Summary of
Mobile Learning Devices Survey
Conducted for CED3

Prof Ron Fricker
Knox Lecture
November 17, 2010
Survey Objective

To identify trends in and attitudes toward the use of mobile electronic devices for educational purposes by resident and distributed learning students at the Naval Postgraduate School.
Mobile (Handheld) Learning Devices

- Smart phones
  - E.g., iPhone, Android, Blackberry
- PDAs
  - E.g., iPad, Zune HD, iPod Touch, Palm
- MP3 players
  - E.g., iPod, Zune, MuVo, CreativeZen, SanDisk
- e-readers
  - E.g., Kindle, Reader, Nook
- *Laptop computers explicitly excluded from the list*

Do you own a laptop?

- Yes: 96.4%
- No: 3.6%
# OA4109 Survey Team

**Team Leader**

CDR Tino de la Cruz

<table>
<thead>
<tr>
<th><strong>Design</strong></th>
<th><strong>Fielding</strong></th>
<th><strong>Analysis</strong></th>
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<tbody>
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Survey Overview

Background
- Web-based survey fielded via SurveyMonkey
- 38 questions total
  - Incorporated skip logic based on respondent answers
- Took average respondent about 10 mins to complete
- No forced answers

Survey Topics
- Current device ownership
- Device connectivity
- What devices currently being used
- How are current devices being used
- Technology comfort
- Future mobile learning interest
- Demographics
• CED3 posed the general objective
• Class refined and drafted questions
• Survey revised as result of pretesting
  – First phase: cognitive interviews
    • Verify survey comprehension/flow
  – Second phase: paper survey
    • Validate survey flow
  – Third phase: web-based via SurveyMonkey
    • Skip logic, e-mail, and data collection verification
Survey Population

• NPS resident and distributed learning students (summer quarter 2010)
  – Resident students (1,831)
  – Distributed learning students (770)
• No faculty or staff
  – CED3 requested, but not enough time for class to execute
  – Good subject for future survey
• Fielded for two weeks
  – Monday, 9 Aug – Tuesday, 24 Aug 2010

• Execution
  – Pre-notification e-mail (from CED3)
  – Initial notification e-mail w/ link to survey
  – Two non-response e-mails w/ link
  – Final request e-mail w/ link

• E-mail sent to:
  – NPS e-mail address for resident students
  – Both NPS e-mail address and other addresses provided by CED3 for DL students
Response Rates

Follow-up 1

Follow-up 2

Final Notice

Overall Response Rate: 71% (N=1,851)

73% (N=1,328)

68% (N=523)
Respondent Demographics:

Service Affiliation

- U.S. Civilian, 21.8%
- U.S. Navy, 42.3%
- U.S. Air Force, 8.9%
- U.S. Army, 8.1%
- U.S. Marine Corps, 8.1%
- U.S. Coast Guard, 0.4%
- Foreign Military, 9.3%
- Foreign Civilian, 1.1%
Respondent Demographics: Age (years)

- 20-24, 2.7%
- 25-29, 21.5%
- 30-34, 30.4%
- 35-39, 22.7%
- 40-44, 11.9%
- 45-49, 5.8%
- 50-54, 3.3%
- 55 and above, 1.6%
Respondent Demographics: Resident vs. DL

- Resident Student, 69.0%
- Distributed Learning Student, 31.0%
Respondent Demographics:
Nr. Quarters Enrolled in Class at NPS

- 1-2: 32.4%
- 3-4: 30.3%
- 5-6: 21.1%
- 7-8: 10.8%
- 9 or more: 5.4%
GSEAS & GSOIS students slightly overrepresented and GSBPP underrepresented in survey data
• What types of devices do students currently own?
• What do students currently use those devices for?
• Have students used mobile devices for learning in the past?
• What educational tools do students want to access via mobile device?
• What devices would students purchase and how do they say they would spend?
What Types of Devices Do Students Currently Own?

• Most common types of devices:
  – 72% own an MP3 player
  – 58% own a smart phone

• Apple devices most common
  – Of those with:
    • Smart phones, 46% own iPhone
    • MP3 players, 81% own iPod
    • PDA, 74% own iPod Touch or iPad
      – Many expressed interest in getting an iPad: “I am thinking about getting an iPad to use for reading all the pdf files for my OS3081 Case Studies course, as well as the textbook for MN3510.”
What type of smart phone do you own?

- iPhone
- Blackberry
- Android
- Windows Mobile
- Other

- Resident
- DL

For Smart Phones, iPhone Most Commonly Owned
For PDAs, iPod Touch and iPad Most Commonly Owned

What type of PDA do you own?

<table>
<thead>
<tr>
<th>Type</th>
<th>Percent of Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPAD</td>
<td>20%</td>
</tr>
<tr>
<td>IPOD Touch</td>
<td>60%</td>
</tr>
<tr>
<td>Palm</td>
<td>10%</td>
</tr>
<tr>
<td>Zune HD</td>
<td>1%</td>
</tr>
<tr>
<td>Other</td>
<td>5%</td>
</tr>
</tbody>
</table>

- Resident
- DL

IPAD
IPOD Touch
Palm
Zune HD
Other
For MP3 Players, iPod Most Commonly Owned

What type of MP3 Player do you own?

Percent of Population

IPOD | Zune | MuVo | Creative Zen | SanDisk | Other
---|---|---|---|---|---
Resident | | | | | |
DL | | | | | |
What type of E-Reader do you Own?

Percent of Population

Amazon Kindle
Barnes and Noble Nook
Sony Reader
Other

Resident
DL

Remember: iPad listed under PDA category
Current Mobile Device Uses

• Tasks frequently performed
• Types of files viewed
• NPS educational tools accessed
Remember: 58% of students own smart phones
Remember: 22% of students own PDAs
Tasks Frequently Performed on MP3 Players and e-Readers

• Of those with MP3 Players (72% of students):
  – 91% listen to audio files
  – 40% watch videos
  – 33% listen to and 17% watch podcasts

• Of those with e-Readers (9% of students):
  – 42% download one or more textbooks per quarter
    • 93% download one or more personal books per quarter
  – 33% download 1 to 3 periodicals related to their curriculum per quarter
    • 17% download 4 or more
  – 19% listen to audio files
Remember: 58% of students own smart phones.
Types of Files Viewed on PDAs

Percent

- Resident
- DL

Adobe | Word | Excel | PowerPoint

Remember: 22% of students own PDAs
Remember: 58% of students own smart phones
Remember: 22% of students own PDAs
• Most students have not utilized mobile learning on their hand-held devices in the past
• Desired course content
  – DL: Podcasts rank number one
  – Resident: Course calendar syncing, textbooks, SAKAI, and Applications for class-work
Experience with Mobile Learning

Have you utilized mobile learning on your hand held mobile device in the past?

- **Yes**
- **No**
- **No Response**

Percent of Population

- **Resident**
- **DL**

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>No Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>90</td>
<td>0</td>
</tr>
</tbody>
</table>
What educational materials do you want to access on your mobile device?

Educational Materials you would like to access?

- Podcasts
- Audio Files of Lectures
- Videos of Lectures
- Apps for Classwork
- Course Calendar Syncing
- Textbooks
- Non-Textbook Readings
- Sakai
- BOSUN

Percent of Population

Resident

DL
Attitudes About Mobile Learning

• 60% of Resident and about 55% of DL students stated that they would use mobile learning if it were available in their curriculum

• ~80% of the population interested in purchasing or upgrading to a smart phone or PDA to access NPS educational material

• ~20% of each population are not interested in purchasing or upgrading to access educational material
  – Of those not interested in purchasing or upgrading, over half already own a smart phone
Would you use mobile learning?

Would you use mobile learning if available in your curriculum?

“I would like to have dedicated APPs for NPS, Python, Library, and Blackboard. I much prefer to watch my lectures on a mobile device or laptop. I rather have my textbooks in electronic format to take with me on TDY. Please be forward leaning in this matter. Thank you.”
“WIFI and e-mail are the best/most widely used capabilities. Mustering and intranet support for Smartphone's could be made easier. Podcasts (audio/video) of classes would be extremely helpful! Video tutorials on Knox/ITACS subjects (enabling Smartphone for e-mail, BOSUN/REFWORKS tutorials) would be nice as well.”

“Mobile learning would greatly enhance any curriculum. In my opinion the iPad would be the best platform for the school to base its mobile learning.”

“I use my phone for everything and I am on it all the time. If the tools were available I would use it for school as much as possible. I read all my book on the Nook, so if you made written content available on my e-reader I would use that almost exclusively.”
What do you own if you’re not interested in purchasing or upgrading?

Not Interested in purchasing or upgrading to access NPS educational tools

<table>
<thead>
<tr>
<th>Device</th>
<th>Percent of Population</th>
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</thead>
<tbody>
<tr>
<td>Own Smartphone</td>
<td>70%</td>
</tr>
<tr>
<td>Own PDA</td>
<td>20%</td>
</tr>
<tr>
<td>Own MP3 Player</td>
<td>60%</td>
</tr>
<tr>
<td>Own E-Reader</td>
<td>10%</td>
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</tbody>
</table>
How much would you spend on a hand held device?
How much would you spend to add/upgrade your data package to access NPS educational tools per month?

- 0
- 1.00-9.00
- 10.00-19.00
- 20.00-29.00
- 30.00 or More
- No Response

Percent of Population

Resident
DL
### What type of phone and data plan do you currently have?

<table>
<thead>
<tr>
<th>How much would you spend to upgrade data plan?</th>
<th>No Smartphone</th>
<th>Smartphone (Limited data)</th>
<th>Smartphone (Unlimited data)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spend Nothing</td>
<td>42% (349)</td>
<td>10% (83)</td>
<td>48% (399)</td>
</tr>
<tr>
<td>Spend 1.00-9.00</td>
<td>51% (152)</td>
<td>9% (27)</td>
<td>40% (119)</td>
</tr>
<tr>
<td>Spend 10.00-19.00</td>
<td>40% (156)</td>
<td>13% (51)</td>
<td>47% (183)</td>
</tr>
<tr>
<td>Spend 20.00-29.00</td>
<td>38% (71)</td>
<td>12% (22)</td>
<td>50% (93)</td>
</tr>
<tr>
<td>Spend 30.00 or more</td>
<td>24% (29)</td>
<td>6% (7)</td>
<td>70% (83)</td>
</tr>
</tbody>
</table>

~19% of student population

“How much would you spend to upgrade data plan?”

- “Not interested in the added cost of hardware, data package plan, one more device to be carried around.”
- “Having access to new programs from NPS would be absolutely priceless for us. I would like to be able to stay connected after I graduate. I’d rather pay for this than pay for cable TV!”
- “If I can get a Smartphone at a discount price, I would consider buying it.”
Issues Raised About Mobile Learning Devices

• Small screens frequently cited as a problem
  – Hard to read documents or watch podcasts/videos (say of lectures)
• NMCI compliance
• Flash doesn’t work on Apple devices
• Slow speed
  – Downloads
  – Running applications
Conclusions

• Developing mobile learning tools is worthwhile
  – 50% of the student population stated they would use mobile learning if available
  – Most students are willing to spend money to upgrade their mobile devices to access educational materials
  – Students will utilize all educational tools equally across all curriculums

• Develop tools compatible with Apple products for resident students

• Develop tools compatible with both Blackberry’s and Apple products for DL students
  – Look at issues with government-issued Blackberries