# CHAPTER 7
Research results

7.1   INTRODUCTION

This chapter documents the empirical findings of the study. It records the statistical treatment, analysis and interpretation of the data collected from the empirical study. In the first section profiles of the sample that responded will be presented as indicated by their fixed demographic variables and changeable structural variables. Gender, age, ethnicity, living arrangements, employment status, methods of accessing the Internet, brand of cell phone, smartphone ownership, cell phone plans, the use of Internet bundles on cell phones, average monthly expenditure for airtime on cell phones, average monthly expenditure for Internet bundles on cell phones, subscription to BlackBerry BIS, frequency of using social networks, and frequency of use of various cell phone functions. This section is followed by a cluster analysis of mobile phones usage, and thereafter an exploratory factor analysis of the data.

Exploratory factor analysis (EFA) was performed on each sub-section within the questionnaire for the purpose of data and dimension reduction. Sub-sections were treated independently for two main reasons, firstly to retain clear constructs as deduced from the literature (running the EFA against the entire questionnaire would inevitably lead to the aggregation of items that, although the items might be highly correlated, they might not necessarily be contextually related). Secondly because of the limited sample size, by performing EFA with fewer items in each group, one is able to take advantage of a higher ratio of subjects to items, which is more desirable to obtain a clear factor pattern. The final outcome of the EFA process produced 28 factors in total across the seven sections covered in the study.

Subsequently, in order to explore differences between the demographic groups and structural groups on the identified factors, one-way analysis of variance (ANOVA) was performed with the 28 factors as dependent variables and the demographic and structural

access the Internet from work, which is to be expected given the low employment levels of respondents, as noted previously.

Figure 7.1: Methods used most frequently to access the Internet
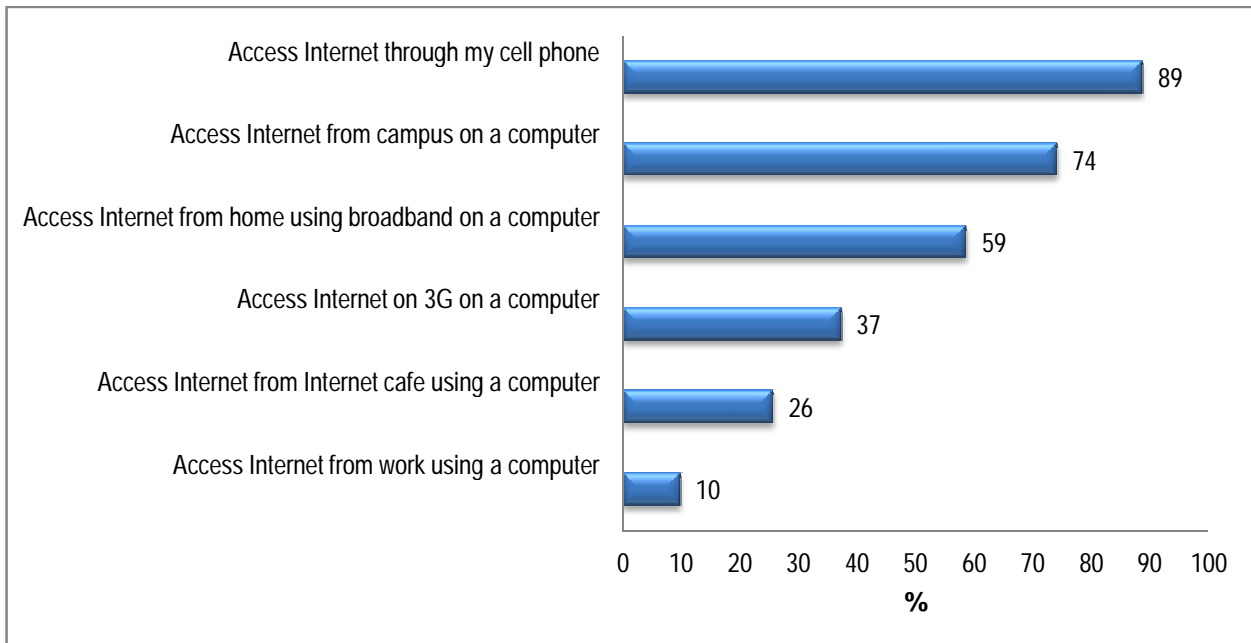
Note: multiple responses permitted

The main three methods of accessing the Internet were subjected to additional analyses, involving cross-tabulation of each method of access with race. The results are portrayed in: Table 7.12, Table 7.13 and Table 7.14.

Table 7.12 portrays a cross-tabulation comparing Internet access from campus with race, and shows that more black respondents accessed the Internet from campus than white respondents.

Table 7.12: Access to Internet from home by race

ACCESS TO INTERNET FROM HOME		ETHNICITY		TOTAL
		BLACK	WHITE	
Yes	Frequency	36	149	185
	% within Ethnicity	32.7%	73.3%	59.1%
No	Frequency	74	54	128
	% within Ethnicity	67.4%	26.6%	40.9%
Total	Frequency	110	203	313
	% within Ethnicity	100.0%	100.0%	100.0%

variables as independent variables. The ANOVA analyses also included the estimation of effect size estimates (Eta-squared). In the ANOVA's each of the factor scores identified in the EFA analyses were used as dependent variables. Eta-squared effect size calculates the proportion of total variance that is attributed to an effect (Levine & Hullett, 2002:612; Pierce, Block & Aguinis, 2004:917).

7.2   THE FIELD RESEARCH

7.2.1 Procedure of the empirical study

The actual data collection phase commenced following receipt of permission by respective bodies at the University of Pretoria for incentivised research. The field research took place at the beginning of October 2011, which coincided with the last quarter of the second semester at the University of Pretoria. Table 7.1 outlines the process used to distribute the questionnaire to the sample. The target population consisted of 2,265 full-time registered students on the under-graduate programme in six semester courses.

Table 7.1: Survey distribution process

PROCESS	DATE
Pre-contact via sms • To invite respondents to participate in the survey	2011-10-04
Contact via email • To request respondents complete the web-based survey • Survey opened 2011-10-10	2011-10-10
Survey posted to CLICKUP (Intraweb portal of University of Pretoria) • To invite respondents to participate in the survey	2011-10-12
1st follow up via sms • To remind respondents to participate in the survey	2011-10-13
2nd follow up via email • To remind respondents to participate in the survey	2011-10-14
2nd follow up sms • To remind respondents to participate in the survey	2011-10-15
3rd follow up email • To remind respondents to participate in the survey	2011-10-17
4th follow up email • To remind respondents to participate in the survey	2011-10-18
• Survey closed	2011-10-21

7.2.2 Respondent rate

The questionnaire was distributed to the target population. In total 398 respondents participated in the survey. However, only 333 respondents fully completed the questionnaire, which equates to a response rate of 14.7% for completed usable questionnaires.

Although the sample size achieved 67 respondents fewer than the desired 400 respondents in terms of the recommended 5:1 ratio of subjects to variables, the respondent level achieved exceeded 300, which is considered sufficiently stable for test parameters by Kass and Tinsley (1979).

7.3   DESCRIPTIVE RESULTS

The participants in this study were required to be students enrolled in the department of Marketing and Communication Management at the University of Pretoria. Table 7.2 depicts gender, age and race profiles of students enrolled at this department for the 2011 academic year of the population and the sample. This information has been captured to compare the representativeness of the sample respondents against the population of the department. Across all variables, except for age, the sample seems to be consistent with the demographic profile of the student population profile registered within the department.

Table 7.2: Demographic profile of students enrolled at the department of Marketing and Communication Management

		POPULATION	SAMPLE
GENDER	Female	72%	68%
	Male	28%	32%
AGE GROUP	18-20	27%	47%
	21-22	41%	41%
	23-24	18%	7%
	25-29	8%	4%
	30-34	2%	<1%
	35+	3%	<1%
RACE	White	70%	62%
	Black	25%	34%
	Asian	3%	3%
	Coloured	2%	1%

Source: Population data retrieved from Mouton, 2011; sample data from results of this study

Profile of participants

7.3.1 Gender

Table 7.3 reflects the frequency distribution by gender and proportion of male to female respondents.

Table 7.3: Frequency distribution – gender

	FREQUENCY	PERCENT
Male	105	31.6
Female	227	68.4
Total	332	100

Of the 332 respondents to this question the majority were female (68%). The higher ratio of females to males is representative of the population from which the sample was drawn, namely the student body registered with the department of Marketing and Communication Management at the University of Pretoria, which is indicated as 72% (refer to Table 7.2).

7.3.2 Age Group

Table 7.4 reflects the frequency distribution by age group. The results show that 88% of respondents were between the ages of 18-22. With the exception of 2 respondents, falling into the 35+ age group, 99.4% of respondents can be classified as Generation Y (born between 1978 to 2000). Age group is assumed to be an influencing variable on use and receptivity of digital media.

Table 7.4: Frequency distribution – age group

	FREQUENCY	PERCENT
18-20	156	46.8
21-22	138	41.4
23-24	23	6.9
25-29	12	3.6
30-34	2	0.6
35+	2	0.6
Total	333	100.0

For the subsequent analyses, age groups were reclassified into two groups, namely: 18-20 and 21-29, in order to have a more simplified analysis and to test for major trends. Respondents aged 30+ were omitted from the reclassification on account of the small size of the group and were not absorbed into the 21-29 group, because it was anticipated that this group might have had outlier effects and could therefore distort the results of subsequent analyses and the ensuing interpretation.

7.3.3 Ethnicity

Table 7.5 reflects the frequency distribution of respondents by ethnic group. The results show that 62% of respondents were white and 33% of respondents were black. These results are representative of the racial composition of students enrolled at the department of marketing and communication management. This variable is anticipated to have a significant influence on the data.

Table 7.5: Frequency distribution – ethnic group

	FREQUENCY	PERCENT
White	207	62
Black	111	34
Indian	7	2
Coloured	4	1
Asian	3	1
Total	332	100

For subsequent data analyses purposes, only the two most dominant ethnic groups, namely blacks and whites were retained. Indian and coloured groups were excluded in subsequent analyses on account of the small size of these two groups and because there was uncertainty about the similarities with the retained groups based on the variables of interest in the study.

7.3.4 Living arrangements

Table 7.6 reflects respondent frequency distributions by living arrangements for the current semester. More than one third (36.4%) of respondents live at home with their parents,

which implies a degree of dependence and reliance on parental support. Nearly a fifth (19.6%) live in university student residences.

Table 7.6: Frequency distributions by living arrangements

	FREQUENCY	PERCENT
I live at home with my parent(s)	121	36.4
I live in a university student residence	65	19.6
I share a flat with a friend/friends	61	18.4
I live in a student commune	37	11.1
I live in a flat on my own	37	11.1
I live in a home with other working adult(s)	11	3.3
Total	332	100.0

For subsequent data analysis purposes, living arrangement groups were reclassified into four groups:

- The "live in student accommodation group" was combined with the "live in a university residence" to form a new group, "Student accommodation".

- The "live in a home with other working adults was combined with "I share a flat with a friend/friends" to form the new group, "share private accommodation".

- Live with parents was retained.

- Live alone in a flat was retained.

7.3.5 Employment status

Table 7.7 reflects respondent frequency distribution by employment status. Over two-thirds are unemployed. A low level of employment is consistent with the sample being drawn from a student population.

Table 7.7: Frequency distribution – employment status

	FREQUENCY	PERCENT
Not employed	219	66.2
Employed part-time	98	29.6
Employed full-time	14	4.2
Total	331	100.0

For subsequent analyses, employment status groups were reclassified into two groups, namely: not employed and some employment, which combined the latter two categories.

7.3.6 Structural variables relating to Internet access

Respondents were asked in a multiple response scale to select the methods of access to the Internet they use most of the times, and to list all that are applicable. Table 7.8 reflects the different combinations of methods used to access the Internet, together with frequencies of those specific combinations.

Table 7.8: Frequency distribution – combinations of methods used to access the Internet

Number of methods of access	COMBINATIONS OF METHODS USED TO ACCESS THE INTERNET						FREQUENCY	PERCENT
	Home	Campus	Internet cafe	Work	3G on computer	Cell phone		
1	✓						11	3.4
		✓					6	1.8
					✓		4	1.2
						✓	4	1.2
			✓				1	0.3
				✓			1	0.3
2	✓					✓	23	7
		✓				✓	21	6.4
					✓	✓	5	1.5
	✓	✓					3	0.9
	✓				✓		2	0.6
3	✓	✓				✓	70	21.4
		✓	✓			✓	32	9.8
		✓			✓	✓	29	8.9
	✓				✓	✓	17	5.2
		✓		✓		✓	4	1.2
			✓		✓	✓	4	1.2
				✓	✓	✓	4	1.2
	✓			✓	✓		2	0.6
	✓			✓		✓	2	0.6
	✓	✓	✓				1	0.3
	✓		✓		✓		1	0.3
	✓		✓			✓	1	0.3
		✓	✓		✓		1	0.3
4	✓	✓			✓	✓	22	6.7
	✓	✓	✓			✓	12	3.7
		✓	✓		✓	✓	12	3.7
	✓	✓		✓		✓	6	1.8
	✓	✓	✓		✓		3	0.9
	✓		✓	✓		✓	1	0.3
	✓			✓	✓	✓	1	0.3
		✓	✓	✓		✓	1	0.3
			✓	✓	✓	✓	1	0.3

| Number . of methods of access | COMBINATIONS OF METHODS USED TO ACCESS THE INTERNET | | | | | | FREQUENCY | PERCENT |
	Home	Campus	Internet cafe	Work	3G on computer	Cell phone		
5	✓	✓	✓		✓	✓	9	2.8
	✓	✓	✓	✓		✓	3	0.9
	✓	✓		✓	✓	✓	3	0.9
6	✓	✓	✓	✓	✓	✓	4	1.2
Total							327	100

Table 7.9 shows the number of different Internet access methods respondents make use of. It is interesting to note that more than half of the sample indicated three methods to access the Internet, and that more than 75% of the sample had three or more possible routes for access, indicating that a very large percentage of the sample did have the ability to access the Internet whenever they needed to and are almost spoilt for choice.

Table 7.9: Frequency distribution – number of methods used to access the Internet

NUMBER OF DIFFERENT ACCESS METHODS USED TO ACCESS THE INTERNET	FREQUENCY	PERCENT	CUMULATIVE PERCENT
1	27	8.3	8.3
2	54	16.5	24.8
3	168	51.4	76.1
4	59	18.0	94.2
5	15	4.6	98.8
6	4	1.2	100.0
Total	327	100.0	

The number of different combinations of accessing the Internet were recoded into the following options:

- Somewhat limited: represents 1 and 2 methods of Internet access
- Moderate access: represents 3 methods of access to the Internet
- Unusual access: represents 4, 5 and 6 methods of access to the Internet.

Table 7.10 draws comparisons between levels of Internet access and race. This reveals that the profile of level of Internet access within each group is very similar.

Table 7.10: Level of Internet access by race

LEVEL OF INTERNET ACCESS		ETHNICITY		TOTAL
		BLACK	WHITE	
Somewhat limited	Frequency	28	52	80
	% within Ethnicity	25.5%	25.6%	25.6%
Moderate access	Frequency	60	100	160
	% within Ethnicity	54.5%	49.3%	51.1%
Unusual access	Frequency	22	51	73
	% within Ethnicity	20.0%	25.1%	23.3%
Total	Frequency	110	203	313
	% within Ethnicity	100.0%	100.0%	100.0%

The top ten combinations are recorded in Table 7.11, with the three method combination of home, campus and cell phone, achieving the highest proportion of answers at 21.4%. Cell phone access appears 9 times in the top ten, campus appears 7 times, home appears 6 times, Internet cafe appears 4 times, and 3G access 3 times. Responses to accessing the Internet from home, campus and cell phone will be analysed independently of one another in the subsequent section ANOVA.

Table 7.11: Frequency distributions – Top ten combinations of methods used to access the Internet

No. of methods of access	TOP 10 COMBINATIONS OF METHODS USED TO ACCESS THE INTERNET						FREQUENCY	PERCENT	CUMULATIVE PERCENT
	Home	Campus	Internet cafe	Work	3G on computer	Cell phone			
3	✓	✓				✓	70	21.4	21.4
3		✓	✓			✓	32	9.8	31.2
3		✓			✓	✓	29	8.9	40.1
2	✓					✓	23	7.0	47.1
4	✓	✓			✓	✓	22	6.7	53.8
2		✓				✓	21	6.4	60.2
3	✓				✓	✓	17	5.2	65.4
4	✓	✓	✓			✓	12	3.7	69.1
4		✓	✓		✓	✓	12	3.7	72.8
1	✓						11	3.4	76.1

Figure 7.1 illustrates the different platforms used by respondents to access the Internet. The results indicate that multiple platforms are used by the respondents to access the Internet. Almost 90% of the respondents access the Internet through mobile phones, followed by 74% accessing the Internet from campus computers. Only 10% of respondents

Table 7.13 portrays a cross-tabulation comparing Internet access from cell phones with race, and shows that Internet access from cell phones is almost 90% within both black and white groups.

Table 7.13: Access to Internet from campus by race

ACCESS TO INTERNET FROM CAMPUS		ETHNICITY		TOTAL
		BLACK	WHITE	
Yes	Frequency	94	137	231
	% within Ethnicity	85.5%	67.5%	73.8%
No	Frequency	16	66	82
	% within Ethnicity	14.5%	32.5%	26.2%
Total	Frequency	110	203	313
	% within Ethnicity	100.0%	100.0%	100.0%

Table 7.14 portrays a cross-tabulation comparing Internet access from cell phones with race, and shows that Internet access from cell phones is almost at 90% for each group.

Table 7.14: Access to Internet from cell phone by race

ACCESS TO INTERNET FROM CELL PHONE		ETHNICITY		TOTAL
		BLACK	WHITE	
Yes	Frequency	100	179	279
	% within Ethnicity	90.9%	88.2%	89.1%
No	Frequency	10	24	34
	% within Ethnicity	9.1%	11.8%	10.9%
Total	Frequency	110	203	313
	% within Ethnicity	100.0%	100.0%	100.0%

Table 7.15 shows that respondents are divided equally in terms of the type of device they use most often to access the Internet. It is anticipated that the device used to access the Internet will be a key variable in subsequent analyses.

Table 7.15: Frequency distribution – device used most often to access the Internet

	FREQUENCY	PERCENT
Computer	168	50.8
Cell phone	163	49.2
Total	331	100.0

### 7.3.7 Structural variables relating to cell phones

Table 7.16 captures the frequency distribution for the make of cell phone used most often by respondents

Table 7.16: Frequency distribution – make of cell phone

	FREQUENCY	PERCENT
BlackBerry	155	47.0
Nokia	101	30.6
Samsung	38	11.5
Sony Ericsson	13	3.9
Iphone	10	3.0
HTC	9	2.7
LG	4	1.2
Total	330	100.0

Figure 7.2 shows that almost half (47%) of respondents recorded BlackBerry as their principle cell phone, followed by Nokia (31%) and Samsung (11%). The popularity of BlackBerry devices is suspected to be partly attributed to the comprehensive communication package supported by BlackBerry devices offered by mobile network operators.

Figure 7.2: Make of cell phone
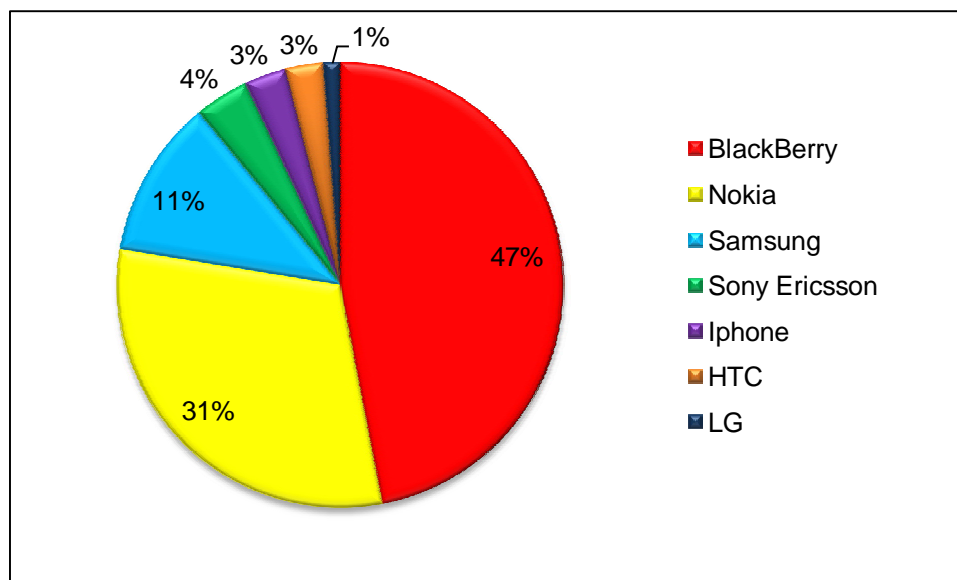
For the purpose of subsequent analyses, respondents for HTC, Motorola, Sony Ericsson, LG and Other will form a single group under the label: Other.

Almost 70% of respondents currently own a smartphone, as recorded in Table 7.17.

Table 7.17: Frequency distribution – smartphone ownership

	FREQUENCY	PERCENT
Yes	229	69.4
No	101	30.6
Total	330	100.0

More than half (56.4%) of respondents subscribe to cell phone contracts (refer to Table 7.18).

Table 7.18: Frequency distribution – cell phone plan

	FREQUENCY	PERCENT
Contract	186	56.4
Prepaid	144	43.6
Total	330	100.0

It was noted that 60% of respondents reported that they do not use Internet bundles on their cell phones (see Table 7.19). Two potential reasons for this result have been identified. Firstly, respondents who do not possess a smartphone are less likely to use Internet bundles on their mobile device, and secondly respondents who subscribe to BlackBerry BIS have little need to purchase Internet bundles. Interestingly 47% of respondents reported BlackBerry as their principle cell phone device, making BlackBerry the most popular cell phone brand amongst respondents.

Table 7.19: Frequency distribution – use Internet bundles on cell phone

	FREQUENCY	PERCENT
Yes	128	40.4
No	189	59.6
Total	317	100.0

The most common category of expenditure for monthly airtime is between R101-R200 (28.4%) of respondents. The results show that 65.7% of respondents spend less than R200 per month on airtime expenditure (see Table 7.20).

Table 7.20: Frequency distribution – average monthly expenditure on airtime for talk and sms

	FREQUENCY	PERCENT
Less than R50	36	11.1
R51-R100	85	26.2
R101-R200	92	28.4
R201-R300	42	13.0
R301-R400	44	13.6
R401-R500	11	3.4
More than R500	14	4.3
Total	324	100.0

For the purpose of subsequent analyses, airtime expenditure groups were classified into three groups: Less than R100; R101-R300; and more than R300.

The most common category for monthly expenditure for Internet bundles for use on cell phones is less than R50 (56.3%) of respondents. The results show that 83.5% of respondents spend less than R100 per month on Internet bundles (see Table 7.21).

Table 7.21: Frequency distribution – average monthly expenditure on Internet bundles

	FREQUENCY	PERCENT
Less than R50	184	56.3
R51-R100	89	27.2
R101-R200	29	8.9
R201-R300	12	3.7
R301-R400	7	2.1
R401-R500	1	.3
More than R500	5	1.5
Total	327	100.0

For data interpretation purposes, Internet bundle airtime expenditure groups were reclassified into three groups: Less than R50; R51-R100; and more than R100.

Figure 7.3 demonstrates how often respondents consider they use specific applications on their cell phones. It highlights the fact that respondents engage with the multifunctional capabilities offered by their mobile phones.

Figure 7.3: Estimated use of different applications on cell phones
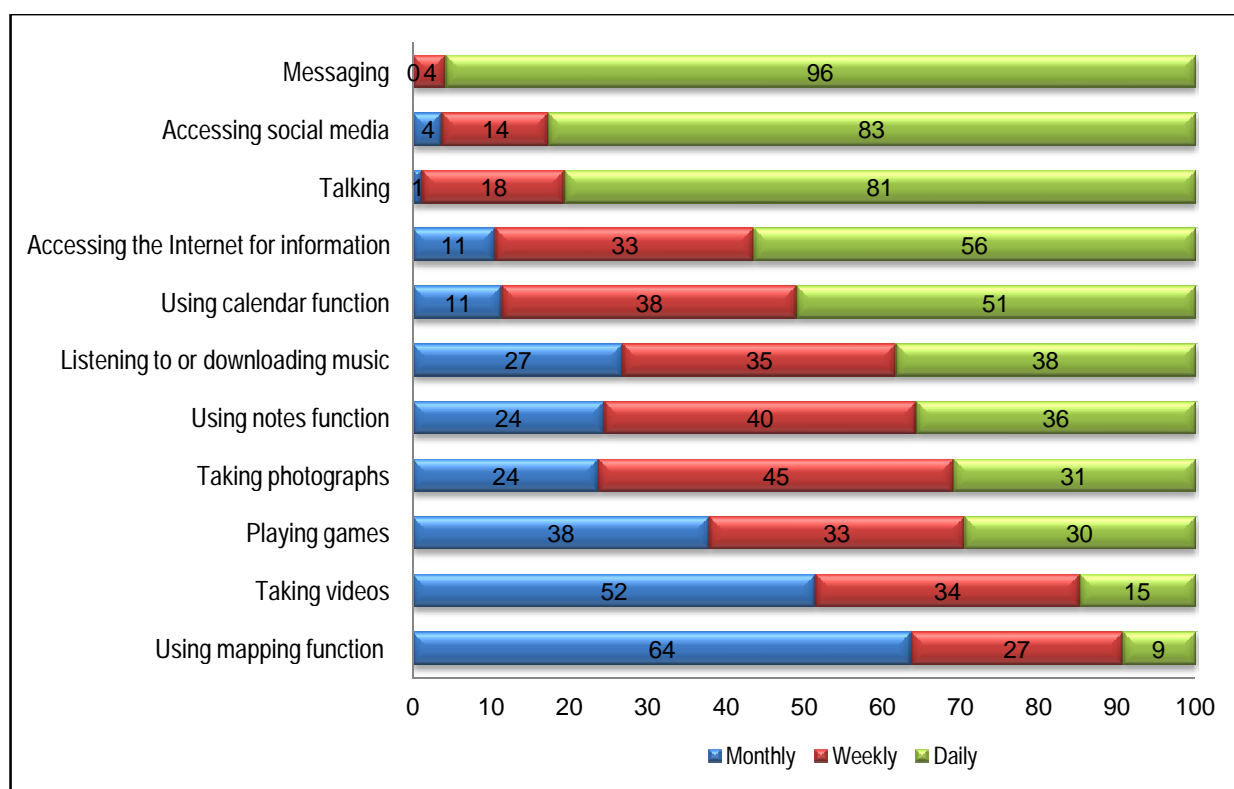
The three applications used most regularly pertain to communication, namely messaging, accessing social media and talking. The least used function is the navigation facility.

Data obtained from cell phone usage was subjected to cluster analysis. Cluster analysis is a process that arranges respondents depicting similar behaviours into groups, so that members of a particular cluster are more similar to one another than to members of other clusters (Hair, *et al.,* 2010:505). See section 7.4

7.3.8 Social networks

Table 7.22 reveals that almost all respondents (97.3%) use social networks.

**Table 7.22: Frequency distribution – use of social networks**

	FREQUENCY	PERCENT
Yes	320	97.3
No	9	2.7
Total	329	100.0

Table 7.23 records the frequency that respondents access social networks. More than half (55%) estimate that they access social networks five times or more per day, and 89% log into social networks daily. For ease of visual reference this data has been produced graphically in Figure 7.4, which immediately follows Table 7.23.

Table 7.23: Frequency distribution – frequency of accessing social networks

	FREQUENCY	PERCENT
About five or more times a day	181	54.7
About three times a day	40	12.1
About four times a day	29	8.8
About once a day	25	7.6
About twice a day	20	6.0
About once a week	14	4.2
About two to three times a week	14	4.2
Not every day	6	1.8
About once a month	2	.6
Total	331	100.0

Figure 7.4: Frequency of accessing social networks
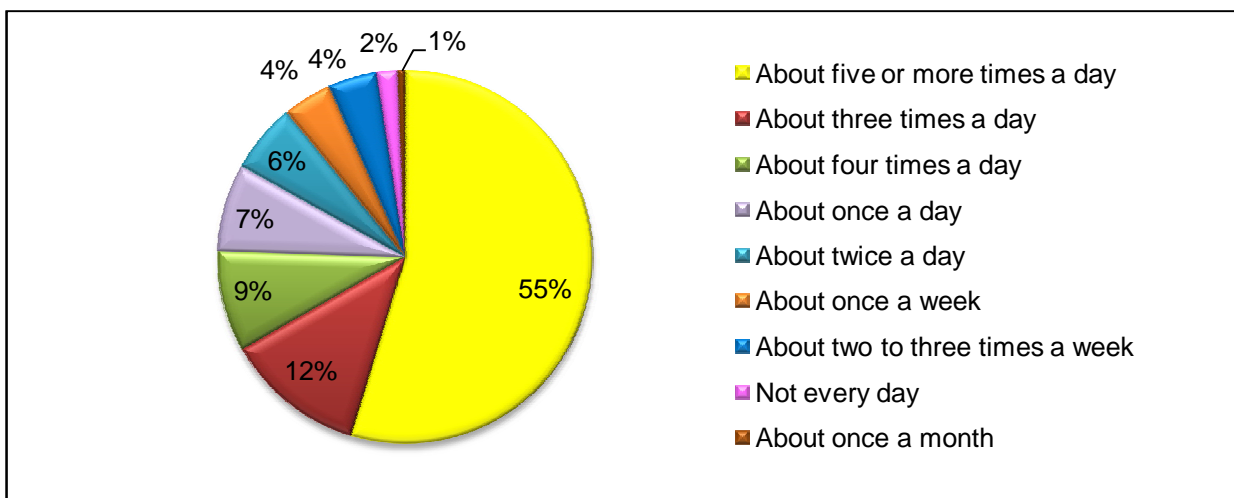
For the purpose of subsequent analyses, frequency to access social networks has been reclassified as follows:

- "Not everyday", "about once a month", "about once a week", and "about two to three times a week", have been combined into a new group labelled: "less frequent".

- "About once a day", "about twice a day", and "about three times a day", and "about four times a day", have been combined into a new group and labelled: "very frequent".

- "About five or more times a day" was classified into a group called: "addicted".

7.4 CLUSTER ANALYSIS – CELL PHONE USAGE

Cluster analysis is a multivariate, exploratory technique designed to reveal natural groupings of respondents that may exist in the data (Hair *et al.*, 2010) The goal is to separate a set of observations into two or more groups based on the similarity of the observations on a set of specified characteristics. The technique can be compared to factor analysis in that they share the objective of assessing structure. The difference between the factor analysis and cluster analysis is that factor analysis is concerned with grouping variables while cluster analysis is concerned with the grouping of observations. Furthermore, factor analysis makes the groupings based on relationships among the variables (correlations) whereas cluster analysis makes use of distance as the basic criterion to make these groupings. Cluster analysis groups observations together in clusters so that observations in the same cluster are more similar to one another than they are to objects in other clusters, thus by attempting to maximise homogeneity of objects within clusters while also maximising the heterogeneity between the clusters (Everitt, Landau, Leese & Stahl, 2011).

Choosing the set of variables that will be used to characterise the observations to be clustered should be informed by the objectives of the study. The set of variables effectively constrains the possible results, and typically a number of solutions corresponding to a varying number of clusters are generated and selection of the final cluster solution requires substantial researcher judgement.

The three general types of clustering methods available for doing cluster analysis are:
- Hierarchical clustering where cases are joined together in a cluster and once joined, they remain in the same cluster throughout subsequent clustering.

- Non-hierarchical clustering where cases are joined together but can switch clusters in subsequent steps.

- Two-step clustering where both non-hierarchical and hierarchical clustering methods are used to first find an optimal number of clusters and then to do the actual clustering (Everitt *et al.*, 2011).

When the researcher has some preconceived concept of how many clusters could reasonably be uncovered in the data, a non-hierarchical clustering method such as the K-means clustering method can be used with success. The "K" in the name refers to the number of clusters and the "means" refer to the fact that the centroid method (mean of each cluster's cases) is used to calculate distance (Hair, Black, Babin, Anderson, & Tatham, 2005).

In an effort to classify the respondents into different usage groups, a K-means non-hierarchical cluster analysis was performed using the 13 variables that measure how often the different cell phone features are accessed or used by the respondents (refer to Figure 7.3 and Appendix C for questionnaire). The features included talking, messaging, accessing social media, accessing the Internet for information, listening to or downloading music, using email, playing games, taking photographs, taking videos, using calendar function, using calculator function, using notes function, and using mapping navigation function. The variables were measured using a 3-point scale (1=Monthly, 2=Weekly, 3=Daily).

Table 7.24: Descriptive statistics – mean scores (all cell phone features)

	Mean	Min	Max	Std. Deviation	N
Talking	2.790	1	3	0.436	326
Messaging	2.960	2	3	0.203	326
Accessing social media	2.790	1	3	0.496	313
Accessing the Internet for information	2.460	1	3	0.681	309
Listening to or downloading music	2.100	1	3	0.800	268
Using email	2.480	1	3	0.692	273
Playing games	1.910	1	3	0.820	223
Taking photographs	2.070	1	3	0.736	316
Taking videos	1.630	1	3	0.726	261
Using calendar function	2.410	1	3	0.679	311
Using calculator function	1.960	1	3	0.744	307
Using notes function	2.120	1	3	0.767	230
Using mapping navigation function	1.460	1	3	0.663	190

Of a two, three, four and five cluster solution, the four cluster solution was selected since it demonstrated the best correspondence with the researcher's preconceived typology. The four cluster solution is summarised in Table 7.25.

Table 7.25: Frequency distribution – cell phone usage types

CLUSTER	FREQUENCY	PERCENT
Socialites	93	28.5
Conservatives	106	32.5
Conversationalists	63	19.3
Connoisseurs	64	19.6
Total	326	99.9

The final cluster centre values for each of the thirteen clustering variables are listed in Table 7.26.

Table 7.26: Final cluster centres – cell phone usage types

	Cell phone usage types				Overall Mean
	Socialites	Conservatives	Conversationalists	Connoisseurs	
Talking	2.750	2.670	2.870	2.970	2.790
Messaging	2.970	2.910	2.980	3.000	2.960
Accessing social media	2.860	2.580	2.970	2.830	2.790
Accessing the Internet for information	2.700	2.060	2.610	2.550	2.460
Listening to or downloading music	2.170	1.640	2.610	2.130	2.100
Using email	2.890	1.940	2.570	2.570	2.480
Playing games	1.490	1.590	2.150	2.670	1.910
Taking photographs	1.850	1.550	2.560	2.750	2.070
Taking videos	1.240	1.180	2.020	2.350	1.630
Using calendar function	2.650	2.000	2.200	2.870	2.410
Using calculator function	2.060	1.590	1.570	2.810	1.960
Using notes function	2.360	1.590	1.620	2.810	2.120
Using mapping navigation function	1.500	1.170	1.200	1.980	1.460

Larger than Overall Mean, Less than Overall Mean

The four clusters were characterised by making inter-cluster centroid value comparisons for each of the different frequency variables and also by comparing all centroid values to the overall mean frequency value. The mean usage frequency for each of the four clusters is displayed in Figure 7.5.

Figure 7.5: Frequency of usage – cell phone usage types
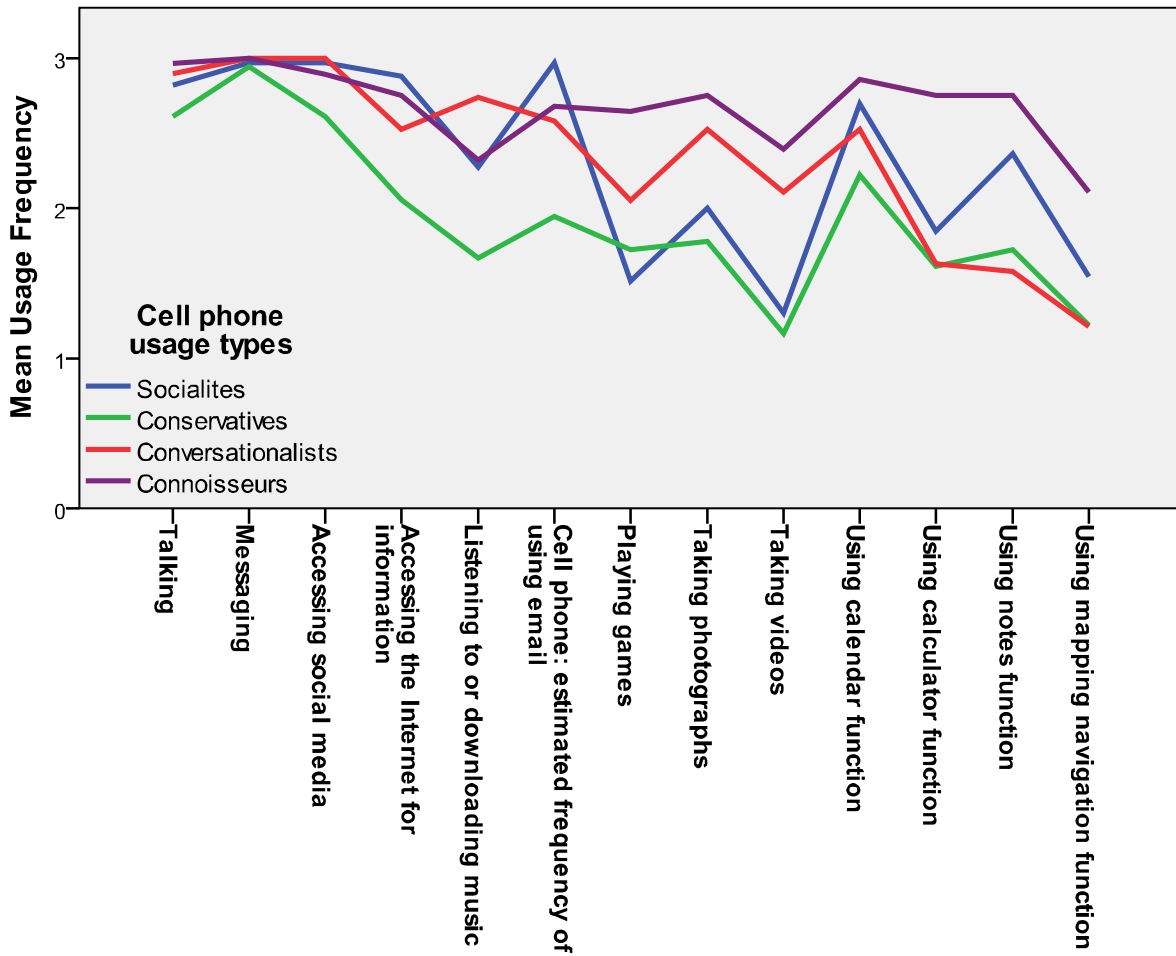
7.4.1 Cluster profiles

A description of each cluster follows below, to demonstrate the similarities and differences between these mutually exclusive groups.

Socialites (28% of total group)

In terms of demographics, the Socialite group tends to be slightly older (63% are between the ages of 21 to 29), which differs from the sample population norm (where 53% are between the ages of 21-29). The Socialite group are predominantly white (72%), which corresponds with the overall composition profile of the sample. Aspects relating to mobile infrastructure show that 76% own smartphones; 62% utilise cell phone contracts; and 50%

use Internet bundles. The monthly expenditure for Internet bundles is split as follows: half of this group spends less than R50; 32% spend between R51 to R100; and 12% spend more than R101. These findings are all slightly higher than that of the entire sample in the study.

Socialites indicated, on average, that they accessed the communication facilities (messaging, social media and email) available on a cell phone almost on a daily basis while the frequency of using other facilities is lower. They demonstrated an average usage frequency for talking, playing games, taking photographs and taking videos that is lower than that of the sample as a whole.

It would seem that Socialites mainly use their cell phones as a communication and organisational tool.

Conservatives (33% of total group)

The age profile of the Conservative group is consistent with that of the sample (53% are between the ages of 21 to 29). The Conservative group are mostly white, at 74% which is six percentage points above the sample population which reports that 68% of respondents are white. In terms of aspects relating to mobile infrastructure, 62% own smartphones (in comparison to 69% of sample population); 62% utilise cell phone contracts (in comparison to 56% of sample population); and only 27% use Internet bundles (in comparison to 40% of sample population), with just over 60% spending less than R50 per month on Internet bundles for their cell phones (in comparison to 56% of sample population).

These respondents demonstrated the highest usage frequency (almost daily) for facilities that were originally the only functions available on most cell phones (talking and messaging) while the frequency of use of all other facilities are considerably lower, especially newer applications made available on cell phones such as taking videos and mapping navigation (used monthly). On average the frequency with which all features are used is lower than that of the overall group.

Conservatives are considered be conformists and with respect to technologies they are anticipated to use specific devices for specific functions, this assumption supports the finding that the majority of Conservatives do not use Internet bundles. Conservatives tend to limit the use of their cell phones to functions that are typically inherent of cell phones such as talking and texting.

Conversationalists (19% of total group)

The majority of Conversationalists are young (55% are between the ages of 18-20), 55% are white and 45% are black. The demographic profile of Conversationalists differs from the overall profile of the sample population, where 47% of the population are between 18-20 and the ratio of white to black respondents is greater at 68:32. Most Conversationalists (81%) own smartphones, which is considerably higher than the 69% smartphone ownership recorded for the overall population. The following statistics, specific to Conversationalists, correspond with the overall population, 55% have cell phone contracts; 46% use Internet bundles; and in terms of monthly expenditure on Internet bundles 51% spend less than R50 with 32% spending between R51 to R101, and 17% spending in excess of R101.

These respondents indicated that they use all communication facilities (talking, messaging as well as the newer social media) with high frequency (almost daily) while using all other facilities less frequently, although more frequently than the Conservatives. A distinguishing behaviour for this group is that they listen to or download music more frequently than any other group. On average the usage frequency of all features except calendar, calculator, notes and mapping navigation, is higher for the Conversationalists than the group as a whole.

Connoisseurs (20% of total group)

The Connoisseur group is evenly split with almost 51% aged 18-20 and 49% between the ages of 21 and 29. In terms of ethnicity 53% are black and 47% are white, which is noticeably different from the population norm. The Connoisseur group is distinct from other

groups in that its members use a wide variety of mobile functions and do so often, except for downloading music taking videos and mapping navigation. The average usage frequency for all features is higher than that of the respondents in all other clusters as well as the mean frequency for the group as a whole.

Based on the respondents' tendency to use most features available on a cell phone one would anticipate the Connoisseur group to be technically advanced and thus predisposed to using the latest gadgets. Therefore it is somewhat surprising to find that only 57% of the group own a smartphone, which is the lowest level of smartphone ownership across the four clusters. Furthermore most Connoisseurs use prepaid cell phone plans (63%) and 44% use Internet bundles on their cell phones. Just over half spend less than R50 per month on Internet bundles and almost one third spend more than R101 on Internet bundles. These findings lead one to assume that Connoisseurs belong to low income socio-economic groups.

The following explanations are offered as potential reasons behind the Connoisseur group's low use of video, mapping navigation and downloading music. Firstly, since Connoisseurs are less likely to own a smartphone, their handsets potentially lack certain functions, which may preclude them from utilising features like video and mapping and navigation. Secondly, in terms of downloading music, the low tendency to perform this activity may be linked to data charges associated with this function.

It would seem that high dependency on their cell phones has inadvertently made Connoisseurs expert users of their devices, which they use for multiple purposes because they have no other alternative. For instance, a respondent from a higher socio-economic background may have a digital camera in addition to the camera on his or her cell phone, whereas respondents from lower socio-economic backgrounds are less likely to have alternative devices and rely more on their multi-functional cell phones. Connoisseurs are possibly highly proficient users of cell phone functions because they have no other alternative technology devices available to them.