Evaluating the Distraction of ICT Devices in the Classroom

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ABSTRACT
Information Communication Technology (ICT) devices such as laptops, smartphones, and tablets, have become the standard stationery of today's tertiary students. Many years ago, the standard stationery required was a writing notepad and ball point pen, and a brain. These were all that was needed (along with some attention) to take in and store what was being taught by the teacher. Ubiquitous ICT technology has changed all that and the "stationery" requirements of today's tertiary scholars are far more cognitively penetrating; they are demanding of one's attention and highly pervasive in the learning environment. With tertiary institutions, teachers and students still in existence, the question that needs to be addressed is: how does the availability of such ubiquitous technology impact on students' learning, our teaching and the future of tertiary institutions? Formal systematic research on the distraction of ICT devices in tertiary education classrooms in New Zealand is relatively limited; therefore, this research intends to explore the issue. This paper will show that they have dramatically changed the ecology of education from "learner-plus-learning-material" into "learner-plus-learning-material-plus-technology-plus-distraction".

Keywords
ICT Devices, Mobile Phones, Laptops, Smart Phones, iPads, Distraction, Classroom, Lecture, Technology Use, Learning, Teaching.

1. INTRODUCTION
ICT devices have appeared to replace the writing notepad, and ball point pen, with smartphones, laptops, and tablets with internet connectivity. Students have access to ever-present PowerPoint slides (and lecture hand-outs) and other such course materials have been uploaded and available online. They perhaps no longer need to use their powers of cognition, perception and attention to the extent they once did in order to understand what is being taught because whatever is being taught will be available somewhere instantly at a click of a mouse.

Long-term memory may have been replaced by highly interactive and infinitely searchable external memory in the form of the Internet with search engines like Google. Students no longer need to *remember* what is being taught; they only need to know how to *search* for it, *read* it, and *retain* it for the *required moment*. If needed again they can always search again. Therefore with the availability of such resources at the touch of the screen, what will become of teaching and learning?

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2. BACKGROUND
Wireless network connectivity became available at the Bay of Plenty Polytechnic's Campus at the beginning of Semester 1 of 2011. The wireless network connectivity access points are now available from all lecture theatres, tutorial rooms, and computer labs. All students studying business and information technology courses at the Bay of Plenty Polytechnic are able to use their laptops and other Internet-enabled mobile devices to connect to the network and surf the web.

2.1 Reaction of Educators
A number of academic staff members noted that the use of personal laptops in class (during lectures and tutorials when access to computers was not required) were increasing and causing disruption to the teaching and learning process. Apart from students on personal laptops, there were others that were using their mobile phones and smart phones to send and receive text messages and emails, and for surfing the Internet and *checking*. Checking is checking for text messages, checking Facebook updates, checking emails, checking Twitter, checking web sites, and checking whether my friends are checking me. This can happen on a regular basis, and might be four or more times in one hour. Informal discussions in the staff room revealed that the problems were common amongst the cohort of first timers (students attending courses at the polytechnic for the first time), and a few other students in other courses at higher levels. An email was sent by the author of this paper requesting such information, and the email was titled: "What Else Do Students Do In Your Class? (apart from learning what you are teaching)". The responses from colleagues were enough to consider further investigations seriously. There were instances during lectures when I had to tell students that their tapping/typing on the keyboards were disturbing and annoying me. The author tried using LanSchool to block access to lab computers, but the students would disconnect the network cables or switch onto their laptops and mobile phones/smart phones.

2.2 Reaction of Students
Although many students own a laptop, some academic staff members received complaints during the semester, from students who did not use laptops during lectures), that the use of laptops by other students during lectures was distracting them from paying attention to what was being taught. Other students complained that they were being interrupted by those technology users who were not paying attention and who did not know what was going on in class, what to do next, and how to do it. If the students cared and responded by trying to assist those who were behind, then they themselves became behind in their work. Other anecdotal evidence received from students for technology disruptions in the classroom included mobile phones ringing, portable media players playing loud music, network computer games being played in

class amongst half a dozen students and being followed and cheered by others.

2.3 Teaching vs. Policing

Educators are discovering that students are more interested in online resources, such as Facebook, game sites, chat, and YouTube, than classroom lectures and textbook chapters about computer science and other subjects. So, does one spend one's 1 or 2 hour teaching slot to teach, or "police" the students by monitoring their activities and then stop teaching to tell them what to do (i.e., what they should have been doing in the first instance)? The author of this paper decided that he would *teach*, and those who want to learn *will*, as the learning outcomes from the course prescription needed to be completed by the end of the semester. Therefore the aim of this research was to:

- To identify the extent and purposes for which students are using personal ICT devices such as laptops, smart phones, and tablet computers, during lecture sessions.
- To determine whether the students use of personal ICT devices offers benefits or barriers to their own, and others' learning in class.
- To identify the various types of ICT devices related disruptive student behaviour that causes teaching and learning problems in the classroom.

3. LITERATURE REVIEW

Hembrook [8] and Lauricella [10] indicated that the use of laptops by students during a class or lecture could be a disadvantage. While some research demonstrates that laptops can be an important learning tool [10], anecdotal evidence suggests that more and more faculty are banning laptops from their classrooms because of perceptions that they distract students and affect learning [10]. One disadvantage of wireless networks in the classroom, and students' increasing access to and use of laptops, is the distraction that the laptop can create. Unless the lecturer specifically prohibits the use of laptops in the classroom, the wireless networks will inevitably provide a source of distraction for students who bring their devices to class.

Fried [3] examined the nature of in-class laptop use in a large lecture course and how that use is related to student learning. In her research, she had students' complete weekly surveys of attendance, laptop use, and aspects of the classroom environment. Results showed that students who used laptops in class spent considerable time multitasking and that the laptop use posed a significant distraction to both users and fellow students. Most importantly, the level of laptop use was negatively related to several measures of student learning, including self-reported understanding of course material and overall course performance. Fried [3] raised serious concerns about the use of laptops in the classroom. She found that students admitted to spending considerable time during lectures using their laptops for things other than taking notes. More importantly, she found the use of laptops was negatively related to several measures of learning.

Barkhuus [4] investigated an undergraduate class of 141 computer science students who were allowed to use laptops and other mobile devices via networked classroom technology known as ActiveClass to interact with their lecturers and ask questions anonymously. Barkhuus observed the class for the last two thirds of the quarter in each lecture, and used a questionnaire and interviews with students to investigate students' use of ActiveClass and general classroom behaviour. The author observed that students tended to use laptops in class for web surfing, writing projects and communication with peers. The questionnaires confirmed this; students with laptops in class did on average 1.6 different activities, such as surfing the internet, emailing or writing assignments, during a lecture. When comparing their laptop use to their self-reported level of attention, a difference emerges between attentive and less attentive students.

A study to examine the use of wireless laptops for promoting active learning in lecture halls was carried out by Barak, Lipson & Lerman [5]. Their study examined students' behaviour in class and their perceptions of the new learning environment throughout three consecutive semesters. An online survey revealed that students had highly positive perceptions about the use of wireless laptops, but less positive perceptions about being active in class. Class observations in the same research showed that the use of wireless laptops enhances student-centred, hands-on, and exploratory learning, as well as meaningful student-to-student and student-to-instructor interactions. However, findings also show that wireless laptops can become a source of distraction, if used for non-learning purposes. The researchers noted that the use of wireless laptops also has disadvantages: 12% used their laptops for non-directed (i.e., non-learning) purposes, such as surfing the Web or sending e-mail messages; 15% indicated that wireless laptops distracted their attention in class. This leads to the conclusion that wireless laptops should be employed in class only when the instructor requires the students to do so.

The division of attention demanded by ICT devices further strains the students cognitive abilities, diminishing their learning and weakening their understanding. In 2003, researchers Hembrooke & Gay [8] conducted research into distraction of ICT devices in the classroom. In an experiment, they divided a class of students into two groups. One group was allowed to use computers, connect to the Internet and browse the web while attending a lecture. The other group attended the same lecture, but was not allowed to use computers. A log of the activity of the group of students with the computer showed that they looked at sites related to the lecture but also visited unrelated sites, checked their emails, shopped online, watched videos and did all the other things that people do online. Immediately after the lecture both groups took a test measuring how well they could recall the information from the lecture. The web surfers performed significantly poorly on immediate measures of memory for the to-be-learned content of the lecture. The researchers further reported that it didn't matter, whether they surfed information related to the lecture or completely unrelated content; they all performed poorly. When the researchers repeated the experiment with another class, the results were the same.

Bergen, Grimes & Potter [6] conducted a similar research on distracted attention. They had a group of university students watch a typical CNN broadcast in which 4 new stories were broadcast while various multimedia elements flashed on the screen and a textual news crawl ran along the bottom. They had a second group of college students watch the same programme but with no multimedia elements flashing and no textual news crawl. Subsequent tests found that students who watched the multimedia version of the news remembered significantly fewer facts from the stories when compared to those that watched a simpler version. They concluded that the multimedia message format exceeded viewers' attention and absorbance capacity.

Carr [7] argues that psychological research long ago proved what most of us know from experience: frequent interruptions

scatter our thoughts, weaken our memory, and make us tense and anxious. The more complex the train of thought we are involved in, the greater the impairment the distraction causes. Depending on the how many information streams we subscribe to and the frequency with which they send out updates, we may field a dozen alerts an hour, and for the most connected amongst us, the number can be much higher. Each of them is a distraction, another intrusion on our thoughts, another bit of information that takes up precious space in our working memory.

Every time we shift our attention, our brain has to reorient itself, further taxing our mental resources. According to Jackson [9], the brain takes time to change goals, remember the rules needed for the new task, and block out cognitive interference from the previous, still-vivid activity. Many studies have shown that switching between just two tasks can add substantially to our cognitive load, impeding our thinking and increasing the likelihood that we will overlook or misinterpret simple information.

A study was conducted by Aguilar-Roca and colleagues [1] to determine whether laptop use in lectures negatively impacted learning outcomes of surrounding students taking notes on paper. Two sections of a large introductory biology course, with over 400 students per section, were zoned into a laptop-permitted and a laptop-free area. Two sections in which laptop users could sit anywhere served as the Control. There was a correlation between exam performance and note taking preference: paper note takers scored significantly higher and laptop users scored significantly lower than predicted by pre-class academic indicators. The majority of both laptop (64%) and paper users (82%) in the Zoned sections supported a policy restricting laptop use to specific areas. The researchers plan to investigate whether the relationship between laptop-use and performance is correlative or causative

Significant investments have been made by educational institutions as well as parents and students in purchasing computers and laptops on the assumption that this equipment is as much part of the teaching and learning environment as are pens, books and teachers. The issue as to the impact of this new innovation upon educational practices has generated mixed findings. Teachers at all levels of the education sector are now using, and being expected to use, computers and laptops in their classrooms. Awan [2] surveyed teachers undertaking a Masters in Education degree programme with a questionnaire that captured their opinions and experiences regarding the use of computers and laptops in their classrooms. One of the main findings was that teachers found computers and laptops in class created a barrier to the teaching and learning process. An analysis of teachers' comments suggested that the use of computers and laptops in class tended to distract students and created a greater number of classroom management issues for teachers to deal with. Similar findings have been observed in other studies that have noted the negative effect of laptops and computers on students learning, with researcher observations and teachers comments highlighting that students appeared to spend more time multitasking on their laptops and were therefore distracted from the primary lesson itself.

Because of decreased prices, and ubiquitous wireless access, an increasing number of tertiary students in New Zealand are using ICT devices in their classrooms. The critical problem area appears to be the extent to which students are distracted and the frustrations of academics that are being ignored. However, formal research on the benefits and challenges of using ICT devices in tertiary education classrooms in New Zealand is relatively limited. The purpose of this study is to examine the benefits and barriers of using ICT devices in tertiary institution classrooms in NZ.

4. RESEARCH METHOD

An online survey questionnaire was designed for students studying applied computing at Bay of Plenty Polytechnic and computer science at the University of Waikato to complete. The questionnaires asked students, how their and their classmates use of personal ICT devices during lectures and tutorials distracted them from learning.

The survey questionnaires underwent five rounds of revisions and were edited to make them neutral and to remove any leading questions and bias. Furthermore, the questions were re-arranged to start off with general questions that lead to specific questions about the research. Questions requesting participant demographics were added to see if there were some commonalities between participants responding with similar answers to questions. Since this research involved students ethical approval was sought and granted by the Bay of Plenty Polytechnic Research Committee.

4.1 Research Process

Emails were sent to all students studying applied computing at the Bay of Plenty Polytechnic and computer science at the University of Waikato, informing them on what the research was about and inviting them to complete the online survey questionnaire with the web link to the survey questionnaires on Survey Monkey. Students were assured of confidentiality in regards to their responses and anonymity. After the email invitation to take part in the research survey was sent, the survey remained open for two weeks. When the survey closed at the end of two weeks, responses had been received from 54 students.

4.2 Data Analysis

Raw data responses from Survey Monkey were exported into a Microsoft Excel spread sheet for analysis. Responses to open ended questions were collated, coded and analysed using qualitative analysis.

5. RESULTS AND ANALYSIS

The survey questionnaire was completed by 55 students out of a total of 115 students giving a survey response rate of 48%.
The results of the questionnaire are attached in Appendix 1.

In the sample, 23% were aged 20 or under, 50% were 21 – 30, 10% 31 – 40 and 17% were over 41. The students identified as 47 male and 5 female. In regards to ethnicity, 62% identified as NZ European, 15% as NZ Maori, 8% as international students of Indian origin and the remainder 17% as international other than Indian origin.

5.1 Laptops and Mobile Phones

Of the students surveyed 78% owned a laptop and 100% of them owned a mobile phone, 51% of students would like to use their laptops during class and 49% of them would like to use their mobile phones to check for messages. This is despite the fact that majority of students know that the Students Code of Conduct states that their mobile phones should be turned off during class.

5.2 Laptop and Mobile Phone usage during class

A majority of the students (67%) surveyed would like to use their laptops to take notes during classes while only 11% disagreed. Interestingly, this desire to use laptops to take notes is despite the fact that PowerPoint hand-outs with spaces for writing down notes with hand are provided before the lecture commences. It is disturbing to note that 16% believe that they should freely be able to use their laptops to surf the internet for non-course related activity during classes while only 58% disagree.

Many students agreed that they should freely be able to check their mobile phones for text messages and read those text messages (40%) and reply to those text messages during classes (29%). However, 36% and 45%, respectively, disagreed.

5.3 Distraction (Question 4)

Interestingly 76% of the students say they are "rarely" or "never" distracted by using their mobile phones in class while 77% state that they are "rarely" or "never" distracted by reading and replying to text messages during class.

One student commented:

"students doing any of the above are shooting themselves in the foot however i do believe it is there right to do so while they are not disrupting anyone else. I say this because for instance I often finish what the class is doing ahead of the other students at which point it is handy being able to quickly check my emails and/or txt messages whist everyone catches up."

5.4 Most Distraction

There is overwhelming response and acceptance of distraction caused by ICT Devices during lectures, practicals, tutorials, and especially when doing assignments at home. However, it is encouraging to note that there are a good percentage of students that are able to avoid distraction from their personal ICT devices.
A further 25% of students neither agree nor disagree on whether they are distracted by their personal ICT devices during lectures when the lecturer is lecturing or during practicals when the lecturer is tutoring, and have provided the same responses to other questions. It would be interesting to find out why they neither agree nor disagree.

5.5 Distraction by other students

The results of distraction by other students during lectures is evenly spread with 49% saying they are distracted by other students using their mobile phones and 42% saying they are not distracted leaving only 9% that neither agree or disagree. Only 28% are distracted in lectures by other using laptops. However the results are much less when the students were asked if they were distracted by others using mobile phones or laptops during tutorials.

One student stated:

"I am more distracted by OTHERS using their mobile devices in the class room. It is very annoying to be distracted by others who are using a mobile device for something that has nothing to do with the lecture being conducted. There is nothing worse than trying to concentrate and being distracted by seeing someone else's screen flashing as they are play or flicking through internet pages. Then the person wastes class time asking questions about things that have been covered but they missed them because they were playing games or chatting on Facebook."

5.6 Three Most Distracting Activities

When asked what were the three most distracting activities in mobile phone usage, laptop usage and other non ICT related activities, by far the highest response was for others "talking" at 60% ,with "surfing the net" at 35%. Interestingly only 23% said that "mobile phones ringing" was a distraction. See Figure 1.

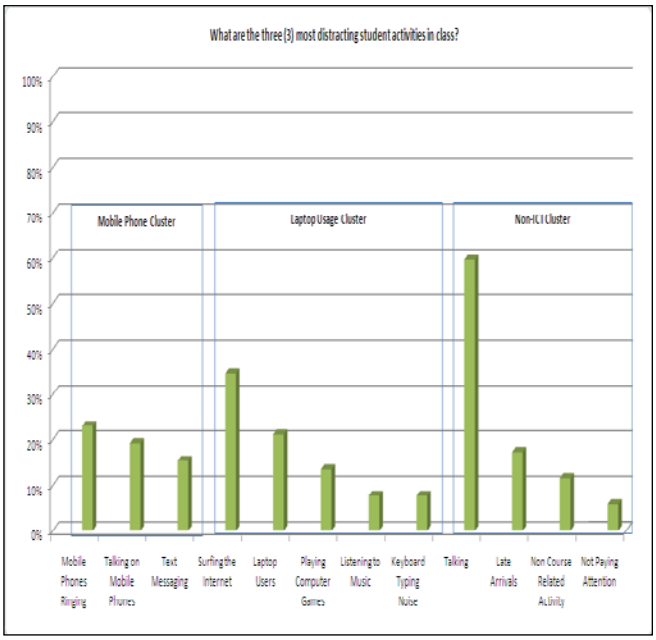

Figure 01: What are the three (3) most distracting student activities in class?

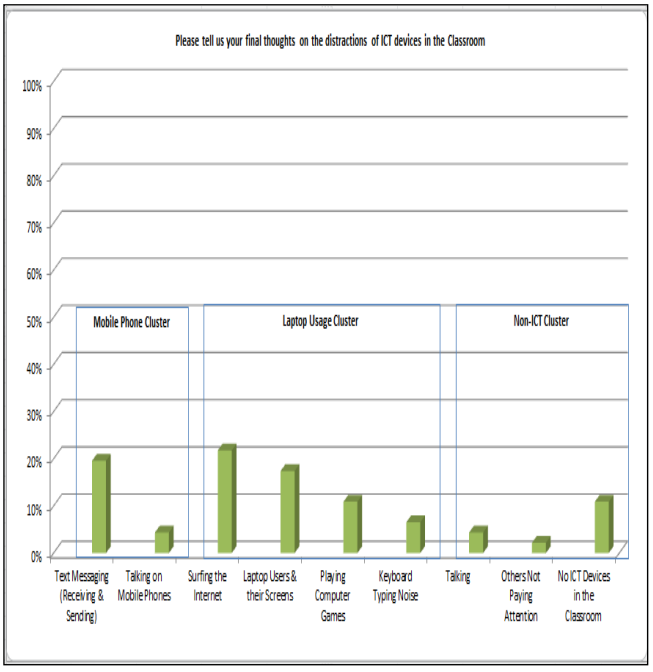

Figure 2: Please tell us your final thoughts on the distractions of ICT devices in the classroom

5.7 Final Thoughts

In the final question the students were asked "Please tell us your final thoughts on the distractions of ICT devices in the classroom". There were 46 responses to this open-ended

question. The responses were categorised and clustered into Mobile Phone Cluster, Laptop Usage Cluster, and Non-ICT Cluster (Figure 2).

6. DISCUSSION AND CONCLUSION

Technology distractions in classroom are not only confined to the Bay of Plenty Polytechnics classrooms, but are an on-going global issue faced by many tertiary institutions. This research raises serious concerns about the use of ICT devices in the classroom. Students admit to spending considerable time during lectures using their ICT devices for things other than learning. The responses suggest that ICT devices use interfere with students' abilities to pay attention to and understand the lecture material. It is possible that students who are struggling in class are more likely to bring their ICT devices to pass their time in class.

There are some potential limitations to the interpretation and application of these results. Self-reported responses always raise concerns about social desirability. However, general social desirability when relevant here, would most likely have pushed responses to show a higher percentage of distraction and learning implications. For example, participants should have felt pressure to report that they were doing nothing but using ICT devices to assist their learning. At the same time, they would have reported that their peers were using ICT devices in a manner that was distractive to the rest of the class. If anything, the self-report nature of the data would suggest that the degree and variety of ICT devices use, as well as the distractions posed by one's own ICT devices on attention and learning, were underreported.

Another limitation to the generalisation of these results is the nature of the courses attended by participants. All the participants were Information Technology (IT) students. Using ICT devices, especially laptops and other mobile devices, is part of the course requirements. How can you not use ICT devices in an IT course? The other important factor here is that for some courses, ICT device use was not controlled while it was controlled in other courses. Obviously, these results are not applicable to every classroom experience. Lecturers who impose rules on the restriction of ICT device use in classrooms may have an entirely different experience and so would the students in the class.

Based on the research findings, the following is suggested:

1. Revising the policy for the use of personal ICT devices in the classroom for courses within the School of Business at the Bay of Plenty Polytechnic. Leaving it to the lecturer's discretion brings forth the issue of "why am I allowed to use my ICT devices in lecturer A's class but not in lecturer B's class? There needs to be a consistent policy and compliance across the school

2. Those lecturers who would like to integrate the use of ICT devices in their teaching need clear guidelines and assistance. The devices are diverse with varied functionality, features and platforms. Lecturers would also need guidelines on how to manage students' use of personal ICT in class time by using the results of this research to show how it impacts the individual, peers and the lecturer.

3. Changes in teaching style will become one of the ways to manage ICT distractions in the classroom. The ICT devices are in the hands of students and will remain there. How we manage the personal use of ICT devices in the classroom should be the focus of future discussion amongst the stakeholders within the School of Business.

4. Changes to the teaching evaluation questionnaires to make it inclusive of the challenges from pervasive new technologies and the ability of students to evaluate impartially. Students fill tutor evaluation forms every semester to evaluate their learning of the courses they are attending. Within the evaluation form, they are required to answer questions that evaluate their tutors based on their learning.

If we take the amount of distractions and the conduct of students in our classrooms, one can realise what sort of learning is taking place. If the tutor evaluation is based on students learning, then the evaluation can be said to be biased because how can successful learning take place given the above distractions, inattention and improper student behaviours. Performance and promotions of tutors based on data from tutor evaluations needs to stop as they are not true measurements. How can you expect distracted students to be impartial?

The next research to follow from this would be to measure the level of distraction against the student's final results at the end of the semester. Future research on this topic may also be improved by finding ways to monitor ICT devices use directly. This would avoid the problems of self-reporting and provide a more accurate measure of the distraction of ICT devices in the classroom. This type of data would undoubtedly give a clearer picture of why and when ICT devices use interferes with learning.

Finally, these results clearly demonstrate that the use of ICT devices in the classroom can have serious negative consequences on students learning, teaching, and classroom management. These results suggest that the negative influence of in-class ICT devices use is two-pronged; ICT device use is negatively associated with student learning and it poses a distraction to fellow students. Lecturers who do not use laptops in an integrated way should consider ways to limit or control their use, or at least inform students about their pitfalls and attempt to limit the distraction ICT devices pose to other students.

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APPENDIX 1: Results of Questionnaire

1: General:				
Answer Options	**Yes**	**Percentage**	**No**	**Percentage**
Do you own a laptop?	43	78%	12	22%
If you owned a laptop, would you like to use it during class?	28	51%	27	49%
Do you own a mobile phone?	55	100%	0	0%
Would you use a mobile phone during class to check for messages?	27	49%	28	51%
Is the following true? The BoPP students' code of conduct states that students' mobile phones must be turned off during class.	35	64%	18	33%

2: I think that having access to laptops and other mobile devices in class would:					
Answer Options	**Strongly Agree**	**Agree**	**Neither Agree Nor Disagree**	**Disagree**	**Strongly Disagree**
Help in my learning during lectures, tutorials, and practicals.	13%	35%	18%	22%	11%
Help in the retention of material I have learned - I would remember it better.	15%	36%	22%	13%	15%
Increase the final grade I receive.	9%	24%	29%	26%	11%
Make me feel more like I am in the "modern world" and in touch with technology.	15%	40%	27%	7%	11%
Distract me from paying full attention in the classroom.	24%	29%	24%	24%	0%
Encourage others to act in an even more distracted manner in the classroom.	20%	27%	33%	15%	4%
Other (please specify)					

3: I would like to be freely able to:					
Answer Options	**Strongly Agree**	**Agree**	**Neither Agree Nor Disagree**	**Disagree**	**Strongly Disagree**
Check for text messages and read them on my mobile phone during class	9%	31%	24%	16%	20%
Reply by writing a text message on my mobile phone during class	5%	24%	25%	20%	25%
Use a laptop for taking notes during class	38%	29%	22%	9%	2%
Use a laptop and surf the Internet during class for non course related activity	7%	9%	24%	27%	31%
Other (please specify)					

4: Please indicate the frequency in which you are distracted by:					
Answer Options	**Very Often**	**Often**	**Sometimes**	**Rarely**	**Never**
Using and answering calls to my mobile phone	0%	5%	18%	45%	31%
Checking my mobile phone for text messages	2%	7%	18%	42%	31%
Reading text messages on my mobile phone	2%	9%	16%	47%	25%
Writing text messages on my mobile phone	2%	7%	13%	38%	40%
Reading and replying to emails	2%	5%	16%	33%	44%
Surfing the web	4%	15%	25%	24%	33%
Listening to music	2%	5%	2%	13%	76%
Reading news online	5%	5%	22%	27%	40%
Playing games on the Internet	2%	4%	11%	11%	73%
Doing other assignments on the PC	2%	11%	33%	25%	29%
Other (please specify)					

5: Now, we would like to ask what causes the most distraction. I am often distracted or lose attention:					
Answer Options	**Strongly Agree**	**Agree**	**Neither Agree Nor Disagree**	**Disagree**	**Strongly Disagree**
At lectures when the lecturer is lecturing	13%	19%	28%	31%	9%
At practical's when doing work on PC	2%	11%	26%	44%	17%
At practical's when lecturer is tutoring	4%	19%	24%	41%	13%
At practical's when working with others	6%	9%	28%	46%	11%
At home when doing my assignments	22%	30%	19%	24%	6%

6: Lectures I can be distracted by:					
Answer Options	**Strongly Agree**	**Agree**	**Neither Agree Nor Disagree**	**Disagree**	**Strongly Disagree**
Other students checking or using their mobile phone	24%	25%	9%	20%	22%
Other students using a laptop to type notes	13%	15%	15%	27%	31%
Other students using a laptop to surf web	27%	22%	15%	16%	20%
Other (please specify)					

7: In Tutorials/Practicals I can be distracted by:					
Answer Options	**Strongly Agree**	**Agree**	**Neither Agree Nor Disagree**	**Disagree**	**Strongly Disagree**
Other students checking or using their mobile phone	18%	22%	13%	25%	22%
Other students using a laptop to type notes	7%	5%	27%	31%	29%
Other students using a laptop to surf web	16%	20%	20%	22%	22%
Other (please specify)					
For you, what are the three (3) most distracting student activities in class?					

8: Mobile Phones Cluster		**Number**	**Percentage**	**Total**
Mobile Phones Ringing		12	23%	52
Talking on Mobile Phones		10	19%	52
Text Messaging		8	15%	52
Laptop Usage Cluster		**Number**	**Percentage**	**Total**
Surfing the Internet		18	35%	52
Laptop Users		11	21%	52
Playing Computer Games		7	13%	52
Listening to Music		4	8%	52
Keyboard Typing Noise		4	8%	52
Non ICT- Related Cluster		**Number**	**Percentage**	**Total**
Talking		31	60%	52
Late Arrivals		9	17%	52
Non Course Related Activity		6	12%	52
Not Paying Attention		3	6%	52

9. Please tell us your final thoughts on the distractions of ICT devices in the Classroom				
Mobile Phones Cluster		**Number**	**Percentage**	**Total**
Text Messaging (Receiving & Sending)		9	20%	46
Talking on Mobile Phones		2	4%	46
Laptop Usage Cluster		**Number**	**Percentage**	**Total**
Surfing the Internet		10	22%	46
Laptop Users & their Screens		8	17%	46
Playing Computer Games		5	11%	46
Keyboard Typing Noise		3	7%	46
Non ICT- Related Cluster		**Number**	**Percentage**	**Total**
Talking		2	4%	46
Others Not Paying Attention		1	2%	46
No ICT Devices in the Classroom		5	11%	46

10: Demographics of the research participants				
Age Group	**Age Group**	**Age Group**	**Age Group**	**Age Group**
	Below 20	**Between 21 and 30**	**Between 31 and 40**	**Over 40**
Demographics	23%	50%	10%	17%

Gender	**Gender**	**Gender**	**Gender**	**Gender**
	Male	**Female**	**Male**	**Female**
Demographics	47	5	90%	10%
Ethnicity	**Ethnicity**	**Ethnicity**	**Ethnicity**	**Ethnicity**
	NZ European	**NZ Maori**	**International (Indian)**	**International (Others)**
Demographics	62%	15%	8%	15%