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Unlike quantitative research, which seeks to explain and give predictions that can be used in generalising places or persons, qualitative approach proponents regard their method as coming to understand how various social settings construct the world around them. Qualitative study takes each with a special focus in the design of instruments used to collect data. Leedy (1977) argues that it is erroneous to regard qualitative research as a methodology arising from the fact that quantitative approach is a tradition. Leedy (1977) is of the opinion that many inquiries start as qualitative and which can be confirmed using quantitative approaches. From the philosophical basis of interpretive research, different categories of interpretive approaches have been identified: phenomenology, ethnography, hermeneutics, case studies, action research and grounded methodology.



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### 3.4.1 Case studies

Leedy (1997:157) define case studies as *"a type of qualitative in which the researcher explores a single entity or phenomenon (the case) bounded by time and activity"*. Gall, Borg and Gall (1996) as cited in Leedy (1997:157) state that "researchers do case studies for one of three reasons: to produce detailed description of a phenomenon, develop possible explanation of it, or evaluate the phenomenon". Case studies can adopt a positivist or interpretivism approach depending on the data collected, methods used to analyse the data collected, or the researcher's approach. Reality can be obtained in greater detail by an observer/researcher, with the example of more variables as compared to experiments and surveys. Data collected from case studies can be in the form of words, physical objects, and images. Quantitative data can also be collected. According to Gall, *et al.*, (1996) three approaches can be used to analyse the data collected from case studies: interpretational

analysis, reflective analysis and structural analysis.

Interpretational analysis looks for themes, patterns, and constructs used to describe a phenomenon. Structural analysis refers to probing the data for patterns inherent in discourse, text or other occurrence. Reflective analysis uses primary intuition and judgment to portray a phenomenon (Leedy 1997).

The greatest weakness of case studies is that they are typically restricted to a single organisation. What happens in one organisation cannot be generalized as organizational cultures differ, thereby affecting outcome. In addition, different researchers may have different explanations of the same data as a result of organisational setup or bias, thus adding research bias into the equation.

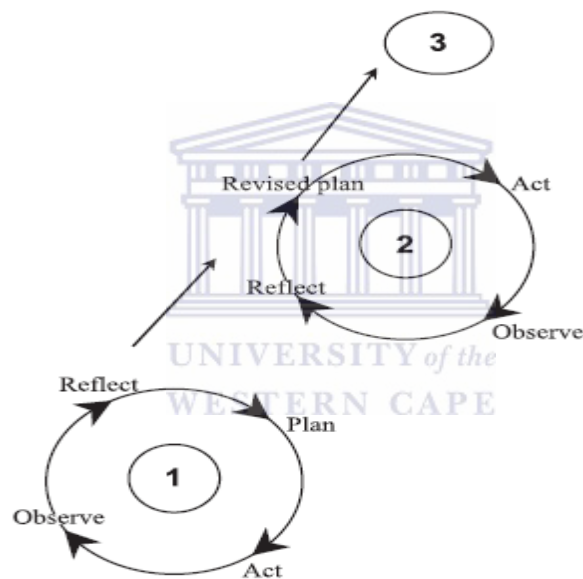
### **3.4.2 Ethnography**

Ethnography was widely used in anthropology studies but is now applied to other disciplines. Ethnography is defined by Creswel (2003) as an inquiry in which “*the researcher studies an intact cultural group in a natural setting during a prolonged period by collecting, primarily, observational data*”. Here the key focus is time and this allows the observer to get used to the setting and be able to collect data in an undisturbed way. Two common data collection techniques can be used and these are participant observation and ethnography interviews. Interviewees are selected purposefully unlike in quantitative sampling methods. A constant comparative method of analysis is used for data to check for new codes against the initial recorded codes or categories.

### **3.4.3 Action research**

Action research is another methodology that can be used in qualitative approaches. Origins of action research are not clear but Altrichter, Kemmis, McTaggart and Zuber-Skerritt (2002) cite Kurt Lewin (1946) although other authors like Collier (1945) were calling for similar action-oriented approaches to research. In action research, the researcher does not merely examine, but also participates enthusiastically - typically by acting as a change agent in relation to some intervention. Leedy (1997) defines action research as an applied study that focuses on finding a solution to a local problem in a local setting. The researcher tries to construct results or a solution that is of practical value to the people or the setting in which the study is being carried out, and at the same time develops theoretical understanding. Altrichter, *et al.* (2002) argue that for research to be called action research it must be

collaborative. The personal principles of the researcher are decisive, since the chance for direct researcher intervention is always there. A working definition for action research used for this study is a systematic group enquiry that is collaborative, self-reflective, important, and undertaken by participants or members in the enquiry. This is more applicable in our situation where we want to solve a real problem of improving low pass marks in programming for FET students. Action research combines strictness and application in moving towards high levels of performance, as well as leading to innovation and making a contribution to knowledge (Bennett and Oliver, 1993). The diagram below (Figure 5) shows some stages in action research. Action research is a practical way of solving problematic situations through collaborating with members. A problem is identified and a solution suggested to be put into practice. The process goes on until a refined solution is reached.



Source: Zuber-Skerritt (2001, p. 15)

**Figure 5:** Stages in action research.

### 3.4.4 Grounded Theory

This is a type of qualitative approach developed by Glaser and Strauss (1967). Its main drive is to produce theories regarding social phenomena that is, to develop higher level understanding that is “grounded” in, or resulting from, a orderly analysis of data, (Glaser & Strauss 1967). Grounded theory is suitable when the study of social interaction or experiences aims to explain a progression, not to test or confirm an existing theory. Just like action research, one of the key features of grounded theory is its iterative design, theoretical sampling, and orderly analysis (Leedy 1997).

### **3.5 RATIONALE FOR CHOOSING ACTION RESEARCH**

It has been said that a good research design will not only anticipate and specify the seemingly countless decisions connected with planning and carrying out research process, but will also present a logical basis for these decisions (Manheim, 1977). Choosing an inappropriate research method leads to missing the research objective(s). Although the research used a quantitative approach in analysing test scores, action research is an approach mainly adopted by qualitative researchers. In this regard, the analysis of some open-ended questions from the questionnaire was done using a qualitative approach to check on perception and behaviour that has directly impacted on improved quality in programming. Action research was used throughout in undertaking the study for the reasons to be explained below.

According to Bennett and Oliver (1993) action research, as indicated in the previous section, is concerned with systematic data collection and research leading to action and change. Very few specialists take a systematic approach. The most important aspect of action research is the involvement of key actors in bringing about change. Everyone wants change, so if properly done action research is likely to yield good results. In this case, the researcher, who is also a programming lecturer, and the students are struggling with programming so coming up with an action that is meant to improve their performance is likely to be accepted. Unlike other scientific studies which are meant to enrich the researcher with more knowledge leaving the organization suffering, action research is developmental (Bennett and Oliver, 1993). These researchers further postulate that:

*Classical or conventional research can obtain high quality information, and the researcher may be able to make recommendations. However, this research does not generally bring about the commitment and support for solving real problems in a real time frame. Action research can, and does, achieve all these things (Bennett and Oliver, 1993).*

It was in this regard that the researcher decided to undertake an action-research approach.

### **3.6 SAMPLE POPULATION**

The sample population of this research comprises a body of people that the researcher wishes to investigate (Hussey and Hussey, 1997). According to Yount (2006: 7-1) a sample population is defined as “*all subjects you want to study*”. All objects that become are in the

study circle becomes the sample population included in the study. For the purpose of this study the sample population consists of FET students studying IT in the Western Cape Province. Yount (2006) further cites that the whole population of significance is generally too large or geographically scattered to study directly. In such cases drawing a sample from a particular population enables the researcher to analyse the sample and make inferences about the population characteristics.

### 3.7 SAMPLING TECHNIQUE AND SAMPLE

According to Adams, Khan, Raeside and White (2007:88) sampling “*is the process or technique of selecting a suitable sample for the purpose of determining parameters or characteristics of the whole population*”. Saunders, Lewis and Thornhill (2003) suggest that the purpose of sampling is to decrease the quantity of information you have to gather. This is also because of the previously stated reason above that population may be scattered geographically. In this research 60 students studying NCV level 3 IT at the College of Cape Town’s Crawford campus were used as the sample from which the researcher drew his inferences. This sample provides a cross-section of the population being studied. Yount (2006) identified four major types of sampling and these are:

- **Simple random sampling:** where selections are made from a specified and defined population i.e., the frame is known (Adams, *et al.*, 2007).
- **Systematic sampling:** which guarantees that units cannot be sampled more than once. This is one in which every  $K^{\text{th}}$  subject on a listing is chosen for inclusion in the sample where K is the element.
- **Stratified sampling:** which “*permits the researcher to identify sub-groups within a population and create a sample which mirrors these sub-groups by randomly choosing subjects from each stratum*” (Yount, 2006:7-6).
- **Cluster sampling:** where “*a number of clusters which are characterised by heterogeneity in between and homogeneity within*” (Adams, *et al.*, 2007:89). This is more very useful for very large samples.

In this research, stratified sampling was used to obtain the test scores. Almost equal size sample groups were used for the test score analysis. Cluster sampling was used for grouping the students into four different FB groups created by the lecturer. The questionnaires were distributed to a cluster of students who attended the weekend classes. The fact that cluster sampling takes clusters of people rather than individuals makes it a

more probable cross-section of the population as there is reduced bias. Cluster sampling is also cost-effective and the researcher saw it as appropriate due to geographical distance between FET colleges in South Africa - yet alone in the Western Cape.

### **3.8 DATA COLLECTION INSTRUMENTS**

The main data collection techniques used in this research were questionnaires, participant observation, and test scores. The social nature of an information system (IS) led many IS researchers to adopt research approaches that focused primarily on human interpretations and meaning (Walsham, 1995). There is no rigid separation between data collection and analysis and the process is an iterative cycle of data collection as shown in Figure 5. The cycle is repeated and hypothesis is elaborated as the process continues. This is typical for interpretive research as the researcher has to interact directly and intensively with the subject over a period of time. Statistical analysis was used for the student test scores to check on improvement on quantity of passes. A comparison was made for test scores achieved before introduction of FB and after. The interpretivism approach uses different instruments to collect data, some of which include interviews and a questionnaire. On the other hand, positivists' use different methods like surveys to collect quantitative data. In this research, test scores were collected and statistical analysis done on data gathered using a questionnaire.

According to Thomas (2003) a questionnaire is defined as a set of questions which participants are asked to answer. The questions can be open-ended or closed questions depending on the answers to be collected. Questionnaires help to collect participant opinion and facts. Opinion can be attitudes and expressions. Questionnaires are very important in that they can be given to respondents anywhere irrespective of geographical distances. For the closed questions a Likert Scale was used from -3 to +3 (strongly disagree to strongly agree). Likert Scales are useful when evaluating perception, behaviour, attitude, or other phenomena and therefore very appropriate to the present research area (Leedy and Ormrod, 2005).

### **3.9 MEASUREMENT**

The researcher decided to use a questionnaire for the following reasons:

- Since the researcher is also part of study, questionnaires were distributed to all



students who attended the extra class for programming and the researcher explained to the learners where clarity was needed.

- Questionnaires are quick and easy for respondents to tick boxes hence, respondents are more likely to answer all the questions.
- The researcher avoided interviews due to the fact that when used, the respondents may feel hesitant of anonymity when interacting in person with the interviewer.
- The use of questionnaire avoided the bias common in interviews.

### 3.9.1 Questionnaire design

The most essential process for a researcher to achieve the research objectives in quantitative approach lies in the design of the questionnaire (Thomas, 2003; Lietz, 2008; Leedy, 1997). Consequently, it was thought necessary to formulate suitable questions that the respondents will understand especially for this study, bearing in mind that English is not the respondents' first language.

The questionnaire used in this research was designed to measure the variables mentioned in the literature review. In some cases, some of the pointers were established by the researcher, while some were agreed upon or modified from previous scholars. In other cases, new indicators were added and equated with the previous measures to help improve the explanations of the study model.

The questionnaire was organised into two sections:

**Section A:** The cover page of introduction to the respondents describing the research, researcher, informed consent, and appreciation for the responses. Biographical information of respondents was also requested.

**Section B:** This section was designed to get an overview of FB usage in relation to its effect on improving quality in programming. There are 11 closed questions and 5 open-ended questions. In formulating the questionnaire, the following factors were considered as suggested by Leedy (1997):

- **language:** unmistakably clear
- **question:** designed to fulfil specific objectives
- **question length:** questions kept simple and brief
- **question order:** the question sections progressed logically
- **question format:** questions were asked to avoid leading questions and also to

avoid expected answers instead of their own thought

- **complex questions were avoided:** a cognitive approach was taken into consideration
- **indirect rather than direct questions:** were asked for issues that might be very sensitive.

Once the above points are adhered to, it is highly likely that one would get accurate responses as respondents will not struggle to interpret or comprehend. After designing the questionnaire, the researcher must send a pilot questionnaire to get a feel on how respondents are likely to respond.

### **3.9.2 Pilot studies**

It is very important to pilot a questionnaire before putting it into full use. This enables the researcher to have a rough idea on what answers to expect and to check on clarity of the research instrument. A pilot study was carried out with five respondents and these were used in the final results. The main purpose of the pilot questionnaire was to:

- assess the reliability of the research instrument constructed; and
- check time constraints taken to complete the questionnaire.

Piloting allows the researcher to make changes, if needed, to the initial questionnaire and the instrument can be used for the data collection in the research. The researcher distributed 30 questionnaires during the month of September 2012 to all level 3 students who attended the extra class studying computer programming at the College of Cape Town, Crawford campus. The FB group was started in March 2012 just before the first term tests. A comparison of test scores from the time before introduction of FB and after to check on improvements on quantity of passes for the students. The questionnaire section assisted to answer the aspects about the quality of improvements in the subject.

## **3.10 DATA ANALYSIS**

### **3.10.1 Data analysis in qualitative research**

The greatest challenge to the researcher in employing qualitative analysis was in reducing what may seem an overwhelming amount of data collected from observations and open-



ended questionnaire responses. Some of the aims of qualitative analysis as identified by Adams, *et al.*, 2007 (2007:155) are listed below; these include:

- (i) identifying deviants and oddities;
- (ii) comparing theory—detection of conformance (if the scientific method is used);
- (iii) identifying groups—classification;
- (iv) comparing and contrasting groups;
- (v) constructing a model;
- (vi) testing the model—validation and
- (vii) detecting patterns in the data.

According to Adams, *et al.*, (2007) analysis involves an exploration stage (points i and ii); a classification stage (points iii and iv); a conclusion-drawing stage (points iii and v); a representation stage (point vi); and a testing phase (point vii). A number of planning analysis techniques may then be implemented when working with qualitative data. These include cross-tabulation and a framework approach.

**Cross Tabulations:** When data is collected using the above instruments, the data is summarised in the form of statements onto 'post-its' (Adams, *et al.*, 2007). Different colours may be used for different 'post-its', to represent various groups or themes. Classification is then conducted by grouping related clusters of information, which may then be summarised using count frequencies. Cross-tabulations may be formed to decide on the way in which understanding, views and attitudes of people compare, by different groups, gender, behaviour, opinion and experience, and so on. The information may then be shown on a diagram, summarising and ultimately answering the research questions. However, this method is often criticised for being "*reductionist, forcing quantification and being too positivist*" (Adams, *et al.*, 2007:160).

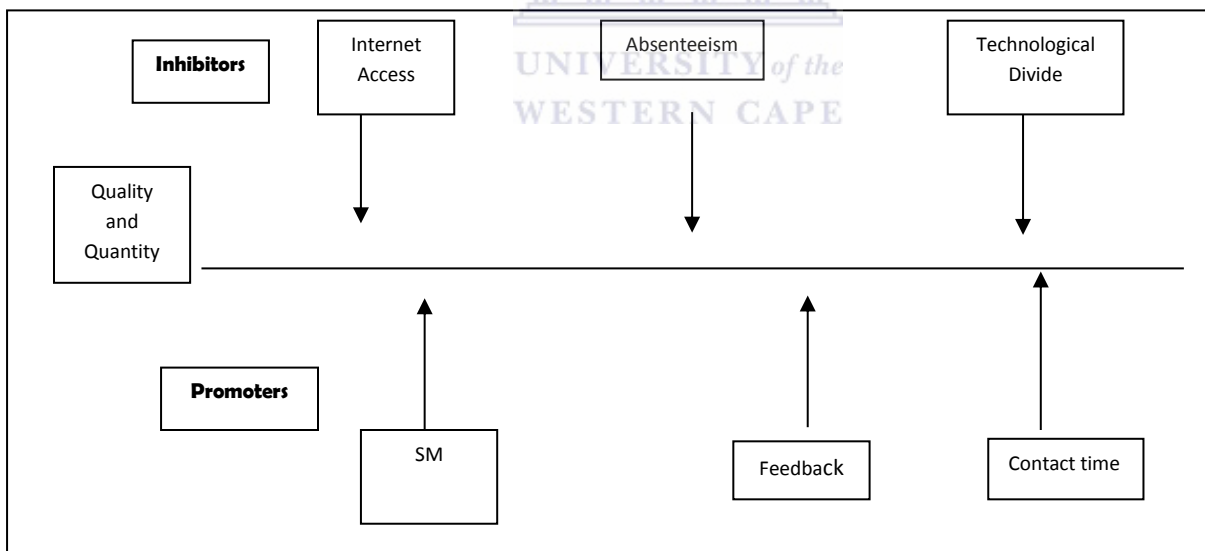
**Framework Approach:** This is a more structured technique of analysing qualitative data compared with cross tabulation, which may be too ad hoc (Adams, *et al.*, 2007). This approach has five main stages:

- (i) familiarization - forging a deeper understanding of data; and identifying themes;
- (ii) creating a thematic framework - this involves a thorough scrutiny of the themes; removing of repeating themes and identifying new themes, if any;

- (iii) coding and indexing of data - this involves attaching codes for the purpose of identifying similar theme;
- (iv) charting - the coded data may now be represented using graphs or charts and
- (v) mapping and interpretation - this involves attaching meaning to the charts; providing associations and explanations.

**Content Analysis:** This involves counting of key words, and analysing the frequencies (Adams, *et al.*, 2007). Content analysis aims at describing contents of the respondents; it comprises six stages. The first stage is to identify the unit of analysis; in most cases this will be an individual, or it may be a geographic place/country. The second stage involves setting categories so that a unit may be placed only under one category. A great challenge posed by this is that different researchers may produce different categories. Coding of the information then follows and then charting followed by the drawing of a conclusion.

**Forced Field Analysis:** This is a method used to identify positive and negative factors contributing towards success/failure of an objective (Adams, *et al.*, 2007). The diagram below (Figure 6) helps to illustrate this (this has been modified to suit the research topic).



**Figure 6:** Adapted from Adams, *et al.*, 2007: Forced Field Analysis on performance of the Students

**Schematic Diagrams:** Schematic diagrams are the best way of illustrating or analysing information collected through interviews. This is a pictorial representation of facts; those factors with more influence are represented by a thick line pointing towards the analysed or researched concept.

**Cause and Effect Diagrams:** These are similar to schematic diagrams except that they do not represent influence of factors on a target effect using varying line thicknesses (Adams, *et al.*, 2007).

### 3.11 VALIDITY AND RELIABILITY OF THE RESEARCH INSTRUMENT

Leedy and Omrod (2001: 31) put an emphasis on importance of reliability and validity in measurement instruments as follows:

*“The validity and reliability of your measurements influence the extent to which you can learn something about the phenomenon you are studying, the probability that you will obtain statistical significance in your data analysis, and the extent to which you can draw meaningful conclusions from your data.”*

Adams, *et al.* (2007:235) define reliability as *“the consistency of the measurement, or, more simply, the degree to which an instrument measures the same way each time it is used under the same conditions with the same subjects”*. This is all about consistency throughout the research and whether the results may be repeated. All questions were derived from the literature review. All questions asked in the questionnaire aimed to check the learners' attitudes to FB, and their perceptions of learning programming, using FB, as well as their behaviour. The questions asked were valid as they addressed the main research question.

Validity involves the degree to which one is measuring what one is supposed to measure; or more simply, the degree of accuracy of the measurement (Adams, *et al.*, 2007). Problems of validity and reliability may be caused by some common biases in research, such as sampling and network biases (Kane and O'Reilly-de Brun, 2001). The researcher is of the assumed opinion that similar results can be obtained if the research is repeated under similar conditions. The researcher did take this into consideration during the design of the research instrument, which was distributed to all learners who were present on the day the questionnaire was issued, irrespective of learners' social status and academic ability. In achieving the research objective and the conceptual model, the questionnaire layout focused on the ease of acceptance by the respondents; it was organised in sections of about eight pages each; and explained as follows:

**Section A :** Demographic data

**Section B:** Research questions with 11 closed questions and 5 open-ended questions.

External validity may be the problem in terms of generalizing the results, if there is a reactive

effect in selection of samples. FET in rural areas may produce different results, owing to dissimilar samples/ groups of people with different backgrounds in SM use. However, as the researcher has pointed out, if the internet access is equitable, the generalization of findings will be possible.

### **3.12 BIAS IN RESEARCH**

With regard to the issue of bias in research, Lubbe (2003) states that it is naïve to assert that any form of research, or perhaps human activity generally, is without bias. Even in the physical and life sciences, the researchers' bias is reflected in the subject area, experiment chosen, as well as the way the experiment is conducted. Hence, bias cannot be ruled out but should be recognised and its implications acknowledged and accepted. With regard to research findings Lubbe (2003) warns that it is important that these findings are honestly presented and not produced in such a way as to simply support the opinions or prejudices of the researcher. These guidelines on bias guaranteed that this research was strictly conducted in an acceptable way hence the research results presented in this study are true, reliable, and valid.

### **3.13 CHAPTER SUMMARY**

In this chapter, a comprehensive account of the research philosophy, strategy and methodology for the research is presented. The research makes use of both the qualitative and quantitative approaches, utilising a mixture of participant observation and action research methods. A detailed account of action research has been outlined indicating the choice for the study. While using fewer materials concerning scientific research strategies, an explanation of how the researcher collected and analysed data through action research was clearly outlined. This included an extensive literature review on the subject and the development of an instrument. The findings were presented in the next chapter- Chapter Four. A summary of this chapter is presented in Table 2 on the next page.

**Table 2:** Summary of research design

| Level of decision                           | Choice  |
|---|---|
| Epistemological and ontological assumptions | Positivism. However the knowledge obtained is through interaction with the society.               |
| Research methodology                        | Mixed approach method (quantitative and qualitative method).                                      |
| Research techniques                         | Participant observation, questionnaires and test scores.  |
| Organization                                | College of Cape Town- Crawford Campus   |
| Timeline                                    | FB group introduced beginning of March 2012   |
| Subject                                     | Use of SM in improving quality and quantity of pass marks in computer programming at FET colleges |

In Chapter Four test scores (before and after the introduction of FB) and a questionnaire were used to collect data. A statistical analysis was done to compare which of the listed variables below had the most improved students. The four variables for each sub-group are:

- more lecturer contact time
- more practice contact time
- more technical contact time
- more peer contact time

The empirical findings of this study are also given in Chapter Four.

## **CHAPTER FOUR: FINDINGS**

### **4.1 INTRODUCTION**

The research design outlined in Chapter Three was used in the collection and analysis of data. The data collected assisted in illustrating the situation that exists for learners with regard to SM use in learning, and also the role it plays in improving quality and the number of passes in programming at FET colleges. The results from the data collected were used to present the conclusion which is found in Chapter Five. The most important rule for all data collection was to report how the data were created and the way in which they came into the possession of the researcher. The data were modelled with variables, units and observations.

### **4.2 SYNOPSIS OF THIS CHAPTER**

This chapter portrays the findings that helped in answering the research question on how to use SM to improve the quality and number of computer programming passes for FET students. The intention of this chapter is to examine the responses collected and the test scores obtained by the students to ascertain the use of the social medium of FB on the pass rate in computer programming. A total of 54 learners from the two programming classes participated in the research (six had withdrawn from the course). To the learners, only two groups were visible; however, the lecturer had split the learners into four groups of 14 learners. The group settings were configured in such a way that the administrator of the group had to allow/approve any new post before being available to all other students. The intention was to check the four variables identified from the preliminary research as having potential for improvement of quantity and quality. The lecturer had split the learners into four separate groups, outlined above as: LCT, PCT, PRCT and TCT.

Quantitative data in the form of test scores from the summative tests (ICASS), ISAT and the September 2012 provincial examination was collected from the 54 students throughout the year. Thirty questionnaires were distributed to all students who attended an extra class during one weekend and 21 responses were received. The learners were given a baseline test in the first term to check their performance. The lecturer then introduced a FB group in learning programming. The lecturer explained in detail to the students the reasons for introducing FB and laid out clear usage policy for the group. All learners were told that the

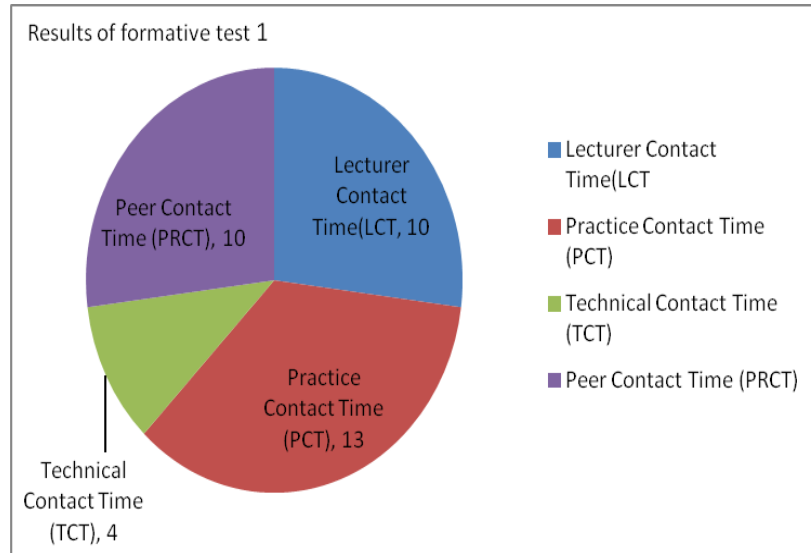
intention of the FB group was to increase the quality and number of passes in the programming component. Learners expressed great satisfaction with the introduction of the platform; wishing that all other lecturers would implement such initiatives. The group settings were designed in such a way that the learners' privacy was respected. This was to dispel the idea of compromising learner privacy. The lecturer informed the students that no one else would be able to access the platform, except registered users; and only invited guest lecturers after notification to all group members. Test scores for learners studying NCV IT level 3 in programming during the year 2011 were also used for analysis purposes.

### **4.3 FINDINGS**

Descriptive statistics were provided in the form of frequencies, averages and percentages from the test scores, and the information was presented graphically, based on the research samples from the four groups. The collected questionnaires were checked for correctness and completeness. The questionnaire was composed of 5 open-ended and 11 closed questions with responses ranging from "strongly disagree" to "strongly agree". The closed questions comprised responses based on the Likert Scale. Microsoft Excel application was used for analyses and presentation of primary data collected from the questionnaire. Data collected from the four sub-groups was transcribed onto an Excel sheet and analysed by using cross tabulation. The researcher made use of the COUNTIF function to obtain the sum of responses for each question throughout the first eleven questions, which were responded to through the use of the Likert Scale rating. The remaining five open-ended questions were analysed using the content analysis method. The summary of responses for questions 3 to 9 from the two groups is also presented (see Table 5).

### **4.4 RESULTS FROM THE TEST SCORES**

The learners were split into four groups of 14 ( $n=14$ ) students, and given a formative theory test after completing the first topic. Figure 7 shows the number of students from each group who passed.



**Figure 7:** Results of the Baseline Theory Test

After all data were recorded onto a Microsoft Excel spreadsheet, the researcher used the COUNTIF function to calculate the average class percentages and the number of learners who passed each test or practical. The figures collected were then used to check whether the number of passes had increased or decreased. The average percentages for each class were also used to check whether the quality had improved. The observations made during class exercises also helped to check the quality of the programming being implemented.

Two groups, namely, the LCT and PRCT had equal number ( $n=10$ ) of students who passed the test; this being 71% of the group. The PCT group had 13 learners who passed the test; which is a 93% pass of learners from that group. The group with the lowest number of students who passed the test was TCT, with four learners (31% of that group). The groups' average class percentages were also calculated and are shown in Table 3 below.

**Table 3:** Average class percentages for formative test1

| Group                  | Average class percentages formative theory test |
|------------------------|---|
| Lecturer Contact Time  | 52%   |
| Peer Contact Time      | 69%   |
| Technical Contact Time | 47%   |
| Practical Contact Time | 58%   |



Based on the figures shown on Table 3, it is clear that, although students were passing, they were doing so with only slightly higher than average marks. The group with the lowest class average had some students who were repeating; some of these students were not at all serious, imagining themselves to be merely 'completing a process', with the aim of passing. It was interesting to note that two of the brightest students also came from this group. This is a clear indication that the students were not grouped according to ability for the purposes of generalising the results.

The researcher went on to collect test scores from two summative tests and two practical tests, after the introduction of SM for purposes of comparison. In addition, the results from the September provincial examination were recorded. Altogether, the seven test scores made up the Integrated Assessment (ICASS mark reflecting as POE mark on the mark sheet (see index 1, 2, 3 and 4). The ICASS mark contributes 50% of the final mark. The Integrated Summative Assessment Task (ISAT) contributes 15% and the examination mark contributes 35%. Previous experience has shown that students who do not do well in the ICASS are more likely to fail. To be on the safe side, students had to have received an average year mark of 60%. Recently, the Department of Education introduced a policy in which learners who obtain a mark below 50% for the ICASS (POE mark) are to have their results withheld, even if they pass the final exam. This is a way of trying to improve the quality achieved throughout the year; unlike a situation where a student is graded using the final examination only.

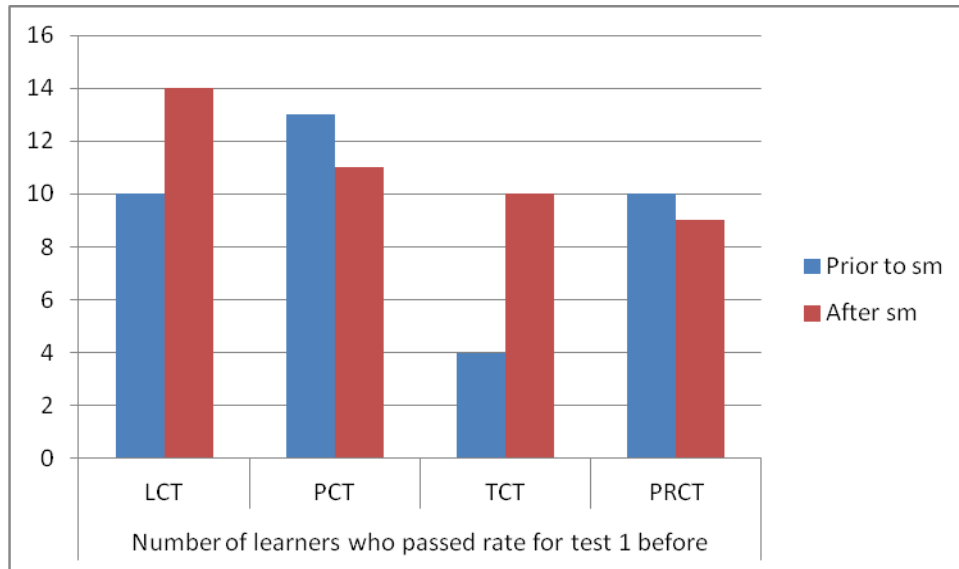
#### 4.4.1 ANALYSIS OF TEST SCORES

##### i. Theory test 1

The results for the first summative test for Term One are shown in Table 4 below.

**Table 4:** Average percentage pass per group for test1

| Group                       | Average class percentages formative theory test |
|-----------------------------|---|
| Lecturer Contact Time(LCT)  | 52%   |
| Practice Contact Time(PCT)  | 69%   |
| Technical Contact Time(TCT) | 47%   |
| Peer Contact Time (PRCT)    | 58%   |



**Figure 8:** Comparative analysis of number of learners who passed the baseline test and the theory test 1

The two theory tests contribute 20% of the year mark/POE mark. Theory test 1, also known as the March test, is executed at the end of term one; test two, also known as the mid-year examination, is executed at the end of the second term, that is, the beginning of June. Looking at the diagram above (Figure 8), it is clear that SM has greatly affected two groups (LCT and TCT) after its introduction for the first summative test. The group that had SM with more lecturer time had an increase of 15% (class average ascending from 52% to 78%). The significance of this is attributed to the use of SM. Furthermore, the LCT group had a 100% pass rate (n=14). The group that had more practice time through SM, but without great intervention from the lecturer, experienced a decrease in number of students passing from 13 to 11. This could be attributed to more time on the practical side, therefore concentrating less on the aspect of theory, however, the class average for the PCT group improved by 2% (from 69% prior to SM use to 71%). There is a benefit in terms of quality, but the number of passes has dropped. The TCT group also benefited more, having only four learners out of 15 passing the baseline test; receiving 10 passes for the first formative test. This was a remarkable improvement, which the researcher attributed to SM usage. The fourth group (PRCT), had the number of learners passing the test dropping from 10 to eight. This was an interesting group. One of the best students did not join FB, but said that he would always communicate with group members who had joined. When asked, he cited

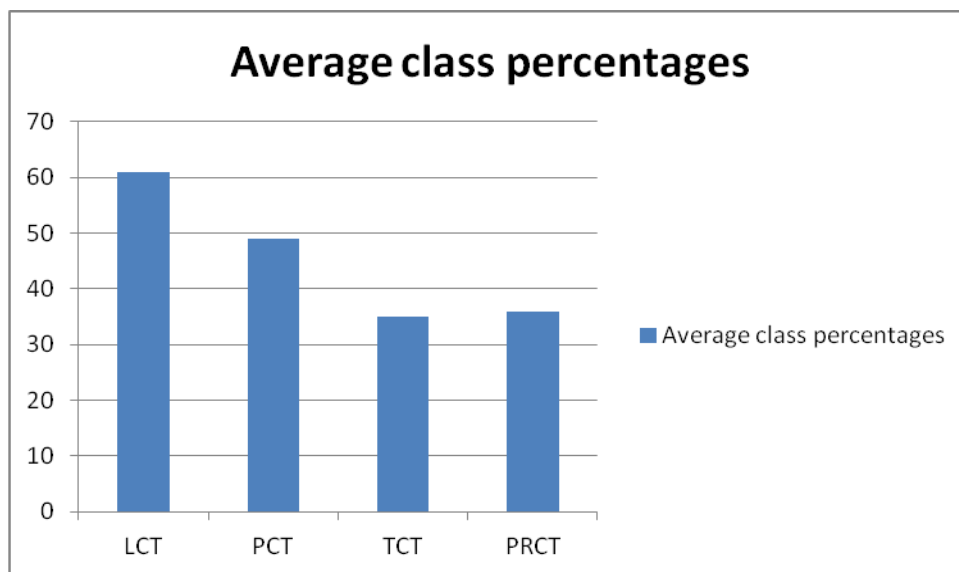
personal reasons for not joining, but assured the lecturer that he would obtain all information from friends, and would certainly pass all examinations.

### ii. Theory test 2

LCT almost maintained the class average per cent, dropping only by four per cent to seventy-four (74%). All learners passed the examination. Class percentage for the TCT group dropped by nine per cent from seventy-one (71% in test one to 62% in test two). The researcher is of the opinion that this may have been as a result of increasing content that they had covered from the beginning of the year to June. Thirteen people passed the test; the lowest mark being a respectable 47%. In the PCT group only seven people passed the examination, with a class average of 50%. There was a drop of three percent from 53% to 50%. The fourth group, PRCT, had a five percent drop in group average from 56% in term1 to 51% in term two. Despite the decrease, the number of learners who passed increased by one from nine to a total of 10.

### iii. September examination (provincial examination)

The September examination contributes 30% of the POE mark. It has two papers (theory and practical) which are combined to produce one mark. Figure 9 below shows the average class percentages for each group, for the test scores obtained in the September examination.



**Figure 9:** September results group average percentage passes

LCT out-performed all the groups, with a class average of 61%; the highest mark being 84%: an outstanding performance according to college gradings. PCT had a class average of 49%, with a total of nine out of 14 students passing the examination. The TCT group obtained a class average of 35% with only one learner passing the examination, and 12 students failing. One learner from the group did not write the examination, the reason being unknown. She was given 0% instead of 'absent'. This was because she failed to produce satisfactory evidence for her absence from the examination. As per college disciplinary regulations, the lecturer referred the case to the programme manager for academic neglect on the learner's part. PRCT had a group average of 36% with only three learners passing the examination. Two of the learners from the group were among the top students of the subject, one of them receiving 81%; an outstanding performance according to the college standards. The other one obtained 72%. In this group, one student preferred not to write the examination. When questioned, the learner had given up already and was waiting for the next year in which she would repeat the same level.

#### iv. Practical 1 component

The LCT group had all 14 learners passing the examination; the average group mark was 94%. This was a far better performance compared with what they had achieved in theory test one. The second group (TCT), managed to achieve a 78% average. There was a 7% improvement compared with their theory group average mark. All 14 learners in the group passed the practical -- an indication that the group was strong in the practical component. The third group (PCT), obtained an average mark of 81%; thirteen out of 14 learners passed the practical test. This was the group's best performance in all tests and practicals. The PRCT group had an average mark of 63% with only three learners of a total of 14 failing.

#### v. Practical 2 component

The group average percentages for practical test two are shown in the table below.

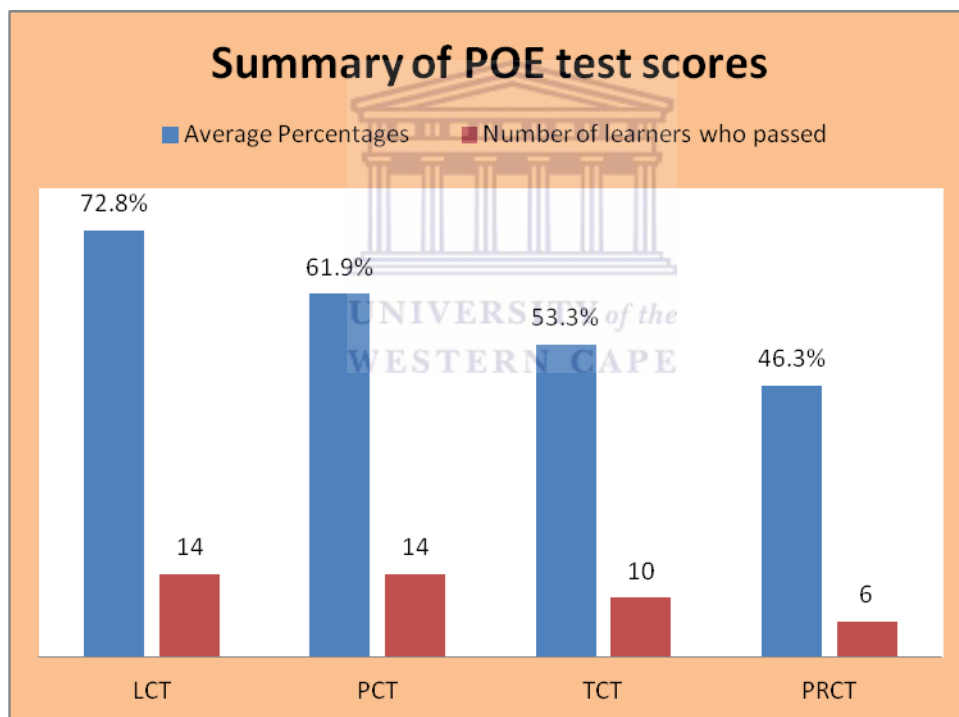
**Table 5:** Average group percentages

| Group                  | Average percentage |
|------------------------|--------------------|
| Lecturer Contact Time  | 64%                |
| Peer Contact Time      | 58%                |
| Technical Contact Time | 49%                |
| Practice Contact Time  | 37%                |

All fourteen students from the LCT group passed the test, but the highest score had fallen from 100% in practical one to 80%. The worst performing group was the PRCT, six learners failing to obtain a pass mark of 50%. An observation made showed that performance had dropped from the term one (March test).

#### 4.5 SUMMARY OF PORTIFOLIO OF EVIDENCE GROUP MARKS

The Portfolio of Evidence (POE) file is where all year assessments are kept for the purposes of verification from the Department of Education and shows all year marks for the student. It is important to give count values of the number of passes, because this helps to check on the number of passes from different groups as a result of the introduction of SM. Figure 10 below shows average group percentages and the number of learners who passed from each group out of a total of 14 students.



**Figure 10** showing summary of group test scores for Portfolio Of Evidence (POE): LCT- More Lecturer Contact Time group, PCT- More Practice Contact Time group; TCT-More Technical Contact Time group; and PRCT- More Peer Contact Time group

An analysis of Figure 10 shows that the overall performance of the LCT group was the best, with all 14 students passing. The lecturer had more influence in the group; one of the students assigned as second administrator was knowledgeable in the programming field due

to his high school programming skills in JAVA (an object oriented programming language) language. Another important observation was that the lowest mark for the group was 64%, which is acceptable, guaranteeing the learner's passing the examination. The student who received 64% will enter the final examination with 32%; needing only 18% from the final examination and the ISAT mark. This is because the POE mark contributes 50% of the final mark. The student with the highest mark (81%) in the group will need at least 9% to pass the examination; this is quite easily achieved, based on the group's overall performance. Apart from the above-mentioned, the quality of programmes produced during group exercises was outstanding. This is significant in improving the number of passes.

The PCT group had all 14 learners passing the examination with a group average percentage of 61,9% which was lower than the LCT group's average mark(72,8%). This is the group that had more practice using SM, but with less lecturer intervention. The lecturer assigned a group member who would pass on small assignments; projects and research; and collaborating with other group members in solving problems. This group did well in practicals, better than in the theory test during the first term than in their theory paper. This is most presumably due to the fact that they concentrated on practical aspect only ignoring the theory part of the subject.

The third group, TCT, used FB mainly to obtain links from other students; mostly learning on their own. The lecturer guided the learners, but with less intervention than with the first group.

The last group (PRCT), used SM with extremely limited guidance from the lecturer, who was mainly the group administrator; he checked to see whether learners were digressing too much, using obscene language, or exposing any unwanted behaviour such as would be out of keeping with the norms of the college. More than half of the group, exactly eight of a total of 14, failed to obtain 50% for the POE - also referred to as year mark) mark: this makes it very difficult to pass the final mark. A student from the group with 46% will enter the finals (November examination) needing at least 27%: a very difficult position to be in. The researcher is convinced that three learners among those who passed preliminary tests have a greater probability of passing in the finals, their POE mark being above 60%. Although two learners from the group did very well, the group's final mark was affected by most learners' receiving very low POE marks. A count shows that 14 learners had a mark considered a failure for the POE result. Forty-two students had passed the summative test,

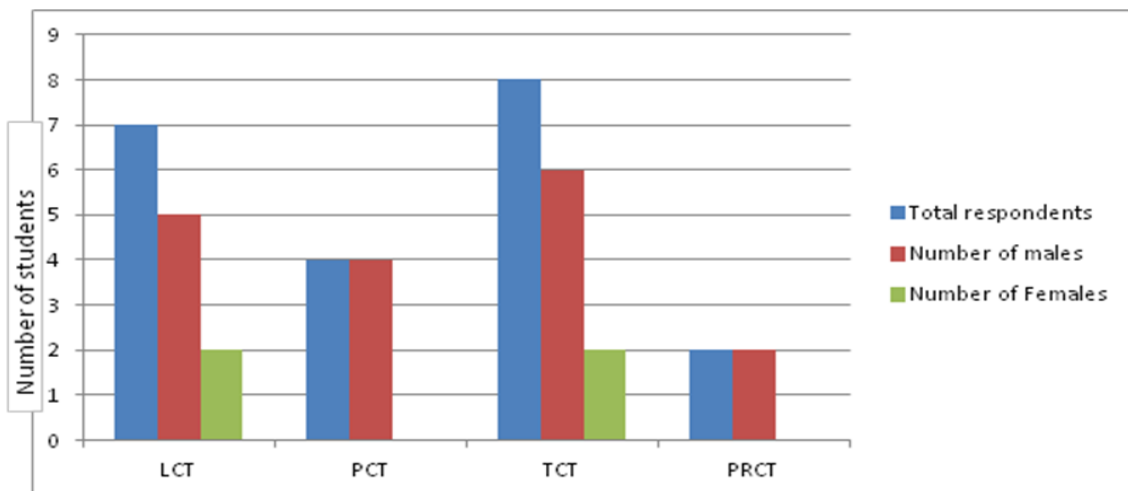
of a total of 56. This is a great improvement on previous years. For example, in 2010, only eight learners out of 58 students passed; POE marks range from 50% to 58%. In 2011, there were 10 learners of a total of 30 who had a mark equal or above 50%. The average class percentage was 40,3% which is well below the learners of 2012, with 63,9%. Twenty-four learners had a mark which equals to, or is greater than 50%.

In comparison to the other programming class for 2012, the average POE mark was 47,3%, but this is an improvement from the previous year by 7%. It is also important to note that of the number of learners who passed their POE, only two gained above 60%; the remaining eight were in the range of 50% to 59%, which is not good enough to guarantee them a final pass mark. This also might explain the quality and number of passes for the previous years, compared with the current group of learners studying programming in 2012. Final results from the national exam showed an increase of 35% from the 30% pass rate in 2011 to 65% in 2012. Apart from increase in quantity, a number of students had passed the subject with high marks rather than with average pass marks (four students passed with distinctions).

#### 4.6 ANALYSIS OF QUESTIONNAIRE RESPONSES

##### 4.6.1 Demographic

A total of 30 questionnaires were distributed during one weekend class, and 21 were collected. Nine students failed to complete and did not return their questionnaires, which were grouped according to the four SM groups in which they belonged. The researcher also made a gender count for each group. The results are shown in Figure 11 below.



**Figure 11:** Demographic patterns for each group



While age may be noted as contributing to a learner's success in programming, in terms of the quality and quantity of passes, gender does not signify, however, there seems to be more gender equality in level 2 IT than in the upper levels of 3 and 4.

The LCT and TCT groups had the highest respondents; seven and eight, respectively. PCT had only four respondents, all of whom were male students. The PRCT had two learners who responded; again, all were male students. The attendance of learners from this group was not very good compared with other groups. This may have negatively affected their performance, as seen from the group averages. Their participation in the FB group created was not very active compared with that of other learners. Frequently, a good discussion would end in frivolous conversation, distracting students from their work. Of the 21 students who responded to the questionnaire, eight were between the ages of 20-22; and 10 were between the ages of 17-19; two were 23 years or older; and only one learner was between the ages of 14-16. All of the learners, all except two, live on the Cape Flats with their parents. Only one male student lives alone; another resides at the college. It was interesting that all respondents professed to have the latest mobile phones, such as Blackberry, Nokia N-series, the latest Samsung and Nokia C1 among others, all of which have the capacity to connect to FB. Forty-three per cent of the respondents said that they had internet access at home using a computer, and 47% relied on their mobile phones for connection; but 1% relied on the college for internet use.

In Table 6, a summary of responses from the respondents on FB usage is shown. Responses for questions 3 to 11 are shown using a six-point Likert Scale, rating from "strongly-disagree" to "strongly-agree". The data was then captured on an Excel sheet taking account of each rating. The ratings were as below:

- Strongly Disagree = -2
- Disagree = -1
- Neutral = 0
- Agree = 1
- Strongly Agree = 2

Table 6 shows a summary of responses from the 21 respondents for each question. The questionnaire is in the Appendices (see Appendix VI).



**Table 6:** Summary of responses from the questionnaire (closed questions)

|           |     | Number of Responses |   |   |    |    |
|-----------|-----|---------------------|---|---|----|----|
|           |     | SD                  | D | N | A  | SA |
| Questions | Q3  | 4                   | 2 | 4 | 5  | 6  |
|           | Q4  | 1                   | 3 | 9 | 4  | 4  |
|           | Q5  | 2                   | 7 | 5 | 7  | 0  |
|           | Q6  | 1                   | 4 | 4 | 11 | 1  |
|           | Q7  | 4                   | 2 | 8 | 5  | 2  |
|           | Q8  | 1                   | 2 | 3 | 9  | 5  |
|           | Q9  | 2                   | 1 | 6 | 10 | 2  |
|           | Q10 | 3                   | 1 | 6 | 9  | 2  |
|           | Q11 | 4                   | 2 | 7 | 6  | 2  |

Key  
SD- Strongly Disagree  
D- Disagree  
N-Neutral  
A-Agree  
SA-Strongly Agree

All learners were entered in a different column with their corresponding responses. A summary of responses for each question was then shown at the end of the row. The categories of responses were then analysed in the four main groups: LCT, TCT, PCT and PRCT.

#### 4.7 ATTITUDE TOWARDS LEARNING RESULTING FROM FB USE

Nineteen per cent (n=4) of the respondents strongly agreed that their attitude towards the subject changed for the better after using FB. Another 19% (n=4) agreed that FB changed their attitude towards learning programming; 43% (n=9) were neutral on FB's effect on their attitude. Another 14% (n=3) had a different view of FB usage on attitude to the subject, with only 5% (n=1) strongly against the idea that their attitude towards learning the subject had changed for the better. From these figures, eight respondents agreed and only four disagreed, differing only on the extent of agreement or disagreement. The lecturer noticed an improvement in attendance for programming classes, where in most cases the same learners were absconding from other classes offering other subjects. A further analysis showed that all learners from the LCT group agreed that FB had a positive impact on their attitude towards the subject. Of the four learners who disagreed about this positive impact towards their learning of programming, 3 were from the TCT group and one from the PCT group.

#### **4.8 CONFIDENCE GAINED IN THE SUBJECT THROUGH LEARNING WITH FB**

Responses with regard to confidence gained in learning programming came from Question Six. The researcher, as the subject lecturer, observed that learners had developed a notion that programming is a difficult subject. This had adversely affected their confidence in the subject. After the introduction of FB, 57% (n=12) of the respondents said that they had gained sufficient confidence in learning programming. Through their interaction and collaboration, the learners have improved the way in which they communicate and the way in which they respond to questions. In terms of increased confidence gained after using FB, 24% (n= 5) were of the opinion that they did not improve in confidence, and 19% had a neutral perception of gaining better confidence through using FB in the learning of programming. Two of the four learners who were neutral came from the PRCT group, and the remaining two came from the LCT group.

#### **4.9 ROLE OF FB IN LEARNING PROGRAMMING**

From the responses, 67% (n=14, 9) agreed with the sentiment that FB helps to increase contact time, which is important in improving the quality and quantity of pass rate for programming. Only 14% did not agree that FB helps to increase the contact time needed for improving the pass rate for the subject. Some 14% (two from PCT and one from LCT) were neutral about FB's impact on increasing contact time to improve their passes for programming. In addition, 57% (n=12), had a neutral view on the impact of feedback they received from FB on subject content. Of the seven respondents from LCT, none of them disapproved the idea of FB to improve relationships with other students; they said that success was easier to achieve through FB compared with traditional methods such as chalk and board. One learner from the LCT group seemed to have negative answers for all responses. The researcher is of the opinion that this learner is critical of FB, and may have responded simply to complete the questionnaire. On further probing of the FB group, the researcher discovered that the learner was more active than other group members; which seemed to contradict the responses made. A detailed count of responses per question is shown on Table 6.

#### **4.10 ANALYSIS OF OPEN-ENDED QUESTIONS (QUESTIONS 12 - 16).**

The researcher used the content analysis method in analysing the responses of the learners. The researcher asked the learners to express their opinions about adopting FB for learning purposes at the college. Three common words/phrases were identified in these responses as:

- internet access
- abuse by students
- not detailed enough

The researcher counted the number of respondents sharing the same sentiments, and discovered that 19 out of 21 had problems with internet access. Four learners identified FB abuse by students as one of the reasons for believing that the platform may not be successful in delivering learning content. One learner voiced the concern that some of the material provided on the platform was not detailed enough, and that it leaves the learner confused. This is reflected in Figure 6 as one of the inhibiting factors for improving pass rates resulting from FB use. Most of the responses from students centred on internet access and limited airtime, which precludes learners from constantly chatting on the FB created. Of 21 responses, 19 maintained that FB had helped to improve their quality of programming; three disagreed with this. One of the three learners said that it made her lazy. This learner is one who criticised the project throughout, but a close look at her usage on the platform showed a completely opposite result. The response helped the researcher understand that not all students will support the idea of FB, irrespective of its potential. Some of the learners will focus on the negative, turning a blind eye to the positive side.

Another observation made was that learners were giving one-word answers for open-ended questions which required supporting explanations. This could be owing to poor language skills; but it might be that learners did not have had enough time, as the researcher wished to collect the completed questionnaires at the end of the lesson, which took place over a weekend.

#### **4.11 SUMMARY OF RESULTS**

Overall, the findings showed that FB may be used for learning with a view to increasing/improving the passes in programming. The researcher was hoping that all registered students would complete the course, but in the end some learners did not write the September examination, which may have rendered the statistics incorrect. The

researcher had hoped that all students would complete the course; however, some, much to the disappointment of the lecturer, did not give feedback as to whether they were still interested in completing the course. Nevertheless, despite these dropouts, the test scores and attendances were far better compared with the previous years. Test scores clearly indicated that there was a great improvement in number of passes for the POE mark, which has the greatest impact on the final mark. The class average for the previous years of 2011 and 2010 was well below the average mark for the year 2012 in each of the two classes. The researcher also concluded that even the pass mark had improved. The results gleaned at this stage conclusively met the objectives of the research, giving the researcher the motivation to go ahead with the research, and providing a lead for future studies.

Of the various ways used to collect data test scores, calculation proved to be the most satisfactory method for checking whether the quality and pass rate of students had improved. The questionnaire proved to be effective for the short answers/closed questions in which responses were based on the Likert Scale. Microsoft Excel proved to be very effective in analysing the test scores and responses from the closed questions, using the COUNTIF, Average and SUM functions. However, in some cases the researcher had to truncate values after the decimal comma, to remain with integer numbers.

In the next chapter the researcher will present some of the findings revealed by the study.

## CHAPTER FIVE: CONCLUSIONS AND RECOMMENDATIONS

### 5.1 INTRODUCTION

This chapter presents the conclusions and recommendations of the research in relation to the problem statement and the research question. The implications of the research to the institution—the College of Cape Town - are also highlighted. The researcher goes on to point out some limitations of the research which could be fruitful in future endeavours.

This research sought to obtain perspectives on SM usage (FB) to increase the number and quality of passes in programming. The study was motivated by a preliminary investigation (Dzvapatsva, *et al.*, 2011) conducted during the previous year (2011) as a result of the influx of SM usage by learners, as well as the researcher's interest in improving pass rates for the learners. In this respect, the researcher used College of Cape Town students who were studying programming at NCV level 3. With improvement in performance being the main notion, the researcher felt duty-bound to apply FB for lessons by involving learners in the study that sought to legitimize their involvement in issues that affected their progress at FET, and in the programming sector -- quality of passes. The research revolved around the major question: How can social media be used to help improve the quality and number of computer programming passes for FET students?

In breaking down the main question, a further four sub-questions were put forward, about the factors affecting quantity and quality of pass rate; how SM could be used by lecturers to increase contact time with learners in the subject; how SM could assist with learning in a FET college context; and what the specific learning needs were for programming students.

The researcher collected test scores from two classes of 56 students. These were split into four groups, namely, the LCT, TCT, PCT and PRCT, each group with fourteen learners. A total of 30 questionnaires were distributed; 21 responses were collected. In addition, four learners, one from each group, were picked at random, and asked to relate their views on the use of FB for learning programming: how useful it was to them, and what could be improved in future.

The literature review provided secondary data which were the foundation for the main research questions. The majority of the learners in the study were males, and this was owing to the population composition rather than to any bias. Many female prospective

learners are daunted by the idea of joining an IT field; a notion which may be reversed if more of the current learners in level 3 pass all their subjects. The researcher observed that many female learners are enrolled in the business studies department. In terms of age distribution, most of the learners fell in the age ranges of 17-19 and 20-22. This is mainly so because most of the learners enrol at FET's after grade 10 or a year or two afterwards.

## **5.2 ACHIEVEMENT OF RESEARCH OBJECTIVES**

The research objectives were to:

- (i) investigate how SM can be used to help improve the quality and quantity of computer programming passes for FET students;
- (ii) identify how SM technologies can assist in increasing contact time for computer programming students outside normal college time;
- (iii) identify factors affecting quality and quantity of passes in programming and
- (iv) explain how SM can improve quality and quantity of passes in programming for FET students.

The research showed that social medium of FB can be used to increase contact time which is very important for improving quality and quantity of pass rates for FET learners studying computer programming. This was clearly evident in the findings when comparing the learners' pass rate in the previous years. FB was also used in this research to further explain the lessons done via face-to-face for those who might have been diffident or shy during the normal contact hours. Lecturers can post programme snippets on the FB groups created so that learners can try to code the same programme to check their understanding. The research further revealed how FB helps to improve lecturer-learner relationship which is also of great importance in building a platform necessary for learning purposes. If SM is used with lecturer invention it is more likely to motivate a positive effect towards improving passes for computer programming. This can be seen from the comparison of the results for the two groups (Lecturer contact time- LCT and Peer contact time PRCT). The average year mark for the LCT group was 72% with all learners from group passing while that of PRCT was only 46.3% with only six out of 14 learners passing in the group. Having met all the objectives of the research the researcher would like to stress that SM must not be used as a substitution for traditional teaching methods but to complement them. The findings of the research objectives of the study are discussed below:

**i. Investigate how SM can be used to help improve the quality and quantity of computer programming passes for FET students.**

From the primary data it transpired that an increase in contact time plays a pivotal role in quality and number of passes in programming. Learners need assistance to do their programming work at home. It is important to note that programming is conducted in a language other than home language; students learn it as a second language, unlike other subjects such as Life Orientation. It is also easier to find someone at home who can assist learners in homework for subjects such as IS, as long as that person has a sound IT background. The same cannot be said for programming, as languages used are changed in tandem with industry needs. The group that used FB with more lecturer contact time fared far better than did other groups.

**ii. Identify how SM technologies can assist in increasing contact time for computer programming students outside normal college time.**

Primary data (66.6%) showed that SM can help increase contact time. This is very important in improving quality and number of passes in programming. Only three learners (14.2%) felt that FB did not help to increase contact time. Although it was very difficult to have learners on the platform at the same time, at least those who logged in to the platform could follow the conversation. In FB, once information is posted, the group administrator can see who looked at the post and all those who posted comments. The researcher noted that, as with any other practical subject such as Office Data Processing, programming is allocated an equal number of hours in the laboratory due to the complexity of the subject. This should not be the case: more hours should be devoted to the subject.

**iii. Identify factors affecting quality and quantity of passes in programming.**

Observation has shown that FB helped to reduce absenteeism in the programming lessons. The lecturer did not have many disciplinary issues to deal with in class because a strong bond existed between the learners and lecturers and amongst learners themselves. Most of learners treated each other with respect and in a friendly manner; this was owing to the relationship created by working together on the FB platform and it increases peer interaction. Learners can undoubtedly gain more through collaboration with classmates out of class than they do when in class. All learners with learning difficulties can express themselves freely without feeling too much scrutiny being applied compared to being face-to-face with lecturers.



**iv. Explain how SM can improve quality and quantity of passes in programming for FET students.**

It emerged from the questionnaire that learners need the internet at the college to assist them in embracing new learning technologies. Learners expressed disappointment at the way in which the college blocks the use of the internet for them. The researcher had time to talk to learners; some requested that college organise work placements for them in programming companies during the holidays; allowing them some exposure to reality after studying for three years. This is a sound idea, although it may be a challenge for the college to find placements for all students. One of the learners suggested that opportunities should be given to outstanding students not only performance-wise but behaviour-wise.

It is the researcher's view that FB is a good learning platform; but it must not be treated as a substitute for face-to-face or traditional learning and teaching methods. Diverse teaching methods help to benefit all learners of differing abilities, from various social, economic, and behavioural backgrounds. The quality and number of passes may continue to improve if the use of FB is accepted; it should also not be limited to programming subjects. The strategy at the foundation of every FET College is to develop learners who can fill the skills shortage; being academically, socially, and technologically sound. Management must apply a strategy that embraces new learning and teaching styles to improve quality and number of passes. The researcher is also of the opinion that colleges should make deals with network providers for their learners to buy data bundles at cheaper rates. Although this may be a daunting task, an effort should be made to this effect. Taking up such initiatives could be another way in which passes in programming may grow and improve in quality.

Furthermore, for FB to work well, a working policy should be adopted by both learners and lecturers. The following may be considered important rules in implementing FB for learning purposes:

- (i) keep matters professional: use a separate account for classroom communications;
- (ii) make thorough use of privacy settings;



- (iii) be conscious of the unintended audience; iv. address students directly about any inappropriate language posted on one's FB page and
- (iv) avoid invitations to instal applications that would not reflect the educator-student relationship.

### **5.3 CONCLUSIONS**

From the research it emerged that learners see lack of internet access as a factor greatly hindering their pass rate, although they have embraced their learning with new technology. Some students (n=2) highlighted their frustration that arose from scanty access to the internet at the college. This was an indication that students were not happy that the IT department, in most cases, block many sites, which is not expected at an institution of learning. These students are resident at the campus and would appreciate accessible internet (wireless connection) in order to use their laptops. The students who used their cell phones to access internet complained that at times they do not have sufficient data bundles to connect to the Internet, which could be eased by making wireless and wired internet connectivity readily available at the college, for use whenever learners are free. The emotional difficulties have been noted earlier from the secondary data; and primary data has supported that success of FB in learning outside campus or normal office hours may be hindered by learners' economic difficulties.

As the results show, there is a close relationship between using FB and increasing contact time outside normal learning time, to assist learners to study. The researcher observed that, unlike other subjects, programming is a complex subject; at times learners are given homework which they fail to do. At other times learners may not find people who are conversant with the language which they use in programming; or in the worst case scenario, some learners do not have a computer to use. The catchment area for College of Cape Town is the Cape Flats. Most residents of these communities are economically challenged - a computer is a luxury. As both literature and empirical information has shown, introducing new learning methods does not only assist in improving quality and number of passes; it increases learners' motivation to take charge of their learning. Learners are so immersed in SM that embracing this technology for learning is fully acceptable to them. The researcher also noted that FB works to the benefit of learners if the subject lecturer is always available to give feedback to probing learners, encouraging them to strive by giving learners tasks

and leads on where to find solutions. This was evidenced from the pass rate of the LCT group learners. Their performance was the best of the four groups. The TCT and PCT groups did well, but this outcome depended heavily on the administrator. The PRCT group did not perform as expected: an indication that learners need guidance when using FB to study, otherwise it becomes disruptive; a concern which some learners pointed out in responding to the open-ended questions. The researcher had expected the pass rate for the PCT group in practical assignments to be the best, owing to more practise time, but this did not prove to be the case. The researcher is of the opinion that if learners are unguided on FB, they tend to discuss matters that have nothing to do with the subject. Additionally, most of the learners live in the Cape Flats, which has a high crime and drug rate; the only way people can communicate with friends is through the SM; even visiting friends is not safe in most cases. Giving learners work on the platform unsupervised will not enhance their learning; social life being seen as much more important.

#### **5.4 RECOMMENDATIONS**

Findings were significant in improving quality and number of passes by learners who used the social medium of FB with lecturer facilitation. A detailed research could be recommended at a broader level to include a number of FET colleges from various geographic areas further to validate the reported findings. Action research could be conducted from the year when learners enrol at FET colleges for NCV level 2; tracking them until they complete level four. The researcher observed that most FET colleges have e-learning managers; these are the personnel who should be advocating such initiatives, to convince management to include in their budget a strategy embracing SM in learning.

It is in the researcher's interests to have this piece of work contribute to the body of knowledge for information management, through its findings on improving quality and number of passes in programming, using the social medium of FB. SM media remains a powerful, untapped support system with which to communicate with learners outside of the normal teaching time.

#### **5.5 LIMITATIONS OF THE STUDY**

This study reflects that a comprehensive investigation into the use of social media for learning purposes was carried out at College of Cape Town, one of the FET colleges in the

Western Cape Province. Furthermore, the study made some successful contributions to the manner in which lecturers can use social media to contact learners with a view to improve performance. However, there were some limitations to the study.

This research was limited to one FET college under the control of the Western Cape Province. This study did not include the lecturers for other subjects and their learners, whose participation is equally important especially for the core subjects like Systems Analysis where performance is low.

Another limitation of the study was that it was carried out in town and the student's catchment area being the Cape Flats where many students have a lot of SEBD's. Therefore, although the results of this study may be of value to all FET colleges in the province of country at large, the results may not be generalised over other provinces of South Africa or even to other FET Colleges in the province where students come from a different catchment areas, for example, the Boland community. It is essential that the findings of this study are tested in other areas of the province or country at large.

## **5.6 FUTURE STUDY**

This research has revealed the important effect of FB on increasing student performance in programming. Although the present research has made significant contributions to the body of knowledge regarding lecturers' use of social media particularly FB in FET sector, certain areas still need to be explored. Therefore, further research needs to be conducted to check whether the social medium of FB will have the same impact on performance both quality and quantity of passes, in other core subjects like Systems Analysis, Computer Networking and Office Data Processing.

However, the data collected provided a good baseline to answer the research questions. This is a clear indication that there is, presumably, a high possibility of getting the same results even if the research is carried on a wider scale.

Future research could also focus on to what effect the lecturers' clarity, expectations, learners' attendance, attitudes and community support will increase quality and quantity of passes. The other problem is that although learners can access the SM of FB on their mobile phones, not all of them always have airtime for the data bundles needed for internet

connection. This in itself results in other learners having an advantage over others which will result in varying performances. FB usage and its impact on learning outcomes, especially performance on learners with unequal access to internet, remains an area that may require further examination.

Last but not least, this study mirrors only a 'snapshot' of a surfacing technology in the teaching and learning for FET students. Further in-depth studies will be vital to determine trends in the strategy of current and future information, learning/teaching strategies and hi-tech educational activities, which must include all concerned parties - from lecturers to representatives from industry and other institutions of higher learning such as universities.



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## Internet Sources

<http://www.amiando.com/northsouth.html?page=762754>[http://www.learningandteaching.info/teaching/what\\_works.htm#ixzz2L66zR2JH](http://www.learningandteaching.info/teaching/what_works.htm#ixzz2L66zR2JH)

<http://www.dreamgrow.com/tag/facebook-statistics/>

<http://writing.colostate.edu/guides/page.cfm?pageid=1421>



**APPENDIX 1: CONSENT FORM**  
**UNIVERSITY OF WESTERN CAPE**  
**CONSENT TO PARTICIPATE IN RESEARCH**

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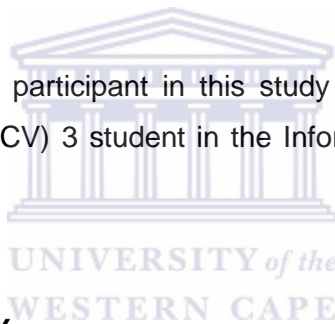
**Title:**

**An investigation into the use of Social Media as a means of improving the quantity and quality of the pass rate in computer programming at FET colleges in the Western Cape**

You are asked to participate in a research study conducted by Mr Godwin Pedzisai Dzvapatsva from the Department of Information Systems Science, Faculty of Economic and Management Sciences (EMS), UWC.

This research study is conducted towards the completion of the researcher's Masters' thesis at the University of Western Cape.

You were selected as a possible participant in this study because you are a registered National Curriculum Vocational (NCV) 3 student in the Information technology Department at College Of Cape Town.



**1. PURPOSE OF THE STUDY**

The aim of the study is to investigate the use of Social Media as a means of improving the quantity and quality of the pass rate in computer programming at FET colleges in the Western Cape

**2. PROCEDURES**

If you volunteer to participate in this study, we would ask you to do the following - to:

1. Write a personal biographical and geographical history of yourself when you receive the questionnaires for the purposes of data collection to be used in the analysis.
2. Meet/interact with the researcher and peers on the Facebook groups that you will be pulled into during Terms 1 to 4 of this academic year (one-on-one consultation) in which your progress in the learning process will be discussed, and where you could identify challenges and difficulties that you encountered if you have failed some of

your modules in the throughout the learning; and/or if you have passed all your modules during the year, identify and write about what you have done that enabled you to pass all your modules.

3. Have regular chat sessions with fellow learners or subject experts depending with availability. Highlight (if any) the benefits, your challenges, and how you have overcome those, your successes and what you have done to achieve them in the learning of programming.

For any comments or further questions you can contact Mr Dzvapatsva in D18 (The computer lab for programming classes).

### **3. POTENTIAL RISKS AND DISCOMFORTS**

No potential risks are envisaged at this stage. However, if something might come up, it will be dealt with in a sensible and sensitive manner.

### **4. POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY**

Potential benefits could be that the students would feel valued and safe (from the online meetings in which they could share their experiences in the learning process), and this could result in them acquiring a higher self-esteem and self-confidence in their own abilities, which could result in better performance in the courses that they are registered for.

Furthermore, the Department of Information Technology at College of Cape Town would benefit directly from the results and recommendations that will be made in that these recommendations will be implemented in the coming years and hopefully, would assist more students to successfully complete their three-year study. If this could happen, the department's failure and dropout rates would decrease, and a higher throughput rate would be achieved. Other departments at College of Cape Town could also benefit in this way, and possibly other FET colleges in the country.

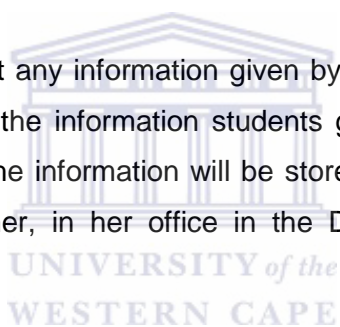
## **5. PAYMENT FOR PARTICIPATION;**

No payments to the participants will be made.

## **6. CONFIDENTIALITY**

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law. Confidentiality will be maintained by means of referring to students as Student 1, 2, 3, etc, and by means of themes and categories that will be identified and used in the analysis and discussions of the findings and the outcomes, in the research report, the thesis, and in conference papers and articles that would be submitted for possible publication in academic journals.

The researcher further pledge that any information given by participants will be handled in the strictest confidence, and that the information students give will not be used to reflect negatively on them in any way. The information will be stored in files that will be locked in the filing cabinet of the researcher, in her office in the Department of information and Technology building.



## **7. PARTICIPATION AND WITHDRAWAL**

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind. You may also refuse to answer any questions you don't want to answer and still remain in the study. The investigator may withdraw you from this research if circumstances arise which warrant doing so such as you not attending the monthly meetings over the course of the research period.

## **8. IDENTIFICATION OF INVESTIGATORS**

If you have any questions or concerns about the research, please feel free to contact me at (021) 696-5133 (o); 073-588-7757 (cell); and e-mail [gpdzvapatsva@yahoo.com](mailto:gpdzvapatsva@yahoo.com)

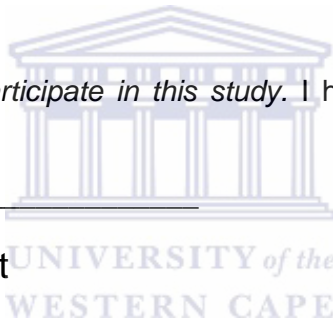
## **9. RIGHTS OF RESEARCH SUBJECTS**

You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. If you have questions regarding your rights as a research subject, contact Mr Anthony Dietrich , Head of the IT Department or telephonically, (021) 696-5133; or via e-mail at adietrich@cct.edu.za

**SIGNATURE OF RESEARCH SUBJECT OR LEGAL REPRESENTATIVE**

The information above was described to *me, the participant* by Mr Godwin P Dzvapatsva (Programming lecturer) *English* and *I am the participant* in command of this language. I was given the opportunity to ask questions and these questions were answered to *my* satisfaction.

*I hereby consent voluntarily to participate in this study.* I have been given a copy of this form.



\_\_\_\_\_  
Name of Subject/Participant

\_\_\_\_\_  
Name of Legal Representative (if applicable)

\_\_\_\_\_  
Signature of Subject/Participant  
or Legal Representative

\_\_\_\_\_  
Date

**SIGNATURE OF INVESTIGATOR**



I declare that I explained the information given in this document to \_\_\_\_\_  
[*name of the participant*]. He/she was encouraged and given ample time to ask me any  
questions. This conversation was conducted in *English* and *no translator was used*.

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SIGNATURE OF INVESTIGATOR

---

DATE



**NB** : (Names and Surnames have been removed for confidentiality in Appendix I – IV)

**APPENDIX 2 : SUMMARY OF TEST SCORES FOR LCT GROUP**

**PRINCIPLES OF COMP.PROGRAMMING L3 - ICASS 2012- NCV3-1**

**LECTURER CONTACT TIME Group (LCT)**

| No                                      | Surname | First name | PoE COMPONENTS (20% Th + 50% Pr + 30%Examination) |            |             |                       |            |           |                       |           |           |              | ICASS % |
|---|---------|------------|---|------------|-------------|-----------------------|------------|-----------|-----------------------|-----------|-----------|--------------|---------|
|   |         |            | Theory Tests (20%)                                |            | TOTAL       | Practical Tasks (50%) |            | TOTAL     | SEP.EXAMINATION (30%) |           |           |              |         |
|   |         |            | T1  | T2         |             | P1                    | P2         |           | Pape r1               | Pape r2   | Final     |              |         |
| 1                                       | .       | .          | 82  | 74         | 15.6        | 94                    | 72         | 41.5      | 73.0                  | 86.0      | 79.5      | 81           |         |
| 2                                       | .       | .          | 72  | 96         | 16.8        | 88                    | 68         | 39.0      | 71.0                  | 91.0      | 81.0      | 80           |         |
| 3                                       | .       | .          | 68  | 77         | 14.5        | 100                   | 56         | 39.0      | 72.0                  | 96.0      | 84.0      | 79           |         |
| 4                                       | .       | .          | 88  | 69         | 15.7        | 100                   | 66         | 41.5      | 57.0                  | 79.0      | 68.0      | 78           |         |
| 5                                       | .       | .          | 84  | 76         | 16.0        | 91                    | 80         | 42.8      | 60.0                  | 53.0      | 56.5      | 76           |         |
| 6                                       | .       | .          | 66  | 67         | 13.3        | 100                   | 60         | 40.0      | 57.0                  | 85.0      | 71.0      | 75           |         |
| 7                                       | .       | .          | 76  | 80         | 15.6        | 84                    | 74         | 39.5      | 61.0                  | 62.0      | 61.5      | 74           |         |
| 8                                       | .       | .          | 66  | 76         | 14.2        | 94                    | 60         | 38.5      | 59.0                  | 76.0      | 67.5      | 73           |         |
| 9                                       | .       | .          | 86  | 86         | 17.2        | 97                    | 54         | 37.8      | 46.0                  | 66.0      | 56.0      | 72           |         |
| 10                                      | .       | .          | 82  | 50         | 13.2        | 97                    | 70         | 41.8      | 42.0                  | 50.0      | 46.0      | 69           |         |
| 11                                      | .       | .          | 90  | 81         | 17.1        | 94                    | 60         | 38.5      | 25.0                  | 56.0      | 40.5      | 68           |         |
| 12                                      | .       | .          | 84  | 69         | 15.3        | 94                    | 72         | 41.5      | 40.0                  | 29.0      | 34.5      | 67           |         |
| 13                                      | .       | .          | 82  | 67         | 14.9        | 91                    | 50         | 35.3      | 43.0                  | 62.0      | 52.5      | 66           |         |
| 14                                      | .       | .          | 60  | 66         | 12.6        | 94                    | 50         | 36.0      | 42.0                  | 62.0      | 52.0      | 64           |         |
| <b>Average Percentages</b>              |         |            | <b>78</b>   | <b>74</b>  | <b>15.1</b> | <b>94</b>             | <b>64</b>  | <b>39</b> | <b>53</b>             | <b>68</b> | <b>61</b> | <b>72.8</b>  |         |
| <b>Total no. of learners who passed</b> |         |            | <b>14</b>   | <b>14</b>  | <b>14</b>   | <b>14</b>             | <b>14</b>  |           |                       | <b>13</b> | <b>11</b> | <b>14.0</b>  |         |
| <b>Percentage Passed</b>                |         |            | <b>100</b>  | <b>100</b> | <b>100</b>  | <b>100</b>            | <b>100</b> |           |                       | <b>93</b> | <b>79</b> | <b>100.0</b> |         |

**APPENDIX III : SUMMARY OF TEST SCORES FOR PCT GROUP**

**PRINCIPLES OF COMP.PROGRAMMING L3 - ICASS 2012- NCV3-1**

**PRACTICE CONTACT TIME Group (PCT)**

| No                                      | Surname | First name | PoE COMPONENTS (20% Th + 50% Pr + 30% Examination) |           |             |                       |           |           |                      |           |           |             | ICASS % |
|---|---------|------------|--|-----------|-------------|-----------------------|-----------|-----------|----------------------|-----------|-----------|-------------|---------|
|   |         |            | Theory Tests (20%)                                 |           | TOTAL       | Practical Tasks (50%) |           | TOTAL     | SEP. EXAMINATION 30% |           |           | PoE Mark    |         |
|   |         |            | T1   | T2        |             | P1                    | P2        |           | Pape r1              | Pape r2   | Final     |             |         |
| 1                                       |         |            | 80   | 61        | 14.1        | 97                    | 56        | 38.3      | 33.0                 | 51.0      | 42.0      |             | 65      |
| 2                                       |         |            | 58   | 49        | 10.7        | 94                    | 60        | 38.5      | 39.0                 | 52.0      | 45.5      | 63          |         |
| 3                                       |         |            | 50   | 59        | 10.9        | 81                    | 72        | 38.3      | 44.0                 | 47.0      | 45.5      | 63          |         |
| 4                                       |         |            | 60   | 50        | 11.0        | 81                    | 62        | 35.8      | 45.0                 | 61.0      | 53.0      | 63          |         |
| 5                                       |         |            | 62   | 69        | 13.1        | 81                    | 68        | 37.3      | 43.0                 | 40.0      | 41.5      | 63          |         |
| 6                                       |         |            | 74   | 71        | 14.5        | 78                    | 60        | 34.5      | 43.0                 | 42.0      | 42.5      | 62          |         |
| 7                                       |         |            | 66   | 56        | 12.2        | 91                    | 50        | 35.3      | 50.0                 | 29.0      | 39.5      | 59          |         |
| 8                                       |         |            | 62   | 37        | 9.9         | 94                    | 42        | 34.0      | 32.0                 | 33.0      | 32.5      | 54          |         |
| 9                                       |         |            | 64   | 46        | 11.0        | 88                    | 56        | 36.0      | 11.0                 | 30.0      | 20.5      | 53          |         |
| 10                                      |         |            | 34   | 41        | 7.5         | 94                    | 58        | 38.0      | 35.0                 | 9.0       | 22.0      | 52          |         |
| 11                                      |         |            | 50   | 79        | 12.9        | 69                    | 26        | 23.8      | 29.0                 | 45.0      | 37.0      | 48          |         |
| 12                                      |         |            | 20   | 43        | 6.3         | 78                    | 38        | 29.0      | 34.0                 | 29.0      | 31.5      | 45          |         |
| 13                                      |         |            | 12   | 15        | 2.7         | 29                    | 42        | 17.8      | 0.0                  | 0.0       | 0.0       | 20          |         |
| 13                                      |         |            | 46   | 21        | 6.7         | 84                    | 0         | 21.0      | 35.0                 | 29.0      | 32.0      | 37          |         |
| <b>Average Percentages</b>              |         |            | <b>53</b>  | <b>50</b> | <b>10.3</b> | <b>81</b>             | <b>49</b> | <b>33</b> | <b>34</b>            | <b>36</b> | <b>35</b> | <b>53.3</b> |         |
| <b>Total no. of learners who passed</b> |         |            | <b>10</b>  | <b>7</b>  | <b>9</b>    | <b>13</b>             | <b>9</b>  |           | <b>1</b>             | <b>3</b>  | <b>1</b>  | <b>10.0</b> |         |
| <b>Percentage Passed</b>                |         |            | <b>71</b>  | <b>50</b> | <b>64</b>   | <b>93</b>             | <b>64</b> |           | <b>32</b>            | <b>21</b> | <b>7</b>  | <b>71.4</b> |         |

**APPENDIX IV : SUMMARY OF TEST SCORES FOR TCT GROUP**

**PRINCIPLES OF COMP.PROGRAMMING L3 - ICASS 2012- NCV3-2**

**MORE TECHNICAL CONTACT TIME Group  
TCT**

| No                                      | Surname | First name | PoE COMPONENTS (20% Th + 50% Pr + 30%Examination) |           |             |                       |           |           |                 |           |           | ICASS %      |
|---|---------|------------|---|-----------|-------------|-----------------------|-----------|-----------|-----------------|-----------|-----------|--------------|
|   |         |            | Theory Tests (12%)                                |           | TOTAL       | Practical Tasks (21%) |           | TOTAL     | SEP.EXAMINATION |           |           |              |
|   |         |            | T1  | T2        |             | P1                    | P2        |           | Pape r1         | Pape r2   | Final     |              |
| 1                                       |         |            | 90  | 60        | 15.0        | 88                    | 60        | 37.0      | 28.0            | 89.0      | 58.5      | 70           |
| 2                                       |         |            | 64  | 66        | 13.0        | 81                    | 58        | 34.8      | 58.0            | 58.0      | 58.0      | 65           |
| 3                                       |         |            | 82  | 60        | 14.2        | 94                    | 56        | 37.5      | 50.0            | 64.0      | 57.0      | 69           |
| 4                                       |         |            | 62  | 64        | 12.6        | 91                    | 66        | 39.3      | 50.0            | 56.0      | 53.0      | 68           |
| 5                                       |         |            | 68  | 80        | 14.8        | 69                    | 60        | 32.3      | 64.0            | 75.0      | 69.5      | 68           |
| 6                                       |         |            | 70  | 71        | 14.1        | 84                    | 68        | 38.0      | 57.0            | 52.0      | 54.5      | 68           |
| 7                                       |         |            | 82  | 50        | 13.2        | 78                    | 54        | 33.0      | 51.0            | 53.0      | 52.0      | 62           |
| 8                                       |         |            | 84  | 69        | 15.3        | 59                    | 52        | 27.8      | 55.0            | 78.0      | 66.5      | 63           |
| 9                                       |         |            | 50  | 62        | 11.2        | 72                    | 64        | 34.0      | 50.0            | 20.0      | 35.0      | 56           |
| 10                                      |         |            | 60  | 60        | 12.0        | 72                    | 64        | 34.0      | 50.0            | 20.0      | 35.0      | 57           |
| 11                                      |         |            | 66  | 59        | 12.5        | 66                    | 50        | 29.0      | 32.0            | 69.0      | 50.5      | 57           |
| 12                                      |         |            | 40  | 47        | 8.7         | 94                    | 42        | 34.0      | 25.0            | 61.0      | 43.0      | 56           |
| 13                                      |         |            | 90  | 71        | 16.1        | 66                    | 54        | 30.0      | 34.0            | 23.0      | 28.5      | 55           |
| 14                                      |         |            | 80  | 50        | 13.0        | 75                    | 58        | 33.3      | 22.0            | 34.0      | 28.0      | 55           |
| <b>Average Percentages</b>              |         |            | <b>71</b>   | <b>62</b> | <b>13.3</b> | <b>78</b>             | <b>58</b> | <b>34</b> | <b>45</b>       | <b>54</b> | <b>49</b> | <b>61.9</b>  |
| <b>Total no. of learners who passed</b> |         |            | <b>11</b>   | <b>11</b> |             | <b>14</b>             | <b>13</b> |           | <b>9</b>        | <b>10</b> | <b>9</b>  | <b>14.0</b>  |
| <b>Percentage Passed</b>                |         |            | <b>92</b>   | <b>92</b> |             | <b>100</b>            | <b>93</b> |           | <b>64</b>       | <b>71</b> | <b>64</b> | <b>100.0</b> |

**APPENDIX V : SUMMARY OF TEST SCORES FOR PRCT GROUP**

**PRINCIPLES OF COMP.PROGRAMMING L3 - ICASS 2012- NCV3-2**

**PEER CONTACT TIME Group (PRCT)**

| No                                      | Surname | First name | PoE COMPONENTS (20% Th + 50% Pr + 30%Examination) |    |       |                       |    |       |                      |         |       |          | ICASS % |
|---|---------|------------|---|----|-------|-----------------------|----|-------|----------------------|---------|-------|----------|---------|
|   |         |            | Theory Tests (20%)                                |    | TOTAL | Practical Tasks (50%) |    | TOTAL | SEP.EXAMINATION(30%) |         |       | PoE Mark |         |
|   |         |            | T1  | T2 |       | P1                    | P2 |       | Pape r1              | Pape r2 | Final |          |         |
| 1                                       |         |            | 80  | 84 | 16.4  | 97                    | 72 | 42.3  | 65.0                 | 97.0    | 81.0  |          | 83      |
| 2                                       |         |            | 86  | 81 | 16.7  | 97                    | 60 | 39.3  | 67.0                 | 78.0    | 72.5  | 78       |         |
| 3                                       |         |            | 38  | 53 | 9.1   | 90                    | 62 | 38.0  | 46.0                 | 72.0    | 59.0  | 65       |         |
| 4                                       |         |            | 78  | 50 | 12.8  | 56                    | 70 | 31.5  | 40.0                 | 23.0    | 31.5  | 54       |         |
| 5                                       |         |            | 62  | 56 | 11.8  | 75                    | 30 | 26.3  | 50.0                 | 28.0    | 39.0  | 50       |         |
| 6                                       |         |            | 64  | 53 | 11.7  | 57                    | 50 | 26.8  | 37.0                 | 43.0    | 40.0  | 50       |         |
| 7                                       |         |            | 76  | 50 | 12.6  | 63                    | 38 | 25.3  | 30.0                 | 24.0    | 27.0  | 46       |         |
| 8                                       |         |            | 84  | 63 | 14.7  | 22                    | 60 | 20.5  | 43.0                 | 17.0    | 30.0  | 44       |         |
| 9                                       |         |            | 66  | 34 | 10.0  | 75                    | 16 | 22.8  | 20.0                 | 50.0    | 35.0  | 43       |         |
| 10                                      |         |            | 78  | 56 | 13.4  | 63                    | 10 | 18.3  | 38.0                 | 27.0    | 32.5  | 41       |         |
| 11                                      |         |            | 34  | 40 | 7.4   | 84                    | 0  | 21.0  | 35.0                 | 34.0    | 34.5  | 39       |         |
| 12                                      |         |            | 20  | 31 | 5.1   | 44                    | 24 | 17.0  | 0.0                  | 0.0     | 0.0   | 22       |         |
| 13                                      |         |            | 0   | 57 | 5.7   | 0                     | 24 | 6.0   | 31.0                 | 12.0    | 21.5  | 18       |         |
|   |         |            | 24  | 0  | 2.4   | 52                    | 0  | 13.0  | 0.0                  | 0.0     | 0.0   | 15       |         |
| <b>Average Percentages</b>              |         |            | 56  | 51 | 10.7  | 63                    | 37 | 25    | 36                   | 36      | 36    | 46.3     |         |
| <b>Total no. of learners who passed</b> |         |            | 9   | 10 |       | 11                    | 2  |       | 3                    | 4       | 3     | 5.0      |         |
| <b>Percentage Passed</b>                |         |            | 64  | 71 |       | 79                    | 14 |       | 21                   | 29      | 21    | 35.7     |         |

## APPENDIX VI FACEBOOK GROUP: SAMPLE COMMENTS

The screenshot shows a Facebook interface with a post by Godwin Dzvapatsva. The post asks for five data types. Below the post, there are seven comments from various users, each listing different data types. A watermark for 'UNIVERSITY of the WESTERN CAPE' is visible in the background of the comments.

**facebook** Search for people, places and things Godwin Dzvapatsva Find Friends Home

Write a comment...

**Godwin Dzvapatsva**  
List any five data types  
Like · Comment · Unfollow Post · April 23 at 2:45pm

Seen by 25

- Jordan Groenewald** String, Integer, Boolean, Double and Single  
;) saaaaaafe  
April 23 at 2:46pm · Like ·  $\infty$  1
- Phumelela Hoho 1.** Boolean  
April 23 at 2:47pm · Like
- Tamryn Leigh** boolean, string, integer, single, decimal  
April 23 at 2:47pm · Like
- Phumelela Hoho 2.** String  
April 23 at 2:47pm · Like
- Ayanda Sivaya Siaya Busakwe** Boolean, Double, String, Decimal, Integer  
April 23 at 2:47pm · Like
- Phumelela Hoho 3.** Single, Double and Integer  
April 23 at 2:48pm · Like
- Ahmadi Kidimbe** Integer, Boolean, Double, Decimal, Single.....this is me  
April 23 at 2:49pm · Like
- Godwin Dzvapatsva** Dont forget about the char data type  
April 23 at 2:50pm · Like

## APPENDIX VII :STUDENT QUESTIONNAIRE

Purpose of Questionnaire: You are kindly requested to complete the survey in our search for more information into the use of (Facebook) to improve quality and quantity of passes in programming at FET College with particular focus to College of Cape Town. This can take you up to 30 minutes.

Rationale: Information will be used as baseline in our quest to improve programming pass rate at College of Cape Town and may be countrywide

Please take note that information provided by you will not be used for any other purposes other than intended and will be kept confidential. The information is going to be used for my Masters studies at University of Western Cape.

Full Name(s) : \_\_\_\_\_(optional)

Class : \_\_\_\_\_

College : \_\_\_\_\_

Mobile : \_\_\_\_\_(optional)

Email Address : \_\_\_\_\_(optional)

Group : \_\_\_\_\_

Years enrolled : \_\_\_\_\_ optional

1. Gender  Male  Female

2. Age

14-16  17-19  20-22  23 and above

3. Where do you live whilst you are attending (e.g. with relatives, hostel, on my own)

\_\_\_\_\_ optional

4. What type of mobile device are you using?

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5. Do you have a computer with Internet connection at home?

Yes  No

6. If answer is no how do you access Internet apart from mobile .

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Please tick whether you want summary of findings in the boxes below

Yes  No



Contact Person: Godwin Dzvapatsva

gpdzvapatsva@gmail.com

Lecturer: Computer Programming

College of Cape Town

Crawford campus

1. Which of the following have you used before. Select all applicable

Facebook  Mixit  Edmodo  YouTube  None of the above

2. Do you have Internet access outside the normal learning time/out of the campus

No  Yes

3. I think Facebook is a good idea for learning programming..



Strongly Disagree    Disagree    Neutral    Agree    Strongly Agree

4. I feel that using Facebook improved my attitude towards learning programming.

Strongly Disagree    Disagree    Neutral    Agree    Strongly Agree

5. I feel that I have more personal involvement with my class work using Facebook than through traditional media.

Strongly Disagree    Disagree    Neutral    Agree    Strongly Agree

6. Because Facebook allows me to interact with colleagues or lecturer, I feel more confident in my approach to the subject.

Strongly Disagree    Disagree    Neutral    Agree    Strongly Agree

7. Working with Facebook did not engage me fully or stimulate me in learning programming..

Strongly Disagree    Disagree    Neutral    Agree    Strongly Agree

8. Facebook helps to increase contact time with other students or subject lecturers.

Strongly Disagree    Disagree    Neutral    Agree    Strongly Agree

9. I was able to get satisfactory feedback for the subject from my fellow students or lecturer using Facebook.

Strongly Disagree    Disagree    Neutral    Agree    Strongly Agree

10. I managed to build up a good relationship with my friends and lecturer.

Strongly Disagree    Disagree    Neutral    Agree    Strongly Agree

11. Success was easier to achieve in a class situation using Facebook than chalk and board method

Strongly Disagree    Disagree    Neutral    Agree    Strongly Agree

12. What in your opinion could be the major problem in adopting Facebook for learning purposes at college?

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13. Do you think you are better off than other students doing the same course who are not exposed to learning using (Facebook). Explain your answer?.

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14. I enjoyed learning through Facebook than face to face lectures (Yes/No). Explain your answer?

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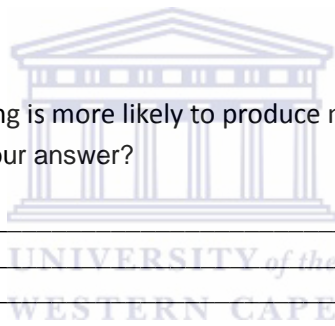
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15. Facebook in learning programming is more likely to produce more valuable learning experiences. (Yes/No). Explain your answer?

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16. I feel that the enhanced quality in programming to the current level three students who used the group created. (Agree/Disagree). Explain your answer?

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