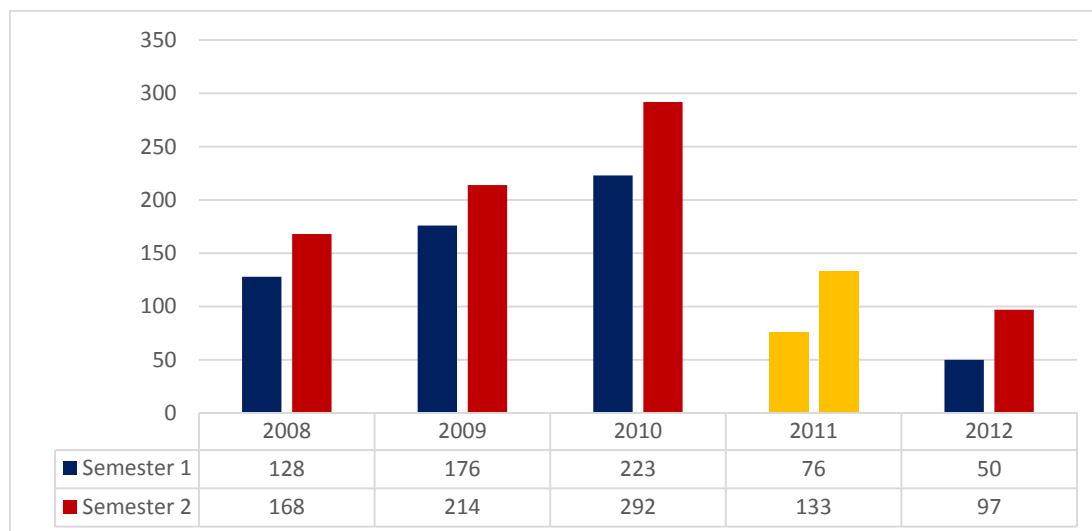
### **2.3.1 Introduction to the module**

Biochemistry resides within the Faculty of Natural and Agricultural Sciences. The main lectures of both the first and second semester modules were divided into two sections, each section presented by a different lecturer. Both semester modules included one main lecture of 50 minutes each. Between 2008 and 2010, the biochemistry modules enrolled both diploma- and degree study students. The second semester module in Biochemistry had consistently lower module success rates (around 50% to 60% average), as well as enrolling student numbers greater than 150 per semester. To ensure that there is consistency in the inclusion of modules, the first semester introductory module was included on the basis that it enrolled larger numbers of students, even though it had shown module success rates greater than 70% over the past few years.

### 2.3.2 Enrolments

Figure 7 provides an overview of the enrolments.

**Figure 7: Biochemistry enrolments 2008-2012**

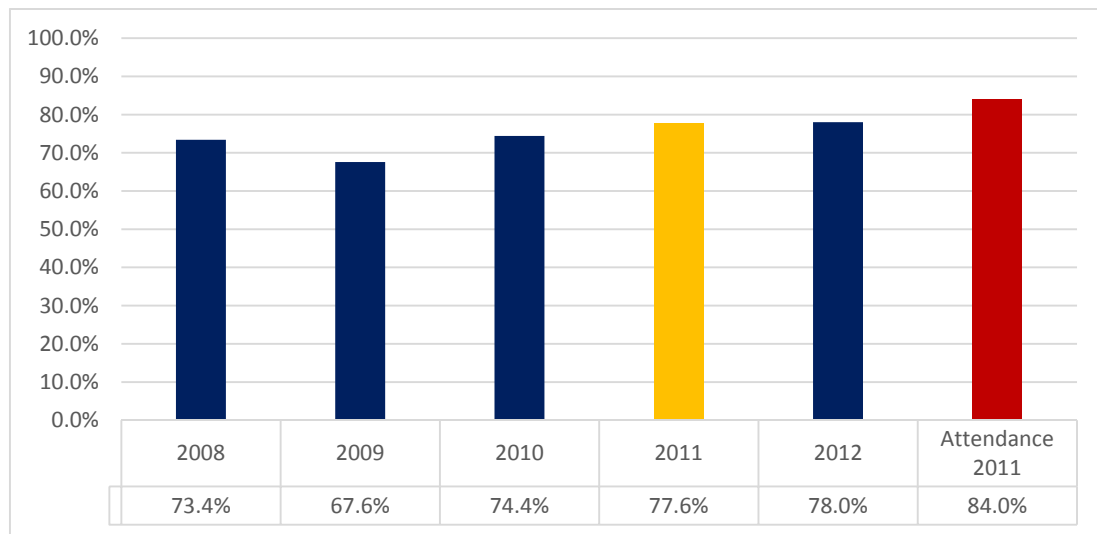


In the first semester module, there was a gradual increase in enrolments from 2008 (128), 2009 (176), and 2010 (223). The enrolments for the experimental group of 2011 showed a decrease to 76 students and further decreasing to 50 in 2012 (control group). The second semester module followed a similar pattern, enrolling 168 in 2008, 214 in 2009, and 292 in 2010. In 2011 (experimental group) the enrolments dropped back to 133 and 97 in 2012 (control group). The enrolment decrease in 2011 and 2012 was due to a decision taken by the Faculty of Natural and Agricultural Sciences to remove this module from the diploma study curriculum.

### 2.3.3 Module success rates and attendance data

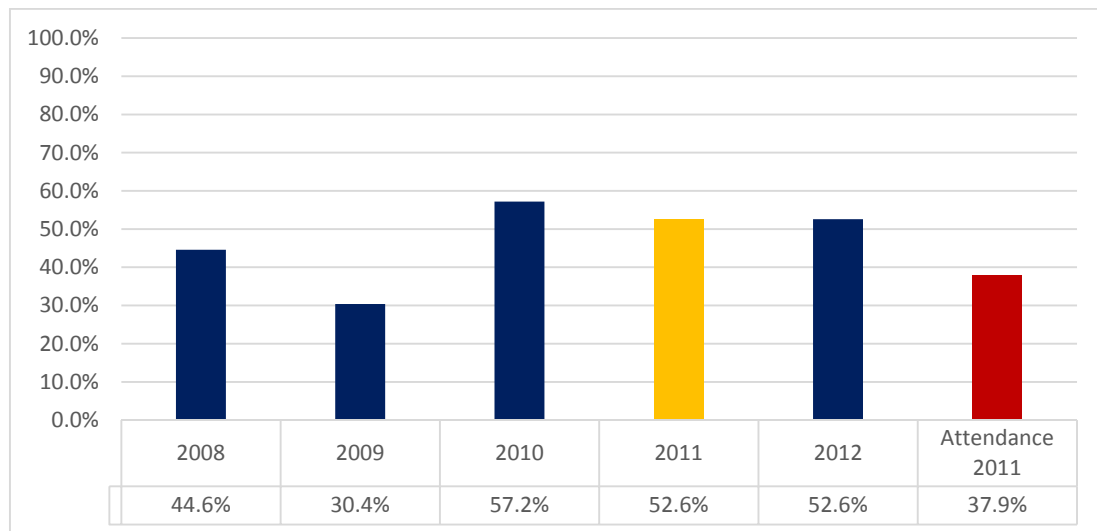
Biochemistry in the first semester performed well over the past few years, but is included in the study on the basis that the second semester module which succeeds it did not perform well.

**Figure 8: Biochemistry first semester module success rates and attendance**



The first semester module had success rates of 73.4% (2008), 67.6% (2009), and 74.4% (2010) respectively. The average attendance in the Biochemistry module in the experimental year was very good, 9% above the required percentage. The module success rate increased to over 75% in the experimental group of 2011 (77.6%), and further increased to 78% in 2012 (control group).

**Figure 9: Biochemistry second semester module success rates and attendance**



The second semester module paints a fairly different picture than that of the first semester. In 2008 and 2009, module success rates were below 50%, presenting rates of 44.6% and 30.4% respectively. The 2010 (control group) module success rate increased to 57.2%. In the

2011 experimental group the module success rate decreased to 52.6% with an average attendance percentage of 37.9%. The module success rate remained at 52.6% in 2012 (control group).

#### 2.3.4 Effect size analysis

The effect size analysis for the two Biochemistry modules yielded two positive and two negative results. The following two tables outline the calculated results.

**Table 6: Biochemistry first semester group statistics**

Effect size between 2010 (control) and 2011 (experimental)				
Year	N	Mean	Standard deviation	Cohen's <i>d</i>
2010	191	55.54	10.50	0.41
2011	51	60.31	15.00	
Effect size between 2012 (control) and 2011 (experimental)				
Year	N	Mean	Standard deviation	Cohen's <i>d</i>
2011	51	60.31	15.00	-0.20
2012	41	63.15	12.81	

The magnitude of the difference between the control group of 2010 and the experimental group was calculated as modest/small (0.41). The mean score of the experimental group increased to 60.31 opposed to the control group (2010) at 55.54.

After the intervention was suspended, the effect size was recorded at -0.20, described a very weak/small negative effect. The mean score of the 2012 control group increased from 60.31 to 63.15, indicating that the students in this group's average performance were better than those in the experimental group (2011).

**Table 7: Biochemistry second semester group statistics**

Effect size between 2010 (control) and 2011 (experimental)				
Year	N	Mean	Standard deviation	Cohen's <i>d</i>
2010	186	48.85	10.93	0.29
2011	55	52.09	11.31	
Effect size between 2012 (control) and 2011 (experimental)				
Year	N	Mean	Standard deviation	Cohen's <i>d</i>
2011	55	52.09	11.31	-0.04
2012	66	52.55	14.14	

The second semester module yielded a modest/small effect size (0.29) when the experimental group was measured against the 2010 control group. The experimental group's average performance was better than that of the 2010 control group, presenting a mean score of 52.09 in 2011 against 48.85 in 2010.

The mean score difference between the experimental group and the 2012 control group is only 0.46, indicating a similar average performance between the two groups. The effect size is -0.04, described as very weak/small negative difference between the two groups.

## **2.4 Mathematics**

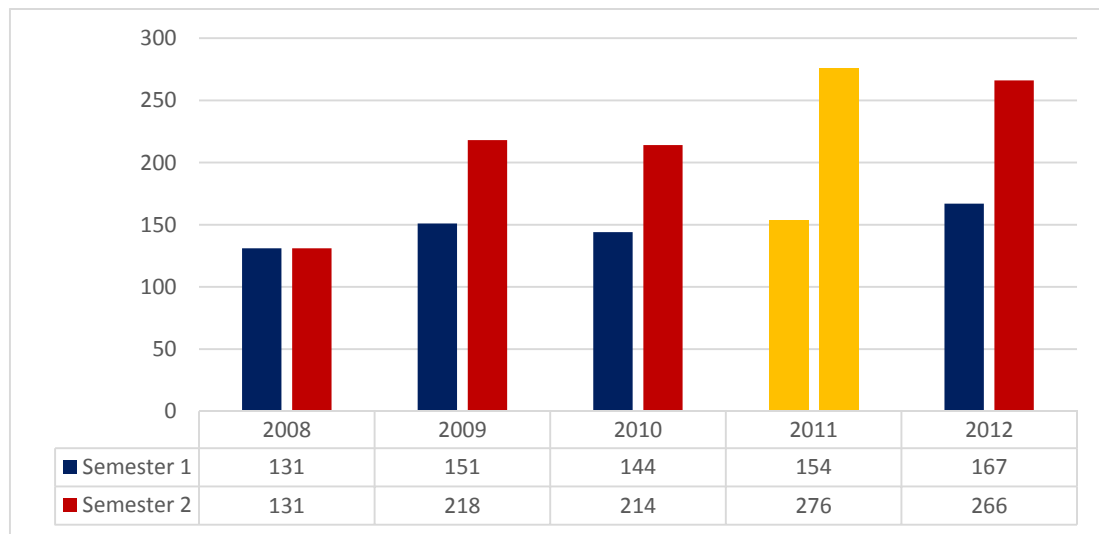
### **2.4.1 Introduction to the module**

The modules offered in Mathematics forms part of the Faculty of Natural and Agricultural Sciences' programmes. The first and second semester main lectures were taught by two different lecturers. Three main lectures of 50 minutes each were included in both semesters. The two modules were selected fitting both inclusion criteria, i.e. enrolments greater than 150 as well as having success rates lower than 50% between 2008 and 2010.

### **2.4.2 Enrolments**

Enrolments over the past few years in the Mathematics modules are depicted below.

**Figure 10: Mathematics enrolments 2008-2012**



First semester enrolments over the illustrated period were steady, consistently in and around 150. Enrolments were recorded at 131 (2008), 151 (2009), and 144 (2010 control group). The experimental year had 154 students enrolled in the module. In the control group of 2012 the enrolments further increased to 167.

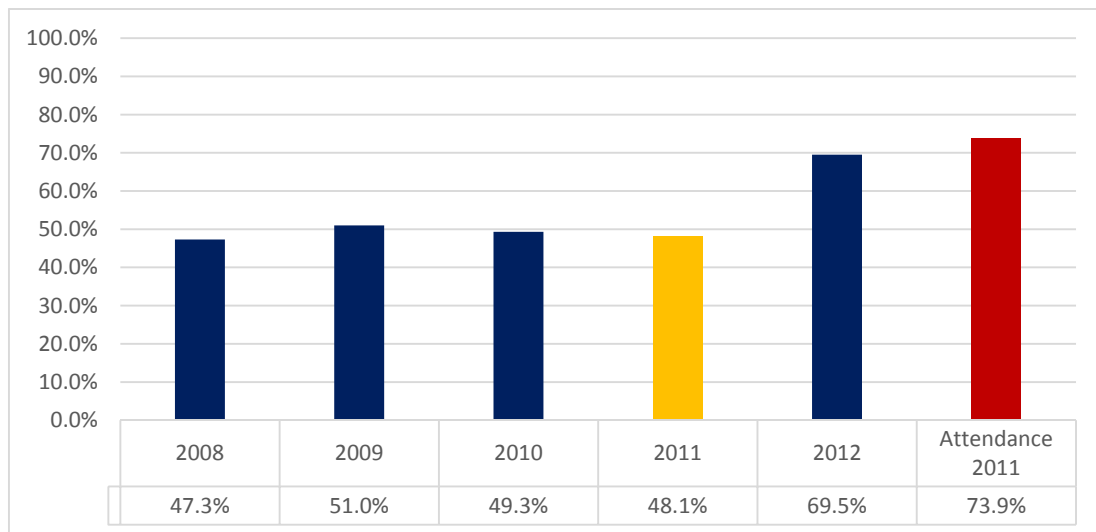
Second semester enrolment increased significantly, enrolling more than double the number of students in the experimental year (276) than in 2008 (131). In 2009 and 2010, enrolments were 218 and 214 respectively. Enrolments for the control group of 2012 were recorded at 266.

### 2.4.3 Module success rates and attendance data

The two Mathematics modules had dismal module success rates over the past few years.

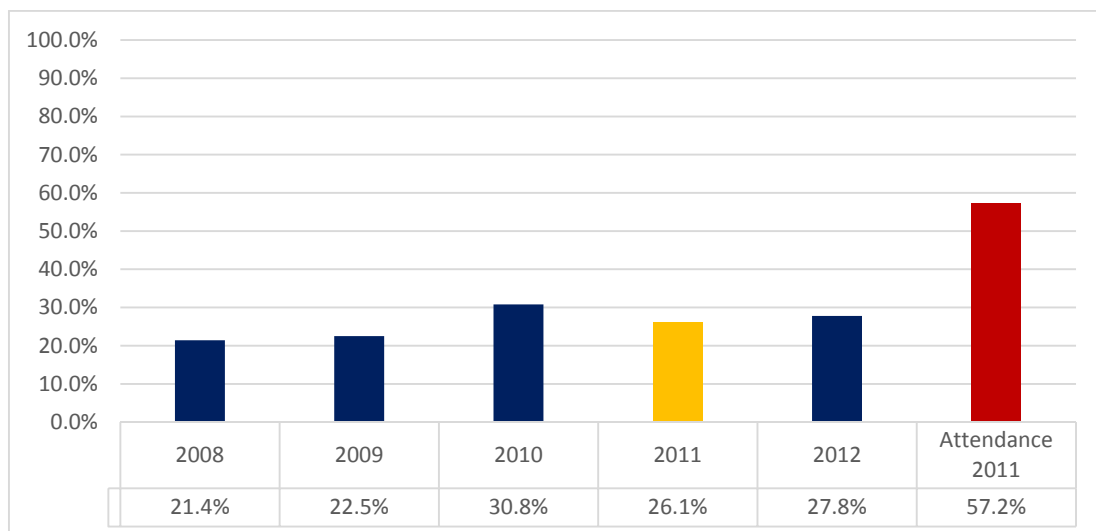


**Figure 11: Mathematics first semester module success rates and attendance**



The success rates for 2008 and 2009 were 47.3% and 51.9% respectively. Even with a recorded attendance percentage of 73.9% in the experimental year (2011), the module success rate was another percentage less in 2011 (48.1%) than in 2010 (49.3%). After the intervention was suspended, the module success rate was 69.5%. The admission criteria in relation to the first semester Mathematics module changed in 2012.

**Figure 12: Mathematics second semester module success rates and attendance**



The findings in the second semester Mathematics module perpetuate the low performance in the first semester. Success rates presented between 2008 and 2010 were 21.4% (2008), 22.5% (2009) and 30.8% (2010) respectively. There was a decline of more than 4% in the

module success rate in the experimental group of 2011 (26.1%), alongside a below average attendance percentage of 57.2%. A small upward movement was observed in the control group of 2012, increasing the module success rate by 1.7% to 27.8%.

#### 2.4.4 Effect size analysis

The effect size analysis did not yield desirable results in either of the two semesters.

**Table 8: Mathematics first semester group statistics**

Effect size between 2010 (control) and 2011 (experimental)				
Year	N	Mean	Standard deviation	Cohen's <i>d</i>
2010	98	48.81	21.90	0.05
2011	117	49.83	17.85	
Effect size between 2012 (control) and 2011 (experimental)				
Year	N	Mean	Standard deviation	Cohen's <i>d</i>
2011	117	49.83	17.85	-0.24
2012	122	54.14	18.48	

The effect size between the 2010 control and 2011 experimental groups is 0.05. This indicates a very weak/small effect. The mean score increased with 1.02, to 49.83 in the experimental year (2011).

A negative effect size between 2012 (control) and 2011 (experimental) groups was calculated, described as modest/small negative result (-0.24). Students' average performance increased after the suspension of the intervention in 2012, from 49.83 (2011) to 54.14 (2012), (see mean scores in table 10 above).

**Table 9: Mathematics second semester group statistics**

Effect size between 2010 (control) and 2011 (experimental)				
Year	N	Mean	Standard deviation	Cohen's <i>d</i>
2010	116	39.36	20.04	-0.28
2011	180	34.04	18.29	
Effect size between 2012 (control) and 2011 (experimental)				
Year	N	Mean	Standard deviation	Cohen's <i>d</i>
2011	180	34.04	18.29	-0.23
2012	154	38.02	16.18	

The second semester Mathematics module performed even worse in the experimental year against both control groups. The effect size between 2010 (control) and 2011 (experimental) is -0.28 and -0.23 (between the experimental and 2012 control groups), both described as a modest/small negative results.

## 2.5 Political Science

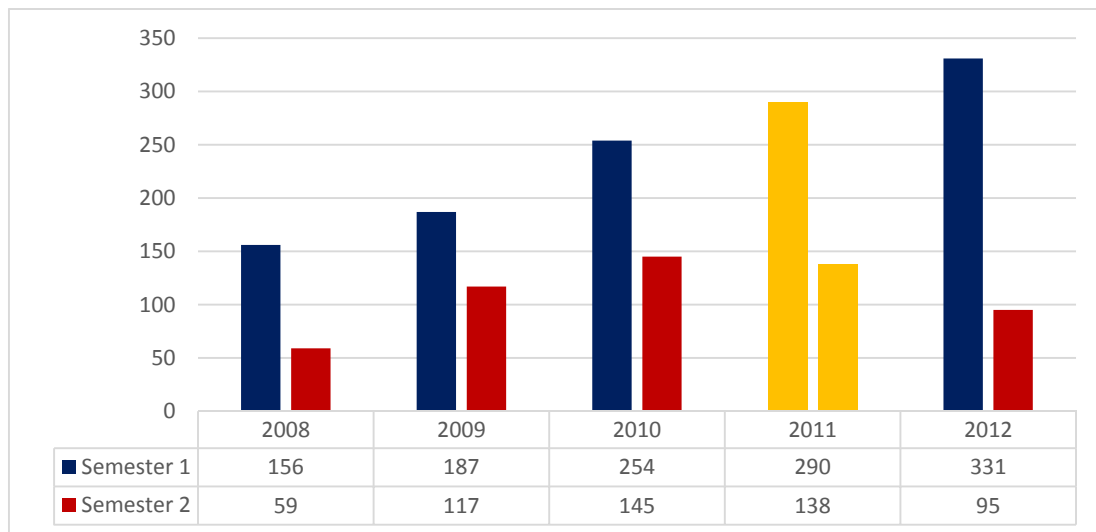
### 2.5.1 Introduction to the module

Political Science is part of the programmes offered by the Faculty of the Humanities, the largest faculty at the UFS. The main lectures in the two semesters were taught by two different teaching academics. The second semester modules presented dismal success rates between 2008 and 2010. To ensure consistency in the inclusion of the module, its first semester predecessor, which had enrolment numbers greater than 150, were also included in the case study.

### 2.5.2 Enrolments

The enrolments in the two semester modules follow in **Error! Reference source not found..**

**Figure 13: Political Science enrolments 2008-2012**



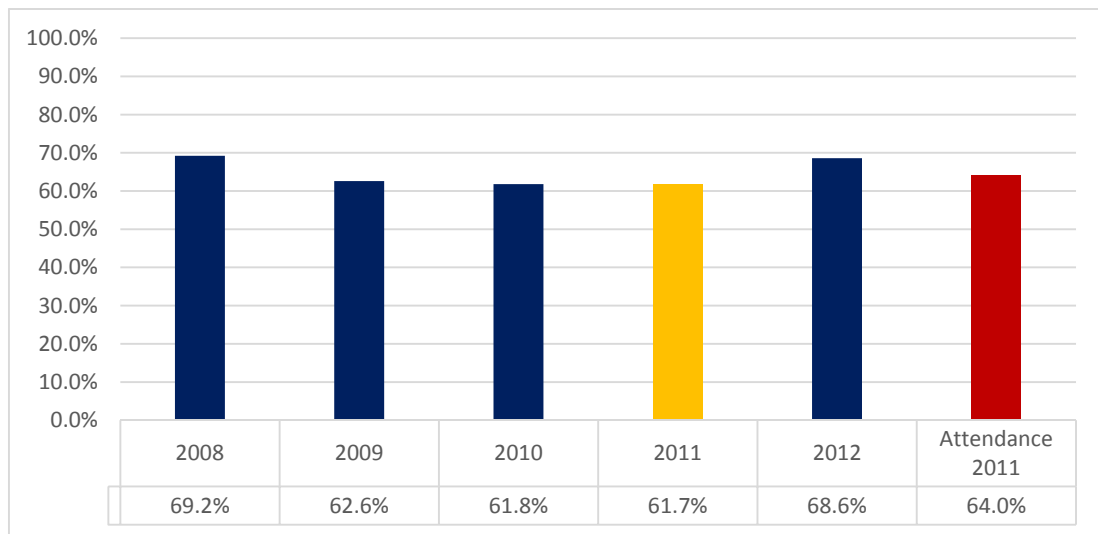
Enrolments grew from 156 in 2008, 187 in 2009 to 254 in 2010 (control group). There was an enrolment of almost 300 in the first semester of the 2011 experimental group (290). Breaking the 300 mark in the control group of 2012, 331 students enrolled for the module.

The second semester enrolments varied across the years, offering the module to 59 in 2008, 117 in 2009 and 145 in 2010 respectively. In 2011 experimental group, 139 students enrolled for the module and 95 in 2012 control group.

### **2.5.3 Module success rates and attendance data**

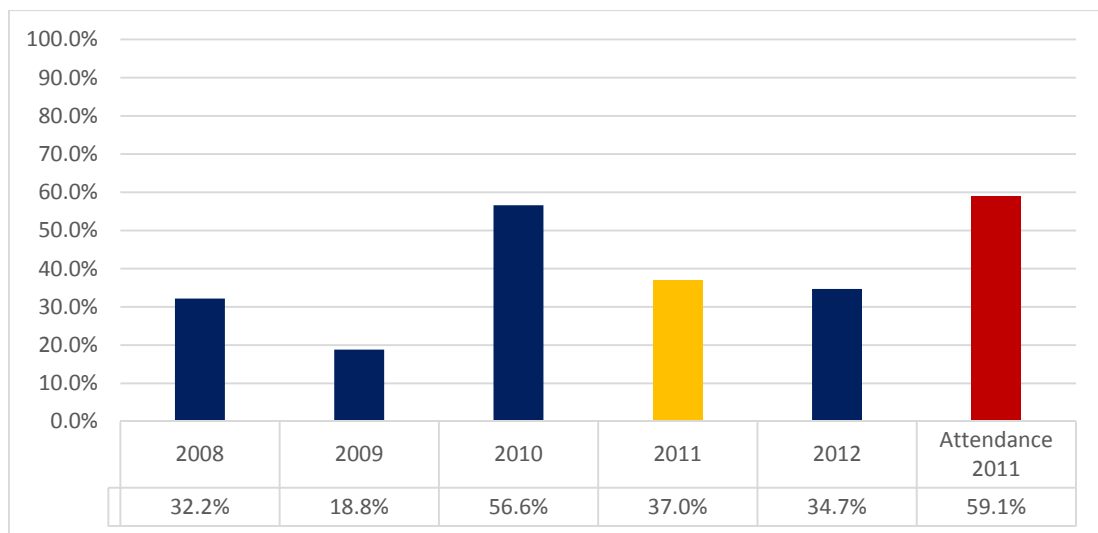
As with the case of Biochemistry, Political Science in the first semester was included due to the fact that the second semester module performed dismally. Overall, the first semester module in Political Sciences performed at an average rate and had an average attendance percentage in the experimental year (2011) (see Figure 14).

**Figure 14: Political Science first semester module success rates and attendance**



A consistent performer, the module presented in the first semester yielded success rates of 69.2% (2008), 62.6% (2009), 61.8% (2010) and 61.7% (2011) respectively. The attendance average for this module was 64% during the experimental year. In the 2012 control group, the module success rate increased to 68.6%.

**Figure 15: Political Science second semester module success rates and attendance**



In 2008 and 2009, the success rates were very low, 32.2% and 18.8% respectively. In the control group of 2010 an upward trend was indicated, yielding a success rate of 56.6%, but dropped back to 37% in the experimental year (2011). The average attendance percentage

was not particularly high in the experimental year (59.1%). After the intervention was suspended, the module success rate of 2012 further declined to 34.7%.

#### 2.5.4 Effect size analysis

The following two tables describe the effects sizes yielded for the two Political Science modules.

**Table 10: Political Science first semester group statistics**

Effect size between 2010 (control) and 2011 (experimental)				
Year	N	Mean	Standard deviation	Cohen's <i>d</i>
2010	211	54.02	17.60	-0.04
2011	240	53.41	14.21	
Effect size between 2012 (control) and 2011 (experimental)				
Year	N	Mean	Standard deviation	Cohen's <i>d</i>
2011	240	53.41	14.21	0.09
2012	282	52.04	15.72	

In the analysis of the effect size between 2010 (control) and 2011 (experimental) groups, as well as the 2012 (control) and 2011 (experimental) groups, the magnitude of the difference between the groups is very weak/small in both cases. The experimental group and 2010 control group effect size calculation is -0.04, described as a very weak/small negative result. The effect size calculated for the experimental group and the control group of 2012 is 0.09, described as a very weak/small effect.

**Table 11: Political Science second semester group statistics**

Effect size between 2010 (control) and 2011 (experimental)				
Year	N	Mean	Standard deviation	Cohen's <i>d</i>
2010	113	46.35	18.96	-0.05
2011	89	45.54	14.03	
Effect size between 2012 (control) and 2011 (experimental)				
Year	N	Mean	Standard deviation	Cohen's <i>d</i>
2011	89	45.54	14.03	0.60
2012	46	35.93	19.23	

The effect size between the 2010 control and 2011 experimental group was calculated as -0.05. This is described as a very weak/small negative effect. There was a small difference in the mean score of the 2010 control group (46.35) and the means score of the experimental group (45.54).

The control group of 2012 had a mean score of 35.93, 9.61 less than the experimental group. The effect size is 0.60, described as a moderate/large effect.

## 2.6 English

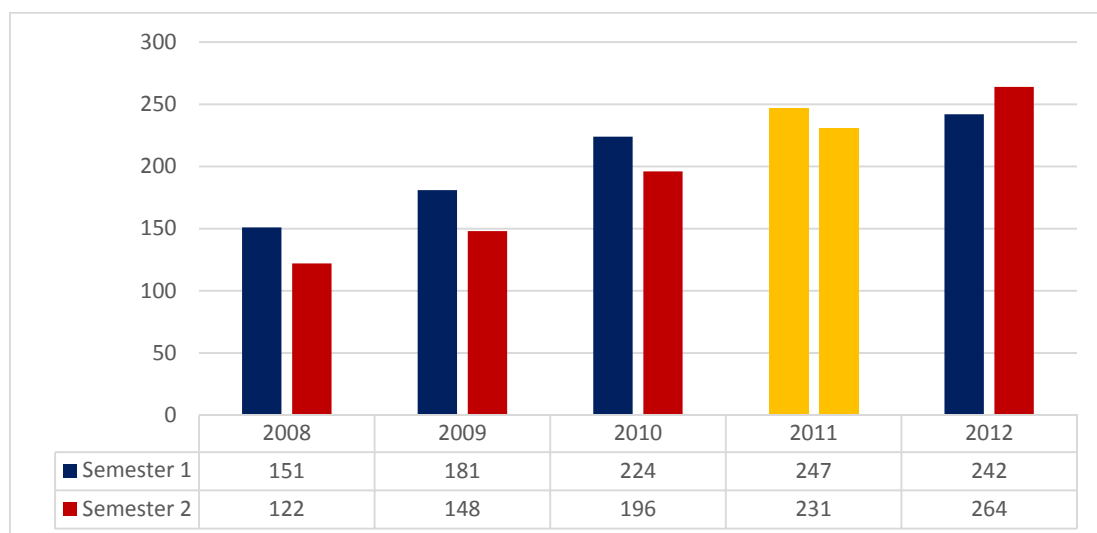
### 2.6.1 Introduction to the module

Also part of the programme offering of the Faculty of the Humanities, the two English modules presented in this case study enrolled a fair number of students each year. Three teaching academics presented the first semester main lectures and only one taught the second semester module. These modules include two main lectures each week in both semesters. The modules were included because they adhered to the set criteria of large enrolment numbers and low performance between 2008 and 2010.

### 2.6.2 Enrolments

The following figure provides an outline of the number of enrolments of each year for each of the semesters.

**Figure 16: English enrolments 2008-2012**



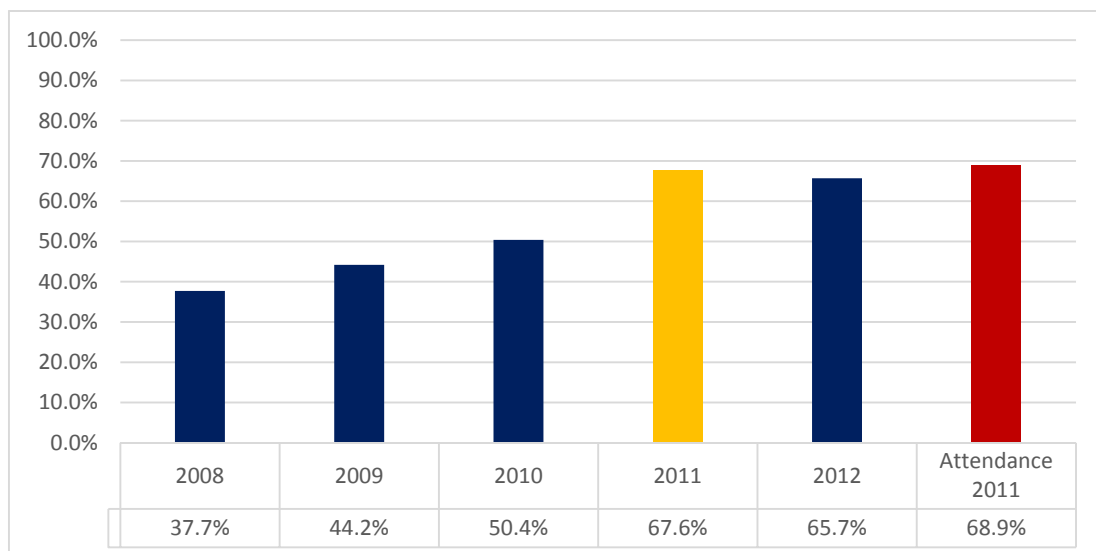
The first semester English module showed a steady increase in enrolments each year, with the highest number of enrolments recorded in the experimental group of 2011 (247). The years 2008 to 2010 enrolled 151, 181, and 224 consecutively. In the 2012 control group, the module enrolments were 242.

The second semester enrolments showed similar trends than that of the first semester module. Each year, enrolments increased, from 122 in 2008, 148 in 2009 to 196 in 2010 respectively. The enrolments for 2011 (experimental group) and 2012 (control group) increased to 231 and 264.

### 2.6.3 Module success rates and attendance data

The success rates of the first semester module showed a gradual increase each year.

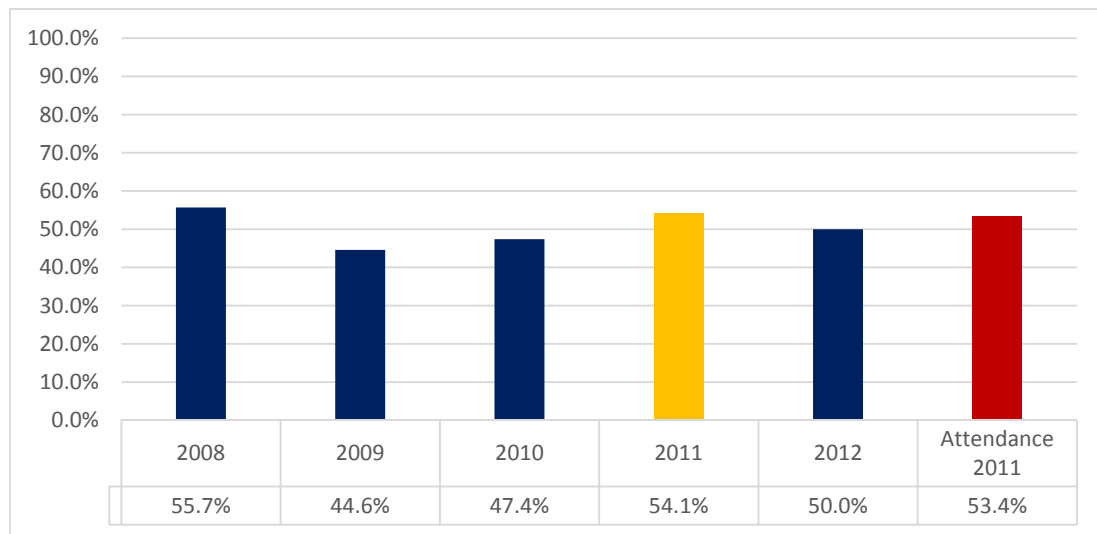
**Figure 17: English first semester module success rates and attendance**



In 2008, the module started off with a module success rate of 37.7%, increasing to 44.2% in 2009. In 2010 (control group), the module success rate further increased to 50.4%, presenting a 17.2% increase in 2011 experimental group to 67.6%. The experimental year had an attendance percentage of 68.9%, slightly below the required percentage.



**Figure 18: English second semester module success rates and attendance**



The second semester English module had slightly lower success rates than the first semester module. The successive years presented module success rates of 55.7% (2008), 44.6% (2009), and 47.4% (2010). In the 2011 experimental group the success rate increased with 7.7% to 54.1%. The class attendance average for the same year was recorded at 53.4%, lower than the average of the first semester. After the intervention was suspended the success rate dropped back to 50% (2012).

#### 2.6.4 Effect size analysis

Both first and second semester modules presented in English yielded positive effect sizes.

**Table 12: English first semester group statistics**

Effect size between 2010 (control) and 2011 (experimental)				
Year	N	Mean	Standard deviation	Cohen's d
2010	175	51.42	14.97	0.43
2011	186	57.47	13.09	
Effect size between 2012 (control) and 2011 (experimental)				
Year	N	Mean	Standard deviation	Cohen's d
2011	186	57.47	13.09	0.19
2012	204	54.70	15.31	

The control group of 2010 and the experimental group yielded an effect size of 0.43. This is described as a modest/small effect size. The experimental group (2011) managed to increase the mean score to 57.47 from 51.42 measured in the control group of 2010.

Calculating the effect size between the control group of 2012 and the experimental group, the result is described as weak/very small (0.19). The 2012 control group had a lower mean score than that of the experimental group (57.47 in 2011 and 54.70 in 2012).

**Table 13: English second semester group statistics**

Effect size between 2010 (control) and 2011 (experimental)				
Year	N	Mean	Standard deviation	Cohen's <i>d</i>
2010	135	50.01	13.39	0.14
2011	160	51.89	13.08	
Effect size between 2012 (control) and 2011 (experimental)				
Year	N	Mean	Standard deviation	Cohen's <i>d</i>
2011	160	51.89	13.08	0.35
2012	198	46.65	16.01	

The second semester module in English also presented positive effect sizes. Cohen's *d* equalled 0.14 in the analysis of the 2010 control group and the 2011 experimental group. This is described as a very weak/small effect.

Measuring the control group of 2012 against the experimental group, the effect size is 0.35. The magnitude of the difference between the two groups is described as modest/small. The difference in the mean scores is 5.24, indicating that the experimental group (2011) had a better average performance than the 2012 control group.

## 2.7 Sociology

### 2.7.1 Introduction to the module

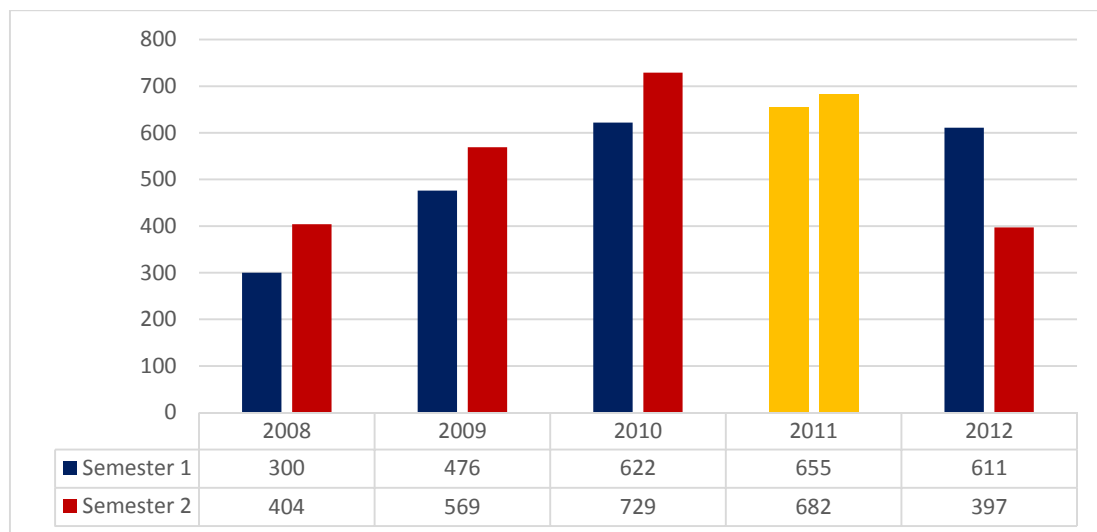
The Sociology modules also forms part of the programme offering of the Faculty of the Humanities. Two teaching academics taught these modules in the respective semesters. Main lectures were scheduled three times weekly in each semester. Inclusion of these two

modules was based on high enrolment numbers as well as low module success rates between 2008 and 2010.

### 2.7.2 Enrolments

Enrolments increased every year between 2008 and 2010. The following figure presents the enrolment trends in the two Sociology modules.

**Figure 19: Sociology enrolments 2008-2012**



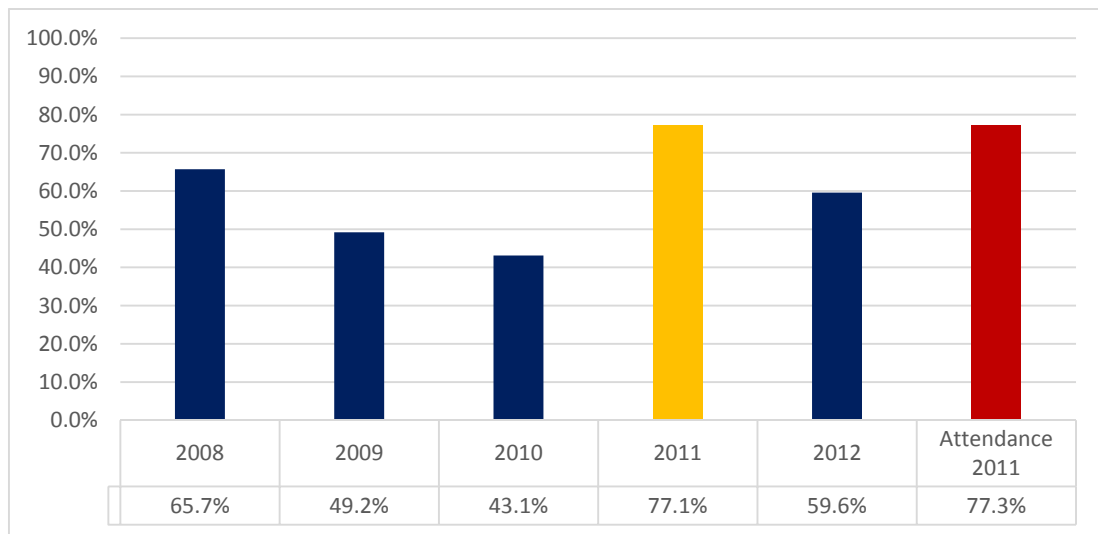
Enrolments for the first semester module more than doubled between 2008 (300) and the experimental year of 2011 (655). In 2009, 476 students enrolled for the module, followed by 622 enrolments in 2010. The control group of 2012 had an enrolment of 611 students.

The second semester module enrolments fluctuated. In 2008, 404 students enrolled for the module, followed by 569 in 2009, and 729 in 2010 (control group) and 682 in 2011 (experimental group). In 2012 (control group) the enrolments declined again to 397.

### 2.7.3 Module success rates and attendance data

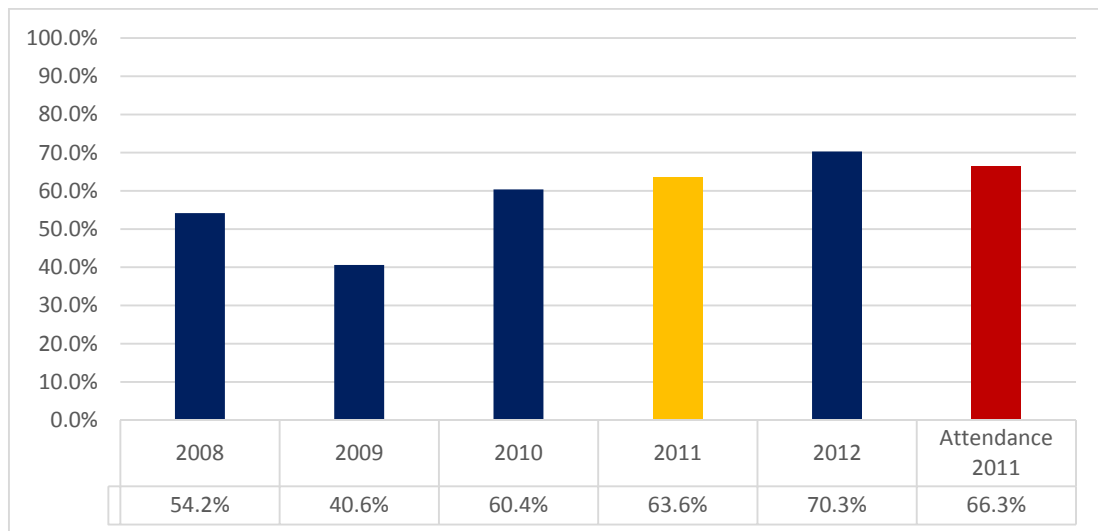
The following figures indicate the modules success rates in the Sociology modules over the past few years.

**Figure 20: Sociology first semester module success rates and attendance**



The module success rate started off well in 2008 at 65.7%, declining to 49.2% in 2009. The module success rate of Sociology increased from 43.1% in 2010 (control group) to 77.1% in 2011 (experimental group). The average attendance percentage was also above the minimum requirement of 75% at 77.3% in the experimental year. The module success rate declined again to 59.6% in 2012 (control group).

**Figure 21: Sociology second semester module success rates and attendance**



The second semester Sociology module had fluctuating success rates, ranging from 54.2% in 2008 to 40.6% in 2009, significantly increasing in 2010 (control group) to 60.4%. The module

success rate further increased in 2012 after the intervention was suspended, from 63.6% in 2011 (experimental group) to 70.3%.

#### 2.7.4 Effect size analysis

The following tables provide the effect sizes for the Sociology modules.

**Table 14: Sociology first semester group statistics**

Effect size between 2010 (control) and 2011 (experimental)				
Year	N	Mean	Standard deviation	Cohen's <i>d</i>
2010	443	47.77	15.13	0.86
2011	485	59.65	12.42	
Effect size between 2012 (control) and 2011 (experimental)				
Year	N	Mean	Standard deviation	Cohen's <i>d</i>
2011	485	59.65	12.42	0.24
2012	531	55.53	20.41	

The effect size recorded for the 2010 control and the 2011 experimental groups is 0.86. The magnitude of the difference between the control group of 2010 and the experimental group is described as strong/very large. The mean score for the experimental group was recorded at 59.65, opposed to the mean score of the 2010 control group of 47.77. The experimental group's average performance was better than that of the control group.

When measuring the experimental group against the control group of 2012, a modest/small result is also yielded, with an effect size of 0.24. The mean score of the 2012 control group dropped back slightly to 55.53 after the intervention was suspended.

**Table 15: Sociology second semester group statistics**

Effect size between 2010 (control) and 2011 (experimental)				
Year	N	Mean	Standard deviation	Cohen's <i>d</i>
2010	514	56.43	15.26	0.00
2011	545	56.43	15.22	
Effect size between 2012 (control) and 2011 (experimental)				
Year	N	Mean	Standard deviation	Cohen's <i>d</i>
2011	545	56.43	15.22	-0.14
2012	545	58.63	16.43	

In the second semester Sociology module, Cohen's *d* was calculated as 0.00 (2010 control group and the 2011 experimental group) and -0.14 (2011 experimental group and 2012 control group). No difference was recorded between the control group of 2010 and the experimental group. The 2011 experimental group and 2012 control group effect size is described as a very weak/small negative result.

## 2.8 Marketing

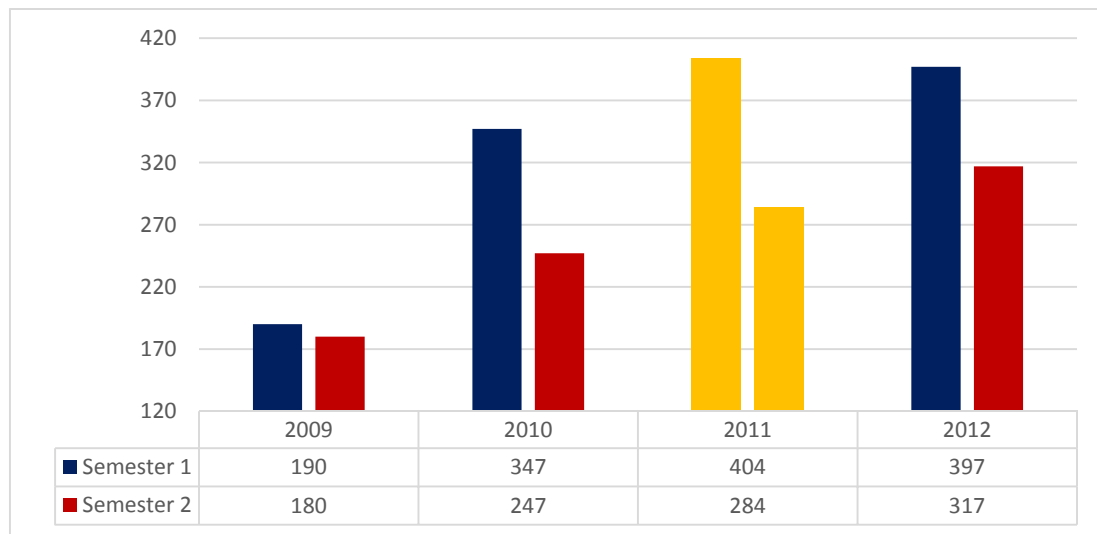
### 2.8.1 Introduction to the module

The Marketing module only came into the system in 2009 after a revision of the curriculum. The module was revisited and sections of other modules presented in the Faculty of the Humanities were included into these two modules. Different lecturers presented the main lectures of two Marketing modules. These two modules were average performers but enrolment numbers increased each year since their inception in 2009.

### 2.8.2 Enrolments

Below, two figures show the increases experienced per module during the period 2008 to 2011.

**Figure 22: Marketing enrolments 2009-2012**



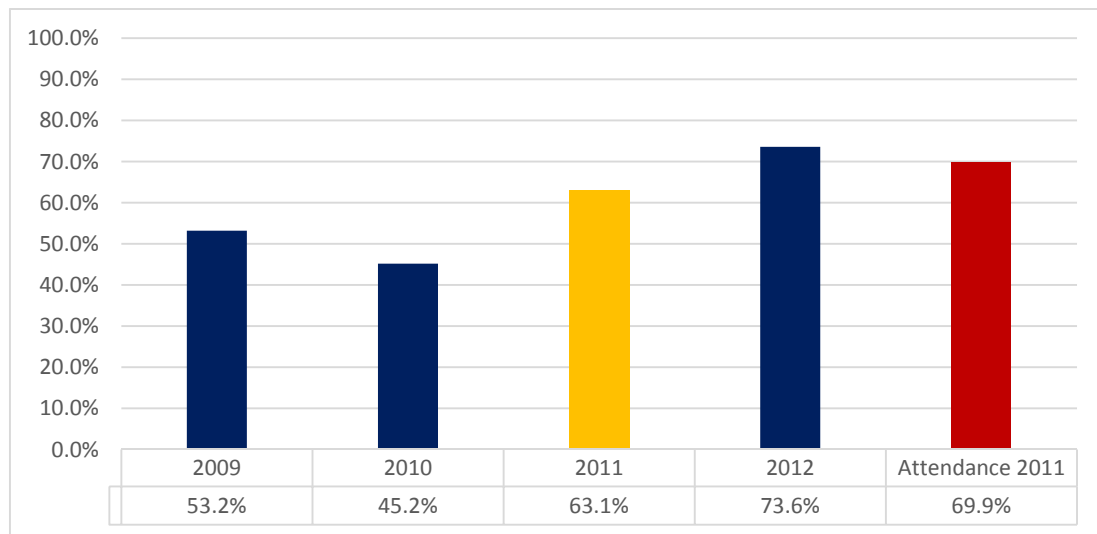
The first semester module in Marketing of 2011 (experimental group) recorded the highest enrolment number (404 students). Starting off with only 190 students in 2009, an increase was logged in 2010 (control group), to 347 students. In the 2012 control group, 397 students enrolled for the module.

The second semester showed an increasing pattern as well. The module first rolled out in 2009 with 180 students, increasing to 247 in 2010 (control group). The experimental year enrolled 284 students, further increasing in 2012 (control group) to 317 students.

### **2.8.3 Module success rates and attendance data**

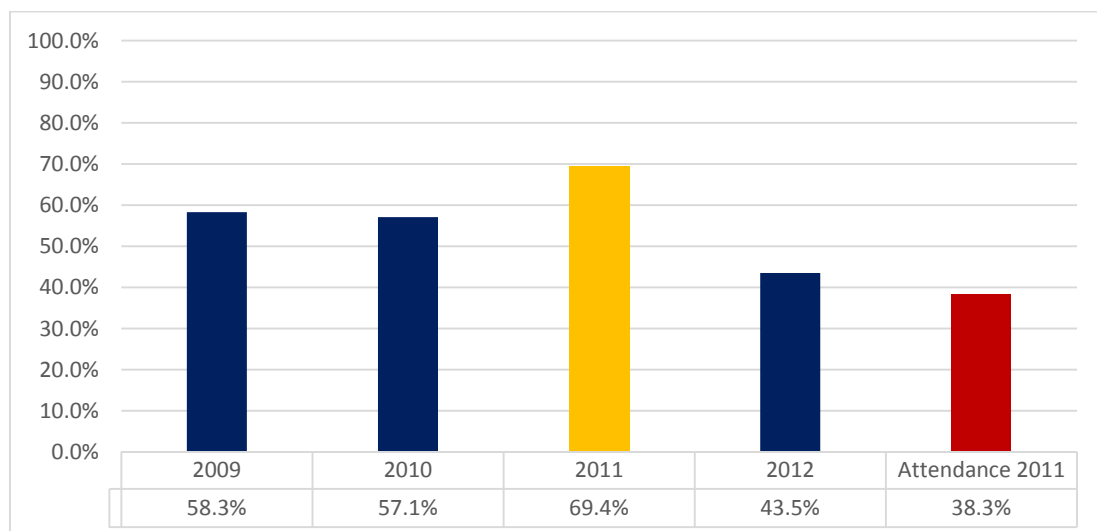
The following figures represent the modules' success rates and attendance of the respective semesters.

**Figure 23: Marketing first semester module success rates and attendance**



Marketing began in the first semester with a success rate of 53.2% (2009), followed by a success rate of 45.2% (2010) in its second year of offering. Even though the attendance percentage is below the required 75% in the 2011 experimental year, the module success rate showed an increased from 45.2% in 2010 (control group) to 63.1% in 2011. The module continued to perform better in 2012 after the intervention was suspended, increasing its success rate by another 10.5% to 73.6%.

**Figure 24: Marketing second semester module success rates and attendance**



The second semester Marketing module had a success rate of 58.3% in 2009, followed by 57.1% in 2010 (control group). The module success rate increased with 12.3% in the



experimental year (2011) to 69.4%, even with an attendance average of 38.3%. The module success rate dropped back to 43.5% after the intervention was suspended (2012).

#### 2.8.4 Effect size analysis

The effect size results are discussed below.

**Table 16: Marketing first semester group statistics**

Effect size between 2010 (control) and 2011 (experimental)				
Year	N	Mean	Standard deviation	Cohen's d
2010	270	48.55	13.68	0.42
2011	298	55.17	17.48	
Effect size between 2012 (control) and 2011 (experimental)				
Year	N	Mean	Standard deviation	Cohen's d
2011	298	55.17	17.48	-0.41
2012	323	62.29	17.20	

The first semester Marketing module presented a modest/small effect size of 0.42 in the calculation of the 2010 control and 2011 experimental groups.

A different result was yielded when the experimental group was measured against the control group of 2012. The effect size is -0.41, described as a modest/small negative effect. The mean score for the 2012 control group was 62.29, a 7.12 higher average performance than the experimental group.

**Table 17: Marketing second semester group statistics**

Effect size between 2010 (control) and 2011 (experimental)				
Year	N	Mean	Standard deviation	Cohen's d
2010	165	58.87	12.11	-0.13
2011	239	56.91	16.40	
Effect size between 2012 (control) and 2011 (experimental)				
Year	N	Mean	Standard deviation	Cohen's d
2011	239	56.91	16.40	0.76
2012	270	44.59	15.91	

The mean score differed between the control group of 2010 (58.87) and the experimental group (56.91). Cohen's *d* was calculated at -0.13, indicating a very weak/small negative effect. The experimental group had a lower average performance than that of the control group of 2010.

When calculating the effect size between the experimental group and the control group of 2012, the effect size is described as moderate/large (0.76). The mean score declined to 44.59 in 2012, indicating that the average performance went down after the intervention was suspended.

### **3 Case study data: Students' and teaching academics' experiences**

The second phase to this study included experiences of students and teaching academics an analysis of the interviews conducted with the thirteen participating lecturers of the modules included in this case study. The purpose for including a qualitative analysis in this dissertation is to enrich and provide depth to the case study. As discussed in chapter three, the advantage of using a mixed methods approach aside from complimenting a pragmatic approach is that both quantitative and qualitative data are used to better understand the research problem (Creswell, 2009, p. 11). This notion, as previously mentioned, supported by Mouton (2008) and Cohen, Manion, and Morrison (2005) alluding that this approach tends to provide a better understanding of the problem at hand and provides some depth to the findings presented by the research.

#### **3.1 Students' experiences**

To identify the students' experiences towards the compulsory class attendance idea, a survey was conducted online. This survey was created using the institutional web survey system and placed on the student portal<sup>11</sup>. When students who were enrolled in the eight modules presented in this case study logged on to the student portal, a pop-up message requesting them to complete this survey. Participation was voluntary.

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<sup>11</sup> The student portal on the UFS web (also known as KovsieLife) is an electronic platform created for students to keep in touch with campus life, their university accounts and records.

The survey firstly addressed experiences towards attending class and then reformulated to address experiences towards not attending class. The survey posed the following list of questions:

I attend my classes/lectures because:

- a) A class attendance of 75% is compulsory to write exam.
- b) A large number of unannounced tests are written in class.
- c) The discussions in class are very stimulating.
- d) I liked the way in which the lecturer presents the classes.
- e) Useful tips about tests and the exam are given in class.
- f) The group work in class helps me to better understand the work.
- g) The lectures help me to better understand the work.
- h) The academic environment at KOVSIES motivates me to attend classes.
- i) I believe that class attendance will help me to perform better academically.

I do not attend my classes/lectures because:

- a) I was really sick.
- b) Had too many other important things to do.
- c) Had to work to earn money.
- d) Classes clashed with those of another module.
- e) Classes were boring.
- f) I do not like the lecturer.
- g) I do not like the subject/module.
- h) The time of the day (e.g. 07:00 or 17:00) did not suit me.
- i) I can get hold of the content of the lectures electronically on Blackboard.
- j) I can pass without attending classes.
- k) Attending classes is a waste of time.
- l) The classes are just before a test/exam.
- m) There is too long a break between one class and another.

The structured questionnaire used a Likert Scale to address students' experiences towards compulsory class attendance, framing the questions both positively and negatively. The

survey only ran online for one week. It was available to all 5 161 students in the cohort in semester 1 of 2011. A total of 2013 students completed the survey, a 39% response rate. The following paragraphs provide an overview of the responses from the questionnaire. The responses are grouped to keep similar and related questions together, starting with the reasons why students attend classes, followed by the reason why they do not attend classes.

*I attend my classes/lectures because: A class attendance of 75% is compulsory to write exam.*

Since this questionnaire was administered to the group of students enrolled in the modules under the compulsory class attendance project, it was interesting that 760 (38%) of the 2013 respondents replied “no” to the question. The other 62% of respondents indicated that they attended because of the compulsory attendance requirement.

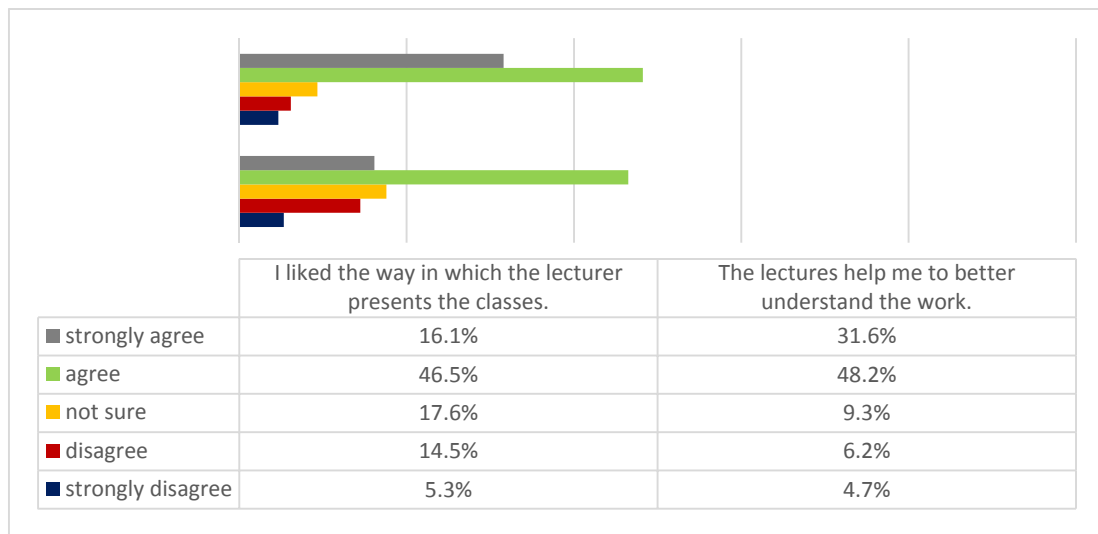
*I attend my classes/lectures because: The academic environment at KOVSIES motivates me to attend classes.*

Of the 2013 total number of respondents, 849 (42.2%) felt that the UFS environment motivates them to attend class.

*I attend my classes/lectures because: I liked the way in which the lecturer presents the classes and the lectures help me to better understand the work.*

The following figures depict the responses by students in relation to the lecturer.

**Figure 25: Experience of lecturer and module**



Respondents strongly agreed and agreed respectively that they like the way in which lecturers presented the classes (16.1% and 46.7%). In addition, the respondents indicated that the lectures help them to better understand the subject matter (48.2%). A further 31.6% of respondents strongly agree with this statement.

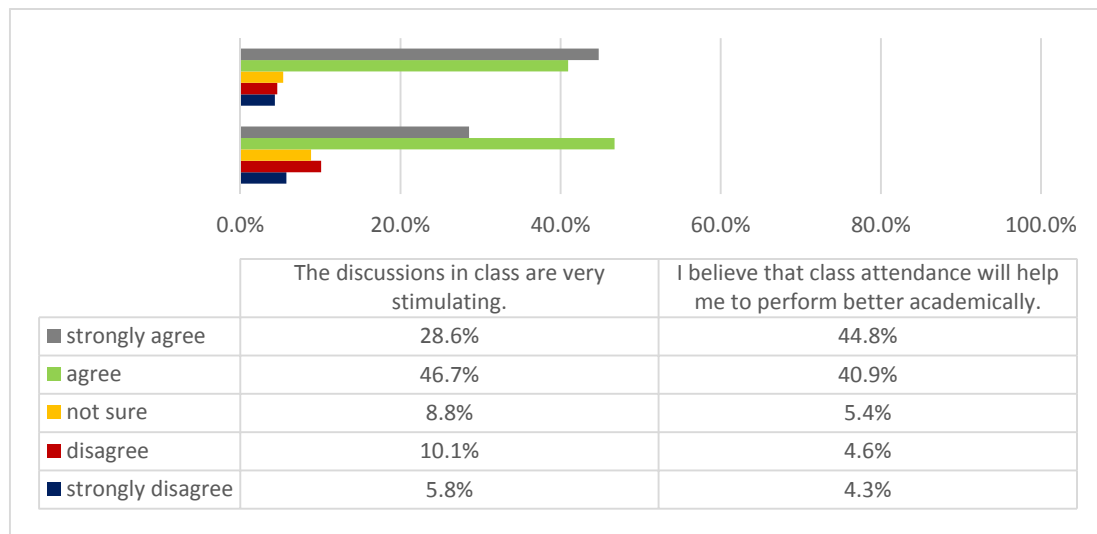
*I attend my classes/lectures because: The group work in class helps me to better understand the work.*

Related to the notion that lectures helps students to better understand the work, respondents also agreed that group work helped them to better understand the work. As a combined total of the responses marked agreed and strongly agreed, 54.9 % indicating group work to be a contributor to attendance.

*I attend my classes/lectures because: The discussions in class are very stimulating and I believe that class attendance will help me to perform better academically.*

The following figures provide an outline of the experiences students have in class as well as the value they perceive attendance has on their performance.

**Figure 26: Academic performance**



In general, it is deduced that students agree that they believe attendance should have a positive influence on their academic performance. In relation to academic performance, 44.8% of the students strongly agreed that they believe attendance will increase their performance followed by 40.0% agreeing with the statement. When asked about discussions in class, 46.7% of the respondents agreed that they found it stimulating.

*I attend my classes/lectures because: Useful tips about tests and the exam are given in class.*

In relation to the perceived value attendance holds for students, 40.1% agreed and 49.2% strongly agreed that useful tips related to examinations and tests are shared in class.

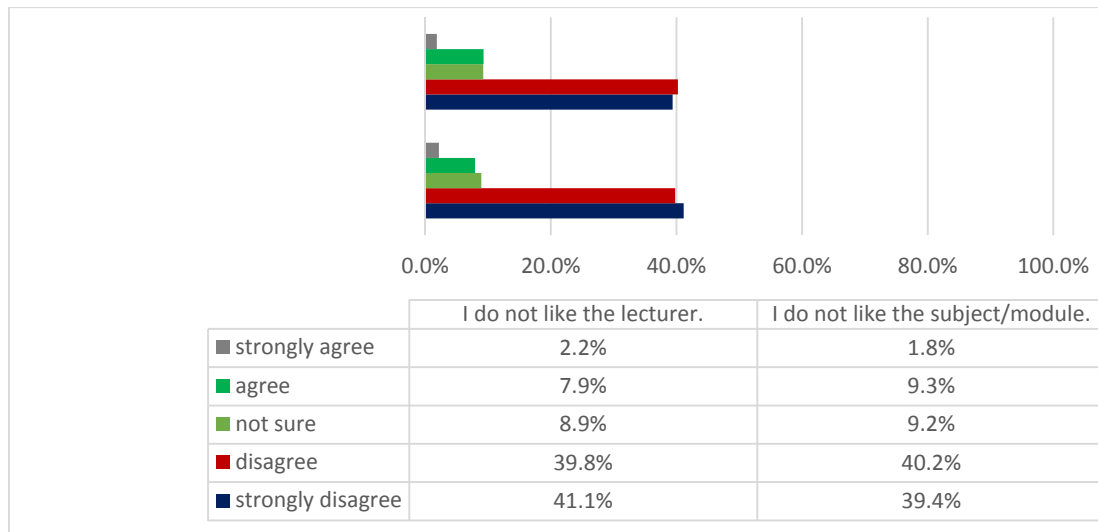
*I attend my classes/lectures because: A large number of unannounced tests are written in class.*

Some of the respondents viewed this as a valid reason to attend classes whereas other did not. Those who strongly disagreed and disagreed with this statement accounted for 50.9% of the responses. Just over 10% (11.1%) of the respondents were not sure if this was a good enough reason to attend classes and 38.1% agreed and strongly agreed that a large number of tests written in class make them attend.

*I do not attend my classes/lectures because: I do not like the lecturer, I do not like the subject/module and classes were boring*

The following figures depict the negatively formulated responses.

**Figure 27: Experience of lecturer and module**

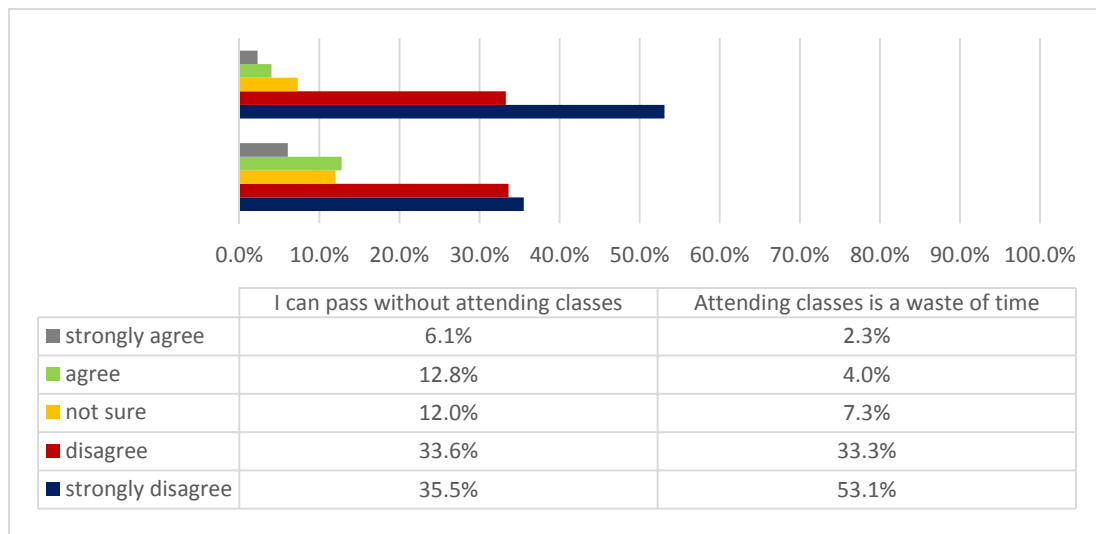


When asked about their feelings towards the lecturer and the module, respondents did not indicate disliking the lecturer or the module. Forty-one percent (41%) of respondents strongly disagreed with the statement that they do not like the lecturer, followed by 39.8% disagreeing with it as well. They also responded to strongly disagreeing that they do not like the module, 39.4% strongly disagreeing and 40.2% disagreeing. More than 60% of the respondents did not experience class attendance as “boring”. Overall, respondents indicated a positive feeling towards the module and the lecturer presenting it.

*I do not attend my classes/lectures because: I can pass without attending classes and attending classes is a waste of time.*

In relation to class attendance being experienced by students as a waste of time and the idea that they should be able to pass without attending, the following figures were recorded.

**Figure 28: Academic performance**



The question stating that class attendance is a waste of time, 53.1% of the respondents strongly disagreed; supporting the claim that students believe attendance enhances performance.

*I do not attend my classes/lectures because: I can get hold of the content of the lectures electronically on Blackboard.*

Even though most of the modules presented in this case study have electronic notes available on Blackboard<sup>12</sup>, 74.2% of respondents did not view this as a good enough reason to miss classes.

*I do not attend my classes/lectures because: Had to work to earn money and had too many other important things to do.*

In relation to non-attendance, 84.1% of the respondents indicated that they do not have to work and therefore do not miss classes due to work related responsibilities. Respondents did not claim to have more important things to do than attending class, with a combined total of 70.6% of respondents strongly disagreeing and disagreeing.

<sup>12</sup> Blackboard is the Learning Management System of the UFS.



*I do not attend my classes/lectures because: Classes clashed with those of another module.*

Thirty-seven percent of the respondents indicated that they sometimes miss class due to class clashes as opposed to 34.7% indicating that they never experience class clashes. Worrying, though, is that 37% of the respondents indicated that they do not attend class due to class clashes.

*I do not attend my classes/lectures because: I was really sick and the time of the day (e.g. 07:00 or 17:00) did not suit me as well as. There is too long a break between one class and another. The classes are just before a test/exam.*

In relation to the four questions above, respondents rarely missed class due to illness, with 25.3% indicating never and 23.7% indicating almost never. Early morning or late night sessions also did not seem to be a factor of non-attendance, with 1417 respondents indicating that they did not agree or strongly disagreed with this statement. Long breaks between class sessions also did not seem to be one of the reasons for students not attending session, 65.2% selecting to disagree with the statement. In relation to test and examination schedules, only 28.1% of the respondents indicated this to be reason for non-attendance.

### **3.2 Teaching academics' experiences**

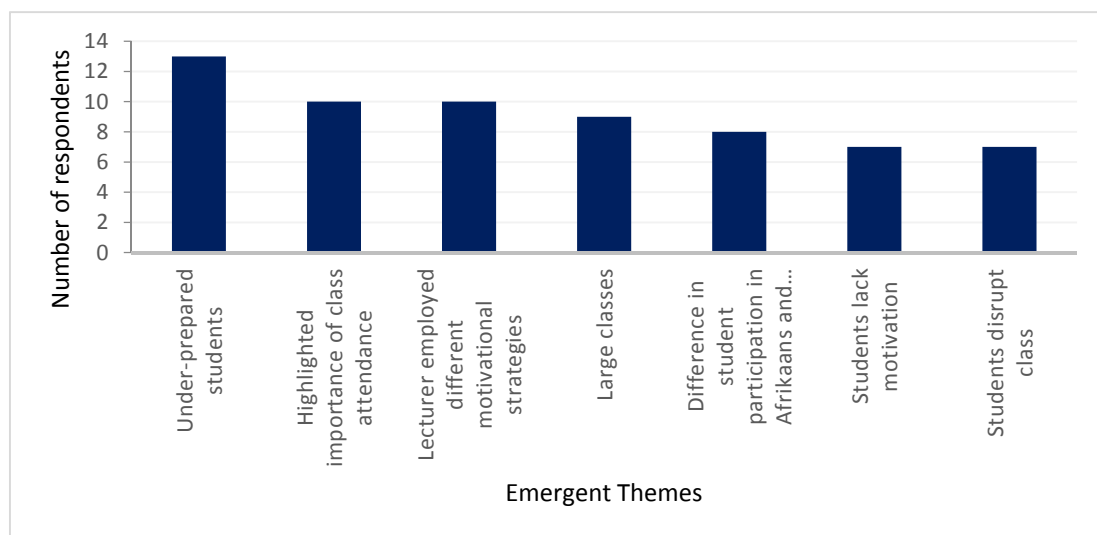
In order to develop a clearer understanding of what the quantitative attendance and success data means, along with the student experiences depicted above, this case study also includes in-depth interviews with participating teaching academics to explore their experiences of compulsory class attendance. The aim of these interviews are to provide another descriptive facet to the data, going deeper into what the lecturers felt about the idea of making attendance compulsory. These experiences form an integral part of understanding and describing the value and complexities of employing compulsory class attendance as an intervention to improve academic performance on modular level. To refer back to chapter three, the interviews were conducted by a researcher in DIRAP.

Interviews were conducted with 13 of the participating lecturers from the 24 involved in this study. It should be noted that the interviews were conducted before statistical information in relation to student attendance and test results were available to lecturers. This provided

the interviewer with the opportunity to gather information that reflected the experiences of the lecturers, not influenced by calculations, statistics and analysis. Furthermore, as outlined in chapter three, the interviews were based on an interview guide approach (Cohen, *et al.*, 2007, p. 353). This provided the interviewer with a guideline to ensure all necessary information is extracted without impeding the conversational flow.

The following figure outlines emergent themes from the interviews conducted with the participating lecturers where each column represents an emergent theme and the data labels the number of interviewees that agreed to the issue or raised a concern.

**Figure 29: Emergent themes presented by lecturer interviews**



All 13 participating lecturers commented on the preparedness of students. They indicated concerns about students at first year level that are not fully prepared for the challenges higher education holds for them and they are not motivated to attend classes.

Second to this theme, ten of the participating lecturers highlighted the fact that they are fully aware of the importance of class attendance and the value it should hold for students. This experience was coupled with the previously mentioned concern in terms of preparedness.

Seven lecturers' comments included that students are not motivated to learn and are sometimes negatively influenced by factors, such as lecturers perpetuating continuous low performance in a module. These lecturers concluded that they have infused different motivational strategies in their teaching. In relation to this, eight lecturers concluded that their experience of students in the English lecture sessions differ from students in the Afrikaans lecture session, making some of the planned motivational strategies difficult to execute, specifically those involving student participation and engagement.

Since this case study includes the participation of classes with an enrolment number greater than 200, it is not surprising that nine lecturers mentioned the negative experience they had in terms of compulsory class attendance, since higher enrolment and compulsory attendance implied larger classes and lack of space. This led to a further seven lecturers highlighting the disruption students causes in class sessions.

#### **4 Discussion: Quantitative and qualitative data findings**

This case study attempts to identify, understand, and describe the influence of compulsory class attendance on module success rates. The discussion presented on the findings relates to the question stated in Chapter 3:

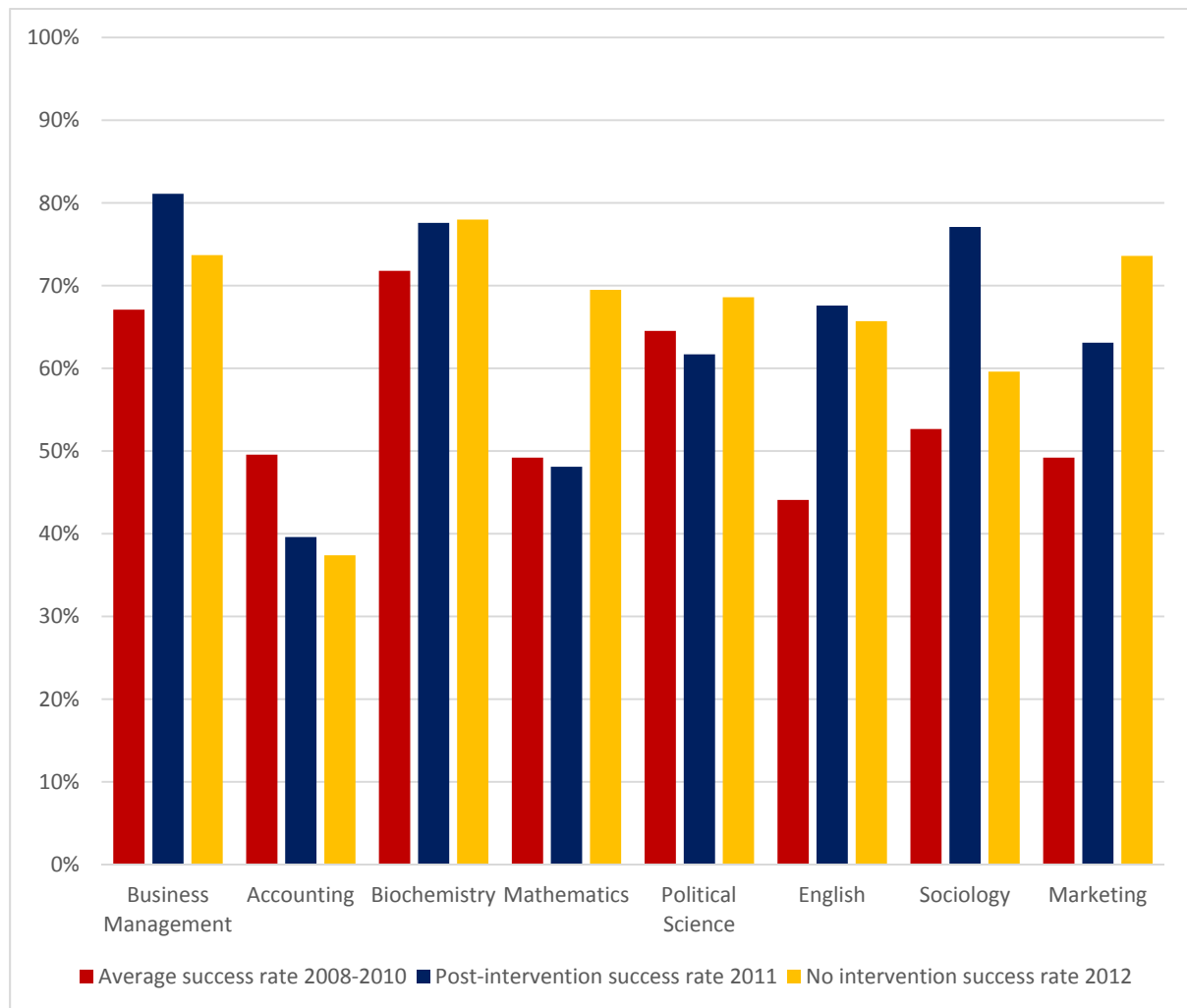
*What is the influence of compulsory class attendance on module success rates at the UFS?*

The following section attempts to understand and describe the quantitative and qualitative results presented in this case study. As an introduction to each discussion, a synopsis of the analysis is given.

##### **4.1 Synopsis: Quantitative data**

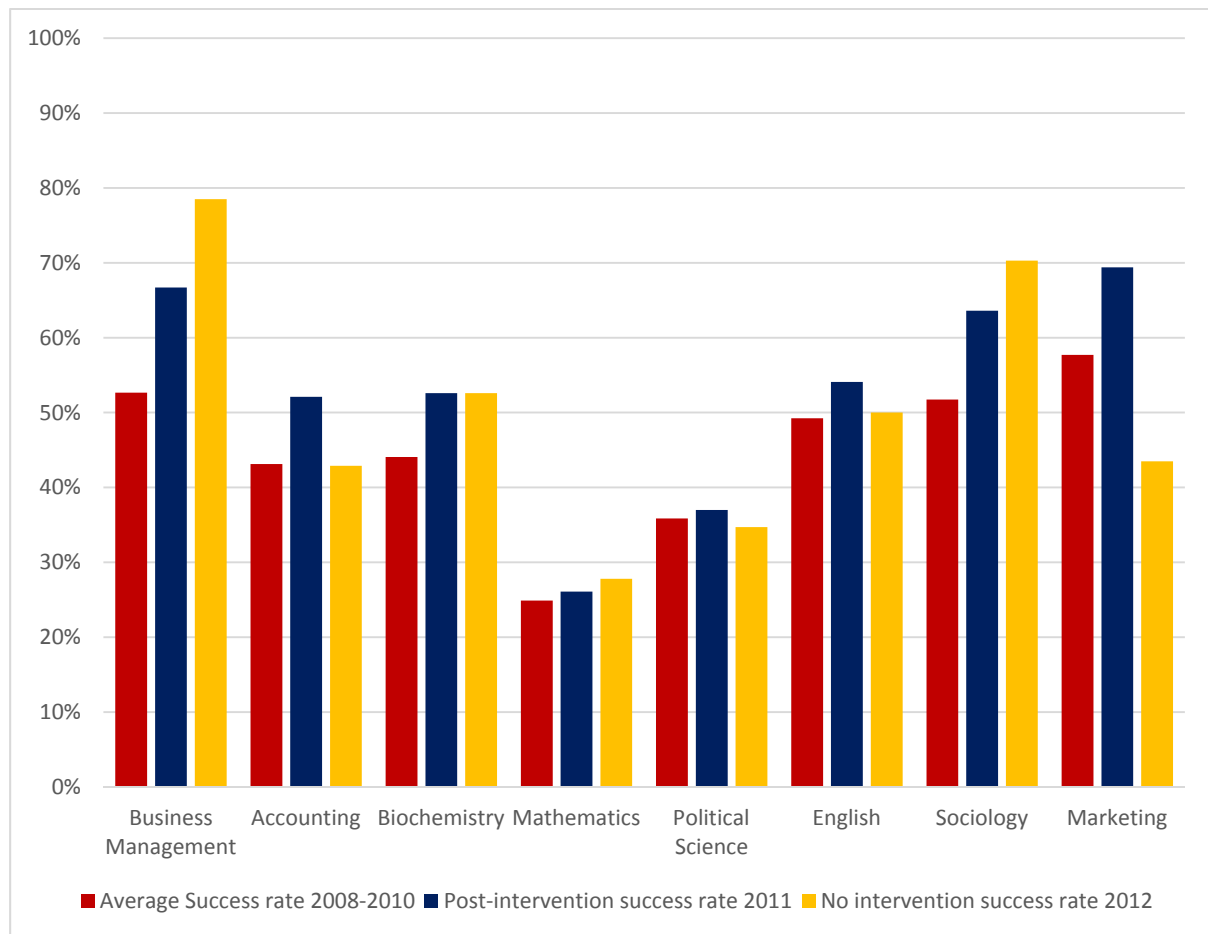
The synopsis presented in Figures 30 and 31 and Tables 18 and 19 below provides an overview of the overall picture observed during the course of this study in relation to the quantitative analysis.

**Figure 30: Synopsis of first semester modules' success rates 2010-2012**



Business Management performed the best of the modules, increasing the success rate to 81.1% during the experimental year (2011). Accounting and Mathematics are the only modules performing below a 50% success rate in the experimental year. Five modules increased their performance in the experimental year in relation to the (averaged) previous years. These included Business Management, Biochemistry, English, Sociology, and Marketing. Half of the included first semester modules, namely Business Management, Accounting, English, and Sociology rendered lower success rates in the year the intervention was suspended (2012). Four modules performed better in 2012 than in the experimental year. These included Biochemistry, Mathematics, Political Science, and Marketing, recording increased module success rates by more than 5%.

**Figure 31: Synopsis of second semester modules' success rates 2010-2012**



All eight modules increased their respective module success rates in the experimental year in relation to the previous (averaged) years. The increases ranged between 2% to more than 10 %. Four modules presented a lower success rate in the year the intervention was suspended (2012), namely Accounting, Political Science, English, and Marketing. The modules in Business Management, Mathematics, and Sociology showed an increase in performance in 2012. Only one module (Biochemistry) remained stagnant and presented the same success rate as the experimental year.

**Table 18: Synopsis of effect size analysis first semester modules**

Semester 1	Cohen's <i>d</i>	Cohen's <i>d</i>
Module	2010 vs. 2011	2011/2012
Business Management	0.48	0.00
Accounting	-0.27	0.24
Biochemistry	0.41	-0.20
Mathematics	0.05	-0.24
Political Science	-0.04	0.09
English	0.43	0.19
Sociology	0.86	0.24
Marketing	0.42	-0.41

Starting with the analysis of the 2010 control group and the 2011 experimental group, only two of the eight modules included in this case study (Accounting and Political Science) presented in this dissertation yielded a negative effect size. This indicates that the intervention was observed to have had a negative influence on the experimental group in this instance. Four of the eight modules (Business Management, Biochemistry, English, and Marketing) yielded effect sizes described as modest positive result. Sociology yielded one of the largest effect size measures for this case study at 0.86, described as a very strong/large result. Mathematics recorded a very small effect size, but still positive.

In calculating the effect sizes of the 2011 experimental and 2012 control groups, three of the eight modules, namely Biochemistry, Mathematics, and Marketing yielded negative results. This indicates that these three modules performed better in the year the intervention was suspended (2012). Business Management recorded no difference between the two groups. Political Science and English recorded a very small positive result. Accounting and Sociology yielded modest positive effect sizes, indicating that the experimental group performed better than the control group of 2012.

**Table 19: Synopsis of effect size analysis second semester modules**

Semester 2	Cohen's <i>d</i>	Cohen's <i>d</i>
Module	2010 vs. 2011	2011/2012
Business Management	0.02	0.05
Accounting	0.29	0.34
Biochemistry	0.29	-0.04
Mathematics	-0.28	-0.23
Political Science	-0.05	0.60
English	0.14	0.35
Sociology	0.00	-0.14
Marketing	-0.13	0.76

For the second semester modules, analysing the 2010 control and 2011 experimental groups, only one module yielded an effect size of 0.00. The intervention employed in the Sociology module was observed to have had no influence on the experimental group. Mathematics, Political Science, and Marketing presented negative results. Mathematics indicated a modest negative result and the other two modules a very small negative result. Business Management and English recorded very small positive results. Accounting and Biochemistry both indicated a modest positive effect size.

The 2011 experimental and 2012 control group analysis included the Marketing module (0.76), which recorded an effect size described as moderate/large. As with the first analysis, three modules presented a negative effect size analysis. Biochemistry, Mathematics, and Sociology indicated a better performance after the intervention was suspended. Also recording a moderate/large effect size is the Political Science module. Accounting and English yielded small positive effect sizes with Business Management only recording a very small positive effect size.

## 4.2 Discussion: Quantitative results

To address the research question and achieve the objective, the quantitative analyses are driven by the following associative hypotheses:

*Null Hypothesis ( $\mu_0$ ): Compulsory class attendance has no positive influence on module success rates.*

*Alternative Hypothesis ( $\mu_1$ ): Compulsory class attendance has a positive influence on module success rates.*

### 4.2.1 Business Management

The two selected Business Management modules in the Faculty of Economic and Management Sciences proved to be one of the most interesting cases in this study. Noteworthy in relation to the rapid decline in student enrolments between 2011 and 2012 are aspects related to curriculum changes. Business Management is a compulsory module as part of the qualification in the Bachelor of Commerce (BCom) and the related major fields of study. However, these modules were also a very popular choice amongst students from the Humanities, Social Sciences, and Education, selecting it as electives in their respective qualifications. Due to the review of the curriculum conducted across the university, the Business Management module underwent significant changes in 2012, affecting the content and enrolment numbers. This is important in relation to the discussion of the module success rates that follow. In the case of the Business Management modules, by barring students who do not form part of the BCom qualification and its related streams, it significantly decreased enrolments, speaking to the literature favouring smaller group teachings presented in chapter two by Carpenter (2006, pp. 17-18), Gump (2005, p. 25), and Cuseo (n.d., p. 1)

In the first semester of the experimental year module, enrolments dropped. This meant that the three lecturers each had a group of approximately 200 students. This is still regarded as big groups, but it is significantly smaller than in 2010 where each lecturer had a group of more than 500 students. A positive influence was observed in the experimental group in the case of the first semester Business Management module in relation to the 2010 group, with



a modest effect size of 0.48. Even though the module success rates only increased slightly between 2010 and 2011, the mean score of the experimental group increased, indicating that the average of the students in the experimental group (2011) were better than that of the control group (2010). This favours the notion that compulsory class attendance had a positive influence on average performance. In this case, the alternative hypothesis is supported. However, it should be noted that, as previously mentioned that an additional variable, the lower enrolment numbers, could have had an augmented impact on the results yielded.

Although the module success rates declined in 2012, after the compulsory class attendance was discontinued, similar mean scores were calculated in 2011 (experimental) and 2012 (control). This implies that the two groups' average marks were similar, leaning towards literature presented by, amongst others, Carpenter (2006, pp. 17-18), Gump (2005, p. 25), and Cuseo (n.d., p. 1), stating that smaller classes benefit students more. The speculation is made here that even though the experimental group had a better module success rate, i.e. more students passed the module in 2011 than in 2012, the average performance remained the same between the two groups, meaning that they achieved similar average marks. However, in this calculation the null hypothesis is supported due to the effect size of 0.00 yielded. It is speculated that the decline in class size in 2012 contributed to the higher module success rate in the module. This is also supported by the literature as presented above.

The second semester module showed the same trend in enrolments decreased from the experimental year to the control group of 2012. This meant that the three lecturers presenting the course could now teach groups smaller than 275 at a time as opposed to a group of over 400 students per lecturer. Both of the recorded effect sizes, the 2010 vs. 2011 groups and the 2011 vs. 2012 groups, are described as very small, but a positive difference between the experimental group and control group is still present. In this case the alternative hypothesis stating that compulsory class attendance has a positive influence on modules success rates is accepted

Overall, the intervention is observed to have been influential in both the first and second semester modules. Three of the four calculations supported the alternative hypothesis, stating that compulsory class attendance has a positive influence on module success rates.

#### **4.2.2 Accounting**

One of the challenges experienced during the course of this case study was within the Accounting modules. Aside from high enrolment numbers and limited teaching capacity, the uneven spread of students who were enrolled in the module proved to be problematic. Both students who completed Accounting at school and those who never had Accounting before attend the same classes.

The first semester Accounting results of the 2011 experimental group did not yield a desired outcome when measured against the control group of 2010. The effect size results reject the alternative hypothesis. To further aggravate matters, problems related to over-populated classes were experienced. To assist in this regard, additional sessions were scheduled to spread students more evenly. After the intervention was suspended, module success rate decreased in 2012. This favoured the experimental year and yielded a positive moderate effect size, supporting the alternative hypothesis. An observation is made that the decrease in class size along with the intervention in 2011 contributed to the module performing better. This again coincides with findings presented by Credé *et al.* (Credé, et al., 2010) as well as Cuseo (n.d., pp. 10-12).

In the second semester of 2011 an additional part-time lecturer was introduced in the module to try and ease the teaching load. This was observed to have had a positive influence since both measure between the control group of 2010 and 2012 against the experimental group yielded a moderate positive result, 0.29 and 0.34 respectively. This speaks to the notion that attendance in larger classes does not necessarily add value since it does not encourage engagement (Cuseo, n.d., pp. 10-12). Thus, in the case of the second semester Accounting module, the alternative hypothesis is supported

The overall observation in relation to the Accounting modules, tend to coincide with the alternative hypothesis relating to the positive influence of class attendance on module

success rates. Three of the four calculations done on these two modules rejected the null hypothesis.

### **4.2.3 Biochemistry**

The exclusion of the diploma students wishing to enrol for the modules in Biochemistry showed its merit. Enrolments decreased from 223 in 2010 to 76 in 2011 and further to 50 in 2012. The first semester continued its strong performance, increasing the module success rate in the experimental year (2011), as well as a high attendance average. The effect size between the control group of 2010 and the experimental group was described as modest, supporting the alternative hypothesis. Two variables are present that could have had an influence on the increase in success rates. Firstly the class size decreased and secondly, attendance was very high in this module. Therefore the observed difference between the two groups could be ascribed to either one of these variables.

However, the opposite was observed when the experimental group was measured against the control group of 2012. The class size further decreased after the intervention was suspended. The mean scores indicated that the average performance of the students were better in 2012 (control group) than that of the experimental group (2011). As with the previously mentioned calculation, this could also be ascribed to the decline in enrolments. In the case of the effect size analysis of the experimental group (2011) and the control group of 2012, the alternative hypothesis is rejected. A positive influence of class attendance and success rates were not observed.

Attendance was poor in the second semester Biochemistry module. The lecturer of this module encouraged students to attend practical sessions, thus impacting on attendance in the main lecture. The module recorded a modest positive effect size between the 2010 control group and the experimental group. In this case the alternative hypothesis is supported. This could be ascribed to the fact that the practical sessions are smaller groups favouring notions made by Gump (2005, p. 25) that smaller groups are more attractive to students, especially if the main lecturer encourage students to attend smaller session as well. He also mentioned that the lecturer noticed a decline in attendance in the main class session, which also happened in the Biochemistry module, presented in this case study. The

effect size analysis between the experimental group and the control group of 2012 yielded a very small negative result. In this calculation a negative influence on the experimental group was observed. Student performed slightly better when the intervention was suspended. This calculation rejects the alternative hypothesis.

#### **4.2.4 Mathematics**

In relation to the statistics presented in the case of Mathematics, to most concerning aspect is the continuous declining performance, with and without the intervention. Both semesters performed below a 50% module success rate.

The first semester module could only yield a very small positive effect size when measuring the 2010 control group against the experimental group (2011). The alternative hypothesis is thus supported in this instance. However, a positive influence was not observed when the experimental group was measured against the control group of 2012. The effect size was described as a modest result. In this calculation the null hypothesis is supported.

The second semester indicated a negative effect size for both measurement done between the control groups of 2010 and 2012 against the experimental group, thus supporting the null hypothesis. A negative influence in terms of the intervention was observed in the experimental group for the Mathematics module in the second semester.

The literature in relation to the South African context included a newspaper article by Myburgh and Prince (2014, p. 1) remarking on the Grade 12 pass rate and whether this “perceived” increase is a true reflection of the competence of prospective students. To argue their point, they referred to the NBT results which indicated that more than half of the prospective students for the 2013 enrolment year were not declared proficient in Mathematics. It is thus speculated that in the case of Mathematics alternative interventions might be needed to improve academic performance.

#### **4.2.5 Political Science**

The Political Science module presented in the first semester showed significant increases in enrolments over the past few years. The effect size analysis yielded a very small negative

result for the control group of 2010 and the experimental group, rejecting the alternative hypothesis. Calculating the effect size between experimental group and the 2012 control group, the result showed a very small positive effect size. Even though the module success rate increased after the intervention was suspended (2012), the average performance of the experimental group was better than that of the 2012 control group, thus yielding the mentioned small positive effect size. In this case the alternative hypothesis is supported.

The second semester module success rate declined during the experimental year. A very small negative effect was calculated. Even with a significant drop in the module success rate, the average performance (mean scores) of the students between the control group of 2010 and the experimental group was similar, thus only reflecting a small negative effect size. The calculation rejects the alternative hypothesis. After the intervention was suspended, the module success rate of the control group of 2012 further declined, even with a smaller enrolment number of 95. This resulted in the effect size described as a moderate result, supporting the alternative hypothesis.

In the case of Political Science, both modules showed better results when measured against the control group of 2012, thus making the observing that the intervention made a positive difference in the experimental year.

#### **4.2.6 English**

The selected English modules provided some positive and encouraging results. Each year the module enrolments as well as the module success rates increased. Lecturers presenting these two courses regularly stressed the value this intervention had for them as teaching academics and used this to encourage students to attend.

Both modules in the subsequent semesters of 2011 yielded positive effect sizes when measured against the two control groups (2010 and 2012). Thus, a positive influence was observed in the experimental group with regard to the implementation of the intervention. The two English modules were the only modules presented in this case study to yield positive effect sizes on all four of the calculation combinations. Thus, in this case the null

hypothesis is rejected and supports the hypothesis stating that class attendance has positive influence on module success rates.

As mentioned, the teaching academics in these modules encouraged students to attend by highlighting the benefits. This coincides with suggestions made by Le Blanc (2005) that the outcome of performance should be similar, with or without a policy as well as Credé *et al.* (2010) and Moore (2003) and their conclusions that the notion of the benefit of attendance should be as valuable as enforcing policy.

#### **4.2.7 Sociology**

With more than 600 students enrolled in the first semester module in the experimental year (2011), additional sessions were required to ensure that students had a seat when attending lectures. The gesture seems to have paid off in this module similar to that of Business Management and Accounting, echoing the value of smaller classes presented earlier by Carpenter (2006, pp. 17-18), Gump (2005, p. 25), and Cuseo (n.d., p. 1). The module success rate for the first semester module increased in the experimental year and held a good average attendance percentage. The effect size analysis perpetuated the good results, yielding positive results described as a very strong effect (2010 control and 2011 experimental group calculation), thus supporting the alternative hypothesis. The calculation of the 2011 experimental and 2012 control groups indicated a positive modest effect size, thus also supporting the alternative hypothesis.

The second semester module did not yield a positive result. No difference was recorded between the control group of 2010 and the experimental group and a negative result was yielded in the calculation of the experimental and 2012 control group. A negative influence was observed in the experimental group with regard to the introduction of the intervention. The alternative hypothesis is thus rejected in the case of the second semester module in Sociology.

#### **4.2.8 Marketing**

The 2010 module success rate was 45.2%. In the experimental year the module success rate increased with 17.9% to 63.1%. Attendance was recorded at 69.9%. The first semester

module recorded a modest effect size of 0.42, with an increased mean score in the experimental year. The intervention was observed to have had a positive influence on the experimental group, when measured against the control group of 2010. In this case the null hypothesis is rejected. However, when the experimental group was measured against the 2012 control, the 2012 group performed better than the experimental group, thus, rejecting the alternative hypothesis.

The second semester Marketing module presented some obstacles that were addressed during the course of the semester. The Marketing module had an attendance average of 38.3%. A justification for the dubious attendance average in the second semester was due to class clashes beyond the control of the lecturer and Faculty. Students were advised to attend one session per week, as opposed to the two scheduled session and attend a compulsory tutorial session to ensure not falling behind. Students were also encouraged to regularly visit Blackboard to ensure they were aware of important information as well as using the platform to chat to other students and the lecturer in the module. The module success rate increased slightly in the experimental year. The effect size, however, did not yield a positive result. This means that even though the module success rate increased, the mean score of the group declined. Thus, the alternative hypothesis is rejected. However, when measured against the 2012 control group, the experimental group performed better.

The second semester module success rate declined after the intervention was suspended and a moderate/ large positive effect size was yielded. In this case, the alternative hypothesis is supported. Due to the class clashes in 2011, students were requested to ensure they do not fall behind, by employing the advice as given above by the Faculty. The 2012 control group did not experience class clashes, but were also not forced to attend class. The observation is made that the intervention had a positive influence on the module success rate and it became more visible in the year the intervention was suspended.

#### **4.3 Synopsis: Qualitative data**

As an introduction to the discussion of the qualitative analysis, a summary of the analysis is given. The student survey generally indicated that students believe that attendance will help them to perform better. Just over 40% of the respondents indicated that they agreed that

the campus environment motivated them to attend classes. A substantial percentage of the respondents did not feel that classes were boring (more than 60%) and also indicated that they found class discussions stimulating (46.7%). Respondents agreed that they enjoy the way in which their classes are presented (46.5%) and that the lectures help them to understand the work better (48.2%). Respondents did not find that attending classes was a waste of time or that they could pass without attending. As to the fact that class notes were available on Blackboard for most of the included modules, 74.2% of respondents indicated they do not find this as a reason to not attend classes. Quite a high percentage of student experienced clashes (34.7%) resulting in having to miss classes.

In general, ten of the thirteen participating lecturers were favourable towards compulsory class attendance and had a positive experience in relation to the case study. Seven emergent themes were identified in the interviews with the participating lecturers. The theme relating to the preparedness of students when entering university was a strong concern for all thirteen participating lecturers. In the second place, ten lecturers commented on the importance of attendance. Furthermore, ten mentioned to the motivational strategies they employ to encourage attendance and motivate students to perform better. The fourth important theme included discussion on the difficulties of teaching large classes. Eight participating lecturers raised interesting opinions in terms of student participation, commenting that English students tend to be more participative than the Afrikaans students. Overall, seven lecturers raised the concern that students lack motivation, not really understanding why students display such behaviour. Lastly, lecturers also mentioned that compulsory attendance forces student who do not want to attend classes to attend and that this contributes the experience of increased disruption in class sessions.

#### **4.4 Discussion: Students' and teaching academics' experiences**

##### **4.4.1 Students' experiences**

As presented by the figures in section 3.1 in this chapter, more students indicated that they believe class attendance will benefit them and further assist them in performing better academically. This is ultimately the respondents' account resonant of the findings presented by Credé *et al.* (2010, p. 273) which suggest that attendance is the best predictor of



performance. Increasing the number of seats available per session is vital to both the lecturer and students. In making attendance compulsory, the decision-making bodies should ensure that there is space to accommodate students. This will address unnecessary disruptions in class as well as provide students with better environment to attend in. Forty-two percent of the respondents indicated that the UFS environment motivates them to attend. Attending to issues such as over crowded large classes as described by the lecturers will hopefully increase responses in favour of a motivating environment.

Respondents had high regard for their lecturers, the way in which they teach, and the stimulating environment created in class. This coincides with the comments made by some of the participating lecturers that they try to employ strategies in their session to motivate students to attend. This is echoed in the literature presented in chapter two by Moore (2003, pp. 367-371) who suggests that, as soon as attendance is incentivised, attendance is higher. The same conclusion is reached by Le Blanc (2005, p. 14) who also suggests that the influence of attendance on grades should be the same, whether a policy is enforced or not. This also relates to St Clair (1999, p. 174) stating that other factors, such as student characteristics and motivation, have a stronger influence on grades than class attendance. So if students believe attendance will help them to perform better (as indicated by the respondents in this case study), it would motivate them to attend, and not just because it is compulsory to do so. Devadoss and Foltz (1996, p. 506) share some insights related to the responsibility of the lecturer to create an environment where students feel that they are being stimulated on an intellectual level and will be rewarded for attending classes.

Respondents also regard attendance as beneficial, because useful tips relating to examinations and tests are given class. This notion corresponds with the findings presented by Marburger (2001, pp. 105-107) who concludes that students who miss classes are more likely to be unable to answer questions related to that specific session in the examination. Respondents reiterated the benefits of attendance by concluding that they do not believe they can pass without attending class.

#### 4.4.2 Teaching academics' experiences

In general the participants were favourable towards the idea of making class attendance compulsory. Participating lecturers strongly noted that compulsory attendance holds value for them as lecturers as well. All the lecturers mentioned that compulsory class attendance puts the power in their hands in the sense that, should students complain about not receiving information, they can fall back on the attendance register. They also suggest that student will use lecturer consultation hours less, because necessary information is communicated in class. The issues with class attendance are, however, described as problematic and complex by the thirteen participating lecturers. As mentioned, they felt that the idea behind compulsory class attendance should be very beneficial to the students and comments such as the fact that it promotes discipline and a sense of responsibility amongst the students emerged regularly. The negativity towards compulsory class attendance stemmed from the lecturers commenting that attendance should not be enforced, but be cultivated as part of the culture of a higher education environment. As part of the lecturer interviews, seven of the thirteen participating lecturers highlighted the spatial issues and the disturbance it causes. Mention was made about the few students who did not want to be there and as a result disrupted the class. Lecturers felt that they only attended to be awarded the 75% for attendance to be allowed to write examination. However, it is deduced that this was only true to a smaller group of students.

Intervening in terms of class attendance will not solve the more complex problems experienced in the Accounting module raised by the lecturer. Other interventions are needed to pull the module back on track, such as employing more capacity and separating the students in terms of their knowledge of accounting, i.e. successful completion of Accounting at school in one group and novice students in the other. Relating to the imbalance of performance level, four of the participating lecturers raised a concern in terms of the students who are strong performers and who do not necessarily need to attend class to perform well. They are now being forced to attend classes and have less time available to do independent study.

With regard to the aforementioned discussions around the issues concerning disruptions by students due to lack of interest as well as the issues experienced surrounding large classes,

one of the participants made the following comment after one of the scheduled classes was not monitored as per the participant's request:

*[...] dit was my lekkerste klas, want net die wat daar wou wees was daar.*

Free Translation: *[...] it was one of my nicest classes, because only those who wanted to be there were there.*

From the Faculty of Natural and Agricultural Sciences, two modules from Biochemistry and two modules from Mathematics were chosen for this case study. Perpetuating the low performance rate, lecturers explained the value practice has in subjects such as Biochemistry and Mathematics in the interviews. Attendance only gets the student to class, but does not mean that they actively participate, go home, and do exercises to practice the theory. Both Biochemistry and Mathematics are practical subjects and need to be practiced; these are not theory modules where students can study the principles and reproduce the information in a test or assignment. Nine of the participating lecturers suggested that to solve the problem of low performance, compulsory class attendance is not going to make the cut. It is merely a tool to get students to attend and the rest is up to the lecturer and the student. Suggestions in relation to subjects in the natural sciences, included that the value of the practical classes should be explored, rather than the formal lectures.

In both the cases of Biochemistry and Mathematics, lecturers were also very concerned with the level of preparedness the students display. As suggested by the literature in terms of the matric pass rate and the number of students performing on a proficient level in the NBTs, specifically on the Mathematics Literacy component, to continue with mathematics at tertiary level, the concern is not raised lightly (Myburgh & Prince, 2014, p. 1). The lecturers teaching this course ascribed that to the fact that they stressed the value of the practical sessions and the importance of practice. Furthermore, revisiting the entrance requirements to this module and removing it from the Diploma study programme and only including it in the Degree study programme dramatically decreased the enrolments to a more manageable number of less than 100 students in each semester.

The lecturers presenting the Sociology modules remarked on the importance of motivating students and employing teaching strategies that encouraged participation and interaction in class, more so in large classes where students tend to be more passive in their experience. They suggest that lecturers are responsible for structuring and presenting classes in such a way, that the students attend class to learn additional things. These lecturers also mentioned that they prefer students to come to class prepared in order to promote interaction. Class attendance is not the final answer; it is only a contributing intervention. These comments relate to a study conducted by Devadoss and Foltz (1996, p. 506) which included some insights to lecturers and their teaching abilities.

Seven of the participating lecturers said that in their experience, performance is linked to motivation. The ways in which the students are motivated as well as their internal “motivational” mechanisms are drivers behind their performance. This shares the notion made by St Claire (1999, p. 174) that motivation has a stronger influence on grades than class attendance *per se*. As said in the introduction, lecturers were concerned about the existing learning culture amongst students. Some suggestions from the participating lecturers included that compulsory class attendance should be used not only to teach subject material but should serve as a platform to teach students the value of taking responsibility and discipline. St Clair (1999, p. 177) mentioned that enforcing a policy could take away that feeling of “control” a student might have towards their studies (St Clair, 1999, p. 178). The student responses indicated that they experienced classes and the discussion therein as very stimulating. Of the 2013 respondents, 42.1% indicated that the academic environment motivated them to attend classes, speaking to the notion the lecturers made in terms of motivation. All of the participating lecturers indicated that they do not use negative reinforcement such as accentuating a low performance rate in a module and rather make clear to students that they will be able to succeed should they adhere to the expectations set by the lecturer. Participants also stated that they use the first lecture session of a semester to clearly state what they expect from the student and what the students can expect during the module, as well as to indicate what the possible benefits of attendance are.

These responses are propagated in the literature as well. Chickering and Gamson (1987, pp. 1-5) created the seven principles of good teaching practice. Of these seven principles the lecturers who were interviewed for this case study, claim to have employed most of them. More specifically the following:

- Encourage student-faculty contact
- Encourage active learning
- Emphasise time on task
- Communicate high expectations

Chickering and Gamson (1987, pp. 1-5), Page and Mukherjee (1998, p. 16) and Page and Mukherjee (2000, p. 557).

Some of the general comments included lecturers who expressed their wishes in terms of the project. One of the participating lecturers said that some students are eager to learn, but that excitement does not necessarily translate into preparedness. The lecturer stresses that students cannot go through university without attending classes. The same lecturer made the following comment:

*I just wish everybody would see the merit behind this type of project. I don't think it's meant to make our jobs more difficult, it's actually meant to make our jobs easier, because it's putting the control back with the university. Somebody else is responsible for their class attendance; I am responsible for their teaching. No one can then come and blame me and say "But your students are not in class".*

Lecturers kept referring to the fact that compulsory class attendance puts the power back into their hands. Students also responded strongly on the experienced value of attendance.

Furthermore, the participating lecturers mentioned that they would have been reluctant to participate if they had to do the administration and tracking themselves. It was also noted that there were some "teething" problems in the initial phases of the project. Some

lecturers were dissatisfied with the assistants tracking the class, indicating that they felt the assistants were a distraction to students. With the full roll-out of the biometric fingerprint scanner, some lecturers agreed to circulate the devices on class themselves, other were still reluctant and requested assistance, which was provided to them.

Some of the lecturers complained that students who do not want to attend classes are disruptive. This results in the lecture being interrupted to deal with these students. The lecturers complaining about this issue had employed a variety of methods to deal with this. One of the participating lecturers told students to register their fingerprints for the class and leave if they not wish to be part of the session.

As mentioned earlier, when the interviews were conducted no data on the project had been made available. The participating lecturers were hesitant as to the success of the intervention, but showed great interest on seeing initial results.

## 5 Conclusion

As a reflection of the processes involved in completing this case study, the findings as well as the experiences presented in this dissertation, the multifaceted nature of this study created more questions than answers. An answer to the problem is not as simple as: “attend class, it is good for you and you do not need a set of complicated analyses to prove it.” However, the analysis presented in this case study, indeed showed that the outcome is more complex than a set of rules governing students to attend classes.

What is then really the underlying issue surrounding low academic performance and would a policy really solve this problem? A participating lecturer shared a perspective, endorsed by most of the interviewees (in Afrikaans):

*So ek dink dis baie oulik, maar dis nie die ding nie. Dit gaan nie die probleem oplos nie, om 'n leerkultuur te skep nie.*

Free Translation: *So I think this is very nice, but I do not think it will solve the problem in creating a learning culture.*

As the quote above states, creating a learning culture will not be solved by enforcing compulsory class attendance. But what, then, will? Following a thorough analysis of the statistics yielded as well as the interviews with the participating lecturers, it became clear that there are much more pressing issues to be addressed aside from attendance. Participants claimed that when addressing this subset of issues, it might even contribute towards the idea of creating a learning culture, without having to force anyone to attend a class, but rather to motivate them to do so out of free will.

Of the sixteen modules reported on in this case study, only the English modules showed “clear-cut” quantitative finding in terms of effect size. These modules in the first and second semester were the only modules that distinctly showed a positive difference in the experimental group, speaking to the intervention and the observed positive influence it had on the modules’ success rate.

The other fourteen modules presented varied results. In the 2010 control and 2011 experimental groups’ effect size analysis, of the sixteen modules (grouped as eight), six negative results, supporting the null hypothesis and ten positive results supporting the alternative hypothesis were reported. The intervention was observed to have had a positive influence on modules, by yielding more positive than negative results.

In the 2011 experimental and 2012 control groups’ effect size analysis of the sixteen modules (grouped as eight), seven negative results, supporting the null hypothesis and nine positive results supporting the alternative hypothesis were presented. More modules were observed to have performed better in the experimental year.

Even though the intervention was observed to have a positive influence across the four different calculations, based on Cohen’s  $d$  on most modules, some did not. One cannot assume that additional interventions for example the NATP, increased Admission Point (AP) score<sup>13</sup>, smaller classes due to curriculum changes and deliberately excluding diploma

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<sup>13</sup> AP Score refers to Admission Point Score. This score is calculated according to the student’s Grade 12 results, according to the four (4) compulsory subjects from the “designated” list and the better of two (2) other school subjects passed during one (1) examination session (University of the Free State, 2013, p. 16).

students to enter a module did not influence the results, just as one cannot assume the negative results yielded are ascribed to the intervention. As mentioned in the third chapter, the effect size analysis claims that an influence may be observed when an intervention is employed but that does not mean the one is necessarily the cause of the other. Nineteen of the thirty-two calculation combinations (the calculations include the effect size analyses of the control group of 2010 and the experimental group of 2011 and the experimental group of 2011 and the control group of 2012 in each module) yielded effect sizes. The case of the UFS presented in this dissertation, therefore tends to lend itself towards the alternative hypothesis which states that *compulsory class attendance has a positive influence on module success rates*.



## Chapter 5 Summary, limitations and conclusion

### 1 Introduction

As mentioned in the first chapter, the value of this dissertation lies in the potential contribution the outcome of the investigation could make to managerial and decision-making structures and processes pertaining to academic success at the UFS. By presenting the research as a case study, this dissertation presented descriptive quantitative data, as well as qualitative data, providing some rich information by participants highlighting specific understandings relating to attendance and performance. The final chapter of this dissertation presents a summary of the case study and provides the limitations identified. The conclusion is a reflection of the lessons learnt and findings in this particular case study. After concluding this case study, the most important identified value for the researcher was based on the premise that, in general, case studies aim to provide research in a more accessible tone, serving multiple audiences allowing them to feel part of the research process and building on the outcomes of the research.

### 2 Summary of the case study

The purpose of this case study was to investigate the influence of compulsory class attendance on module success rates. The objective of this case study was two-fold. Firstly, it attempted to identify and understand the influence of class attendance on module success rates at the University, and secondly, to describe the educational effect observed during the intervention. To address the research questions and reach the objectives, a pragmatic approach was followed. This gave the researcher the opportunity to make adjustments as changes occurred during the process. In retrospect, this flexibility to adapt, while researching, proved to be an ideal fit.

As suggested by the literature, in theory, attendance should contribute to success. Although, the literature presented in chapter two could not provide a clear-cut answer as to the question whether attendance *per se* influenced performance. It is merely suggested that attendance, as part of a variety of interventions to improve students' academic performance, was instrumental. In addition, the adverse effect compulsory attendance could have in relation to specific institutional contexts should be acknowledged. These

adverse effects included, *inter alia*, the potential negative impact attendance could have on performance in a large class setting, concurred by various authors. A large class setting is unavoidable since, nationally and internationally enrolment numbers are growing, making it more difficult to successfully engage students. Within the South African context, higher education institutions are under constant pressure to enrol more students. In the module enrolment profiles presented in chapter four, it is evident that the UFS is not excluded from this phenomenon.

Mention was made in the concluding remarks of chapter two, that the studies reviewed did not use a variety of modules from different fields of study. In this case study findings from a broad range of modules within major fields of study were presented.

Even though the intervention was observed to have had a positive influence in some modules, based on Cohen's *d*, some did not. Experiencing a negative effect also contributes to the value of this study since the negative effect was as important as the positive effect when considering whether the intervention was indeed influential. Negative results contributed to discussion of the findings in that it highlighted underlying issues such as large classes, when making attendance compulsory. This contributed to the formulation of limitations this case study posed.

### **3 Limitations**

This study proved to be a difficult endeavour, from outlining the project to choosing an attendance measuring instrument and ultimately finding an analysis approach best describing the results and present the findings coherently.

The main limitation posed by this case study is that it used historic and not concurrent (randomised) control groups. The implication of this is that various other factors (e.g. changes in class sizes and/or admission requirements) and interventions (e.g. tutorial sessions, curricular changes and/or lecturer changes) could have influenced the module success rates as well.

The sample included modules that were selected on the basis that the modules' success rates were low over a period of time (2008-2010). This case study could not account for changes that might have occurred during the historic period that could have influenced performance.

This case study did not include an investigation into a variation into the standard of the study materials, lecturing methods, and test and examination papers, based on a comparative analysis of the preceding years, experimental year, or the year following the intervention.

Various other interventions were staged from 2011 following the Academic Turnaround Strategy and the priorities to be addressed within it. These interventions were not tracked alongside compulsory class attendance and could have also contributed to a change in module success rates.

The student profile for e.g. students' average AP scores and NBT results, were not considered in this case study. As indicated by the literature presented in chapter two, the students' abilities and school performance as additional variables might have had an influence on academic performance, as well as the unobserved variables such as motivation and cognitive ability.

The consideration of the influence class size might have in relation to performance, was not adequately addressed in this case study. Artificially decreasing class sizes by introducing larger venues and creating more time slots only addressed infrastructural issues and not the ability to teach effectively. Capacity and ability to teach was not assessed during this case study, which could have been contributing factors.

Lastly, even though this study was presented as a case study (thus not having the premise to generalise findings as discussed in chapter three), the outcomes and findings are only related to a specific context in terms of the cohort, a purposive sample.

Although these limitations were experienced, the researcher wants to emphasise once again that this case study apply a pragmatic approach is based on the belief, so eloquently put forward by Cohen (1999, p. 2) that: “[...] thought must produce action, rather than linger in the mind and lead to indecisiveness” .

#### **4 Concluding remarks**

After concluding the case study, the researcher still found it difficult to answer the problem question at hand by not being able to provide one solid answer. Instead, more questions arose from this study as rooted in the limitations presented for this study. This reflection perpetuates the literature in relation to this topic as presented in chapter two:

[...] findings of the relationship between class attendance or attendance policies and academic achievement are equivocal (St Clair, 1999).

With a study of this nature, “a-one-size-fits-all” answer can hardly be achieved. However, the value compulsory class attendance, as one intervention, alongside many other interventions, is a positive point of departure in an effort to enhance academic performance by using the class room as a platform. This study’s findings in relation to the interviewed teaching academics make some suggestions that power should be put back into the classroom through the realisation that it is the teacher who teach and the student who should take responsibility to learn. If a policy, guideline or intervention could create a culture of learning amongst students, should it not be considered as a first step in addressing low performance, not just as the UFS but other institutions of higher education as well? No intervention in isolation can accomplish successful results in improving the success rates; it is the interventions running simultaneously which all contribute to the increases in success.

This study does not propose that enforcing class attendance in its isolation would improve performance. Nor is this study presenting a strong case of significance to prove a point based on raw statistics, and ignoring educational benefit, sound reasoning and common

sense. This study is merely proposing compulsory class attendance as an intervention as part of several interventions in an attempt to create a culture of learning amongst students to ultimately increase module success rates at the UFS.

In conclusion, this study provided a better understanding and insight into the University of Free State case. It created a deeper sense, not relying on abstract and numerical data, but merging the effect size of the intervention with the rich description of perceptions, of the potential benefit of compulsory class attendance. Moreover, this case study bounded to the unique set of characteristics revolved around “real-world practice”, which allowed the researcher to be an integral part of the report, highlighting and chronologically describing events in an effort to find an answer to the question:

*What is the influence of compulsory class attendance on module success rates at the UFS?*

Reference is made to a quote presented in chapter two. This quote should remind researchers that in trying to quantify a complex issue such as attendance and whether it influences academic performance, sometimes the simplest answer holds the most value:

*[...]Attending class is important for learning and may be one of the easiest things that students can do to improve their grades. (Zhao & Stinson, 2005, p. 7).*

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## **Summary**

The case study presented in this dissertation focused on the implementation of compulsory class attendance as an intervention to improve module success rates at the University of the Free State (UFS). The research was driven by the following question:

*What is the influence of compulsory class attendance on module success rates at the UFS?*

The purpose of this study was to explore compulsory class attendance as an intervention to improve module success rates at the UFS. This case study had a two-fold objective, namely to identify and understand the influence of class attendance on module success rates at the UFS on the Bloemfontein campus, and to describe the educational effect, which is the magnitude of the difference in modules' success rates observed during the intervention. To address the research question and reach the objectives, a pragmatic approach was followed and the research presented as a case study.

Studies in relation to class attendance and academic performance are not new to the higher education sector. However, these types of studies are limited, since they encompass complex measuring instruments and a number of variables that are difficult to track and explain (amongst others, the lack of control groups, cohort differences year after year, teacher-learner relationships, curricular changes etc.). The findings presented in this case study mirrored these complexities and the multifaceted nature of such a study. A definitive answer as to the influence of class attendance and module success was difficult to give when considering only the quantitative results. The intervention was observed to have had a positive influence in some of the modules based on the effect size analysis, Cohen's  $d$ , while some did not. The qualitative findings presented some interesting comments by teaching academics on this topic. Most interviewees commented on the perceived value of class attendance on academic performance, but cautioned that enforcing a class attendance policy would not solve the problem or create a better learning culture on campus.

Although the quantitative analysis generated some negative results, it contributed to the value of this study as it highlighted underlying issues such as large classes and the adverse

effects thereof. Some of these identified underlying issues formed part of the limitations posed by this case study. The main limitation presented was that it used historic and not concurrent (randomised) control groups. The implication of this was that various other factors (e.g. changes in class sizes and/or admission requirements) and interventions (e.g. tutorial sessions, curricular changes and/or lecturer changes) could have influenced the module success rates as well.

This study provided a better understanding and insight into the University of Free State case. It created a deeper sense, not relying on abstract and numerical data, but merging the effect size of the intervention with rich description of perceptions of the potential benefit of compulsory class attendance.

### ***Samevatting***

Die fokus van die gevallestudie soos weergegee in hierdie verhandeling was op die implementering van verpligte klasbywoning as 'n intervensie om module sukseskoerse by die Universiteit van die Vrystaat (UV) te verbeter. Die navorsing is gelei deur die volgende vraag:

*Wat is die invloed van verpligte klasbywoning op module sukseskoerse by die UV.*

Die doel van die studie was om ondersoek in te stel of verpligte klasbywoning as 'n intervensie module sukseskoerse by die UV verbeter. Die doelwitte van die studie was tweeledig, naamlik om te identifiseer en verstaan wat die invloed van verpligte klasbywoning op module sukseskoerse is by die UV op die Bloemfontein-kampus en om te beskryf wat die opvoedkundige effek is, wat die waargenome omvang van die verskil in modules se sukseskoerse is, gedurende die intervensie. Om die navorsingsvraag aan te spreek en die doelwitte te bereik is 'n pragmatiese benadering gevolg en die navorsing as gevallestudie aangebied.

Studies met betrekking tot klasbywoning en akademiese prestasie is nie nuut in hoëronderwys-omgewing nie. Maar hierdie tipe studies is beperk, aangesien dit komplekse meetinstrumente en menigte veranderlikes, wat moeilik is om te meet en te verduidelik (onder ander, die gebrek aan kontrole groepe, groep verskille jaar na jaar, dosent-student verhoudings, kurrikulêre veranderinge ens.), insluit. Die bevindinge soos aangebied in hierdie gevallestudie weerspieël hierdie kompleksiteit en veelvlakkige aard van so 'n tipe studie. 'n Definitiewe antwoord op die vraag of verpligte klasbewoning 'n invloed het op module sukses was moeilik om te beantwoord wanneer daar net na die kwantitatiewe resultate verwys word. Daar is waargeneem dat die intervensie 'n positiewe invloed op sommige van die modules gehad het, gebaseer op die effek-grootte analyses, Cohen se  $d$ , terwyl sommige nie het nie. Die kwalitatiewe bevindinge het interessante kommentaar opgelewer van die doserende personeel in verband met die tema. Meeste van die deelnemers het kommentaar gelewer op die vermeende waarde van klasbywoning op akademiese prestasie maar het ag geslaan daarop dat 'n beleid wat klasbywoning

verplichtend maak nie die problem sal oplos of 'n beter leerkultuur op die kampus sal skep nie.

Al het die kwantitatiewe analise in sommige modules negatiewe resultate opgelewer, het dit bygedra tot die waarde van die studie deurdat dit onderliggende kwessies soos groot klasse en die negatiewe effek daarvan, uitgelig het. Die grootste beperking was dat historiese groepe gebruik is en nie saamlopende groepe nie. Die implikasie hiervan is dat verskeie ander faktore (b.v. veranderinge in klasgrootte en/of toelatingspunt-vereistes) en intervensies (b.v. tutoriale, kurrikulum veranderinge en/of veranderinge in doserende personeel) ook 'n invloed kon hê op module sukseskoerse.

Hierdie gevallestudie bied 'n beter begrip en insig tot die geval van die Universiteit van die Vrystaat. Dit het 'n dieper sin voortgebring deur om nie net op abstrakte en numeriese analises staat te maak nie, maar om die effek-grootte van die intervensie te versoen met die ryk beskrywings van die persepsies van die potensiële voordeel van verpligte klasbywoning.

***Key terms***

Compulsory class attendance, success rates, academic performance, monitoring, teaching academic experience, student experience, mixed methods, higher education, pragmatism, case study