Assessing Cell Phone Usage in a South African Township School

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PILOT STUDY

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ABSTRACT

Cell phones introduce a range of new possibilities for social networking and communication, media use and production, political activism, as well as education. Young people in South Africa have adopted a range of innovative communicative practices, notably those which exploit low-cost mobile applications, many of which are unique to this context. Until now, little quantitative data has been available to describe exactly to what extent and how young people access and use cell phones.

This paper reports a pilot study, which surveyed two grade 11 classes at an urban school in Samora Machel in Cape Town, South Africa. The school serves a low-income township community. The students reported intensive use of cell phones, at a level which overshadows their use of less widely accessible technologies such as desktop computers. Notably, the extensive use of mobile Internet applications which students reported suggests that many young urban South Africans first access the Internet via their phones, and that their concepts of the Internet may consequently be strongly shaped by a distinct set of mobile applications.

An exploratory technology usage approach was chosen to determine *first*, the availability of mobile technologies to grade 11 students, and, *second*, the extent to which various cell phone applications are used in this context. The survey was a pilot study for a larger project, which aims to assess the possibilities for mobile learning among this target audience. A questionnaire was distributed to all students from two Grade 11 classes (n=66). The school was chosen as a convenience sample, in order to test the survey design in an environment similar to that which prevails in many urban South African schools. The findings can be used to describe the character of cell phone usage among low-income South Africans in this age-group.

Detailed activity-based questions indicate that virtually all respondents (97%) were found to have used a cell phone on the previous day for at least one communication, information-seeking, gaming or multimedia activity. The high usage patterns and expenditures on conventional telephony are particularly surprising given the low income levels that prevail in the area. Interpersonal communication was the most common use of phones, with 91% of respondents making calls or sending SMS messages on a typical day.

Despite the near-universal use of cell phones among all respondents, a significant minority (25%) of the sample did not own their own personal handset. While phone ownership correlated strongly with a sense of economic deprivation, there was no significant difference in phone usage patterns between this apparently more impoverished group, who used and borrowed other peoples' phones, and the possibly more well-to-do group of phone owners.

In particular, however, the pilot suggests the possibility that the majority of urban South Africans in this age group can and do access the Internet via their phones (83% were found to so on a typical day). The popularity of instant messaging and other Internet applications within this group suggests that their use of the Internet differs from those whose access is primarily via desktop devices. This finding has significant implications for mobile media and learning applications, as does the fact that a majority of students also reported gaming on their phones on a typical day (53%). Despite the limitations of the sample size for this pilot study, the results nonetheless provide an illuminating snapshot of school-going youth at a bleak urban township school bordering an informal settlement.

1. Introduction

For many years, cell phones have been touted as luxury technology items of the rich, as indispensable gadgets of the metropolitan and trendy who were too spontaneous to rely on old-fashioned fixed-line phones. But as network operators and phone manufacturers started following the large demand by the world's phoneless majority, cell phones have since become a social phenomenon the world over. But especially in Africa, home to the majority of so-called Least Developed Countries, has the widespread access to this communication device sparked keen debate about the impact and possibilities for social and economic development.

For long, government and development agencies have put strong focus on widespread computer and Internet access (Bracey and Culver, 2005), a strive that is exemplified by the ambitions One Laptop Per Child project. But the breathtaking pace of cell phone access in developing countries has so far received very little academic scrutiny. Traditional computer and Internet access remains limited to a very small elite in most countries, shifting the focus to another kind of computer and network: cell phones (cf. Alexander, 2004). Some suggest that mobile phone networks have long been neglected in research, leading to a "silent revolution" that some suggest will come about by enabling most cellular devices to access the Internet (Selanikio in BBC, 2008). Castells has recently reiterated his argument on societies becoming increasingly networked through Internet and technology usage, by extending his famous theory to explicitly include cell phones (Castells, 2000; Castells et al., 2006). Based on industry figures, he found evidence suggesting that this U.S.-focused phenomenon is spreading around the world – thanks to cell phones – significantly faster than his original main factor, the Internet.

Across Africa, there is currently one active phone per every three inhabitants (GSMA, 2008). In South Africa, a country often regarded in many ways as a pioneer for the rest of the continent, there are as many active subscriptions as inhabitants (Wireless Intelligence, 2008)[1]. While this industry data includes multiple phones used by the same person, the actual level of access to cell phones is quite uncertain: reports for South Africa range in between 56 percent and 72 percent in 2007, depending on the source[2].

With the apparent trend towards ubiquitous cell phone access, especially among he country's youth, some see a potential in this technology to aid the ailing education system. Despite finishing 12 or more years of schooling, only 65 percent of South African school children passed their matriculation exams in 2007 (DoE, 2007), though black students remain the lowest-performing demographic group. While teaching quality and school infrastructure has improved since the end of Apartheid in 1994, strong racial divisions remain.

[1] In April 2008 there were 43,317,511 active mobile phone lines reported (Wireless Intelligence, 2008) for South Africa's 47,850,700 inhabitants (STATSA, 2007).
[2] The large-scale household survey AMPS found 56 percent of South Africans use a cell phone (AMPS, 2007). The World Development Indicators reported 72 percent cell phone access in South Africa (World Bank, 2007).

Whether cell phones can be regarded as panacea for Sub-Saharan Africa's development (cf. Waverman et al., 2005) remains debatable. First attempts to draw on existing mobile technology to improve education results in South African schools have been documented by Butgereit (2007) and Oelofse et al. (2006), showing how widespread use of mobile phones was capitalized by these projects.

But detailed and reliable information on South African cell phone usage remains absent. The purpose of this paper is thus to make a first step towards the goal of obtaining such data. In this paper I will report on the findings incurred from a pilot study conducted in May 2008 among grade 11 students from an urban township school in Cape Town. An improved follow-up study will be conducted in the following months to obtain a greater sample for different demographic youth groups. The present study set out to answer the following questions: **What are the current cell phone usage and ownership patterns among youth at a South African township school? What is the potential for using cell phones in education at this school?**

The rise of the "mobile learning" paradigm

The idea of using cell phones as learning tools is certainly not new. Following the rapid rise of cell phone distribution among Western European youth in the late 1990s, many projects arose that tried to use this technology for education purposes (Naismith et al., 2004). In 2001, when most of the world's Internet users were still on dial-up connections as broadband was still extremely expensive, a whooping 80 percent of homeless or at-risk youth in England were found to posses cell phones. A project was born that intended to provide education to these adolescents who have often undergone little or no formal schooling. By using existing cell phones as well as providing other more advanced mobile devices, the project taught basic literacy and life skills through a variety of custom-made content. Based on participants' feedback, the project was successful (Attewell and Savill-Smith, 2004; Colley and Stead, 2004).

Mobile learning (or *m-learning*) has emerged from the broader fields of e-learning, educational technology, general education theory – bringing together a wide range of scholars seeking to understand the many different aspects of mobile technology and learning. However, depending on the researcher, *m-learning* can refer to a great variety things, from driving lessons retrieved from a cell phone to spontaneous learning from friends, magazines or other sources in any setting other than the normal classroom. An indication for the extreme wealth of perspectives can be the broad range of topics covered in the various proceedings from the mLearn conference series (Colley and Stead, 2003; Attewell and Savill-Smith, 2004, 2005; van der Merwe and Brown, 2005; Norman and Pearce, 2007). Other annual events include the *Conference on Wireless, Mobile and Ubiquitous Technologies in Education* (since 2002), *Handheld Learning* (since 2005), as well as the Association for Learning Technology's annual *ALT-C* conference, which has existed for much longer but has focused predominantly on mobile technology over recent years.

Traxler (2007) argues that mobile learning is too diverse a field to be summarized under a common theorem, stating that its proponents "are still struggling to find a literature and a rhetoric distinct" from other fields such as e-learning (ibid, p. 6). Despite the wealth of conference proceeding publications from these events, surprisingly little has been published in formal journal or book format, possibly reflecting the extreme transience of modern mobile technology which often renders findings as outdated by the time of publication.[3]

Several South African academics have conducted cell phone-related research on youth over the past years, all pointing towards a growing ubiquity of this technology within the 15 to 21 age group (Butgereit, 2007; Bosch, 2008, forthcoming; Dourando et al., 2007; Oelofse et al., 2006; Francke and Weidemann, 2007). However, all have so far chosen rather special samples, using middle or upper class schools with white or mixed race students. Predominantly or exclusively black schools within lower income communities have so far been ignored entirely, even though they make up a majority of schools in South Africa.

But the South African case represents an enormous challenge for researchers aiming to find a more representative sample that is feasible within their budgets: Despite the existing racial divides among youth (Lam et al., 2008), there are linguistic challenges due to the absence of a universal fluently spoken language, as well as divides along rural-urban and regional spheres. However, it is exactly this highly diverse socio-economic background that requires any non-representative study to provide full disclosure regarding the sample chosen by the researcher. Especially when studies focus on minority or upper class groups should this rule be applied more rigorously.

Jenkins (2006a) found that new multimedia skills learned by American youth depend on their socio-economic status: children from better-off families have an advantage because of their higher technology access. Buckingham (2007) echoes similar findings in the UK, observing a new growing *digital divide* between media-rich after-school activities by the more fortunate, and the very limited use of information and communication technologies in the classroom. Both findings remind us of the hardship of identifying and understanding varying media usage by youth along socio-economic division lines.

A review of methodological approaches to assess technology usage

In the U.S., itself a highly diverse country, academics were able to extract representative survey data on Internet and cell phone usage, collected by Pew Internet Project over the last three years. With regard to handheld devices, the surveys were able to demonstrate the growing importance of non-voice applications and establish that Americans now view cell phones as the hardest device to give up (Horrigan, 2008a, 2008b). In addition, while findings also resonate with Jenkins's predictions (Jenkins, 2006a, 2006b) of unequal usage of technology and thus varying skill levels, Horrigan (2008a) could

[3] *Mobile Learning* (Kukulska-Hulme and Traxler, 2005), one of the few books published so far on this particular topic, is an edited collection of case studies and theoretical discussions; none of the chapters make note of existing theories of learning.

also show that certain minorities were more likely to go online using their cell phone than white Americans – thus hinting to the development of an actual skill advantage over time in this arena. (Jenkins and Buckingham focused predominantly on computer usage, so these findings are not necessarily contradictory.)

Aside from the landmark example posed by the Pew Internet Project in this field over recent years, similar representative studies have been rare in other nations, and practically absent in the African case. A large-scale study conducted by Zainudeen et al. (2006) on telecommunication usage in India and Sri Lanka serves as one of the most thorough examples on large survey studies in developing countries. But in lieu of such research projects in Africa, smaller exploratory surveys have been conducted instead. In a study with a focus on poverty reduction, Ivatury and Pickens (2006) conducted 515 survey interviews of low-income South Africans around the cell phone banking service WIZZIT to access the usage or potential for mobile phone banking in the country. By using sophisticated methodology and acknowledging its limitations, the study shows the potential of good survey design to find answers to complex questions, even for a very diverse and inaccessible population. Dourando et al. (2007) have used survey interviews to assess the possible use of mobile technologies at the Cape Peninsula University of Technology in Cape Town. However, their methodology fails to acknowledge the existing socio-economic diversity as it did not identify possible differences in technology usage among students from different ethnic and societal groups. A similar flaw can be found in Francke and Weidemann (2007) who analyzed the use of mobile instant messaging by using questionnaire data collection at a South African high school.

The annual All Media Product Survey (AMPS) claims to provide nationally representative data for South Africa, but neither discloses its methodology fully, nor provides original analyses of its potentially rich data. Without methodological disclosure, the AMPS findings need to be treated with extreme caution.

In the absence of a detailed representative study (which is further complicated due to existing barriers to traditional quantitative research in these societies, and the lack of funding thus far), researchers to date have been compelled to use other methods instead. Although this study employs solely quantitative survey research, it is important to note the few existing studies and approaches that could be potentially used in the African context.

Maunder et al. (2006) have argued that with respect to Southern Africa, many Human Computer Interaction (HCI) approaches have failed to capture the social complexities involved when trying to understand technology usage in the developing world, while others within HCI suggesting the use of ethnographic studies instead (Marsden, 2007). In fact, ethnography has been used in various contexts to assess cell phone usage. Ito et al. (Ed., 2005) have managed to explain the ways in which mobile technology has become deeply entrenched in Japan's society. Nokia design researcher Jan Chipchase continuously publishes rich material on emerging cell phone usage patterns on his ongoing blog *Future Perfect* (http://janchipchase.com), by using a "tour bus ethnography" approach (Chipchase,

2006). Slater and Kwami (2005) have compared usage and perceptions of Internet and cell phones in Ghana, concluding that while the former is chiefly used for instant messaging communication with unknown foreigners, the latter is rooted in the local context, connecting friends and family in the country. Miller and Horst (2005) have studied cell phone usage among low-income Jamaicans after living one year on location, later deepening their study into the first large-scale ethnographic compilation of observable changes caused by cell phone usage in this developing country (Horst and Miller, 2006).

Industry data is often analyzed and used to show large scale trends, such as the number of subscribers, SMS sent, or similar information. Prominent applications can be found in Castells et al. (2006) on a global networked society, enabled by cell phones, or Mendes et al. (2007) who analyzed numerous reports to explain the boom of mobile communication in the Philippines and its implications for Africa.

Skuse and Cousins (2005) have employed content analysis of 165 phone conversation and various other supporting methods to understand the potential impact information and communication technologies have on poverty in the Eastern Cape Province in South Africa. This method was also utilized by Butgereit (2007) to analyze instant messages sent over cell phones during a pilot tutoring project in a South African school. In a more in-depth approach, Bosch (2008, forthcoming) used personal interviews with South African teenage girls to explore the self-perceived impact of mobile instant messaging and general cell phone usage within this specific group.

Methodology

As the wide variety of existing research on mobile technology usage shows, the adequate methodology to be used depends heavily on the underlying intentions of the researcher and the societal context. The major trends to be found are anthropological/ethnographic research, quantitative surveys, and analysis of government or industry data. The most widely distributed literature focuses on the potential of mobile technology in education (*m-learning*), making proper understanding of the underlying motivation and theoretical frameworks crucial.

As this exploratory study focuses on furthering our understanding on mobile phone usage among urban South African township youth through survey data, it should be clear from the start that the findings should be followed up in further research using other complimentary methodologies.

However, by providing detailed quantitative data, this study will be in a position to make definite statements about a given population, thus ‘clearing the field’ from speculations about phenomena that can be stated in absolute values. Government or industry data is not adequate for such statements as only broad terms of customers’ usage is usually determined. Quantitative survey data, on the other hand, can provide detailed analysis of the technology and applications used by a large sample – and

thus allows us to eventually make generalizing statements about a chosen population group. Quantitative research through interviews, focus groups, or content analysis will be suited better to follow up phenomena that survey analysis could not explain properly.

The intention of this current study is thus to pilot a test questionnaire and provide detailed analysis of the findings. After refining the survey design based on the results, a broader study with a more diverse sample will be conducted, with the goal of providing data that could be generalized for certain parts of the South African youth.

Material and procedure

A paper-and-pencil self-assessment questionnaire has been distributed on April 30, 2008 to 66 students in two grade 11 classes at a high school located in Samora Machel, a black urban township east of Cape Town. The questionnaire consists of 31 questions on nine pages in English, and includes predominantly closed-ended or rating scale questions (Likert scales), as well as multiple-choice items. Some open-ended questions offer the respondents the chance to provide answers in more detail. The decoded survey data consists of 203 variables, many of which were recoded into additional aggregate indexes.

The questionnaire booklet was handed out by the researcher in the presence of the teacher to all students of a particular class, thereby eliminating problems of sampling bias. The students were briefed that their answers are treated anonymously; the questionnaires were personally collected by the researcher. This procedure enhances the response and retention rate and thereby minimizes self-selection sampling-bias.

Self-assessment paper-and-pencil surveys were chosen both for economical and ethical reasons. Personal face to face interviews have the obvious advantage of being able to use conditional questions (or skip logic) while the potential for such a questionnaire design is rather limited for a paper-based survey (cf. Deacon et al, 2007). However due to limited resources and a limited time frame for this research, interviews were ruled out as unfeasible. In addition, as most subjects will be younger than 18, personal interviews outside the classroom would have required prior consent of their guardians, parents or caretakers. Such consent, however, can be very difficult in practice to obtain in a timely manner from very low income families, posing a problem especially at the chosen school. Personal experience from teaching in similar institutions has shown how difficult obtaining such signatures on voluntary consent forms can be. Furthermore this approach provokes an uncontrollable self-selection bias.

Hence, it was decided to distribute the questionnaires during regular lessons as a classroom activity, thereby receiving consent from the responsible teacher. To incentivize teachers' and / or the principal's consent, a moderated debriefing about the risks and potentials of cell phone usage was offered to them to follow the app. 30 minutes needed for completion of the survey.

Participants

Classrooms were taken as clustered convenience- or availability-samples, without implying any representativeness. However, the sample was chosen as an extreme-group sample, allowing for the questionnaire to be vetted by respondents with slightly lower levels in literacy in English.

By surveying two classes within one school (n=66) we are able to control for classroom-specific idiosyncrasies. The comparable socio-economic status (SES) of the students visiting the same school should eliminate variance attributable to SES. On the other hand, variance between a greater number of schools in contrasting neighborhoods (as will be conducted by the follow up study) is to be expected and would indicate an aggregate-level effect of family income, differing facilities, social norms etc.

Economic backgrounds are difficult to survey among school children the way that household surveys are conducted. For one, they may not have sufficient information about household income or their parents' employment status. At the same time, for one reason or another, children can be suspected in boosting their parents' status in response to whoever asks, making such responses meaningless for this type of research.

While socio-economic status on a personal level is assessed in two questions, the schools' location and status serve as a potential higher-level explanatory or independent variable. Common knowledge about socio-economic contrasts in urban South Africa draws a very clear contrast between Samora Machel and other parts of Cape Town. The chosen school is in an exclusively black neighborhood ranging from shacks and squatter camps to small brick and mortar houses. The secondary school has no tuition fees, and very limited facilities and low matriculation numbers.

Instead of questions determining the exact economic status of respondents, questions of relative deprivation were asked. Relative deprivation is a powerful tool to show how respondents view themselves relative to their peers, and whether they believe they and their family are deprived of some standards they believe they deserve. A practical application of this measure is shown in the later section on correlating these relative deprivation scores with cell phone ownership.

Another subtle measure was to ask respondents about their way to school. 95 percent of respondents got to school walking, the remainder used public transport, or were brought by their parents (only one person in each class enjoyed this luxury).

Aside from these relative measures on socio-economic standing, distinctions of race or home language have long been used in South Africa. But 14 years after the end of Apartheid, the measures need to be revisited as formerly institutionalized discrimination softens boundaries between racial groups. In preparation for the upcoming larger study, these factors were included. 90.6% of respondents identified themselves as 'black', while the remaining survey participants took issue with the pre-categorized question. Given the emotional issue of such questions for some participants,

languages spoken in the household might become an alternative, possibly even more powerful distinction tool, as it allows for differentiation among the country's 80% black population. In this pilot study however, questions of language and race were of little importance given the very homogenous background of the school and its surrounding neighborhood. Xhosa was mentioned as one of the languages spoken at home by 98 percent of respondents, followed by English (mostly mentioned second) by 47 percent of respondents (see Table 1).

56 percent of respondents were females, an exact match of the school's overall gender ratio. The mean age was 17.9 years, while extreme cases reached from 15 to 22 years. 12% of respondents were aged 20-22. The high age among some respondents and the elevated average age confirm the findings by Lam et al. (2008) who could show educational divides along racial lines, particularly greater grade repetition rates for black students.

Home language mentioned most often

	Count	Column N %
isiXhosa	63	98.4%
English	30	46.9%
Afrikaans	1	1.6%
SeSotho	4	6.3%
isiZulu	1	1.6%

n=64

Table 1

An overwhelming majority of respondents plan on pursuing further education immediately following their graduation from high school. Eight-in-ten respondents chose this option versus only one-in-eight deciding to work immediately (which does not, however, exclude plans for later education).

Measures

Questions asking subjects about their use of certain technologies (or specific applications therein) were deliberately modeled after the Pew Internet Project surveys (Pew, 2006; Horrigan, 2008a). To avoid what is sometimes referred to as the "recall problem" (Deacon et al, 2007, p. 72), the authors of the Pew studies decided to obtain frequency replies through a two-stranded approach: subjects are asked whether they have *ever* used a technology or application, and whether they have done so *yesterday*. The findings thus show a reliable figure for absolute usage by which we can single out people who have never used a certain feature before. The second number however will give us an idea *for a typical day* by asking about the most recent usage on the previous day. The *recall problem* is thus diminished greatly: Since respondents do not estimate their average usage or approximate use frequency, we were able to get numbers allowing us to state what share of respondents is using which technology or application on an normal day. Given the limited sample of this pilot study, computer usage might have been influenced by a certain research project or a certain event. A larger study would thus have to ensure that samples are taken over a certain period, with equality of selection for all dates and weekdays in this period.

Altogether, 27 variables with specific use applications were included in the questionnaire. Those can be grouped into three overall categories: personal communication (4 variables), entertainment (5), instant messengers (7), and Internet and Web usage (11). The last category contains a further subset specific to accessing websites (6). Several variables asked respondents about the same activity in slightly different ways which allows us to check both the understanding of our questions, as well as the

reliability of our findings. Only three variables were conditioned on answering a previous question (three questions specific to the MXit-specific questions) while all other variables were open for all respondents to answer.
I will analyze each group separately, putting main emphasis on the group results.

In the absence of commonly accepted terminology, alternative question design has been chosen. “Online”, “the Web”, “Internet” and similar terms have varying equivalents in respective cultures, or even on a personal level (Horst and Miller, 2006). Questions using these terms have thus been excluded from the survey as their validity would be extremely limited. Instead, aggregates from the above variables have been calculated for ‘personal communication’ (four variables), ‘entertainment’ (5), instant messenger use (4) Internet usage (15) and Web usage (9).

Although English is language of instruction in most classes, most students do not use English as their first or home language, thereby potentially having a lower literacy level in English than students whose mother tongue is English. The questionnaire takes this into account and is written in simple and plain English, hence using limited vocabulary and straightforward grammar, respectively (cf. Ogden, 1937). Future questionnaires could discount this problem by introducing questionnaires in different South African languages which students could choose from voluntarily.

In addition to the data incurred through this study’s survey, other data is being interpreted at different occasions, including published data from the Pew Internet Project (United States) and raw data from the All Media Product Survey database (South Africa). Some industry reporting figures have also been provided by the worldwide GSM Association and the semi-independent cell phone statistics clearinghouse Wireless Intelligence.

2. Research results and discussion

Ownership of cell phones

Assessing ownership of mobile phones among respondents was expected to be difficult, as exact definitions of the term could vary greatly. To increase reliability, two separate sets of questions were included. One offered a list of technological gadgets in which respondents could tick those they owned, while another asked explicitly whether respondents used, or actually owned a cell phone. The first measure was set at 85 percent, while the second, more differentiated, found that 75 percent of respondents said they personally own a handset with SIM card, while the remainder said they used a phone, but didn't own one. Both variables' correlation was found to be significant on the 0.01 level, as measured through a Pearson Correlation and an independent samples T-Test. We can thus assume that for the greater number of detail available, the second measure can be trusted, setting the ownership/co-user ratio at 3-to-1.

But while not all respondents could call a phone their own, there were no statistically significant differences among owners and co-users in terms of their phones' technical capabilities.

The three top phone brands used by respondents made up 98.2 percent of all phones used: Nokia (40.7%), Samsung (33.3%) and Motorola (22.2%). The top two models used were the highly capable Samsung E250 (10.6%) and Motorola V360 (9.1%), followed by Nokia's basic-as-can-be models 1600 and 1100 (6.1%, respectively).

Respondents were asked to say whether a given feature was available in their phone, or not. Most features were found to be available in the majority of respondents' phones. The list was lead by the ability to send SMS (89%) and to play games (87%), followed with some distance by the features to take pictures and play music (67% and 66%, respectively).

Most importantly: there is no statistically significant difference between phone owners and those using someone else's phone – in fact, "co-users" tend to use better phones than "owners" (cf. Table 2). For most measured variables, co-users responded to use more capable phones than their cell phone-owning peers. However, the sample is too small to support statistical significance: none of the features varies significantly between the two groups if measured with an independent samples T-test.

But the trend is confirmed when looking at available phone memory: The share of those using a cell phone with at least some memory is three times higher among co-users than among owners (9% and 29%, respectively). Asked about their phone's memory for storing data (pictures, music, videos, etc), the average was 348 MB – while 41 percent of respondents said their phones had no memory at all. However, almost every second respondent (46%) was unable to name the amount of memory their phone might have. Another trend is noteworthy: Those whose phone has storage memory have

relatively high amounts of at least 256MB. This could mean an automatic jump from very simple phones to quite advanced models, leaving behind the intermediary generation with less than 100 MB.

With your cell phone, is it possible to...	**All respondents**		Cell owners (A)		Non-owners (B)		**Difference**
	N	**% yes**	N	% yes	N	% yes	**B-A**
send and receive text messages	**57**	**89.10%**	44	89.80%	11	84.60%	-5.20%
play games	**52**	**86.70%**	40	85.10%	11	100.00%	**14.90%**
take pictures	**41**	**67.20%**	33	68.80%	6	54.50%	**-14.30%**
play music or MP3 files	**41**	**66.10%**	32	65.30%	8	72.70%	7.40%
play videos	**36**	**60.00%**	28	59.60%	7	63.60%	4.00%
record videos	**37**	**59.70%**	29	59.20%	7	63.60%	4.40%
access the internet or websites	**31**	**50.80%**	25	52.10%	6	54.50%	2.40%
send and receive email	**28**	**45.90%**	20	41.70%	7	63.60%	**21.90%**
send instant messages	**25**	**41.70%**	19	39.60%	6	60.00%	**20.40%**
receive Radio programmes	**20**	**32.80%**	15	31.30%	5	45.50%	**14.20%**
receive TV programmes	**15**	**24.60%**	12	25.00%	3	27.30%	2.30%

Table 2

Respondents appeared to be very confident for most answers regarding their phone's capabilities. The reliability of responses can be measured by correlating individual features requiring memory for storage (pictures, playing/recording video, music) with the stated availability of memory: all four variables showed a significant correlation on the 0.05 level (2-tailed) with the availability of phone memory. We can hence conclude that respondents' statements about these features are reliable.

Cell phone owners showed generally quite content with their current handset, with 71 percent of respondents saying they are either "happy" or "very happy" with it. The findings also showed that the absence of certain features cause a statistically significant correlation with an owner's happiness with their respective phone. In other words, those who can't take pictures, play music, or write email with their phones are more likely to be unhappy about their phone. For email, pictures and music the significance was on a 0.06 level at a 95% confidence interval. The other factors or features were not shown in a statistically significant correlation between those features and product satisfaction.

When asked about having to choose a hypothetical new phone, respondents needed to assign importance to each proposed feature (the scale reached from *very* important, with the value 2, to *not important at all*, -2). The ability to take pictures or videos was rated most important (1.53), very closely followed by the ability to go online (1.48), the model's appearance (1.45), and the ability to play music (1.42). Fast internet was rated in the midfield (1.25), underlining the overall importance of cell phone Internet access in the future (see Table 3 for more details).

Almost one-in-four current cell phone owners (24%) have had their current handset for less than nine months, while one-in-six owners (15%) have had their phone for more than three years. So as the cell phone life cycle in South Africa leads us to predict, many more capable phones will soon enter the second-hand market, thus continuously raising the technical capabilities of phones used or owned by youth.

If you had to buy a new phone today, how important are the following factors to you?

	Mean	SD	Don't know
to be able to take pictures or videos	1.53	.89	.0%
to be able to go online	1.48	.98	2.2%
great looks	1.45	1.06	2.2%
to be able to play music	1.42	1.07	.0%
to have fast internet (3G or HSDPA)	1.25	1.25	4.9%
a big display	1.00	1.19	3.3%
small size or light weight	.89	1.25	.0%
that it has a low price	.67	1.47	3.6%
that it's the latest model	.34	1.48	14.3%

Respondents were given a Likert scale ranging from 2 (very important) to -2 (not important at all).

Table 3

It is important to note that access to many cell phone applications was found to be more ubiquitous than the availability of given features on the personal phone. This reminds us that even cell phone owners are most likely using more than one phone. While the above information gives us valuable information about respondents' primary phone, the follow study should take this multi-phone usage factor into account.

Usage macro factors

Two-thirds of respondents (67%) have used a cell phone for the first time at least one year ago, while one third (30%) have been long-term users for at least three years. About one-fifth (21%) have only very recently used a cell phone for the first time, responding to 'six months or less'. Instead of providing exact time scales, the questionnaire was designed to allow better grouping of respondents, allowing for a distinction between new users ("six months or less"), recent users ("one year") and medium-term users ("two or three years").The group of new users can thereby be used for further analysis for this distinct group. These numbers indicate that the gap of non-cell phone users has only been fairly recently within this sample. For as little as one year ago, the share of cell phone users might have been as low as 70 percent.

Respondents were asked about the network provider they used, and were given the possibility to check more than one network. 9 percent of respondents said they use two different networks concurrently. By an enormous margin, MTN was found as the most popular network with 86 percent of students using South Africa's second largest cell phone provider. Vodacom, the nation's biggest network, had only 15 percent usage among respondents while Cell C and the incumbent competitor Virgin Mobile were even more distant (7.6% and 3%, respectively).

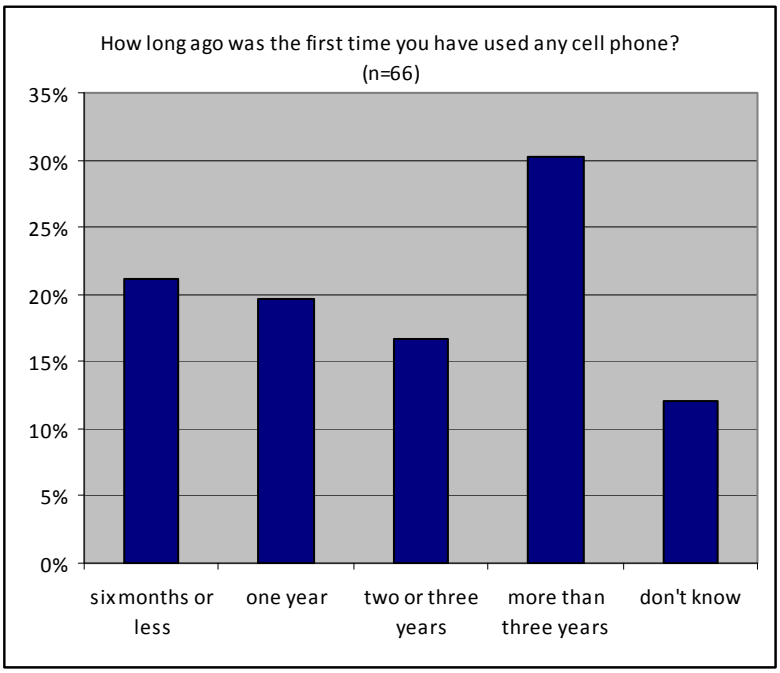

Figure 1

These findings contrast sharply with both industry data and statistics from household marketing surveys. The annual South African All Media Products Survey (AMPS) found in 2007 that MTN was second to Vodacom in almost all age and racial subgroups, including black youth aged 16-19, which is the closest match to the population surveyed in this present study. Black South African youth aged 16-19 were reported to use Vodacom and MTN with almost equal shares (48% and 45%, respectively) while the share of Cell C users (7.2%) (AMPS, 2007) mirrors the one found in our study.

The reasons for this discrepancy might lie in the strong growth MTN has enjoyed over the past years, doing particularly well among all non-white racial groups. Asked for the reasons for their choice of network, the overwhelming response by respondents was MTN's allegedly cheaper calling rates. Another reason not mentioned by respondents may be the indirect pressure from friends and

community to be in the same network, as calls between different networks are often penalized by the network provider with higher call rates as intra-network calls.

Asked whether they used a prepaid or contract model with their network provider, an overwhelming majority answered 'prepaid', while one fifth (22%) replied 'don't know'. This very high share of missing responses could be attributed to a generation of cell phone users in which prepaid is so common that a seemingly simple question might be very confusing.

Among all positive responses, 96 percent of respondents used a prepaid model while 4 percent said they were on a contract. No differences were found between cell phone owners and co-users. These numbers are very similar compared to the previously used subgroup of 16-19-year-old black South Africans, which found a ratio of 99/1 (AMPS, 2007).

Asked about their weekly expenditures on airtime, respondents gave an average of 29.74 South African Rand, or roughly USD 4.00. Only 3 percent said they didn't spend any money on credit while 8 percent said they didn't know. While this number may be of questionable accuracy given the common falsity of recall questions (people tend to have unreliable estimates when having to assess the past [cf. Deacon, 2007]), we also asked about their current cell phone amounts. Since more recent recall questions have a tendency to be more accurate than those involving a longer time span, the current amount is considered more reliable.

On average, respondents were found to have R13.62 ($1.83) on their phone, while 6 percent said their credit was already used up completely; 17 percent couldn't state the current amount. While there is no mathematical relationship between the amount of money spent per week and the amount currently available, we should assume the weekly amount to be even higher than the amount stated by respondents. Possible ways of calculating additional estimates would be the frequency of 'topping up' one's phone with new credit or by asking students to keep a record of the credit purchased over a longer period.

	Mean	N (mean)	No airtime	Don't know	N (overall)
8. On average, how much money do you spend on airtime per week?	R 29.74	56	3.2%	7.9%	63
10. How much airtime in Rand is currently on your phone?	R 13.62	42	5.6%	16.7%	54

Table 4

There was no significant difference found between males and females in the amount of airtime spent per week: Girls' average was slightly higher at R33.10 than boys' average at R26.22.

Compared to all of South Africa's youth, these numbers appear fairly high. Extrapolated for a 30 day period, the average student in our survey spent R127 ($17) per month. The AMPS study provided fixed cost categories, making it impossible to calculate an average. However, AMPS (2007) found that

one-in-nine black youth aged 16-19 spent less than R125 per month on credit, adding to an obviously dramatically lower average monthly spending, as shown in Figure 2.

Of course it should not surprise that a sample as limited as ours deviates from an allegedly nationally representative survey. However, after grouping our individual responses into the given categories provided by the AMPS survey, we can see interesting patterns emerging. While the AMPS findings show quite distinct differences between the four racial groups it chose to use, our respondents show that monthly expenditures mirror the one of white youth aged 16-19, with very similar numbers within the higher end of the scale. However, within the bottom half of expenditure levels, our respondents were very similar to the national AMPS findings for Indians. Compared to blacks in this subgroup, two-in-eight of our respondents (26%) used less than R50 ($6.70) per month while for the figure for black youth in the country is five-in-eight (59.9%) (AMPS, 2007). However, spending in our survey follows a relatively normal or bell-shaped distribution, refuting the idea that there might be two spending poles within the sample (the idea is suggested through the unequally sized categories used by AMPS).

The school chosen for this survey has no special reputation as research among similar township schools shown, giving no indication that higher-earning parents would choose this institution for their children. Hence, the relatively high expenditure figures cannot be attributed to special external factors, but can nonetheless not be regarded as representative for schools in urban townships. Our follow-up survey will, however, use a larger sample to find numbers that could represent a larger group of learners in Cape Town.

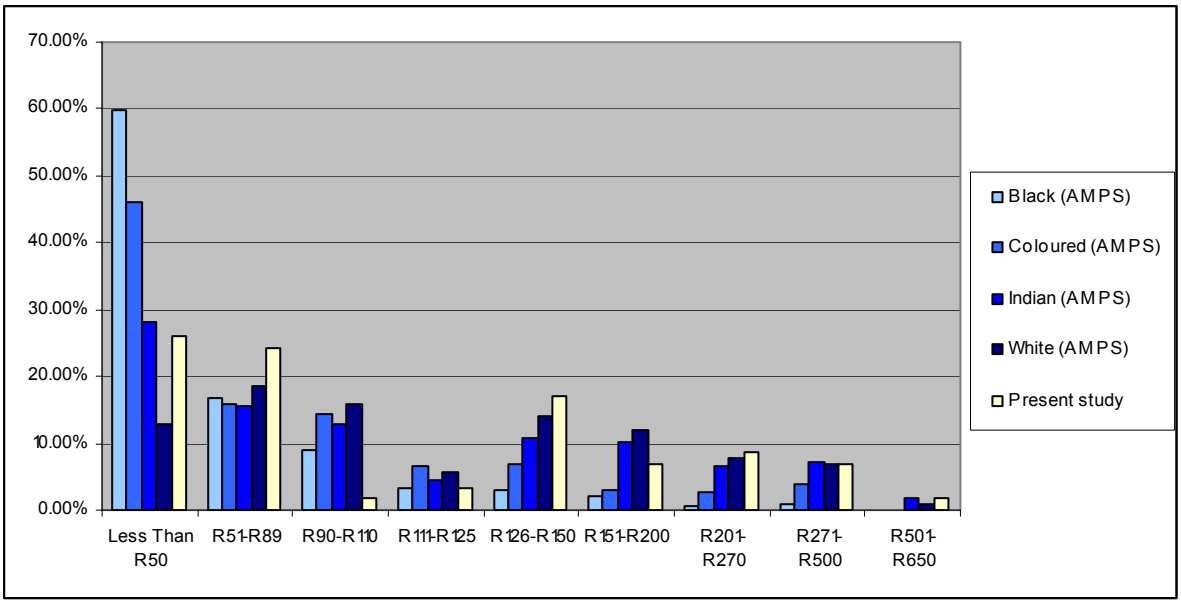

Figure 2

Most respondents named only one source for funding to pay for their weekly phone expenditures. The majority (59%) said they use their own money while smaller shares acknowledged their parents or other family members as funding resources (41% and 25%, respectively). Boys were found to be more

likely to be self-reliant than girls, with a 21 percentage point lead in the 'myself' category. 10 percent of students named their boyfriend or girlfriend as sponsor. 26 percent respondents named more than one source for funding.

The fairly high share of students crediting themselves as source for funding was a surprising result. While the overall importance of the family is still obvious, most students seem to have other sources of funding. The number of respondents considering pocket money as part of the 'myself' category should be assumed quite low, as their family's economic background is most likely not allowing for such an allowance. Further research into earning and spending patterns among South Africa's youth has yet to be conducted to allow for more detailed conclusions on these numbers. The follow-up study will address this question in more depth through individual interviews or focus groups.

9. Who pays for your airtime or for your cell phone contract?

	Count	%	female	male
myself	36	59.00%	47.2%	67.9%
my parents	25	41.00%	36.1%	39.3%
my family other than my parents	15	24.60%	22.2%	25.0%
boyfriend or girlfriend	6	9.80%	5.6%	10.7%

n=64 - Based on all respondents except those with no airtime expenditures.
Note: Table exceeds 100% due to multiple responses

Table 5

Detailed usage

This section will explore in more detail what exactly phones were used for, and in what frequency. In order to check for coherence and/or redundancy of individual responses, the survey included both open-ended and closed questions. While both kinds of questions can tell a different kind of story, they were predominantly used to determine the popularity of certain cell phone applications, as well as to determine the reliability of outright questions ("Have you ever used your cell phone to go online?") as compared to detailed activity-based questions ("Have you ever downloaded songs, videos, or ringtones?", etc).

16. Aggregate: Top use	overall Count	overall %
Music	30	50.8%
Calls	30	50.8%
SMS	26	44.1%
Games	26	44.1%
Internet	11	18.6%
Pictures	10	16.9%
IM	10	16.9%
Please call me	7	11.9%

Most mentioned activities >10% only.
Based on respondents who named at least one activity to this question (n=59).

Table 6

In an open-ended question, respondents were asked to list their top three activities on a cell phone. The responses were coded along arbitrary categories chosen by the researcher: 15 categories could be identified, of which eight were present in more than 10 percent of all cases. Some respondents mentioned the same category several times, but with different sub-uses: e.g. calling my family, calling my girlfriend, etc – in such cases only one instance was counted. Similarly, making or receiving phone calls was summarized into 'calls'. Further differentiation would be difficult since many respondents simply wrote 'pictures' or 'calls'. IM or *instant messaging* refers to any instant messaging program used, although MXit was named predominantly. 'Please call me' refers to sending other callers a free message by the same name and content – a service that is available from all South African cellular networks.

When comparing the findings of this open-ended approach to the detailed ever-yesterday questions (see Tables Table 6 and Table 7; discussed below), it strikes that respondents downplayed their Internet usage while giving heightened prominence to entertainment applications, especially music. Most importantly, however, the comparison of both questions shows that the right usage questions were chosen, covering all the main areas put forward by respondents themselves. However, as has been done for Internet usage, other applications should be branched out into several varying questions as well so as to minimize the likelihood of misunderstood questions.

Most used cell phone applications (selection + 4 aggregates)

	ever	yesterday
any cell phone activity (all) *	100.0%	**97.0%**
any personal communication *	100.0%	**90.9%**
any Internet use *	97.0%	**83.1%**
any entertainment use	98.5%	**81.8%**
any website *	91.0%	**71.1%**
send a text message	98.5%	**65.2%**
make a phone call	97.0%	**62.1%**
take a picture	83.3%	**56.1%**
please call me	90.6%	**53.0%**
play games	92.4%	**53.0%**
any IM applications used *	80.3%	**47.0%**
record a video	75.8%	**47.0%**
play music	81.8%	**43.9%**
get news or weather online	80.3%	**40.9%**
download songs, videos or ringtones	87.9%	**40.9%**
give a missed call to other people	86.9%	**31.8%**
go online for no particular reason	62.1%	**30.3%**
MXit	48.5%	**28.8%**
play video	62.1%	**27.3%**
send and receive email	62.1%	**25.8%**
noknok	53.0%	**16.7%**
information on further education	53.0%	**13.6%**
look for information for school	59.1%	**12.1%**
méèp	19.7%	**9.1%**
2go	12.1%	**4.5%**

n=66
* These variables are computed aggregates, see respective sections.

Table 7

However, the open-ended approach shows serious drawbacks when comparing the findings to a compilation of all questions tackling specific uses. First, asking for the 'most used' features leaves us with no information about the actual frequency of using these factors. This also makes the compiled aggregate a rather ambiguous measure, as low-intensity users' responses are counted equally to to those who do a certain activity daily. The biggest problem with this approach, however, is the obvious restriction to only three uses, though most users were found to do a large number of specific applications on a typical day (as will be discussed in this chapter).

Personal communication

All respondents (100%) have used a cell phone before to initiate at least one intra-personal communication application (not receiving them), which includes making a phone call, sending an SMS, giving a missed call, and sending a free 'please call me' message. Nine-in-ten respondents (91%) do at least one of these things on a typical day. The practice of giving deliberate 'missed calls' to other cell phone users has for long been a cost reducing measure, well documented by Donner (2007), and is sometimes also referred to as beeping, flashing, or buzzing. South African network operator's willingness to provide free 'please call me messages' can be seen as a direct effect of this practice, as these short messages provide some relief to a network infrastructure having to accommodate many attempted calls without gaining any revenue.

The most frequently actively used applications are making phone calls and sending text messages, with six out of ten students doing so on a typical day (65% and 62%, respectively). Practically all respondents have ever done either of those two activities in their lives (99% calls and 97% SMS). As shown in Table 8, boys were found to be more active in making phone calls and sending messages than girls: While 75 percent of male respondents sent SMS on the previous day, only 56 percent of girls did so. There is also a pronounced difference between both genders, whereby 68 percent of boys and 58 percent of girls made call on the previous day.

By contrast, there is a 12 point difference in favor of girls for sending "please call me" messages on the previous day; 53 percent of the entire sample did so on the previous day. One-in-three respondents have given a missed call to other people on the previous day.

Both making calls and sending text messages represent costly activities that require airtime. The clear dominance of male respondents could lead us to the conclusion that they are the unequal cost-bearers of relationship or friendship communication, with girls expecting boys to pay for these expenses (although on average girls spend slightly more money on phone credit than boys, as the previous section has shown). This speculation is fueled further by girls' majority in sending more "please call me" messages than boys. But this explanation falls short of other factors. Males in this age group might also be allowed by their parents to be more outgoing than girls, thus leading to an

increased need for communication for parties and other events. Both trends are probably leading to this gender gap simultaneously, but the exact reasons need to be addressed in further research.

Personal Communication Variables	ever				yesterday				
	Count	all %	female %	male %	Count	all %	female %	male %	difference m-f
send a text message	65	**98.5%**	97.2%	100.0%	43	**65.2%**	55.6%	75.0%	***19.4%***
make a phone call	64	**97.0%**	94.4%	100.0%	41	**62.1%**	58.3%	67.9%	***9.6%***
please call me	58	**90.6%**	94.1%	85.7%	35	**53.0%**	58.3%	46.4%	***-11.9%***
give a missed call to other people	53	**86.9%**	90.9%	81.5%	21	**31.8%**	33.3%	32.1%	*-1.2%*
(aggregate) any personal communication	66	**100.0%**	100.0%	100.0%	60	**90.9%**	86.0%	96.4%	***10.4%***

n=66, male n=28, female n=36

Table 8

Entertainment

Over the past years, the importance of cell phone features other than communication has been rising with extreme speed. Almost all new phones produced today provide the ability to play music, take pictures or record videos, and play games. Concurrently, several mobile phone manufacturers have developed special handsets in recent years that decidedly omitted these features in order to provide more affordable handsets to the poorer masses in developing countries. As we have shown earlier in the previous section on usage macro factors, 12 percent of respondents own two of the most prominent representatives of these no-frills kinds of phones (Nokia's 1100 and 1600).

However, a sizable majority of respondents have used each of the five "entertainment" features in the past. 92 percent have ever played a game on a cell phone while 53 percent do so on a typical day. 83 percent within our sample have ever taken a picture on a cell phone while on a typical day this is done by 56 percent of respondents. Playing music and recording videos have been done on the previous day by 44 percent and 47 percent, respectively.

Here again, we find startling differences along gender lines. Video recording and picture taking are predominantly male areas, with 18 and 21 percentage point leads by male respondents. Taking pictures was by far the most used application by boys with 68 percent doing so on a typical day. By contrast, game playing was found to be more popular among girls: 100 percent of girls have ever played a game in the past, and 61 percent do so on a typical day, making games the most used application by girls, closely followed by phone calls.

Entertainment variables	ever					yesterday				
	Count	all %	female %	male %	difference m-f	Count	all %	female %	male %	difference m-f
play games	61	**92.4%**	100.0%	85.7%	***-14.3%***	35	**53.0%**	61.1%	46.4%	***-14.7%***
take a picture	55	**83.3%**	77.8%	92.9%	***15.1%***	37	**56.1%**	47.2%	67.9%	***20.7%***
play music	54	**81.8%**	55.6%	50.0%	*-5.6%*	29	**43.9%**	8.3%	21.4%	*13.1%*
record a video	50	**75.8%**	72.2%	82.1%	***9.9%***	31	**47.0%**	38.9%	57.1%	***18.2%***
play video	41	**62.1%**	55.6%	53.6%	*-2.0%*	18	**27.3%**	13.9%	21.4%	*7.5%*

n=66, male n=28, female n=36

Table 9

Why cell phone games are more popular among girls, and why boys prefer to take photos and videos on a cell phone – we will need more qualitative research to address these questions. It remains to be seen, however, if these findings will be upheld in the follow up survey research as the sample grows.

Mobile Instant Messaging

For some time, instant messaging (IM) has been a rising phenomenon in South Africa. MXit, the client with the largest media attention, has also been the subject of some scholarly work (Bosch, 2008; Butgereit, 2007). However, recently other instant messenger clients have emerged, some originating from the respective network operators. Although different clients require different technologies, all require cell phones that are able to access the Internet, thereby eliminating many low-range and older phones.

However, all IM clients combined, eight-in-ten respondents (80%) have used at least one in the past, while half of all respondents (47%) do so on a typical day. Instant messaging was found to be a predominantly male activity. 93 percent of boys have ever used an IM client, while 72 percent of girls did so. The difference is even more pronounced in a 43 point lead in IM clients used on the previous day: 71 percent of boys did so, compared with only 28 percent of girls. Male respondents were also leading in every single IM client, with the largest margins pronounced in typical-day-usage for the largest clients, noknok and MXit.

noknok, an IM client only available to MTN customers (but which also allows some interaction to other networks), is the most used client with 53 percent, followed by the network-neutral MXit client, with 49 percent. However, MXit is being used more frequently, with 29 percent of respondents doing so on a typical day, compared to only 17 percent for noknok. méèp (Vodacom's own equivalent) and the other network-neutral client 2go are only used by smaller shares on a typical day (9 percent and 5 percent, respectively).

MXit is used by 43 percent of boys on a typical day, compared to 29 percent of boys using noknok. For girls MXit triumphed over noknok as well with 19 percent compared to 6 percent. Although overall more people have ever tried noknok (which is probably tied to the enormous prevalence of MTN among respondents), MXit still prevails as the most popular IM client. But as MXit's pioneer status disbands, noknok's community may soon be larger and thus more attractive. The technical difference between both clients might also have some influence in a decision to use one or the other: While MXit is based on Java, a programming script allowing for greater interactivity and better design, noknok is based on XHTML over WAP, a standard gateway to access websites on cell phones. It is not clear yet whether Java or WAP were available in greater shares on respondents' phones, but a possibly greater availability of WAP could have lead to this equation.

Astonishingly, MXit users and noknok users are entirely exclusive of each other: on the previous day, none of the users of one client had used the other – even though most had used it at some point. This exclusiveness is share by both genders.

In addition, it should be remarked that the gender differences for having ever used noknok or MXit is far smaller (14 percent and 9 percent, respectively) than the gender difference for having used these two clients on the previous day (23 percent and 24 percent, respectively), as shown in Table 10. This can well be interpreted as a higher attractiveness or applicability to boys – after trying it once, girls are clearly less likely to 'stick' with these applications. However, even though using these services is fairly inexpensive (10 very long messages cost on average about R0.10, or $0.01), massive usage also comes with some cost, which in individual cases could be an inhibiting factor. (Though, through discussions with youth from the same school, this argument is usually dismissed with a shrug of the shoulder, saying MXit is as good as free.) In addition, the cost factor can also be discounted given that girls were found to spend more money on phone credit than boys.

Instant Messaging clients	**ever**					**yesterday**				
	Count	**all %**	female %	male %	difference m-f	Count	**all %**	female %	male %	difference m-f
noknok	35	**53.0%**	47.2%	60.7%	***13.5%***	11	**16.7%**	5.6%	28.6%	***23.0%***
MXit	32	**48.5%**	44.4%	53.6%	*9.2%*	19	**28.8%**	19.4%	42.9%	***23.5%***
méèp	13	**19.7%**	16.7%	25.0%	*8.3%*	6	**9.1%**	8.3%	10.7%	*2.4%*
2go	8	**12.1%**	8.3%	17.9%	*9.6%*	3	**4.5%**	2.8%	7.1%	*4.3%*
(aggregate) any IM used	53	**80.3%**	72.2%	92.8%	***20.6%***	31	**47.0%**	27.7%	71.4%	***43.7%***

n=66, female n=36, male n=28

Table 10

Respondents were also asked about the amount of time they spent on the previous day specifically on MXit. Just focusing on the roughly 30% who have used in this period, almost half (45%) have used MXit for less than 30 minutes. One-in-five respondents said to have used MXit for more than four hours. There were no true differences between male and female respondents; the sample size is too small however, to make any detailed analysis for individual time categories.

Asked for their favorite activity on MXit, 50% of all respondents said they have ever talked to people they've met in person, while 38% said they have used the IM client to talk to strangers. A good quarter of respondents (27%) have already accessed other MXit services (which can include news, movie schedules, etc).

21. Have you ever used MXit to do any of the following things?	**ever**					**yesterday**				
	Count	**all %**	female %	male %	diff. m-f	Count	**all %**	female %	male %	diff. m-f
talk to people I know	33	**50.0%**	50.0%	53.6%	*3.6%*	13	**19.7%**	16.7%	25.0%	*8.3%*
talk to people I haven't met in person	25	**37.9%**	36.1%	42.9%	*6.8%*	15	**22.7%**	13.9%	35.7%	*21.8%*
access other MXit services	18	**27.3%**	22.2%	35.7%	*13.5%*	11	**16.7%**	13.9%	21.4%	*7.5%*

n=66, male n=28, female n=36

Table 11

But with regard to most recent activity, we can see yet again an apparent gender gap. As was shown above, boys are generally more active IM users, so it should not surprise that they were found to be more heavy users in these three MXit categories. The largest difference was found to be in

communication with strangers ("people I haven't met in person"): 36% of boys did so on the previous day, compared to only 14% of girls. Communication with strangers is thus the favorite activity of males in our sample, while females showed a slight preference of communicating with personally known friends.

Internet and Web usage

Questions of definition

Telling the story of how many respondents are using a cell phone "to go online" is a challenging venture. The technical definition of this term is often neglected by academic research and popular culture, confusing terms such as Web, Internet, or online. While the distinction is technical in nature, media research should strive to disentangle this confusion with better clarity.

The Internet can be defined as a global interconnected network of computer networks that transmit data using the Internet Protocol (IP). Every client in this network (be it a traditional computer, web server, PDA or cell phone) uses a unique IP address that distinguishes the client from all others, allowing for this technology to be used in a decentralized fashion. It is within this *Internet* that various services are based, such as the subcategories of email, instant messaging, file transfer, and, most prominently, the interlinked pages of the World Wide Web, or simply 'Web'.

In this section we will thus provide analysis for usage of the overall Internet, as well as the more specific Web. Basis for this analysis are 15 variables, which include the previously discussed four IM clients as well as use of email, and nine variables pertaining to accessing pages on the Web (or websites).

Web usage

The nine variables asking for access to Web content via a cell phone were: *download songs, videos or ringtones; get news or weather online; information about a hobby or interest; look for information for school; hunt for a particular fact; look for health or medical information; information on further education; information about movies, books or other leisure activities*.

When taking all nine proposed Web usages combined, 91 percent of all respondents have ever accessed a website using a cell phone – and 71 percent do so on a typical day.

While some categories leave some uncertainty over respondents' understanding of the question, others are unambiguous. Nine-in-ten respondents (88%) have ever downloaded songs, videos, or ringtones – while 41 percent did so on the previous day. This high number is closely followed by access to online news or weather: 80 percent have ever done this while 41 percent did so on the previous day. All other nine categories have been done at least once by at least 50 percent of

respondents. As for activities done on the previous day, the lowest-used application was 'look for information for school' with only 12 percent reporting to have done so. Unexpectedly, seeking health or medical information has been found to be another male stronghold: 32 percent of boys have done so on the previous day, compared to 17 percent of girls.

Internet usage

By aggregating the usage of instant messaging, email, and accessed websites (as featured in Table 12), we can conclude that 97 percent of all respondents have ever used the Internet. 83 percent within our sample do this on a typical day; with boys leading this category by nine percentage points.

Email has been accessed by 63 percent of cell phone users in the past, and 26 percent did so on the previous day – thus making email the least frequent Internet-based application, compared with 47 percent using instant messaging and 71 percent accessing websites on a typical day.

The importance of these numbers becomes blatant when comparing the findings to national data published by AMPS (cf. Figure 3). The questionable findings indicate that 7 percent of South African youth aged 16 to 19 have accessed the Internet over the past year, while racial differences range from 38 percent (whites) to 3 percent (blacks). Yet again, AMPS refers to the entire country, making higher numbers at a school in the generally more affluent city of Cape Town not a shocking surprise. But the extreme differences between the present study and the supposed national average render AMPS' reliability further questionable.

	Internet usage variables	**ever**					**yesterday**				
		Count	**all %**	female %	male %	m-f	Count	**all %**	female %	male %	m-f
1	download songs, videos or ringtones	58	**87.9%**	77.8%	89.3%	***11.5%***	27	**40.9%**	41.7%	50.0%	*8.3%*
2	get news or weather online	53	**80.3%**	63.9%	60.7%	*-3.2%*	27	**40.9%**	19.4%	21.4%	*2.0%*
IM	(agg.) any IM used	53	**80.3%**	72.2%	92.8%	***20.6%***	31	**47.0%**	27.7%	71.4%	***43.7%***
3	go online for no particular reason	41	**62.1%**	66.7%	60.7%	*-6.0%*	20	**30.3%**	25.0%	32.1%	*7.1%*
4	send and receive email	41	**62.1%**	58.3%	60.7%	*2.4%*	17	**25.8%**	11.1%	14.3%	*3.2%*
5	use an instant messaging client	40	**60.6%**	77.8%	85.7%	*7.9%*	13	**19.7%**	36.1%	50.0%	***13.9%***
6	information about a hobby or interest	39	**59.1%**	86.1%	92.9%	*6.8%*	16	**24.2%**	38.9%	46.4%	*7.5%*
7	look for information for school	39	**59.1%**	52.8%	50.0%	*-2.8%*	8	**12.1%**	16.7%	17.9%	*1.2%*
8	hunt for a particular fact	38	**57.6%**	61.1%	57.1%	*-4.0%*	14	**21.2%**	22.2%	21.4%	*-0.8%*
9	look for health or medical information	36	**54.5%**	55.6%	64.3%	*8.7%*	11	**16.7%**	16.7%	32.1%	***15.4%***
10	information on further education	35	**53.0%**	63.9%	64.3%	*0.4%*	9	**13.6%**	33.3%	28.6%	*-4.7%*
11	information about movies, books or other leisure activities	33	**50.0%**	69.4%	57.1%	***-12.3%***	11	**16.7%**	27.8%	25.0%	*-2.8%*
	(agg.) any Internet use (1-11, IM)	64	**97.0%**	97.2%	100.0%	*2.8%*	55	**83.1%**	80.6%	89.3%	*8.7%*
	(agg.) any website (1-3,6-11)	60	**91.0%**	88.9%	96.4%	*7.5%*	47	**71.1%**	69.4%	75.0%	*5.6%*

n=66, male n=28, female n=36
For two of the aggregates, IM refers to the aggregate calculated earlier, compounding all IM clients used by respondents.

Table 12

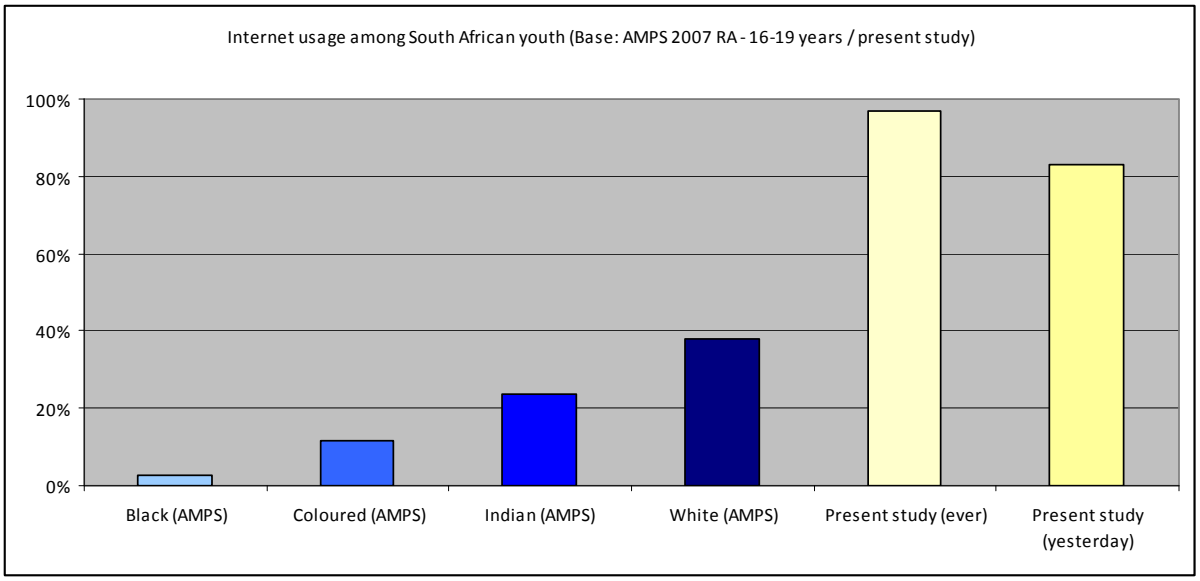

Figure 3

Overall aggregated results from use variables

With all 27 variables combined, 100 percent of respondents said that had used at least one of the features on a cell phone in the past, while 97 percent have used at least one feature on the previous day. It is important to compare these findings with responses given to an outright question at the beginning of the questionnaire: Have you ever used a cell phone? Did you do so yesterday? There, only 74 percent of respondents said they had used a cell phone on the previous day. So why the 23-point discrepancy between the outright question and our final aggregate?

Using the cell phone activity index (an aggregate from all cell phone uses done yesterday), the average of those who said they used a cell phone yesterday is 7.98. When selecting only those respondents who initially said they did not use a cell phone on the previous day, the average becomes 6.53 – hence the usage of cell phones is almost equal between both groups. This phenomenon is displayed on Figure 4. Dismissing self-declared non-users early on can thus significantly compromise the overall potential of the survey.

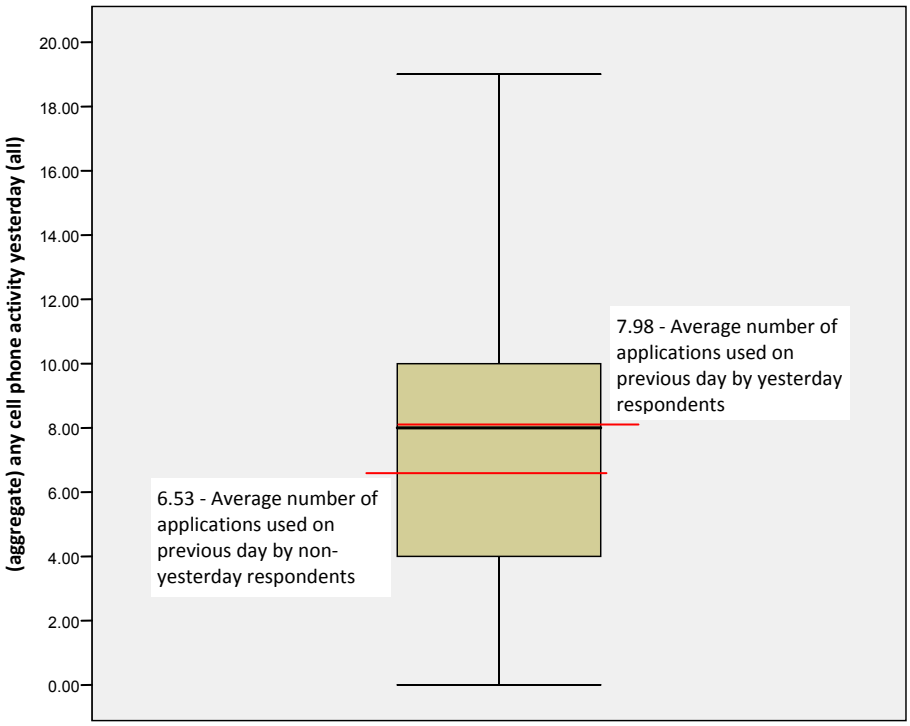

Figure 4

Comparison to computers and other devices

Compared to a traditional desktop or laptop computer, cell phones enjoy much more familiarity and popularity among respondents. For 14 variables, survey participants were asked to share not only if they had don't these activities on a cell phone, but also whether they had done so on a traditional computer.

The results show that computer access is generally very limited among respondents, especially when comparing the same activities between cell phone and computer usage. 29 percent of all respondents have done at least one of these activities on a computer on the previous day (compared to 82 percent of respondents via cell phones).

None of the proposed usage examples have been done by more than one-in-three respondents using a PC. By contrast, all of these activities have been done by at least half of the sample population using a cell phone. In fact, the share of respondents having ever done an activity using a cell phone outperforms the shares by PC users with leads ranging from 18 percent to 70 percent. On a typical day, these differences persist, albeit in lesser extremes with cell phones outperforming PCs by no more than 38 percent. Some categories even share the same user group size on a typical day: Seeking information on further education and looking for information for school are both done by 14 percent and 12 percent, respectively – by cell phone and PC users alike.

Playing games was found to be the most popular usage on traditional computers (done by 15 percent on the previous day) which mirrors games' popularity on cell phones (which is also the top usage there, done by 53 percent on the previous day).

	ever		yesterday		ever	yesterday
	Cell	PC	Cell	PC	Difference:	Difference:
	%	%	%	%	cell - PC	cell - PC
play games	92.4%	**25.8%**	53.0%	**15.2%**	***66.6%***	***37.8%***
download songs, videos or ringtones	87.9%	**18.2%**	40.9%	**4.5%**	***69.7%***	***36.4%***
play music	81.8%	**25.8%**	43.9%	**6.1%**	***56.0%***	***37.8%***
get news or weather online	80.3%	**25.8%**	40.9%	**9.1%**	***54.5%***	***31.8%***
send and receive email	62.1%	**28.8%**	25.8%	**10.6%**	***33.3%***	***15.2%***
play video	62.1%	**30.3%**	27.3%	**13.6%**	***31.8%***	***13.7%***
go online for no particular reason	62.1%	**27.3%**	30.3%	**12.1%**	***34.8%***	***18.2%***
use an instant messaging client	60.6%	**16.7%**	19.7%	**4.5%**	***43.9%***	***15.2%***
look for information for school	59.1%	**34.8%**	12.1%	**12.1%**	***24.3%***	*0.0%*
information about a hobby or interest	59.1%	**33.3%**	24.2%	**12.1%**	***25.8%***	***12.1%***
hunt for a particular fact	57.6%	**22.7%**	21.2%	**10.6%**	***34.9%***	***10.6%***
look for health or medical information	54.5%	**27.3%**	16.7%	**9.1%**	***27.2%***	*7.6%*
information on further education	53.0%	**34.8%**	13.6%	**13.6%**	***18.2%***	*0.0%*
information about movies, books or other leisure activities	50.0%	**27.3%**	16.7%	**7.6%**	***22.7%***	*9.1%*

n=66

Table 13

Another point of comparison was included in the questionnaire, asking outright questions about the use and ownership of other technological devices. As we have seen in previous sections, outright questions always face strong limitations due to a varying understanding of certain terms.

As we could establish earlier, all respondents have ever used a cell phone, and 97 percent have used one on the previous day. 75 percent of respondents were found to own a personal handset while 25 percent were using someone else's cell phone, but doing so with little difference compared to cell phone owners.

With this complexity in mind, the numbers provided for other technologies seem rather unreliable. Following the logic of the findings for cell phones, and to some extent for computers, ownership might be stated too high (as actually co-used equipment might be labeled as 'owned'), while usage on the previous day could be underrated as smaller bits of access could be neglected. Following the example of cell phones, the number found as 'ever used' could be trusted as relatively reliable. But these are rough speculations and in-depth research for these other technologies is needed to sustain these quick conclusions.

Despite this disclaimer, we can state with some confidence that cell phones are not only triumphant against computers, but also in comparison to any other gadget proposed. (Respondents had the option to list other possible gadgets they use or own regularly, but none were listed.) MP3 players were still the most widely used after cell phones, with 18 percent doing so on a typical day, and 9 percent of respondents owning a personal player. Numbers for digital cameras and game consoles lay even lower (6 percent, respectively), while computer access on the previous day – as the current section has shown – was actually higher than stated, at 29 percent. Ownership of gadgets other than cell phones should be assumed quite low in any case, given the very low usage levels.

Social impact of cell phone usage

In order to correlate certain findings in relation to respondents' self-perceived socio-economic standing, three scales were offered in which students needed to rate their personal standing, the standing of their (school) class, and what they thought they deserved. This measure of relative deprivation gives us a fairly good idea where respondents see themselves as compared with the rest of their class, and whether they feel deprived of certain standards that others might enjoy. Instead of asking outright questions about their living standards or their parents' jobs (which may draw only weary responses by respondents), these questions give us more reliable data to work with.

Cell phone ownership has been found to be a statistically significant determinant for feelings of relative deprivation. By testing variables with an independent sample T-test, the following results were found:

- Owning a cell phone leads to an average perception of the self in comparison to the rest of the class, while non-owners saw themselves significantly lower. (Sig. 0.062 on a 95 percent confidence interval)
- Not owning a cell phone leads to higher levels of perceived deprivation (Sig. 0.022) – note that both groups feel quite deprived)
- Cell phone ownership leads to higher ratings in 'how are you and your family doing (Sig. 0.06)

While cell phone ownership is significantly tied to one's perceived social status in this sample, it also has an impact on more subtle issues. Respondents were asked to rate eight difference issues with regard to whether using a cell phone has helped in these cases, or not. After ranking them on a Likert scale from 2 (a lot) to -2 (not at all), some turned out quite positive while others remained rather neutral.

Cell phones were reported to have helped a lot to stay in touch with one's family (average 1.74), and to have helped somewhat to learn new things, keep in touch with friends, and to find important information (each with averages of about 1.3 on our Likert scale). Cell phones were shown to have only limited impact on 'sharing ideas or creation with others', 'following one's hobby or interests', or 'working with others in one's community' – and given the elevated score of 'don't know' respondents, these concepts may not have been understood by all.

The only negative score, indicating that cell phones have not helped most respondents to achieve this specific goal, is to do well in school. Here the average score was -.37. Interestingly, while learning and information seem to be greatly facilitated through cell phones, the information retrieved so far appears to be either of little relevance for homework and studying – or it may well sought for this end, but with little success. Findings from the previous section could support either argument: 12 percent of respondents use cell phones on a typical day to retrieve information for school. When filtering out those 12 percent, the score jumps up considerably: Of those who have used a cell phone on the previous day to look for information for school, the average score was .88, meaning that cell phones have helped those to do well in school, who have actually used it recently for this purpose.

17. How much, if at all, has your cell phone helped you to...

	Mean	Don't know	Standard Deviation
keep in touch with my family	1.74	.0%	.75
learn new things	1.29	.0%	1.06
keep in touch with friends	1.26	.0%	1.10
find important information	1.26	.0%	1.14
share your ideas and creations with others	.69	8.0%	1.37
follow your hobbies or interests	.64	3.6%	1.51
work with others in your community or in groups you belong to	.21	14.3%	1.53
do well in school	-.37	.0%	1.62

Respondents were given a Likert scale ranging from 2 (a lot) to -2 (not at all).

Table 14

3. Assessing the potential for mobile learning

As has been discussed in detail in the introduction, learning taking place through a cell phone bears a great deal of expectations by educators and researchers alike. he possibilities of mobile learning with the available technology among respondents in this study strongly depends on the application or software platform to be used, as many applications can be designed or programmed to suit different technological settings (cf. Naismith et al., 2004). With regard to cell phones, this most frequently includes phones capable of displaying normal HTML websites through their WAP browser (or through more advanced browsers such as Opera Mini), or devices capable of using more interactive Java applications (software portable and accessible from different phones, regardless of the brand, including advanced games, MXit mobile instant messaging, Google Mail). The traditional ways of mobile content delivery, voice calls and SMS, should not be neglected either (Oelofse et al., 2006). However, the gapping difference in costs and possibilities for content delivery may indicate a sustained trend towards Java and WAP based content delivery.

Based on the findings in this study, 29 percent access MXit on a typical day. As a Java-based application, this is our closest evidence on the availability of this technology. However, the figure is likely to be much higher: 42 percent say their phone was capable of running MXit, which equals the availability of the Java platform on these phones. (Though, as discussed earlier, more people seem to have access to secondary, more capable phones.)

Websites appear to be even more accessible through respondents' cell phones within this sample, as 97 percent use the Internet on a typical day, and 71 percent explicitly visit web pages on a typical day with a cell phone. However, the follow up study will need to show in more detail which websites are being visited so as to give us a more comprehensible understanding of the media usage patterns in this category.

Games are an often cited resource for electronic learning (DiPietro et al., 2007; Garris et al., 2002). The importance of gaming has been the predominant argument in a paper by Jenkins (2006a), in which he argues that important skills learned by game-playing children (e.g. through simulations, educational games, role play, or playful creation of new content) are becoming increasingly crucial for their future work perspectives. While he focuses on computer usage, one should expect similar patterns for those using predominantly cell phones in lieu of computers. Within this study's sample population, games are also not only available on most phones, but are being played by a large majority of students within the sample: 92 percent have ever done this, and 53 percent play games on a typical day. Gaming was found to be a more female activity, with 61 percent of girls playing on a typical day. The important figure to look for once again is the availability of the Java platform, as discussed above. Many low-range or older phones do not provide the technical feature to download or receive a new game, making educational games unavailable for about half of all respondents' phones.

Another potential for mobile learning draws on the most widely available technologies: calls and text messages. As receiving either one is free for recipients in South Africa, these channels can be used to reach virtually all respondents surveyed in this study. While the design allows for very little interactivity, the scenario mirrors a traditional classroom setting: tutorial question material as well as evaluation and feedback can be received by learners as reinforcement for providing the right answer (e.g. sent to a toll-free number), sending direct feedback on the answer provided. Past U.K.-based projects using this technology are described in Naismith et al. (2004).

In the abovementioned study, Jenkins (2006a) draws up 11 specific skills that American youth highly involved in consuming, appropriating and producing media content have developed. He found many skills to be distributed based on socio-economic factors – giving better-off families an advantage to provide their children with a greater skill set. These observations can be compared to Buckingham's study (Buckingham, 2007) in which he observes a new growing *digital divide* between media-rich after-school activities and the very limited use of information and communication technologies in the classroom, mostly from a British perspective. Both authors argue from a normative educational perspective, pointing out that many skills require outside assistance to fulfill their full potential as children and youth are not experienced enough to make the right judgment or to recognize risk behavior.

In the surveyed school, students were discouraged from bringing their cell phones to school on grounds of personal safety or theft, and cell phones have not been brought up in any of their classes so far. Based on the findings discussed in the previous section, cell phones are already used as learning tools, with respondents saying their phones have helped them to obtain information and learn new things as much as it helped them to stay in touch with friends and families. Tapping the existing and broadly used technology for education purposes thus poses great opportunities for providing learning resources than can reach out even to youth at this bleak urban township school.

4. Conclusion

This study was set out to pilot a quantitative methodology that would allow us to obtain a better understanding of cell phone usage among South African youth. By choosing grade 11 students at an urban township school, the study was put to an extreme test as many respondents were only recent users of this technology, and many have lower literacy levels in English. Based on the findings, some questions will require better wording or structure, although most seem to have been sufficiently understood by students in this sample.

The study, without intentions of representativeness, found that cell phone are used by practically all respondents. On a typical day, the most important uses were personal communication (91%), entertainment use (82%, including music, photos, videos), websites (71%), and instant messaging (47%). Respondents without a personally owned handset were found to be equally active cell phone users. Gender differences persist especially in instant messenger usage, calling and text messaging, which were done by much larger margins of males. Cell phone gaming, on the other hand, was found to be a predominantly female activity.

With the ubiquity of cell phones, and the broad availability of advanced features such as the Java platform or Web browsers, there is a sufficiently large basis for mobile learning to take place. Given the surprisingly large cell phone expenditure by respondents and their overwhelming aspirations for tertiary education, one could even expect a willingness to pay for accessing useful services.

The next step of this study will involve a greater number of schools in the South African Western Cape province, yielding a targeted sample size of approximately 600-700 overall respondents. While these findings will be far more conclusive and will allow for more detailed analysis of different population groups, it will also include qualitative research (interviews and focus groups) to follow up certain responses that may require more in-depth analysis.

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Appendix

Survey topline (selection)

Data from the following tables was included in the results section, but for the sake of clarity, not all tables could be featured to accompany the discussions.

28. Post-graduation plans

Further education	Work immediately	Other	Don't know
79.7%	12.5%	.0%	7.8%

n=62

4.A Do you own or use a cell phone?

I own a cell phone with SIM card	75.4%
I use a cell phone, but don't have my own phone or SIM	23.1%
I own a SIM card; but not a phone	1.5%
I never use a cell phone	.0%
Other	.0%

n=65

4.C Phone manufacturer

Nokia	40.7%
Samsung	33.3%
Motorola	22.2%
Alcatel	1.9%
Sony Ericsson	1.9%

n=54

4.D Top 5 most used phones

Samsung E250	10.6%
Motorola V360	9.1%
Nokia 1600	6.1%
Nokia 1100	6.1%
Samsung D820	4.5%

5. With your cell phone, is it possible to...

	Yes	No	Don't know	N
send and receive text messages	**89.1%**	10.9%	.0%	64
play games	**86.7%**	13.3%	.0%	60
take pictures	**67.2%**	32.8%	.0%	61
play music or MP3 files	**66.1%**	33.9%	.0%	62
play videos	**60.0%**	40.0%	.0%	60
record videos	**59.7%**	40.3%	.0%	62
access the internet or websites	**50.8%**	36.1%	13.1%	61
send and receive email	**45.9%**	41.0%	13.1%	61
send instant messages (MXit, noknok, etc)	41.7%	**51.7%**	6.7%	60
receive Radio programmes	32.8%	**52.5%**	14.8%	61
receive TV programmes	24.6%	**62.3%**	13.1%	60

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
take pictures	Equal variances assumed	3449.600	.000	2.670	28	.012	.522	.195	.121	.922
	Equal variances not assumed			4.899	22.000	.000	.522	.106	.301	.743
play music or MP3 files	Equal variances assumed	229.194	.000	2.163	29	.039	.417	.193	.023	.811
	Equal variances not assumed			4.053	23.000	.000	.417	.103	.204	.629
record videos	Equal variances assumed	229.194	.000	3.028	29	.005	.583	.193	.189	.977
	Equal variances not assumed			5.675	23.000	.000	.583	.103	.371	.796
play videos	Equal variances assumed	3449.600	.000	2.670	28	.012	.522	.195	.121	.922
	Equal variances not assumed			4.899	22.000	.000	.522	.106	.301	.743

4.B Memory for storing pictures, music and other files

	Mean	N for mean	Overall N	Some memory	No memory	Don't know	Invalid answer
All	348 MB	8	59	13.5%	40.7%	39.0%	6.8%
Own phone	341 MB	4	44	9.1%	45.5%	38.6%	6.8%
No own phone/SIM	356 MB	4	14	28.5%	21.4%	42.9%	7.1%

12. For how long have you had your current cell phone?

	N	%
six months or less	11	23.9%
one year	12	26.1%
two or three years	16	34.8%
more than three years	7	15.2%
Based on cell phone owners		[N=45]

	N	Sig. (2-tailed)
send and receive email	**20**	**.054**
take pictures	**33**	**.054**
play music or MP3 files	**32**	**.060**
play videos	28	.105
record videos	29	.109
receive Radio programmes	15	.203
access the internet or websites	25	.229
receive TV programmes	12	.317
send instant messages	19	.856
send and receive text messages	44	.931
play games	40	.971

Based on cell phone owners. The availability of a certain feature was correlated against the current happiness with the owned handset, using an Independent Samples T-Test.

6. Which of the following mobile provider(s) do you use?

	N	%
MTN	57	86.4%
Vodacom	10	15.2%
Cell C	5	7.6%
Virgin Mobile	2	3.0%

Note: Table exceeds 100% due to multiple responses

Network used – AMPS 2007

MTN	45.2%
Vodacom	47.5%
Cell C	7.2%
Virgin Mobile	*

Based on black respondents aged 16-19 in South Africa. N is unknown. Respondents were given a single choice question. Virgin Mobile was not provided as an option. (AMPS, 2007)

7. Is your cell phone using prepaid credit or a post-paid contract?

	N	Column N %
prepaid	47	74.6%
contract	2	3.2%
don't know	14	22.2%

Based on all respondents (n=63)

prepaid vs. contract (positive responses)

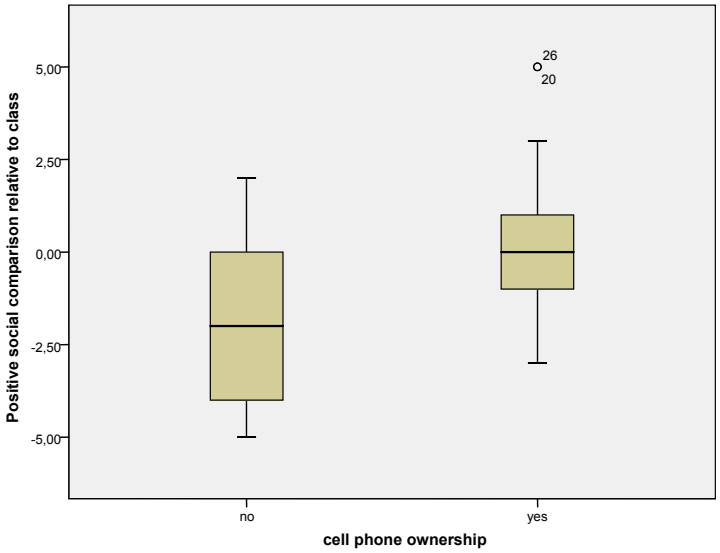
	N	Column N %
prepaid	47	95.9%
contract	2	4.1%

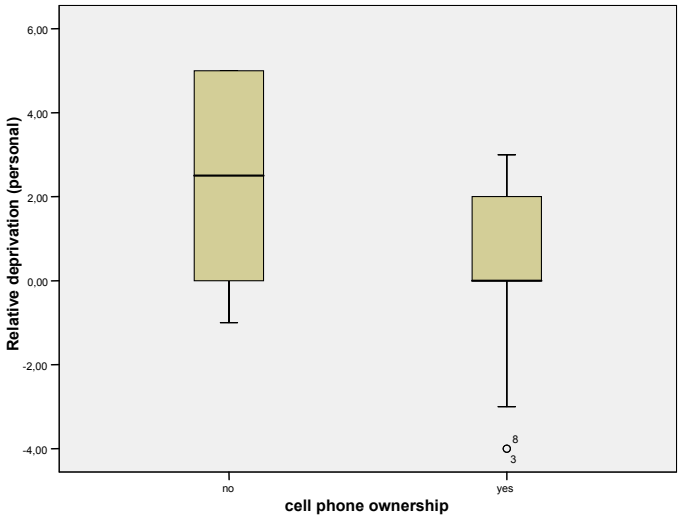
Based on all respondents, omitting "don't know" (n=49)

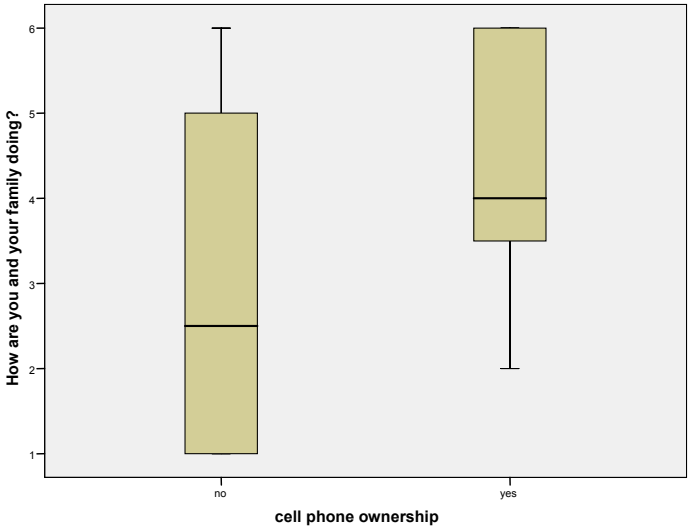
	All Media Product Survey Based on cell phone users, 16-19 years				Present survey
Average Cellphone Expenditure Per Month by Race	Black	Coloured	Indian	White	-
Less Than R50	59.9%	46.0%	28.1%	12.9%	**25.9%**
R51-R89	16.7%	16.0%	15.6%	18.4%	**24.1%**
R90-R110	9.0%	14.3%	12.9%	16.0%	**1.7%**
R111-R125	3.3%	6.6%	4.6%	5.8%	**3.4%**
R126-R150	2.9%	6.9%	10.9%	14.2%	**17.2%**
R151-R200	2.0%	3.0%	10.3%	12.0%	**6.9%**
R201-R270	0.7%	2.7%	6.6%	7.7%	**8.6%**
R271-R500	1.0%	3.9%	7.2%	7.0%	**6.9%**
R501-R650	0.1%	0.1%	1.7%	0.8%	**1.7%**
R651-R750	0.0%	0.0%	0.0%	0.1%	**0.0%**
R751-R950	0.1%	0.0%	0.0%	0.7%	**0.0%**
R951-R1150	0.1%	0.0%	0.0%	0.8%	**0.0%**
More Than R1150	0.2%	0.2%	1.4%	0.7%	**0.0%**
Don't Buy Airtime,Receive Call	3.3%	0.2%	0.0%	0.4%	**3.4%**
N	unknown				63
	Source: AMPS (2007)				

11. How long ago was the first time you have used any cell phone? (n=66)

six months or less	one year	two or three years	more than three years	don't know
21.2%	19.7%	16.7%	30.3%	12.1%


Positive social comparison relative to class
5,00
2,50
0,00
-2,50
-5,00
26
20
no
yes
cell phone ownership


Relative deprivation (personal)
6,00
4,00
2,00
0,00
-2,00
-4,00
8
3
no
yes
cell phone ownership


How are you and your family doing?
6
5
4
3
2
1
no
yes
cell phone ownership

22. MXit users: time spent on MXit on the previous day

	Count	**overall %**	female %	male %
Less than 30 minutes	9	**45.0%**	44.4%	45.5%
30-60 minutes	3	**15.0%**	11.1%	18.2%
1-2 hours	2	**10.0%**	0.0%	18.2%
2-4 hours	2	**10.0%**	11.1%	9.1%
more than 4 hours	4	**20.0%**	33.3%	9.1%

Based on all positive responses (without 'did not use it')
n=20, female n=9, male n=11

	look for information for school (Cell)			
	ever or never		yesterday	
	Mean	Count	Mean	Count
do well in school	-.55	58	.88	8

Technological devices used and owned

	ever used	used yesterday	**own**
cell phone	100.0%	97.0%	**75.4%**
mp3 player or iPod	33.3%	18.2%	**9.1%**
desktop computer	30.3%	6.1%	**1.5%**
laptop	22.7%	3.0%	**.0%**
digital camera	22.7%	6.1%	**3.0%**
game console	13.6%	6.1%	**1.5%**

n=66

Q		ever (cell) Count	all %	female %	male %	m-f	yesterday (cell) Count	all %	female %	male %	m-f	using a PC ever	diff to ever-cell	yesterday	difference to yest-cell
ag	(aggregate) any non-Internet use (14,18,19a-d,23d-e)	66	**100.0%**	100.0%	100.0%	*0.0%*	65	**97.0%**	94.4%	100.0%	*5.6%*				
ag	(aggregate) any cell phone activity (all)	66	**100.0%**	100.0%	100.0%	*0.0%*	65	**97.0%**	94.4%	100.0%	*5.6%*				
ag	(aggregate) any personal communication (14,18,19a,c)	66	**100.0%**	100.0%	100.0%	*0.0%*	60	**90.9%**	86.0%	96.4%	*10.4%*				
ag	(aggregate) any Internet - cautious (20a-d,23a,b,l,m,n)	64	**97.0%**	97.2%	100.0%	*2.8%*	55	**83.2%**	80.7%	89.2%	*8.5%*				
ag	(aggregate) any Internet use (20a-d,23a,b,f-n)	64	**97.0%**	97.2%	100.0%	*2.8%*	55	**83.1%**	80.6%	89.3%	*8.7%*				
ag	(aggregate) any entertainment use (19b,d,e,23c,d)	65	**98.5%**				54	**81.8%**							
ag	(aggregate) any website (23f-n)	60	**91.0%**	88.9%	96.4%	*7.5%*	47	**71.1%**	69.4%	75.0%	*5.6%*				
19C	send a text message	65	**98.5%**	97.2%	100.0%	*2.8%*	43	**65.2%**	55.6%	75.0%	*19.4%*				
19A	make a phone call	64	**97.0%**	94.4%	100.0%	*5.6%*	41	**62.1%**	58.3%	67.9%	*9.6%*				
19B	take a picture	55	**83.3%**	77.8%	92.9%	*15.1%*	37	**56.1%**	47.2%	67.9%	*20.7%*				
14	please call me	58	**90.6%**	94.1%	85.7%	*-8.4%*	35	**53.0%**	58.3%	46.4%	*-11.9%*				
23E	play games	61	**92.4%**	100.0%	85.7%	*-14.3%*	35	**53.0%**	61.1%	46.4%	*-14.7%*	25.8%	***66.6%***	15.2%	***37.8%***
ag	(aggregate) any IM applications used (20A-D)	53	**80.3%**	72.2%	92.8%	*20.6%*	31	**47.0%**	27.7%	71.4%	*43.7%*				
19D	record a video	50	**75.8%**	72.2%	82.1%	*9.9%*	31	**47.0%**	38.9%	57.1%	*18.2%*				
23D	play music	54	**81.8%**	55.6%	50.0%	*-5.6%*	29	**43.9%**	8.3%	21.4%	*13.1%*	25.8%	***56.0%***	6.1%	***37.8%***
23M	get news or weather online	53	**80.3%**	63.9%	60.7%	*-3.2%*	27	**40.9%**	19.4%	21.4%	*2.0%*	25.8%	***54.5%***	9.1%	***31.8%***
23N	download songs, videos or ringtones	58	**87.9%**	77.8%	89.3%	*11.5%*	27	**40.9%**	41.7%	50.0%	*8.3%*	18.2%	***69.7%***	4.5%	***36.4%***
18	give a missed call to other people	53	**86.9%**	90.9%	81.5%	*-9.4%*	21	**31.8%**	33.3%	32.1%	*-1.2%*				
23L	go online for no particular reason	41	**62.1%**	66.7%	60.7%	*-6.0%*	20	**30.3%**	25.0%	32.1%	*7.1%*	27.3%	***34.8%***	12.1%	***18.2%***
20A	MXit	32	**48.5%**	44.4%	53.6%	*9.2%*	19	**28.8%**	19.4%	42.9%	*23.5%*				
23C	play video	41	**62.1%**	55.6%	53.6%	*-2.0%*	18	**27.3%**	13.9%	21.4%	*7.5%*	30.3%	***31.8%***	13.6%	***13.7%***
23B	send and receive email	41	**62.1%**	58.3%	60.7%	*2.4%*	17	**25.8%**	11.1%	14.3%	*3.2%*	28.8%	***33.3%***	10.6%	***15.2%***
23J	information about a hobby or interest	39	**59.1%**	86.1%	92.9%	*6.8%*	16	**24.2%**	38.9%	46.4%	*7.5%*	33.3%	***25.8%***	12.1%	***12.1%***
21B	talk to people I haven't met in person	25	**37.9%**	36.1%	42.9%	*6.8%*	15	**22.7%**	13.9%	35.7%	*21.8%*				
23K	hunt for a particular fact	38	**57.6%**	61.1%	57.1%	*-4.0%*	14	**21.2%**	22.2%	21.4%	*-0.8%*	22.7%	***34.9%***	10.6%	***10.6%***
21A	talk to people I know	33	**50.0%**	50.0%	53.6%	*3.6%*	13	**19.7%**	16.7%	25.0%	*8.3%*				
23A	use an instant messaging client	40	**60.6%**	77.8%	85.7%	*7.9%*	13	**19.7%**	36.1%	50.0%	*13.9%*	16.7%	***43.9%***	4.5%	***15.2%***
21C	access other MXit services	18	**27.3%**	22.2%	35.7%	*13.5%*	11	**16.7%**	13.9%	21.4%	*7.5%*				
20C	noknok	35	**53.0%**	47.2%	60.7%	*13.5%*	11	**16.7%**	5.6%	28.6%	*23.0%*				
23G	look for health or medical information	36	**54.5%**	55.6%	64.3%	*8.7%*	11	**16.7%**	16.7%	32.1%	*15.4%*	27.3%	***27.2%***	9.1%	*7.6%*
23I	information about movies, books or other leisure activities	33	**50.0%**	69.4%	57.1%	*-12.3%*	11	**16.7%**	27.8%	25.0%	*-2.8%*	27.3%	***22.7%***	7.6%	*9.1%*
23H	information on further education	35	**53.0%**	63.9%	64.3%	*0.4%*	9	**13.6%**	33.3%	28.6%	*-4.7%*	34.8%	***18.2%***	13.6%	*0.0%*
23F	look for information for school	39	**59.1%**	52.8%	50.0%	*-2.8%*	8	**12.1%**	16.7%	17.9%	*1.2%*	34.8%	***24.3%***	12.1%	*0.0%*
20B	méèp	13	**19.7%**	16.7%	25.0%	*8.3%*	6	**9.1%**	8.3%	10.7%	*2.4%*				
20D	2go	8	**12.1%**	8.3%	17.9%	*9.6%*	3	**4.5%**	2.8%	7.1%	*4.3%*				
	n=66, male n=28, female n=36														
	Average	46.3	**70.5%**	69.2%	72.1%	3.0%	27.8	**42.0%**	37.6%	46.1%	8.5%	27.1%	38.8%	10.1%	17.5%

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Mobile Technology Usage among South African Youth

University of Cape Town
Centre for Film and Media Studies

Questionnaire

Dear Students!

The University of Cape Town want to find out how South African teens use computers, cell phones and the Internet. This survey will help us better understand current trends around these technologies - and what the next trend might be.

- Please answer all questions and don't skip any.
- There are neither »right« nor »wrong« answers,
  nor does it matter how other people would answer the questions.
  Only your own opinion is important.
- You do not have to give your name, so no one will find out what your answers were.
  We cannot and do not want to find out who answered what.

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1. Please tell us about some technological devices –
which of the following do you use, and which ones do you own?

Multiple choice – you can tick several items for each question.

	Which one have you **ever** used? ❶	Which ones did you use **yesterday**? ❷	Which ones do you **own** personally? ❸
Desktop computer	☐	☐	☐
Laptop computer	☐	☐	☐
Cell phone	☐	☐	☐
iPod or other MP3 player	☐	☐	☐
Digital camera	☐	☐	☐
A video game console (e.g. PlayStation, Xbox, Wii, GameCube, …)	☐	☐	☐
other: _____	☐	☐	☐

2. How often do you use the Internet / go online?
(including websites, email, instant messages, ...)

*Single choice – please **only tick one item**.*

Several times a day	About once a day	3-5 days a week	1-2 days a week	Every few weeks	Less often	Never	Don't know
○	○	○	○	○	○	○	○

3. When you use the Internet / go online, do you …

*Multiple choice. You can **tick several** boxes.*

use a cell phone	use a computer
☐	☐

If you go online **using a computer**, where do you do this?

Multiple choice.

- at school or library ☐
- at home ☐
- at an internet café ☐
- at someone else's house ☐
- at a phone shop ☐

Some other place: _____ ☐

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4. Do you own or use a cell phone?

I own a cell phone with SIM card ◯
I own a SIM card, but not a phone ◯
I use a cell phone, but don't have my own phone or SIM ◯
I never use a cell phone ◯
Other: ◯
_____

What is the brand and model name/number of your phone?
(e.g. Nokia 6239, Sony Ericsson k800i …)

Memory for storing pictures, music and other files (in MB)

_____ *MB*

No Memory ◯

Don't know ◯

5. With your cell phone, is it possible to…?

	yes	no	Don't know
take pictures	◯	◯	◯
play music or MP3 files	◯	◯	◯
send and receive text messages	◯	◯	◯
send and receive email	◯	◯	◯
record videos	◯	◯	◯
play videos	◯	◯	◯
play games	◯	◯	◯
access the internet or websites for news, weather, sports, or other information	◯	◯	◯
send instant messages to someone who was online at the same time (e.g. MXit or 2go)	◯	◯	◯
receive TV programmes	◯	◯	◯
receive Radio programmes	◯	◯	◯

What else:

_____

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6. Which mobile provider do you use?

If you use more than one phone or SIM card, you can tick several.

- Vodacom ☐
- Cell C ☐
- MTN ☐
- Virgin Mobile ☐
- Other: ☐ _____
- Don't know ○

7. Is your cell phone using prepaid credit or a post-paid contract?

- Prepaid ○
- Contract ○
- Don't know ○

8. On average, how much money do you spend on airtime per week? R ___

- Don't know ○
- I don't spend any money on airtime ○

9. Who pays for your airtime or for your cell phone's contract?

- My parents or legal guardians ☐
- My family members other than my parents ☐
- Myself ☐
- Boyfriend or Girlfriend ☐
- Other: ☐ _____

10. How much airtime in Rand is currently on your phone? R ____

- Don't know ○

	Six months or less	One year	Two or three years	More than three years	Don't know
11. How long ago was the **first time** you have used **any cell phone**?	○	○	○	○	○
12. For how long have you had your **current cell phone**?	○	○	○	○	○

	very happy	happy	neither happy nor unhappy	unhappy	very unhappy	Don't know
13. How happy or satisfied are you with your current cell phone?	○	○	○	○	○	○

	yes	no	Don't know
14. Do you **ever** use the feature »Please call me«?	○	○	○
↳ If yes, did you use this feature **yesterday**?	○	○	

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15. If you had to buy a new phone today, **how important** are the following factors to you?	**very important**	**somewhat important**	**neither** important **nor** unimportant	**not very important**	**not important at all**	Don't know
Great looks	○	○	○	○	○	○
To be able to go online	○	○	○	○	○	○
A big display	○	○	○	○	○	○
Small size or light weight	○	○	○	○	○	○
To be able to take pictures or videos	○	○	○	○	○	○
To be able to play music	○	○	○	○	○	○
That it's the latest model	○	○	○	○	○	○
That it has a low price	○	○	○	○	○	○
To have fast internet (3G or HSDPA)	○	○	○	○	○	○

What else is important?:

_____

16. What are the three activities you do **most often** on a cell phone?

Most often I … _____

Second _____

Third _____

17. **How much**, if at all, has your cell phone helped you to do any of the following things?	**a lot**	**some**	**only a little**	**not at all**	I don't know
Keep in touch with my family	○	○	○	○	○
Keep in touch with friends	○	○	○	○	○
Do well in school	○	○	○	○	○
Learn new things	○	○	○	○	○
Share your ideas and creations with others	○	○	○	○	○
Find important information	○	○	○	○	○
Work with others in your community or in groups you belong to	○	○	○	○	○
Follow your hobbies or interests	○	○	○	○	○

What else is important?:

_____

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	yes	no	Don't know
18. Do you **ever** »buzz« or give a missed call to other people?	○	○	○
↳ If yes, did you do this **yesterday**?	○	○	

19. Have you ever used your cell phone to …	❶ ever	❷ yesterday	❸ How many yesterday?
make a phone call	☐	☐	⇨
take pictures	☐	☐	⇨
send and receive SMS text messages	☐	☐	⇨
record video	☐	☐	⇨

20. Which of the following instant messenger programmes do you use on a cell phone?	❶ ever	❷ Have you done this yesterday?
MXit	☐	⇨ ☐
méèp (Vodacom)	☐	⇨ ☐
noknok (MTN)	☐	⇨ ☐
2go	☐	⇨ ☐
Other: _____	☐	⇨ ☐

21. Have you **ever used MXit** to do any of the following things?	❶ ever	❷ Have you done this yesterday?
Talk to people I know	☐	⇨ ☐
Talk in chat rooms or to people I haven't met in person	☐	⇨ ☐
Access other MXit services	☐	⇨ ☐
Other: _____	☐	⇨ ☐

	Did NOT use it	Less than ½ hour	½ -1 hour	1 – 2 hours	2 - 4 hours	More than 4 hours
22. How much time did you spend on **MXit** yesterday?	○	○	○	○	○	○

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23. Please tell us if you have ever used a cell phone or a computer to do any of the following things, and if you did so yesterday.

	Have you done this …			
	… using a **cell phone**		… using a **computer**	
	❶ ever	❷ yesterday	❸ ever	❹ yesterday
Get news or weather online	☐	☐	☐	☐
Look for information for school	☐	☐	☐	☐
Look for health or medical information	☐	☐	☐	☐
Look for information about a university or other learning institution	☐	☐	☐	☐
Play games	☐	☐	☐	☐
Look for information about movies, books or other leisure activities	☐	☐	☐	☐
Look for information about a hobby or interest	☐	☐	☐	☐
Go online for no particular reason, just to browse for fun	☐	☐	☐	☐
Send and receive email	☐	☐	☐	☐
Download songs, videos or ringtones	☐	☐	☐	☐
Hunt for a particular fact or to get an answer to a particular question	☐	☐	☐	☐
Play videos	☐	☐	☐	☐
Send instant messages to someone who was online at the same time (e.g. MXit, 2go, Windows Live, ICQ, or others)	☐	☐	☐	☐
Play music or MP3 files	☐	☐	☐	☐

	yes	no	Don't know
24. Have you ever received text messages from companies, organizations or people, you didn't know?	○	○	○

↳ If yes, please explain:

_____

25. What is the language you use most often at home? If two languages are used equally, list both.

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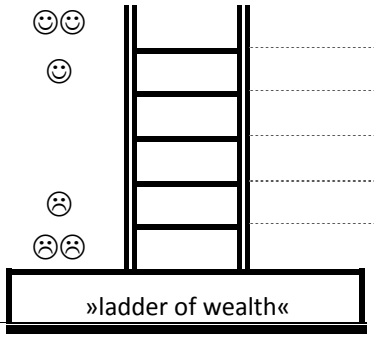
26. As you know, some people in South Africa can afford a lot of things, others have less money.
In the following we show this on a ladder.
More money means a higher position on the ladder.



Please tick the box in each column to mark the step of the ladder.

❶ How are the students in your class doing?	❷ How are you and your family doing?	❸ What do you think you would deserve?
☐	☐	☐
☐	☐	☐
☐	☐	☐
☐	☐	☐
☐	☐	☐
☐	☐	☐

27. Are you female or male?

female	male
○	○

28. After your matric, what do you plan to do next?

- Go to university, technikon or other further education ○
- Start working immediately ○
- Other: _____ ○
- Don't know ○

29. In which year were you born? 19___

30. Do you think of yourself as…

- Black ○
- White ○
- Coloured ○
- Asian ○
- Indian ○
- Other: _____ ○

31. How do you usually get to school?

- Walking ☐
- School bus ☐
- My parents bring me in by car ☐
- Public transport or taxi ☐
- Other: _____ ☐

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THANK YOU VERY MUCH!

FEEL FREE TO SHARE YOUR THOUGHTS ABOUT THE TOPIC OF THIS QUESTIONNAIRE WITH US:

(You can also write me: tino.kreutzer@gmail.com using MXit over GTalk, or by email.)