Study activities with mobile devices via Moodle: a qualitative survey of a 2012 aviation medicine class

Report prepared by
Gloria Gomez, PhD
Assistant Professor
University of Southern Denmark, Odense

Commissioned by
Robin Griffiths, MD, PhD
Director of Occupational and Aviation Medicine
University of Otago, Wellington

Date: March 2013

Table of contents

BACKGROUND 3
A BRIEF DESCRIPTION OF THE SUBJECT: AVMX 724 "HEALTH AND INDUSTRY" 4
METHOD 6
Surveying approach *6*
Units of analysis: topics for discussion based on the data gathered *7*
DESIGNING THE EMAIL SURVEYS 8
First survey *8*
Second survey *8*
RESULTS: WHAT WE CAN LEARN FROM THE STUDENT RESPONSES. 9
Activities with smart devices *10*
Studying with a smart tablet 11
Studying with a smart phone 11
What can we learn from the students' responses? 12
Study frustrations with Moodle via mobile devices *12*
Frustrations with Apple's iPad and iPhone 13
Frustrations with Samsung Galaxy tablet 14
What can we learn from the students' responses? 14
Study activities with laptops and desktop computers *15*
What can we learn from the students' responses? 16
Where and when students prefer to study *17*
Places to study 17
When is possible to study 18
No downtime at work 18
Work place differences: clinics vs. emergency departments (ED) 18
What can we learn from the students' responses? 18
Increasing need of Internet connectivity for studying *19*
What can we learn from the students' responses? 19
A BRIEF DISCUSSION 21
Motivation for using smart devices to study *21*
Accessibility and transportability requires overcoming technological barriers *21*
Forum discussions through mobile devices *21*
Gaps in your day: differences between accessing materials and studying materials *22*
APPENDICES A TO F 23
Appendix A: Example of written exam *24*
Appendix B: eight questionnaires for survey 2 ..... *27*
Appendix C – Results related to smart tablet responses *35*
Appendix D – Results related to smart phone responses *38*
Appendix E – Results related to laptop responses *39*
Appendix F – Results related to desktop computer responses *41*

Background

Objective: This report presents outcomes of a two-month project on how students use their mobile devices (smart phones and tablets), laptops and desktop computers to access information for studying. The subject AVMX 724 (Health and Industry) is part of the masters in Aviation Medicine and the postgraduate diploma in Occupational Medicine.

The teaching is undertaken through a number of software products that support interactive distance education, and are delivered via Moodle learning management system. There is no formal study held in New Zealand. All "live" teaching is undertaken by audioconference and all course materials are available online through www.aviationatotago.com. Students are only required to leave their normal areas of work to attend the annual week-long Residential School. These vary in location with recent Schools held in Malaysia, Portugal, New Zealand, Scotland, Dubai, Canada, Brazil and Beijing[1].

Research description and scope: Performed in August and September 2012, this short project partially addresses "aim one" of a larger project[2], which aim is "better understanding of how students and staff interact via mobile devices with content, communication, and community".

The analysis and discussion of results provide information for better understanding on how students:

- Interact with content via Moodle – a learning content management system through which multimedia materials, podcasts, and a discussion forum can be accessed.
- Communicate via webinars using audio, video, chat, and formal online presentations

This report neither provides information nor addresses community aspects for understanding how staff interacted via mobile devices for teaching and learning purposes. This aspect was beyond its scope.

Contribution and relevance: The outcomes may help to understand the following situations[3]:

1. Identify technical barriers related to accessing study materials via Moodle:
    - Getting into the detailed technical glitches while these are fresh in students' minds
    - Highlight technical issues and others

2. Study activities via mobile devices:

---

[1] See: http://www.otago.ac.nz/wellington/study/occupationalaviationmedicine/index.html

[2] titled "analysis of mobile access for interstitial learning" (see interim report by Rob Griffiths)

[3] *Ibid.*

- Finding out if the best use of mobile devices might be for forum discussions
- What kind of study activities are (or not) possible to do via smart devices, laptops, and desktop computers
- Relationship to assignments, and assessment: where is the gain?

3. How to make the Occupational and Aviation Medicine programme as accessible and transportable as possible? Through the use of Apps for Moodle

Postgraduate programmes, in particular those labeled as IT interactive distance programmes, might benefit from the outputs of this study.

A brief description of the subject: AVMX 724 "Health and Industry"

In a personal email communication to the researcher (August 24, 2012), the tutor summarized how the subject is run, described assessment methods, and included a copy of the written exam paper.

Table 1 has two columns. The left column titled "course description" contains the tutor's email with minor changes. For the sake of clarity sentences in bold have been inserted at the start of every paragraph (e.g. "content location" or "assignments". The right column titled "type of study activity" attempts to highlight (in the form of numbered bullet points) the actual activities (or tasks) that are required to accomplish an aspect of the course, and if these are performed while online or offline (e.g. writing an assignment offline).

Online engagement and reliable internet connectivity are required to achieve 30 mark (30%) towards passing the subject: leading and attending forum discussions 10 marks, leading and attending webinar presentations 10 marks, plus oral viva with examiners 10 marks. A student obtains 20 marks for leading a discussion in the forum, doing a webinar presentation, and the oral viva with external examiners. A student obtains the remaining 10 marks upon contributing to forum discussions every week and attending the three schedule webinars.

70% of the required study activities are performed offline, while 30% offline. If a student were unable to participate in online activities, s/he would lose 20% percent for failing to lead discussion or do presentation, and 10% for failing to contribute to forums or attend presentations. Where the gain is in relationship to assignments, and assessment will be discussed in the relevant section. To pass the subject, it appears to be enough to write an assignment and undertake the final written exam. These study activities can be performed online, but are informed by materials placed in the Moodle website.

Table 1

COURSE DESCRIPTION	TYPE OF STUDY ACTIVITY
Content location: The objectives for each module of AVMX 724[4] are detailed with each module on the Moodle system (see http://www.medicineatotago.com/moodle/).	1) Access content placed in Moodle website (online)
Requirements for passing: 1) an assignment worth 30 marks 2) online engagement worth 30 marks, and 3) final examination worth 40 marks. Next a more detailed descripton *[sic]* of each	1) Writing an assignment (offline, 30%) 2) Participating in forum and webinar activities (online, 30%) 3) Writing a final exam (offline, 40%)
Assignments: Assignment x 1 is worth 30 marks. The assignment should be around 3000 words (not including references). Penalties will be given for word counts over 120% of target (i.e. over 3600 words) with 5% loss of mark for every 5% increment (or part of 5% increment) over 120%. The submission date for the next assignment is Friday 31st August. Up to two assignments may be submitted. If two are submitted the higher of the two marks will count towards the assessment. Each module has an assignment and the details are in the relevant module on Moodle.	1) Access Moodle to collect information about the assignment (online) 2) Prepare assignment (offline)
Final exam: Written examination is worth 40 marks. Students will be required to answer 4 out of choice of 7 questions. The examination will be held on Wednesday 24 October. The exam is comprised of questions to be answered using short notes (see Appendix A).	1) Final written exam (offline)
Forum participation (via Vbulletin): Leading and participating in forum discussions is worth 10 marks (5 marks for leading and 5 marks for participation). Forum discussions will start on a Monday and end the following Sunday. Each forum discussion will be led by a student who be marked out of 5 for leading the discussion (based on	1) Lead forum one time (online) 2) Discussant in forums (online) 3) Preparing for leading a forum (offline and/or online)

[4] See description in the official website http://www.otago.ac.nz/wellington/study/papers/index.html?papercode=AVMX724

material delivered and interaction with the other students and the tutor. The discussion can be on a case, a published paper or on an idea related to material in AVMX 724. The contribution of each student to the discussion forums over the semester will be marked out of 5. The forum discussions start on 6th of August and will be every week until 6th October.	
Webinar participation (via Big Blue Button - BBB): Presentation and participation in Webinar 10 marks. Each student will be required to give a 10 minute presentation on a topic or case relevant to the material in AVMX 724 at one of the three Webinars. This will be marked out of 5. Students will also be marked out of 2.5 for participation in two Webinars (if they participate in all three then the top two marks will count). The webinar dates are 3rd August, 7th September and 12th October	1) Perform a webinar presentation (online) 2) Attendant in a webinar presentation (online) 3) Preparing for webinar presentation (offline and/or online)
Oral examination (via BBB): Oral Viva via Internet 10 marks. There will a 10-minute oral viva with two examiners via the internet. This will be marked out of 10. This is the first time we have used webinar presentations and an oral viva. Previously there were 3 assignments of 2000 words. This was a bit of overkill and it was felt that we needed to diversify the way we assessed the students. The Aeromed team have already used webinar presentations and they seem to work well.	1) Being examined orally (online)

Method

Surveying approach

The 10 students enrolled in the subject AVMX 724 (semester II 2012) were also the project participants. They studied at a distance and did not take time away from work for doing this postgraduate education.

An email survey in the form of unstructured and open-ended questionnaire seemed to be the approach that worked best for reaching out to this busy group of people. Other survey options such as online survey with Likert-type scores were considered, but discarded due to the sample size. This personalised approach was thought to motivate people to volunteer time to answer the questions and provide information on how they were studying in the programme via mobile devices, laptop and desktop computers.

It was expected that students would report overall impressions at the end of the paper via a qualitative review. But through this project, the hope, according to the Director, was "to get the detail, where the Devil lies!" and "…see what comes out of the woodwork!"(Personal communication, September 11, 2012).
An expected outcome was to obtain information on what study materials they are able to access with the devices of choice for studying. See more in earlier section "contribution and relevance".

Units of analysis: topics for discussion based on the data gathered

The themes for discussing the survey results emerged from an analysis of an email in which the programme director introduced the students to the project and its objectives. This communication was sent on August 26, 2012. Below in block text, the message is transcribed and has several sections explaining the issues under exploration plus the expected outcomes of studying through a collection of IT products (Moodle, BBB, Vbulletin).

The email content has been used as a source of themes for organizing and discussing the results. The text in small size, bold, and bracketed at the end of each paragraph highlight a theme that the director would like to know more about. In turn it will be used in the discussion of results.

> I would encourage you to try using Moodle on a tablet or Pad or even your Smartphone. **[Theme 1: motivation for using smart devices to study]**
>
> We are trying to make the programme as accessible and transportable as possible! [through the use of Apps for Moodle] **[Theme 2: accessibility and transportability]**
>
> There are iStore apps for Moodle on a range of devices, and Droodle and other apps for Androids. These are much better than using Safari. Just using it [a mobile device] has highlighted some problems… The Forum and Big Blue Button both use Adobe Flash and Steve Jobs made it impossible for iOS devices (Iphones, iPods and iPads) to use Flash, due to conflict with Adobe… **[Theme 3: technological barriers: no consistency across platforms]**
>
> We will use the Moodle Forum next year, but it's not a good idea to change mid-Semester; I think mobile access to the Forum would have been one of the best uses for mobile devices. **[Theme 4: forum discussions through mobile devices, but if Vbulletin is not used anymore – there won't be access to archives. Moodle does not support it.]**
>
> We asked BBB whether there was an iOS compatible app, as there is an Android app for BBB that was built by a university in Rio [de Janeiro, Brazil] at a cost of US$10M, and got a phone call to request that we do the same for iOS! Way out of our league, I'm afraid. Adobe Connect is iOS compatible but won't support phone ins from ordinary phones in the current Otago Adobe

> Connect setup, and despite a contract to fix this, it has not been possible! **[Theme 5: technological barriers – high costs and what would be the implications for students if you change platforms. For example: BBB do support phone ins, limit iphone to online access, no more phone calls]**
>
> Personally, I use my tablet and iPhones all the time for emails, internet access and now Moodle. It helps not only when you are travelling, but also means that you can access materials during the "gaps" in your day - waiting for a patient, flight, dental appointment, or whatever; "Down Time" has become a luxury we can't afford! **[Theme 6: study activities during gaps in your day]**

Five themes for later discussion have been identified within this email:

1. Motivation for using smart devices to study
2. Accessibility and transportability
3. Technological barriers: high cost, it works on one system, but not on others, no consistency across platforms, there aren't dedicated apps
4. Forum discussions through mobile devices: switching to Moodle forums will stop ability of students to access Vbulletin archives
5. Study activities during gaps in your day

Designing the email surveys

First survey

The first survey was sent to the 10 students enrolled in the subject. The same unstructured question was asked to everyone: "… Can you each let me know (and Copy in Rob) if you are accessing [M]oodle through mobile devices and if so which one/s…). The tutor sent the email to students via avmx724@medicineotago.com with copy to the Director.

Second survey

The second survey was sent to the eight students who replied to the tutor's email. Individual answers (first survey) on what each uses (iPhone, iPad, or laptop) to access study content via Moodle informed the design of the personalized, open-ended questions. Emails were sent to their personal address with copy to the tutor and course coordinator. See appendix B with eight questionnaires.

The objective this time was to obtain more information on how, when, and where each of them uses his/her devices for studying. Through this approach, it was hoped that they would feel able to report "glitches", situations encountered at several levels and related to the five themes identified in the previous section.

One example follows as to how a personalized question was developed based on the responses to a first survey.

Example 1: A student response to survey 1 was:

```
Hi Mark,
I prefer a big screen to access Moodle. Thus I use a PC only
Regards,
Martin Clark

Sent from my iPhone
```

What does this answer mean to the research?
The student owns an iPhone, but has purposely chosen not to use it for accessing study materials through it. There is interest in knowing why not. The open-ended questionnaire might provide more answers, which may provide information for the theme on accessibility and transferability.

By the time the second survey was undertaken, the remaining access problem to Moodle via mobile devices was mainly related to Adobe and Apple devices and their treatment of the application Flash. Students who owned an iPhone or iPad were unable to access BBB for webinar attendance or contribute to forum discussions. It was expected that students would report these issues.

Before the second survey was distributed, the Director sent an introductory email to the students and a short biography of the researcher (author) who would get in touch with them. This paragraph explain the students what was expected from them:

> Each student will be asked to answer five open-ended questions regarding study activities via Moodle using their mobile devices, laptop or desktop computers. I will ask about access, but most importantly their ability to work with the materials provided. Once I receive their individual replies, I may contact them again for further clarifications. They cam [*sic*] reply with short answers, I do not expect long commentaries because I understand their busy schedules. The most important thing is that they feel able to explain their view point.

Results: what we can learn from the student responses.

The results presented and briefly discussed next represent the responses of students to surveys 1 and 2. Eight out of ten students replied to the first email survey, and four to the second one (a personalized open-ended questionnaire). Both survey responses combined provide a picture of student ability to access course materials for studying via Moodle using smart phones, smart tablets, laptops and/or desktop computers.

All students said that they use laptops and/or desktop computers to materials to study via Moodle. Four students said that in addition they use smart tables, and of these group, two students use smart phones. Table 2 presents information regarding the type of devices students use for studying in the AVMX724 subject.

Students have been de-identified by using letters from A to H (e.g. Student A or Student G).

Table 2

	iPad	**Samsung Galaxy Tablet**	**iPhone**	**Laptop**	**Desktop Computer**
Student A	Yes			Yes	
Student B[3]	Yes		Yes	Yes	
Student C	No[2]				Yes[1]
Student D	No		No		Yes
Student E[3]	Yes		Yes	Yes	
Student F			No	Yes	
Student G[3]		Yes	No	Yes	
Student H[3]	No	No	No	Yes	Yes

[1] Student said, "just normal computer", did not specify type laptop or desktop computer
[2] Student said, "no mobile devices"
[3] These four students answered survey 2

Summarising, mobile devices are used for what Student B called "opportunistic study" while laptops and desktop computers are used for what the same student called "formal study". The former includes reading modules, textbook material, and for those whose devices enabled them to do so, write forum contributions (e.g. a Samsung Galaxy tablet user). The later includes accessing documents, podcasts, webinar, preparing forum participation, and written assignments. However, in addition to passive reading activities, students would like to be able to use their mobile devices for participating in webinars and forum discussions or view, what Student B calls, interactive materials such as videos from their smart devices.

The next four sections with subthemes report on the study results. Sections one and two "study activity with smart devices" and "studying and frustrations had with Moodle via mobile devices" report on what actually students do through smart devices, laptops, and desktop computers. Sections three, four and five report on "study activities with laptops and desktop computers", "when and where students prefer to study", and "increasing need for connectivity for distance study". At the end of each section the results are discussed in "what can we learn from the students' responses?"

Activities with smart devices

Four students use smart tablets to access study materials via Moodle: three use iPads, one uses a Samsung Galaxy tablet (see Table 2). Of these, two students also use iPhones. Overall, smart devices appeared to be used as "an opportunistic device". See more in section "when and where students prefer to study" and detailed responses in appendix C.

Studying with a smart tablet

Three of four students (A, E, and G) who use smart tablets for studying answered survey 2, and said that could log onto the Moodle website for reading the modules.

Student B said (Survey 2),

> that for studying offline "I actually download the modules into a pdf and then read them using Goodreader as I can do that when I am on a plane and not connected to the internet"…
>
> [I] prefer to read using the iPAD" in contrast to the iPhone, but [I] cannot participate in the forums which would be more useful to me.

Student E said (Survey 2),

> … I use iPad for *[sic]* study and read the textbooks

Student G said (Survey 2),

> I do the usual stuff on the Tab [meaning Samsung Galaxy tablet], read the course materials, look at the essential readings and references apart from jotting down stuff in the forums

Studying with a smart phone

Two students, B and E, also use their iPhones (a type of smart phone) for studying via Moodle.

Student B said (survey 2),

> [I can perform] same [activities] as with the iPad [accessing Moodle and reading the modules] except I don't have Goodreader on the iPhone

Student E said (survey 1),

> When I am on the way to somewhere, then I will use my iPhone to assess *[sic]* the [M]oodle.. *[sic]* But I find the mobile [M]oodle has some limitation... Some of the page[s] on the [M]oodle [are] not actually showing the content on the apps,like *[sic]* Forums. Instead, it just open up the browser

> and the page .. *[sic]* Somehow it seems like why didn't I just open the [S]afari !"

He further clarifies (survey 2),

> …seldom [I] use [the] iphone"

What can we learn from the students' responses?

Accessibility and transportability is limited. All students should have equal type of access to materials, the student who owns a Samsung Galaxy tablet (e.g. can type contributions to discussion forums) had a better experience than the two students who own an Apple tablets (e.g. can only read modules).

Technical barriers should be overcome so opportunistic study can be further enhanced, and evolve to enabling interactive activities such as participating in asynchronous activities (e.g. discussion forums, watching, and/or listening to podcasts) and synchronous activities (e.g. webinars).

Student B provided evidence showing that extra activities are required for preparing module materials to be read on tablets. If a student would like to study offline via a smart tablet (e.g. on a plane or not connected to Internet -), he cannot do it directly from the website. He has to prepare the materials by performing an extra activity: downloading the AVMX724 modules into a PDF and then reading them using an App such as Goodreader. This activity could be time-consuming.

There is preference for reading using a smart tablet over a smart phone. This may have to do with the readability of the material on the screens. The Moodle website and Vbulletin forum do not show well in iPhones. Additionally, with iPhones a student can only access study materials if this is online. Student E may be able to access the forum materials "on the way to somewhere" because he is connected to a 3G network. While with tablets is possible to download materials for later read either online or offline, as Student B said he does when wanting to study on a plane.

Dedicated Apps needed for tablets and phones of every kind needed to improve readability and transferability of materials. Also it is important to endeavor to identify what prevents iPad users from writing contributions to Vbulletin. Opportunistic study "access [ing] materials during the gaps in your day – waiting for a patient, flight, dental appointment, or whatever…" will be only possible if the materials transfer well and are accessible online and offline, and not time consuming intermediate steps in the process.

Study frustrations with Moodle via mobile devices

We have encountered three different experiences related to accessing study materials via Moodle website using mobile devices.

- iPad users can only read modules, cannot contribute to forum
- Samsung tablet users can read modules and can contribute to discussion forums, and can participate in webinars via BBB. They are experiencing a technical glitch related to authentication that appear to make the process of login in a bit "annoying".
- iPhone users can read modules, can red discussion forums, but cannot contribute to them.

The situations described have generated two types of frustrations: those students who cannot access forum discussions via Apple products and those who can with some authentication issues.

Frustrations with Apple's iPad and iPhone

Student B and student E's responses are on studying via Moodle in relation to the activities that cannot be performed with smart devices, and a few thoughts on the inability to do so. See responses in Appendices C and D.

Student B commented (survey 2),

> Moodle is not a bad platform and the support of iOS [Apple operating system] is a good thing… BUT the interactive components (forum, video, webcasts) are not available and this limits its utilisation.
>
> is the forum available via apps because I couldn't access it if it was
>
> don't use the iPad/iPhone [for accessing documents, podcasts, webinar, preparing forum participation, and written assignments] but it would actually be quite useful.
>
> … Does it work with an iPad?
>
> Inability to access the forums is the biggest problem and really only the Modules are accessible as far as I can see from Moodle on iOS and video/webcasts are not available to my knowledge

Student E explains Moodle usefulness if it worked on the phone (survey 2):

> just while I using *[sic]* the iPhone, the Moodle apps didn't display the forum on the apps but redicrect *[sic]* using the safari *[sic]*, which is not a big problem but if the moodle *[sic]* apps can actually process the forum that will be great to response whenever and wherever I am.

Frustrations with Samsung Galaxy tablet

Student G provides information on two frustrating situations he has experienced with his smart tablet during study.

In the first situation, he has to provide his username and password three times (survey 2):

> … I am able to log-in but have to do so 3 times to access the [M]oodle study material…
>
> The login at 3 sites:
> 1. Main website: www.medicineatotago.com
> 2. Log in to use teaching platform
> 3. Log in to use the course materials
>
> Although, sometimes when I click the back button from the teaching platform or the forums, I will be shown as being logged on but will have to login again to use the same.
>
> …And with regards to BBB, I was able to download the new version for Android, so it is not an issue anymore.

In the second situation, he refers to becoming accustomed to typing on this device (survey 2):

> I have been quite used to the keyboard in my laptop, switching over to a touch-screen did give me some trouble initially. But I have gotten used to it now.

What can we learn from the students' responses?

The students ask for access to interactive materials via their mobile devices for broadening its utilization and usefulness. There is certainly a need for having an App version of the Vbulletin forum to overcome the barrier that iPad users are experiencing at present, and to enable iPhones users to respond whenever and from wherever they are. This aspect will support the idea of "down time" or "interstitial learning", studying between the gaps in my day.

The website medicineatotago.com/moodle is the portal through which students can access a number of software for performing interactive study activities such as contributing to discussions (via Vbulletin forum) and participating in webinars (via BBB). It is important to note that when students refer to Moodle not allowing accessing this or that, in fact the students are actually talking about another application, be they the Vbulletin or BBB. In their minds, these are just aspects of they same thing. But for the purposes to identify where the technological barriers lie, making the difference among applications is relevant.

Again, for students who would like to study via their iPads and iPhones the biggest frustration is the inability to contribute to forum discussions, and have the option to access and play videos and webcasts. In other words, what Student

B called "interactive components (forum, video, webcasts)" of the AVMX724 paper. Vbulletin should work on iPads, the same way that it works on Samsung Galaxy Tablets and Asus Transformer Prime TP201[5]. Vbulletin does not require Flash, as the Director explained in one email. The situation should be investigated further until the reason is found.

For the student who study via a Samsung Galaxy tablet the biggest frustration is related to usability issues: not being able to access the forum via Moodle, and having to login to three sites (main website, teaching platform, and course materials) before getting to the materials placed in Moodle.

Writing contributions from smart tablets may require some getting used to, but this situation comes with the territory of adopting a new technology to study. Here is where taking advantage of other ways to input information could be encouraged such as voice-input.

Study activities with laptops and desktop computers

Eight students reported preferring to use laptops and/or desktop computers for accessing study materials via Moodle. Three exclusively used desktop computers, one exclusively laptop, one mainly laptop (and occasionally PC), and one said to use a laptop at home (in addition to an iPad at work). See Table 2 and responses in appendices E and F.

Most students perform "formal study" with them. In relation to where they use it to study, five said to use it at home and one said on the road (an emergency doctor – ED). Next some students explain their activities:

Student B said (survey 2):

> Formal study time usually revolves around the laptop as the movies can be downloaded and I can access the forums.
>
> …USE Laptop (Macbook PRO) for accessing documents, podcasts, webinar, preparing forum participation, and written assignments…

Student D said (survey 1):

> I prefer a big screen to access the Moodle. Thus I use a PC only
> Sent from my iPhone.

Student E said (survey 2):

> Forum activities, assignment submission, checking my profile and grades

[5] This is my smart tablet

> My own laptop computer for accessing documents, podcasts, webinar, preparing forum participation, and written assignments

Student G said (survey 2):

> I prefer the laptop for webinars, podcasts and assignments.

Student H said (survey 2):

> All of them [the study activities] as far as i know. i.e access modules, participate in the forums and probably join the webinair *[sic]* although i have never been able to try it out.

What can we learn from the students' responses?

Table 3 summarises the interactive and passive activities that according to the students comprise formal study. Accessing documents (modules, required readings) and participating in discussion forums are what three students consider "opportunistic study", which makes up only a small percentage of the required study for passing the subject.

Table 3

Formal Study	
Interactive Activities	Passive Activities
• Movies, podcasts • Asynchronous participation in forum discussions • Synchronous participation in webinars (attending, presenting, and oral examination)	• Accessing documents (modules, required readings) • Writing assignments • Checking my profile and grades • Preparing forum participation • Preparing webinar presentations • Writing assignments

The majority of study activities required to complete the subject are performed with laptops or desktop computers. This preference is a symptom of the inability of accessing interactive materials via mobile devices due to the multiple technical barriers mentioned in previous sections. The accessibility and transferability is not good, students still prefer a "big screen" for studying because "formal study" requires a great level of involvement with the material. Preparing an assignment, forum or webinar participation requires review and analysis of documentation in the form of readings, podcasts, etc. Probably multiple screens would need to be opened for transferring information from PDFs, websites, or PPT to a word document or presentation developed by the student.

Where and when students prefer to study

All students preferred to do formal study at home or elsewhere (e.g. a coffee shop). One student studies mainly at home, but has to go back to work for connecting to the Internet to download study materials or submit assignments. See Table 2 plus appendices E and F. On the other hand, opportunistic study occurs during "gaps in their day", or on a plane, or while there is no patients.

Places to study

Student B said (survey 2):

> I use it [the iPad] as an opportunistic device so when I have downtime I read some modules or when I am on a plane and not connected to the internet

Student E said (survey 2):

> Most of the time I will study and work at clinic while there was *[sic]* no patient,…
>
> …but while *[sic]* I have time, I will prefer study at coffee shop.

Student F said (survey 1):

> I am using a laptop only when I am home …

Student G said (survey 2):

> I use my laptop at home

Student H said (Survey 2) to study at home and work:

> [I] use my PC if I ever get home, else my laptop while on the road.
>
> [i] work in remote locations and do not always have an internet link avaialable *[sic]*. or *[sic]* it might be very sporadic, or only available on a work computer soi *[sic]* need to go back into work when i have finished. ..
>
> … [going back to work when I have finished preparing assignments to send them or place them in the online study environment] can be a problem in areas where I do on-call, as nurses see you are on the premises and decide you can see people since you are there - whereas they wouldn't call you if you weren't. [S]o in taht *[sic]* case trying to do uni work after hours is a problem..

When is possible to study

Student E said (survey 1),

> Most of the time, I use the computer to assess *[sic]* the [M]oodle, because I always sit in front of my computer and rushing *[sic]* the assignments…

Student H said (survey 2):

> i *[sic]* work away 50% and i do work onky *[sic]* when i have to. i.e. an assignment due tomorrow or something will inspire me. at *[sic]* which time i *[sic]* do it after work or more likely on a day i'm not at work.

No downtime at work

Two students expressed not having downtime at work, therefore, they cannot take advantage for opportunistic study.

Student F said (survey 1):

> … on duty there is no room for activities other than work

Student H said (survey 2):

> [I] am way way to *[sic]* busy to just access uni work any old where and any old time. [S]o the mobility thing is a non-starter for me.

Work place differences: clinics vs. emergency departments (ED)

Student H pointed out differences between doctors working in an (ED) and in clinics with schedule appointments (survey 2):

> [I] sometimes think academics have no idea of the demands on guys at the sharp end of work. [O]cc health professionakls *[sic]* are similar - flash offices and a few carefully scheduled appointments. [B]ut sole doctors working on their own in busy EDs se[e]ing 30+ a day incl[.] traumas, chest pains, shortness of breathe and stuff. [I] never stop running." (Survey 2)

What can we learn from the students' responses?

Technological barrier: student H requires online access for assignment submission. There is no chance for opportunistic study if you are working in an area where there is no downtime such as an emergency department.
Accessibility and transferability: not really possible if working in remote locations with limited internet access

Increasing need of Internet connectivity for studying

The results reported in this section show the case of a student missing out on the study opportunities via webinar participation, due to the special circumstances of her work environment

Student H comments on not having access to archives via Moodle and always requiring internet access for studying:

> [M]oodle is good platform. [B]ut you can't access old material from a previous course unless you printed it at the time and then kept it… (survey 2)
>
> …and of course if i have no internet access, it is a problem. [I]n that sense the old CDs were miles better. [B]ut my guess is that i am one of the few with this problem. [B]ut it was an issue in the [F]alklands and the [S]olomons and in the [K]imberley/pilbara regions of [W]estern [A]ustralia; and always an issue in [T]asmania too. (Survey 2)

Student H comments on why she did the AVM724 paper now [in 2012] and not next year

> [N]ext year i'm meant to be in [Z]ambia and [T]ristan da [C]unha and it woiudl *[sic]* have been a huge problem there - one reason i am doing an occ health paper now rather than the finishing the retrieval diploma neext *[sic]* year. [S]o i guess in one sense the internet thing has caused me to change my study and forgo a qualification." (Survey 2)

What can we learn from the students' responses?

Table 4 indicates places where five students study. Some do it in more than one location due to personal preferences such as the case of student E, or due to internet connectivity such as the case of student H. In relation to mobile devices, two students use them while commuting such as the case of students B and E.

Table 4

Where students prefer to study	
Home	Students F, G, H with laptop or desktop computer
Work (e.g. clinic)	Students E and H with laptop or desktop computer
Plane	Student B with iPad
Coffee Shop	Student E with laptop
On the way somewhere	Student E with iPhone
On the road	Student H with laptop

Student E and student H explained that they sit in front of the computer for preparing assignments when they have to. Therefore, laptops or desktop

computers appeared to be preferred over mobile devices, as putting together an assignment requires having full access to all the study materials interactive or not, as another student indicated " a big screen".

AVMX724 appears to have two student profiles, those who work in clinics and those who work in emergency departments. The ability to access study materials via mobile devices seems to only support the former profile.

Have asynchronous access to recordings of webinars with the possibility of having related discussions.

Next semester the plan is to switch the forum discussions to the Moodle forum, according to the programme director. Despite this, it should be still possible for students to access forum archives in Vbulletin. They appear to find them useful for preparing presentations, assignments, and written exams.

The accessibility and transferability of the programme for opportunistic and formal study should investigate ways for making possible to access study materials (interactive and passive components) offline. Two students described situations where having offline access to study materials, via smart tablets or laptops, could be of benefit. Student B talked about converting modules to PDF so he could read them when on a plane or when not connected to the Internet. Student H working in remote locations and time-starved only has access to Internet when at work. The CDs were more advantageous to this student profile, as with the current set up all students have to be online for accessing the Moodle website that contains all the required materials for the subject.

A brief discussion

Five themes will be discussed in relation to the result. See section "unit of analysis…" as to how these emerged.

Motivation for using smart devices to study

At present, the only motivation for using mobile devices to study relates to reading modules and contributing to forum discussions. Its use might increase if it was possible to perform other activities not only online, but also offline such as example, attending webinars and viewing podcasts.

Accessibility and transportability requires overcoming technological barriers

It depends on a smooth transition from laptops or desktop computers to smart devices. Technological "glitches" must be resolved through providing dedicated Apps for discussions, webinars, reading modules, etc. via smart tablets and phones of every type (e.g. Apple, Samsung, among other brands). Only until then the aim of making the programme as transferable and accessible would start to become possible. Addressing the needs of those students who wish to work offline (in a plane, etc) or have intermittent internet access (in remote locations, etc.) should be part of this aim.

From student responses, it appears to be that the actual formal study happens via laptops or desktop computers (see Table 1). The possibilities for opportunistic study should be available to every student profile and locations. Doing it from work, home, coffee shops requires online access, while doing it from on planes or on call in remote areas requires offline access. See Table 4 for places where students prefer or have to study.

Do the activities of reading modules and "jotting down" ideas for the forum in a smart tablet during "gaps in the day" add up towards an assignment, written or oral examination? In other words, how we know that the time investment in these activities actually contributes to a later formal study session. Future work on this aspect may be needed to identify reasons for supporting financial investment in addressing the technical barriers identified in the study. Where the gain is in supporting opportunistic study in relation to formal study leading to the preparation of written, oral assessment and final examination.

High cost, it works on one system, but not on others, no consistency across platforms, there aren't dedicated apps

Forum discussions through mobile devices

In addition to contributing to forum discussions from mobile devices, students think that it could also be useful to have access to podcasts and webinars. Only one student could participate in forums and webinars from his mobile devices and found it really useful. Unknown technical issues prevented the other three from doing.

The value to students and the programme on investing in the development an accessible and transportable mobile platform is in supporting the delivery of

more than one study activity. Leading and attending forums only represent 10% of the online engagement required to pass the course. The week students have to lead a forum, they might plan ahead to be in a location where there is access to Internet, and is likely that they would connect from their laptops or desktop computers, as they might have to upload documents for sharing.

Casual review of modules, readings, and forum discussions comply with attendance requirements, but does not contribute to the actual study required for passing the course. Written assignments and a final exam represent 70% of the course and do not required online engagement, and most likely are performed using a laptop or desktop computer. These study activities require access to multiple documents, references, and writing coherent information that it can be quite difficult to do using a smart tablet. Student G indicated how frustrating was learning to use the keyword for only contributing to the forums.

Gaps in your day: differences between accessing materials and studying materials

The programme director shared with students how he uses smart devices:

> Personally, I use my tablet and iPhones all the time for emails, internet access and now Moodle. It helps not only when you are travelling, but also means that you can access materials during the "gaps" in your day - waiting for a patient, flight, dental appointment, or whatever; "Down Time" has become a luxury we can't afford! (personal communication – August 26, 2012)

The following questions come to mind based on his comments:

a) What kind of activities does the director do on Moodle?
b) How do these devices help when one is travelling?
c) What kind of materials do you access within "gaps" in your day?
d) What kind of activities are you able to do while waiting for a patient, flight, dental appointment?

The Director uses the word ACCESS. He accesses information via his tablet and iPhone, but he does not say what kind of activities he is able to do on Moodle or how these devices help him when one is travelling. Does he study? Or does he only keep up communication in relation to work? How many of the activities he does have to do with ACTUAL STUDY for example, watching or listening to a podcast, or the recording of a webinar. In other words, does a teacher use the devices in a similar fashion that a student does?

As explained later, we have to profiles of students doing the subject, those who have downtime and those who don't. To understand the future of AVMX724 subject via mobile devices is pivotal to further investigate the gain from two perspectives: time and financial investment. So far the majority of study activities cannot be performed with tablets or phones because these are not yet accessible or transferable. Furthermore, the following commentary of Student B in survey 2 should be explored: "It is kind of fun looking at other courses forums though to see whats *[sic]* coming up in the future (on laptop only)".

Appendices A to F

Appendix A: Example of written exam

This examination paper comprises pages (pages including this one)

PLEASE READ INSTRUCTIONS CAREFULLY AND COMPLETELY BEFORE COMMENCING WRITING
Candidates should answer questions as follows:
Answer four of the following seven questions. Each question is worth 10marks. The total mark for the examination is 40% of the final paper total.
The following material is provided:
NIL
Use of calculators:
No calculators are permitted (none are required)
Candidates are permitted copies of:
NIL
Other instructions:
Diagrams, graphs, flowcharts etc may be included in the answers as considered appropriate.

Answer four of the following seven questions.
Each question is worth 10 marks. The total mark for the examination is 40% of the final paper total.

1. Name three significant hazards to health in the mining industry including at least one chemical hazard and at least one physical hazard. For each hazard write short notes on the illnesses caused by the hazard, how these illnesses can be detected (symptoms, physical signs, tests etc) and ways of reducing the risk of harm from these agents (eg controls, personal protective equipment etc).

2. You are the Occupational Health Physician for a small nuclear power plant and you are asked to make a presentation to newly employed Classified Radiation Workers (workers expected to receive annual radiation doses of over 6 milliSieverts per year) who are involved in the nuclear power plant maintenance and overhaul to describe to the risks to health from occupational radiation exposure and how these are managed within the site. Write short notes on the information you would present on:

a. Irradiation and contamination
b. Non stochastic health effects from radiation
c. Stochastic health effects from radiation.
e. Protective measures against irradiation and contamination

3. You are the occupational health physician for an international upstream (exploration and production) oil and gas company. The company is being sued by two of its former employees for damages for ill health allegedly due to their previous work.

> Case 1 is a 45 year old male who worked as a mud engineer on offshore platforms for 10 years leaving the business to become an office manager 7 years ago. A mud engineer controls the type and use of “mud”, a chemical lubricating agent, in the drilling of oil wells. Some of the muds used contained benzene. The job involved working offshore in cold and wet environments for 4 weeks at a time followed by 4 weeks off. During that time he worked not only with mud but also with logging tools containing radioactive sources. 2 months ago he developed acute lymphoblastic leukaemia and is claiming this is work related.
>
> Case 2 is a 54 year old male who was employed as a Rigger with your company from the age of 19 until a year ago when he was medically retired due to low back pain. Since then he has been working part time (8 hours a day, 3 days a week) in a local burger bar. His job involved the erection and dismantling of drilling platforms and the assembly and removal of the drills for each of these platforms. He drinks alcohol in moderation and smokes 20-25 cigarettes a day which he has done since the age of 16. His main hobby over his lifetime has been riding Harley Davidson motorbikes.

For each case describe how you would assess if the case could be related to their work including what information you would ask for in relation to their job with your company and subsequent employment, what clinical information you would require (history, examinations, tests etc) and what are the key points from this information that you would use to come to a decision on attributability.

4. Write short notes on four determinants of indoor air quality that may affect health of office staff, the potential sources of these determinants, what their potential health effects are, how you would assess these health effects and how these determinants are measured/assessed.

5. The construction industry is one of the most hazardous work sectors in the world. It can involve working long hours, and being exposed to range of physical and chemical hazards. Write short notes on the elements of a medical fitness for work program for construction workers working in the Middle East on the construction of a number of multi-storey (36 floors each) buildings which are anticipated to take two years to build including the laying down of the foundations. The temperatures at the site will range from ten degrees centigrade to forty four degrees centigrade with humidities ranging from 30% to 50%. The buildings are mainly made of concrete and steel. You should include the standards you would apply, the reasons for these standards and what medical examination and tests you would utilise.

6. Write short notes on:
    a. The management of physical hazards in the timber industry.
    b. The hazards and management of pesticide exposure in farming.
    c. Microbiological hazards in agriculture.
    d. Psychosocial challenges in farming.

7. Considering the subject of Environmental Health write short notes on:
    a. Health effects of atmospheric pollution.
    b. The impact on health of climate change.
    c. Critical components of “healthy cities”.
    d. Environmental contributions to cancer.

Appendix B: eight questionnaires for survey 2

Questionnaire 1

Dear Daffy,

My name is Gloria Gomez. I am the researcher who is working with Rob Griffiths and Mark Newson Smith on the mobile learning project.

This message includes 5 personalised questions prepared based on your reply to the email sent by Mark with subject "Accessing moodle through mobile devices" on August 25, 2012.

I understand that you use your laptop and iPad to access Moodle, and that you use the iPad more frequently because of work, and your laptop at home. Based on your reply, I had developed the following questions that hope you reply to as soon as your schedule permits.

1) What kind of study activities via Moodle are you able to perform using your iPad?

2) What kind of study activities via Moodle are you able to perform using your Laptop?

3) What are your routines around study?

4) What device do you use for accessing documents, podcasts, webinar, preparing forum participation, and written assignments?

5) What are the positive experiences and/or frustrating experiences that you have had so far studying this course via Moodle with your iPad or laptop?

Please feel free to comment on any other aspect, even though this is not cover in the questions.

Thanks a lot in advance for taking the time to answer this personalised questionnaire.

You are more than welcome to reply with short answers, I do not expect long commentaries because I understand your busy schedules. The most important thing is that you feel able to explain your view point regarding your experience.

Kind regards,

Gloria

Questionnaire 2

Dear Genevieve,

My name is Gloria Gomez. I am the researcher who is working with Rob Griffiths and Mark Newson Smith on the mobile learning project.

This message includes 5 personalised questions prepared based on your reply to the email sent by Mark with subject "Accessing moodle through mobile devices" on August 24, 2012.

I understand that you use no mobile devices to access Moodle, and just a normal computer.
Based on your reply, I had developed the following questions that hope you reply to as soon as your schedule permits.

1) What do you mean by a normal computer? Are you referring to a desktop computer or a laptop?

2) What kind of study activities via Moodle are you able to perform this computer?

3) What are your routines around study? Do you access your study materials from home, work or any other setting?

4) Are you able to work every study activity that it is expected in the programme? Are you able to access and work with documents, podcasts, webinar, prepare forum participation, and written assignments?

5) What are the positive experiences and/or frustrating experiences that you have had so far studying this course via Moodle with your computer of choice?

Please feel free to comment on any other aspect, even though this is not cover in the questions.

You are more than welcome to reply with short answers, I do not expect long commentaries because I understand your busy schedules. The most important thing is that you feel able to explain your viewpoint regarding your experience.

Thanks a lot in advance for taking the time to answer this personalised questionnaire.

Kind regards,

Gloria

Questionnaire 3

Dear Glen,

My name is Gloria Gomez. I am the researcher who is working with Rob Griffiths and Mark Newson Smith on the mobile learning project.

This message includes 5 personalised questions prepared based on your reply to the email sent by Mark with subject "Accessing moodle through mobile devices" on August 24, 2012.

I understand that you use an iPad and iPhone to access Moodle, and asked the question of the forum was available via the Apps because you couldn't access it if it was.

Based on your reply, I had developed the following questions that hope you reply to as soon as your schedule permits.

1) What kind of study activities via Moodle are you able to perform using your iPad?

2) What kind of study activities via Moodle are you able to perform using your iPhone?

3) What are your routines around study with these devices?

4) What device do you use for accessing documents, podcasts, webinar, preparing forum participation, and written assignments? Are you able to access all the content with success using these devices?

5) What are the positive experiences and/or frustrating experiences that you have had so far studying this course via Moodle with your iPad and or iPhone?

Please feel free to comment on any other aspect, even though this is not cover in the questions.

You are more than welcome to reply with short answers, I do not expect long commentaries because I understand your busy schedules. The most important thing is that you feel able to explain your viewpoint regarding your experience.

Thanks a lot in advance for taking the time to answer this personalised questionnaire.

Kind regards,

Gloria

Questionnaire 4

Dear Seshnag,

My name is Gloria Gomez. I am the researcher who is working with Rob Griffiths and Mark Newson Smith on the mobile learning project.

This message includes 5 personalised questions prepared based on your reply to the email sent by Mark with subject "Accessing moodle through mobile devices" on August 27, 2012.

I understand that you use a Samsung galaxy tab 2 to access Moodle. You claimed that this works fine except for the fact that you cannot login into Big Blue Button (BBB), and that also you are required to give your user name and password on multiple occasions.
Based on your reply, I had developed the following questions that hope you reply to as soon as your schedule permits.

1) What kind of study activities via Moodle are you able to perform using your tablet? Do you use other devices for studying? Maybe a laptop or desktop computer?

2) What are your routines around study with this device? Do you study at work, home, or other places?

3) Do you use your tablet for accessing documents, podcasts, webinar, preparing forum participation, and written assignments?

4) What are the positive experiences and/or frustrating experiences that you have had so far studying this course via Moodle with your tablet?

5) What kind of activity requires you to give your username and password on multiple occasions? What do you mean when you say that the tablet works fine?

Please feel free to comment on any other aspect, even though this is not cover in the questions.

You are more than welcome to reply with short answers, I do not expect long commentaries because I understand your busy schedules. The most important thing is that you feel able to explain your viewpoint regarding your experience.

Thanks a lot in advance for taking the time to answer this personalised questionnaire.
Kind regards,

Gloria

Questionnaire 5

Dear Nelson,

My name is Gloria Gomez. I am the researcher who is working with Rob Griffiths and Mark Newson Smith on the mobile learning project.

This message includes 5 personalised questions prepared based on your reply to the email sent by Mark with subject "Accessing moodle through mobile devices" sent in August 25, 2012.

I understand that you use your computer and iPhone to access Moodle. You use your computer for writing and submitting your assignments and your iPhone to access Moodle when you are somewhere else. You also said that Moodle seems to have some limitations regarding display of pages.
Based on your reply, I had developed the following questions that hope you reply to as soon as your schedule permits.

1) What do you mean by a computer? Are you referring to a desktop computer or a laptop?

2) What kind of study activities via Moodle do you perform with your computer?

2) What kind of study activities via Moodle are you able to perform using your iPhone?

3) What are your routines around study? I would like to know more about the places and ways that you engage with your study.

4) What device do you use for accessing documents, podcasts, webinar, preparing forum participation, and written assignments?

5) What are the positive experiences and/or frustrating experiences that you have had so far studying this course via Moodle with your computer or iPhone? You explained that your iPhone is unable to display some Moodle pages and expressed some frustration when using Safari. I would appreciate if you could tell us more.

Please feel free to comment on any other aspect, even though this is not cover in the questions.

You are more than welcome to reply with short answers, I do not expect long commentaries because I understand your busy schedules. The most important thing is that you feel able to explain your viewpoint regarding your experience.

Thanks a lot in advance for taking the time to answer this personalised questionnaire.

Kind regards,

Gloria

Questionnaire 6

Dear Mark,

My name is Gloria Gomez. I am the researcher who is working with Rob Griffiths and Mark Newson Smith on the mobile learning project.

This message includes 5 personalised questions prepared based on your reply to the email sent by Mark with subject "Accessing moodle through mobile devices" on August 25, 2012.

I understand that you use no mobile devices to access Moodle, and "use a PC only". You said that you "prefer a big screen to access Moodle".
Based on your reply, I had developed the following questions that hope you reply to as soon as your schedule permits.

1) What do you mean by a PC computer? Are you referring to a desktop computer or a laptop with a separate screen?

2) What are your routines around study? Do you access your study materials from home, work or any other setting?

3) Are you able to work every study activity that it is expected in the programme?

4) Are you able to access and work with documents, podcasts, webinar, prepare forum participation, and written assignments?

5) What are the positive experiences and/or frustrating experiences that you have had so far studying this course via Moodle with your computer of choice?

Please feel free to comment on any other aspect, even though this is not covered in the questions.

You are more than welcome to reply with short answers, I do not expect long commentaries because I understand your busy schedules. The most important thing is that you feel able to explain your viewpoint regarding your experience.

Thanks a lot in advance for taking the time to answer this personalised questionnaire.

Kind regards,

Gloria

Questionnaire 7

Dear Lesley

My name is Gloria Gomez. I am the researcher who is working with Rob Griffiths and Mark Newson Smith on the mobile learning project.

This message includes 5 personalised questions prepared based on your reply to the email sent by Mark with subject "Accessing moodle through mobile devices" sent in August 25, 2012.

I understand that you use no mobile devices to access Moodle, and just a normal computer.
Based on your reply, I had developed the following questions that hope you reply to as soon as your schedule permits.

1) What kind of study activities via Moodle are you able to perform with your PC?

2) What kind of study activities via Moodle are you able to perform with your laptop?

3) What are your routines around study? Do you access your study materials from home, work or any other setting?

4) Are you able to work every study activity that it is expected in the programme? Are you able to access and work with documents, podcasts, webinar, prepare forum participation, and written assignments?

5) What are the positive experiences and/or frustrating experiences that you have had so far studying this course via Moodle with your computer of choice?

Please feel free to comment on any other aspect, even though this is not covered in the questions.

You are more than welcome to reply with short answers, I do not expect long commentaries because I understand your busy schedules. The most important thing is that you feel able to explain your viewpoint regarding your experience.

Thanks a lot in advance for taking the time to answer this personalised questionnaire.

Kind regards,

Gloria

Questionnaire 8

Dear Ali,

My name is Gloria Gomez. I am the researcher who is working with Rob Griffiths and Mark Newson Smith on the mobile learning project.

This message includes 5 personalised questions prepared based on your reply to the email sent by Mark with subject "Accessing moodle through mobile devices" on August 25, 2012.

I understand that you use no mobile devices to access Moodle, and just your laptop.
Based on your reply, I had developed the following questions that hope you reply to as soon as your schedule permits.

1) What kind of study activities via Moodle are you able to perform with your laptop?

2) What are your routines around study? Do you access your study materials from other setting in addition to home? I understand you don't study at work, but maybe you do it from another environment.

4) Are you able to work on every study activity that it is expected in the programme? Can you access documents, podcasts, webinar, prepare forum participation, and written assignments posted in Moodle?

5) What are the positive experiences and/or frustrating experiences that you have had so far studying this course via Moodle with your computer of choice?

Please feel free to comment on any other aspect, even though this is not covered in the questions.

You are more than welcome to reply with short answers, I do not expect long commentaries because I understand your busy schedules. The most important thing is that you feel able to explain your viewpoint regarding your experience.

Thanks a lot in advance for taking the time to answer this personalised questionnaire.

Kind regards,

Gloria

Appendix C – Results related to smart tablet responses

First and second survey combined

PARTICIPANT / STUDENT	SMART TABLET	COMMENTS RELEVANT TO SMART TABLET
Student A Daffy Guevara	Yes "iPad from work" (Survey 1)	
Student B Glen Hawkins	Yes iPad CAN: I can log onto the website and read the modules CAN'T: cannot participate in the forums which would be more useful to me. TO STUDY OFFLINE WITH iPAD: 1) I actually download the modules into a pdf and then read them using Goodreader as I can do that when I am on a plane and not connected to the internet. 2) Prefer to read using the iPAD WHEN IT IS USED I use it as an **opportunistic device** so when I have **downtime** I read some modules. BIGGEST FRUSTRATION: Inability to access the forums is the biggest problem and really only the Modules are accessible as far as I can see from Moodle on iOS and video/webcasts are not available to my knowledge.	Question: "is the forum available via apps because I couldn't access it if it was" (Survey 2) **don't** "use the iPad/iPhone (for accessing documents, podcasts, webinar, preparing forum participation, and written assignments) but it would actually be quite useful. Does it work with an iPad?" (Survey 2) COMMENTS: "Moodle is not a bad platform and the support of iOS is a good thing…" (Survey 2) "…BUT the interactive components (forum, video, webcasts) are not available and this limits its utilisation." (Survey 2)
Student C Geneviere Halsegger	No	"No mobile devices" (Survey 1)
Student D Martin Clark	No	
Student E Nelson Chang	Yes iPad (Survey 1) ACTIVITY …but I use iPad for study and read the textbooks (Survey 2?)	
Student F Ali Ahmed Rasheed		
Student G Seshang Siddavaram	X Samsung Galaxy tab 2, runs on Android 4.03 ".. works fine except for the fact that	

	I can't log in to the BBB through the traditional way through the moodle page…" (Survey 1?) "…I am required to give the username and password on multiple occasions. Any reason for this? Other wise it works like a charm." (Survey 1) LOGIN ISSUES - Yes, I use a Samsung Galaxy Tab 2: P3100, currently using Ice-cream Sandwich as the Android version. And you so rightly stated, I am able to log-in but have to do so 3 times to access the moodle study material. And with regards to BBB, I was able to download the new version for Android, so it is not an issue anymore. (Survey 2) EXPLAINING THE ISSUES STEP BY STEP The login at 3 sites: 1. Main website: www.medicineatotago.com 2. Log in to use teaching platform 3. Log in to use the course materials Although, sometimes when I click the back button from the teaching platform or the forums, I will be shown as being logged on but will have to login again to use the same. (Survey 2) MAINLY READING AND NOTES FOR FORUM - I do the usual stuff on the Tab, read the course materials, look at the essential readings and references apart from jotting down stuff in the forums. (Survey 2) WORK ENVIRONMENT - I do study the course materials from my Tab when I am at work (Survey 2) - I use the Tab to usually access the course materials and references. (Survey 2) FRUSTRATING -I have been quite used to the keyboard in my laptop, switching over to a touch-screen did give me some trouble initially. But I have gotten used to it now. (Survey 2)	

Student H Lesley Cupitt	No	

Appendix D – Results related to smart phone responses

Responses for first and second survey combined

PARTICIPANT / STUDENT	SMART PHONE	COMMENTS
Student A Daffy Guevara	No (Survey 1)	
Student B Glen Hawkins	Yes Type: iPhone (Survey 1) Same as with the iPad except I don't have Goodreader on the iPhone (Survey 2)	
Student C Geneviere Halsegger		"No mobile devices" (Survey 1)
Student D Martin Clark		
Student E Nelson Chang	Yes Type: iPhone (Survey 1) 1) "When I am on the way to somewhere, then I will use my iPhone to assess [*sic*] the moodle.. But I find the mobile moodle has some limitation... Some of the page on the moodle not actually showing the content on the apps,like Forums. Instead, it just open up the browser and the page .. Somehow it seems like why didn't I just open the safari !" (Survey 1) 2) Seldom use iphone (Survey 2)	WHY WOULD BE USEFUL IF MOODLE WORKED ON THE PHONE "…, just while I using the iPhone, the Moodle apps didn't display the forum on the apps but redicrect using the safari, which is not a big problem but if the moodle apps can actually process the forum that will be great to response whenever and wherever I am." (Survey 2)
Student F Ali Ahmed Rasheed	No (Survey 1)	
Student G Seshang Siddavaram	No (Survey 1)	
Student H Lesley Cupitt	No (Survey 1)	

Appendix E – Results related to laptop responses

Responses for first and second survey combined

PARTICIPANT / STUDENT	LAPTOP	COMMENTS RELEVANT TO LAPTOPS
Student A Daffy Guevara	Yes "… from home" (Survey 1)	
Student B: Glen Hawkins	Yes **Formal study** time usually revolves around the laptop as the movies can be downloaded and I can access the forums. (Survey 2) USE Laptop (Macbook PRO) for accessing documents, podcasts, webinar, preparing forum participation, and written assignments… (Survey 2)	
Student C Geneviere Halsegger		"Just normal computer" Note: it is not clear if the student was referring to laptop or desktop computer
Student D Martin Clark		
Student E: Nelson Chang	Yes Moodle: "Forum activities, assignment submission, checking my profile and grades"(Survey 2) "My own laptop computer." for accessing documents, podcasts, webinar, preparing forum participation, and written assignments (Survey 2	
Student F Ali Ahmed Rasheed	Yes "I am using a laptop only when I am home as on duty there is no room for activities other than work" (Survey 1	NO DOWNTIME AT WORK Interpretation: student only studies at home using a laptop. No room (no opportunity) to access Moodle at work for doing study activities.
Student G Seshang Siddavaram	Yes WHERE - I use my laptop at home. (Survey 2) STUDY ACTIVITIES - I prefer the laptop for webinars, podcasts and assignments. (Survey 2)	
Student H Lesley Cupitt	Yes "…else my laptop while on the road."	WHERE: WORK ENVIRONMENT AND ABILITY

	(Survey 2) The same activities as PC (see next column) "…- but it is contingent oninternet access being available." (Survey 2)	TO CONNECT TO THE INTERNET " i work in remote locations and do not always have an internet link avaialable. or it might be very sporadic, or only available on a work computer soi need to go back into work when i have finished. .." (Survey 2) "--- that [going back to work when she has finished preparing assignments to send them or place them in the online study environment] can be a problem in areas where I do on-call, as nurses see you are on the premises and decide you can see people since you are there - whereas they wouldn't call you if you weren't. so in taht case trying to do uni work after hours is a problem.. (Survey 2)

Appendix F – Results related to desktop computer responses

Responses to first and second survey combined

PARTICIPANT / STUDENT	DESKTOP COMPUTER	COMMENTS RELATED TO DESKTOP COMPUTER
Student A Daffy Guevara		
Student B Glen Hawkins		COMMENTS: Moodle is not a bad platform and the support of iOS is a good thing BUT the interactive components (forum, video, webcasts) are not available and this limits its utilisation. It is kind of fun looking at other courses forums though to see whats coming up in the future (on laptop only).
Student C Geneviere Halsegger	Yes	"Just normal computer" (Survey 1) Interpretation: it is not clear if the students was referring to laptop or desktop computer
Student D Martin Clark	Yes	"I prefer a big screen to access the Moodle. Thus I use a PC only" "Sent from my iPhone. " (Survey 1) Interpretation: The student owns a smart phone, but refuses to use it for accessing Moodle. The size of the screen is the reason given
Student E Nelson Chang	Yes Moodle: "Forum activities, assignment submission, checking my profile and grades" (Survey 2)	This student said "Most of the time, I use the computer to assess [access] the moodle, because I always sit in front of my computer and rushing [rush in] the assignments…" (Survey 1) Interpretation: it is not clear if the student is referring to a laptop or desktop computer. By saying "Rushing [rush in] the assignments", the student is acknowledging that he does the study activities just before the deadline. The assignments might include: participating in forum discussions, accessing webinar presentations,

		submission of written assignments, among other activities STUDY ENVIRONMENT DOWNTIME : "Most of the time I will study and work at clinic while there was no patient,…" (Survey 2) COFFEE SHOP "… but while I have time, I will prefer study at coffee shop. " Most likely this is done with a laptop (Survey 2) MOODLE So far, I am very happy about the study via Moodle…
Student F Ali Ahmed Rasheed		
Student G Seshang Siddavaram		
Student H Lesley Cupitt	Yes "i use my PC if I ever get home,.." (Survey 1) STUDY ACTIVITIES "All of them as far as i know. i.e access modules, participate in the forums and probably join the webinair although i have never been home when one is on to try it out." (Survey 2)	STUDY ROUTINES "i work away 50% and i do work onky when i have to. i.e. an assignment due tomorrow or something will inspire me. at which time i do it after work or more likely on a day i'm not at work." (Survey 2) NO DOWNTIME AT WORK "i am way way to busy to just access uni work any old where and any old time so the mobility thing is a non-starter for me. "(Survey 2) WORKING FROM OFFICES VS EDs i never stop running." (Survey 2) NO ATTENDANCE TO WEBINARS "i usually can't attend webinairs because of my work load and the mobile thing goes no way to fixing." (Survey 2) FRUSTATION (Several themes): "moodle is good platform. but [NO ACCESS TO ARCHIVES] you can't access old material from a previous course unless you printed it at the time and then kept it. [NOT POSSIBLE TO ACCESS OFFLINE WHEN

		INTERNET IS UNRELIABLE OR INEXISTENT] and of course if i have no internet access, it is a problem. in that sense the old CDs were miles better. but my guess is that i am one of the few with this problem. but it was an issue in the falklands and the solomons and in the kimberley/pilbara regions of western australia; and always an issue in tasmania too. [DISTANCE EDCATION VS ONLINE EDUCATION] next year i'm meant to be in zambia and tristan da cunha and it woiudl have been a huge problem there - one reason i am doing an occ health paper now rather than the finishing the retrieval diploma neext year. so i guess in one sense the internet thing has caused me to change my study and forgo a qualification." (Survey 2)