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## Summary of Mobile Learning Devices Survey Conducted for CED3, Knox Lecture

Fricker, Ronald D.

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Invited speaker, Summary of Mobile Learning Devices Survey Conducted for CED3,  
Knox Lecture, NPS, Monterey, CA, November 2010.

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NAVAL  
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# Summary of Mobile Learning Devices Survey Conducted for CED3

Prof Ron Fricker  
Knox Lecture  
November 17, 2010



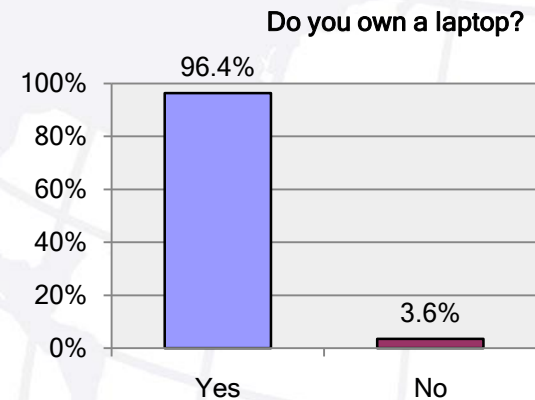
# Survey Objective

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*





## Team Leader

CDR Tino de la Cruz

### Design

Ms. Christina Schmunk  
Ms. Chris Ewing  
LT Charles Farlow  
LT Brendon Key  
LT Randi Korman  
LTJG David Hooper

### Fielding

LCDR Ken Jackson  
Maj Sam Shearer  
LT Jason Dao  
Capt. James Walliser  
Ms. Alice Adams

### Analysis

LCDR Ed Durkins  
LT April Bakken  
LT Will Corley  
LT Kevin Moeller  
Mr. Jason Lin



## 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



- 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

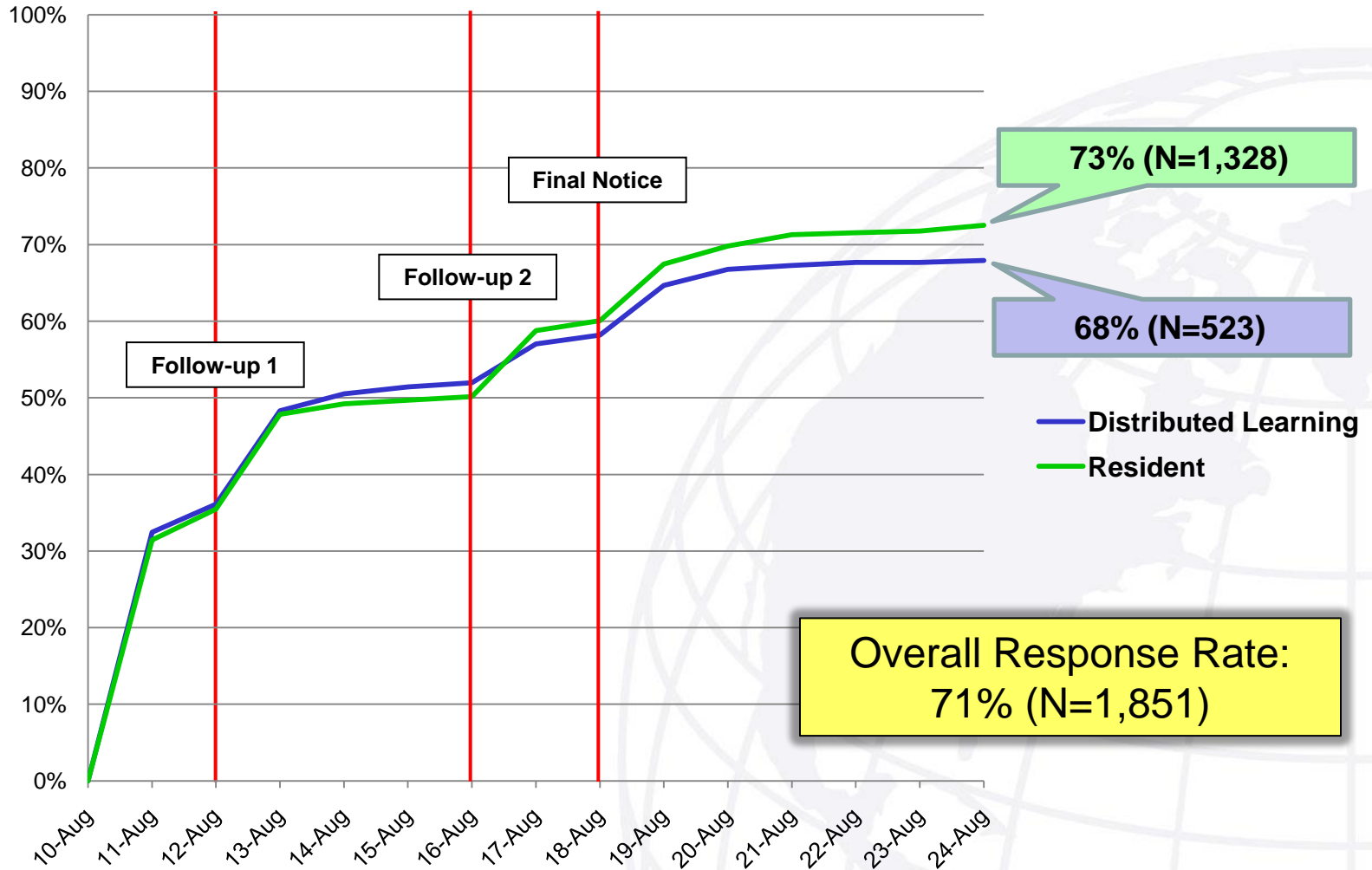




- Fielded for two weeks
  - Monday, 9 Aug – Tuesday, 24 Aug 2010
- Execution
  - Pre-notification e-mail (from CED3)
  - Initial notification e-mail w/ link to survey
  - Two non-response e-mails w/ link
  - Final request e-mail w/ link
- E-mail sent to:
  - NPS e-mail address for resident students
  - Both NPS e-mail address *and* other addresses provided by CED3 for DL students

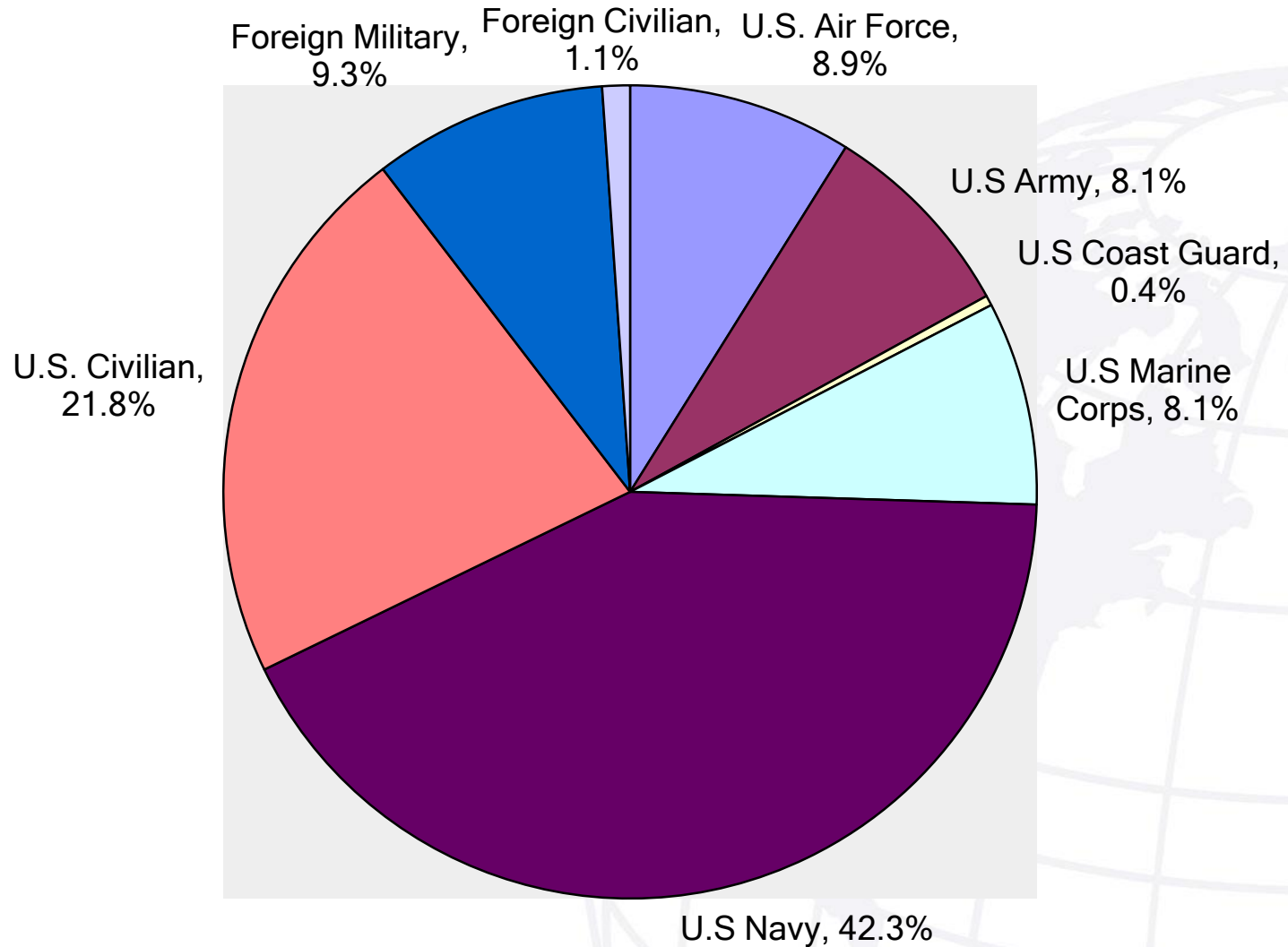


# Response Rates



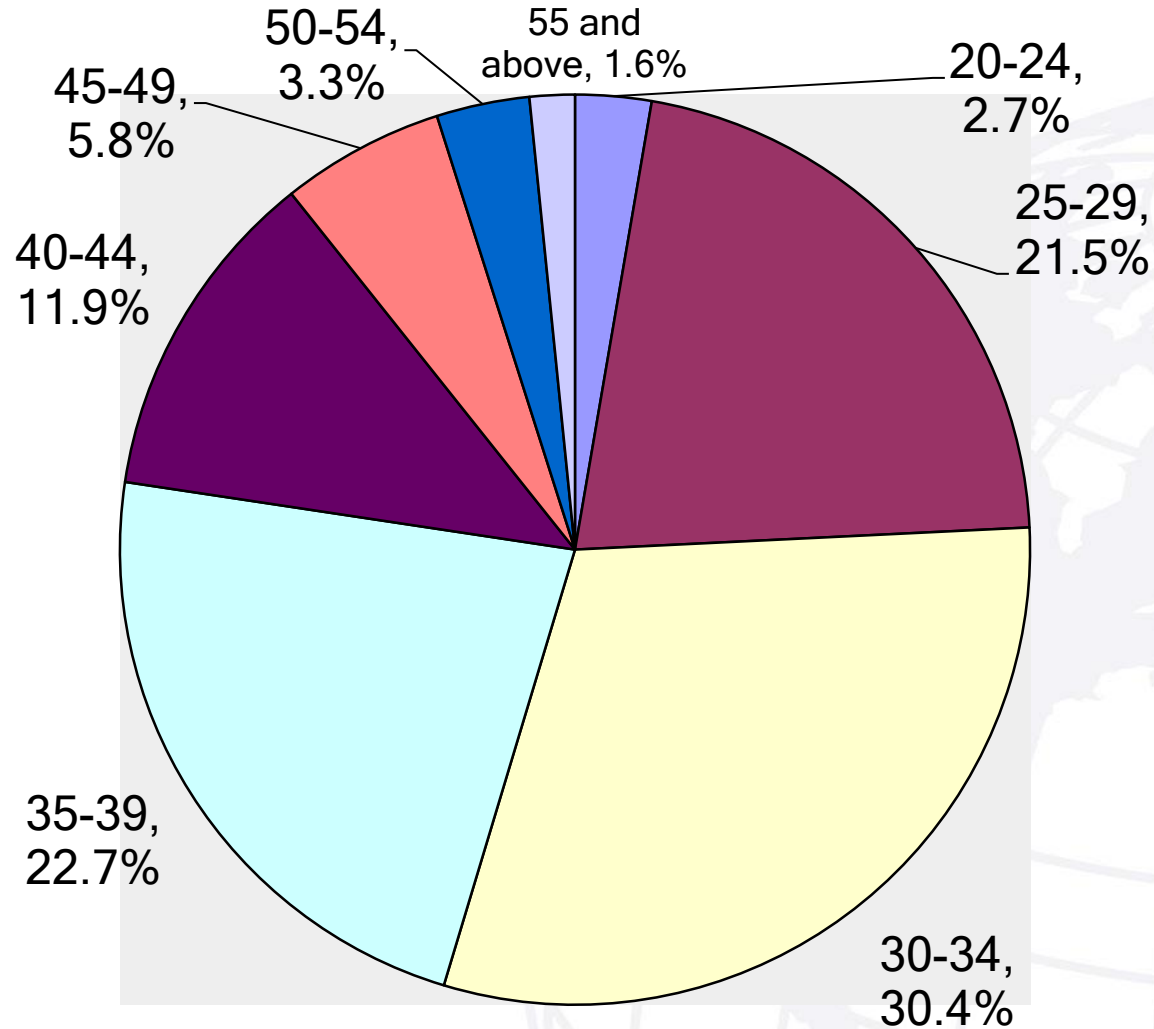


# Respondent Demographics: Service Affiliation





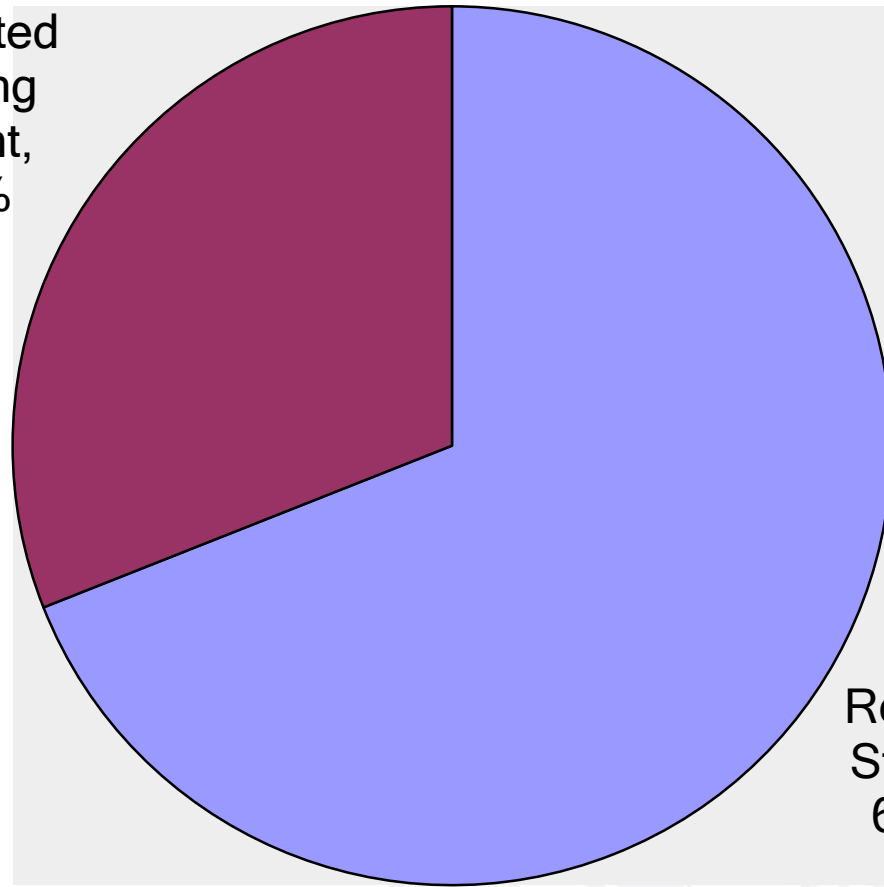
# Respondent Demographics: Age (years)





# Respondent Demographics: Resident vs. DL

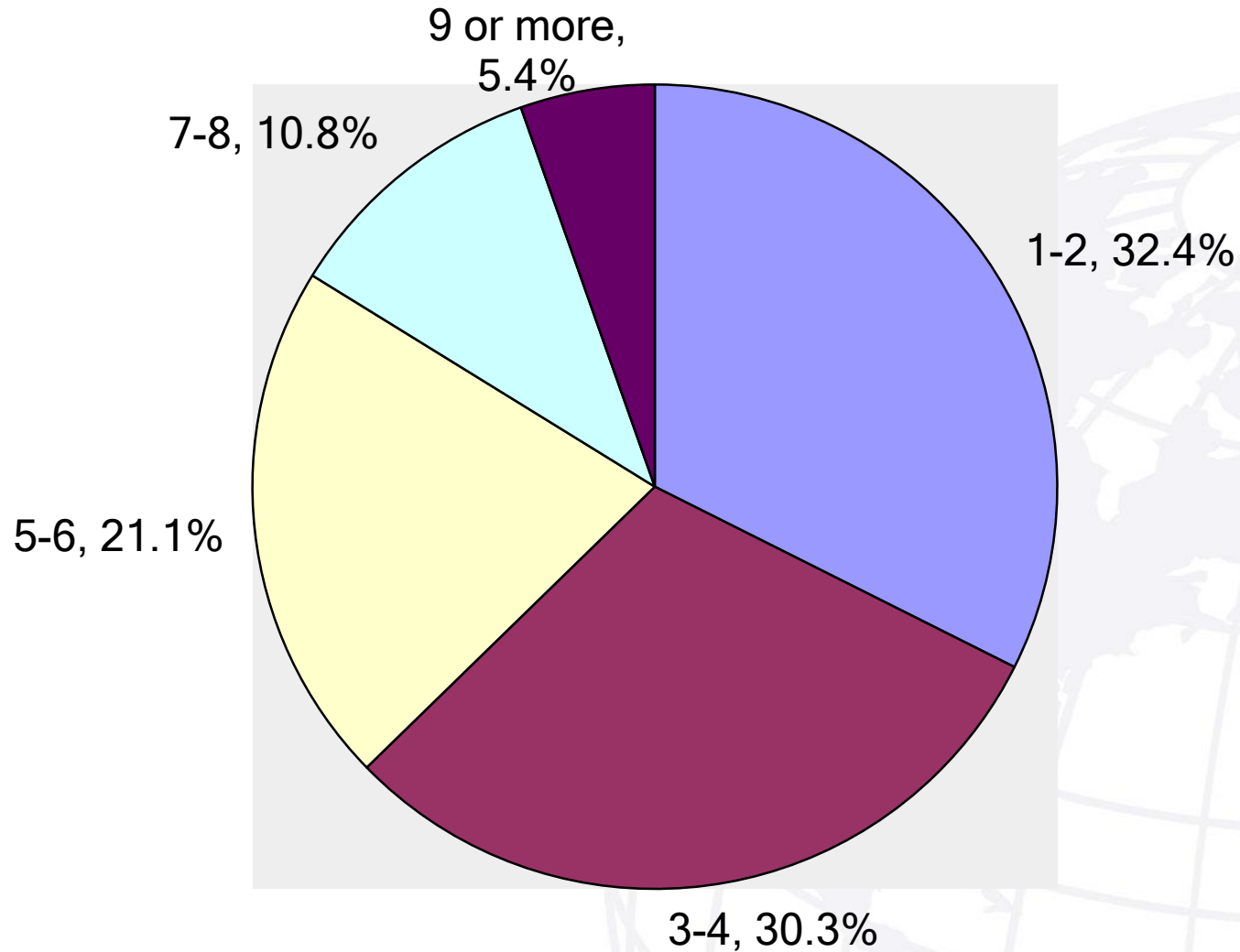
Distributed  
Learning  
Student,  
31.0%



Resident  
Student,  
69.0%

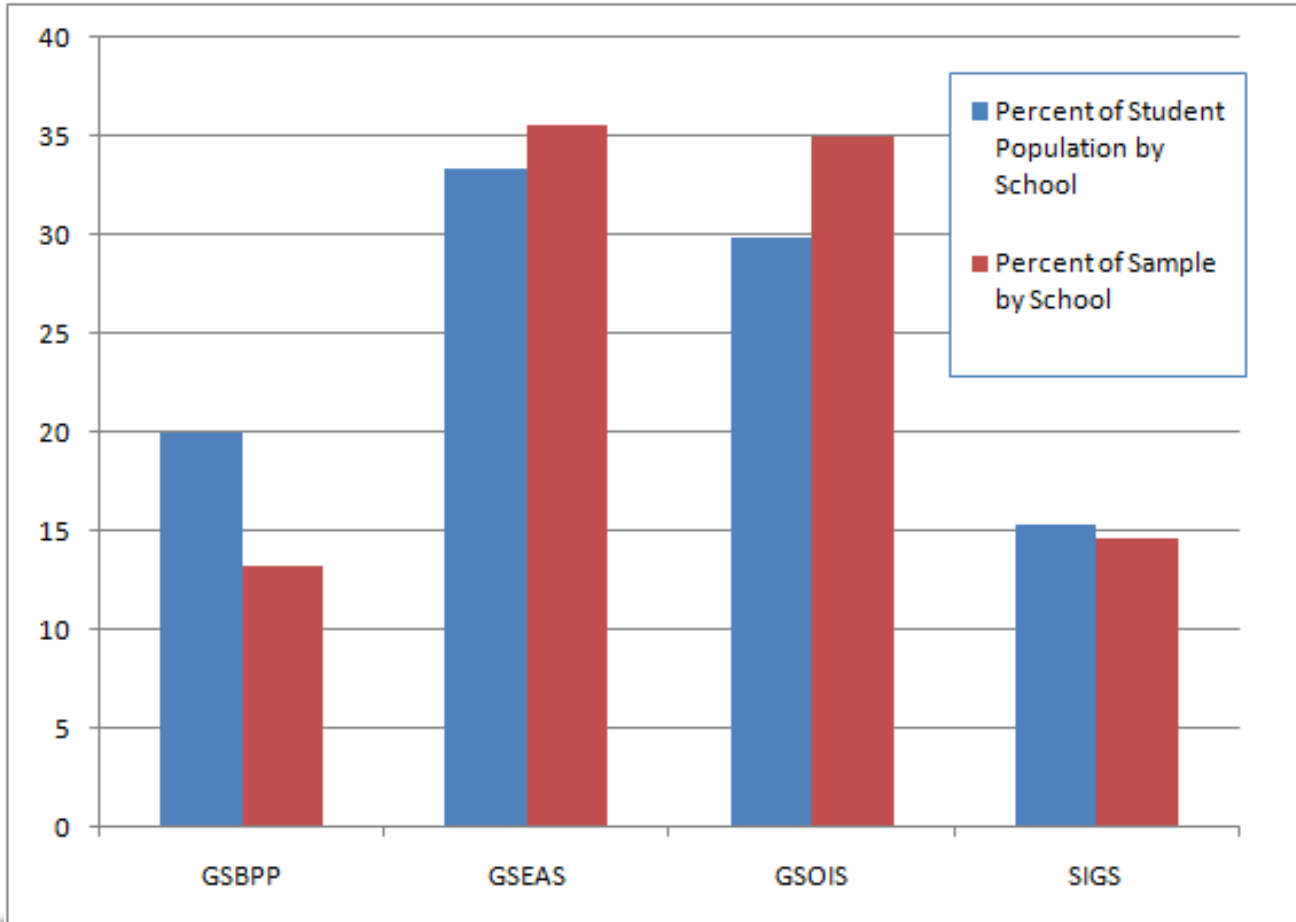


# Respondent Demographics: Nr. Quarters Enrolled in Class at NPS





# Sample Distribution Compared to Population Distribution by School



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?





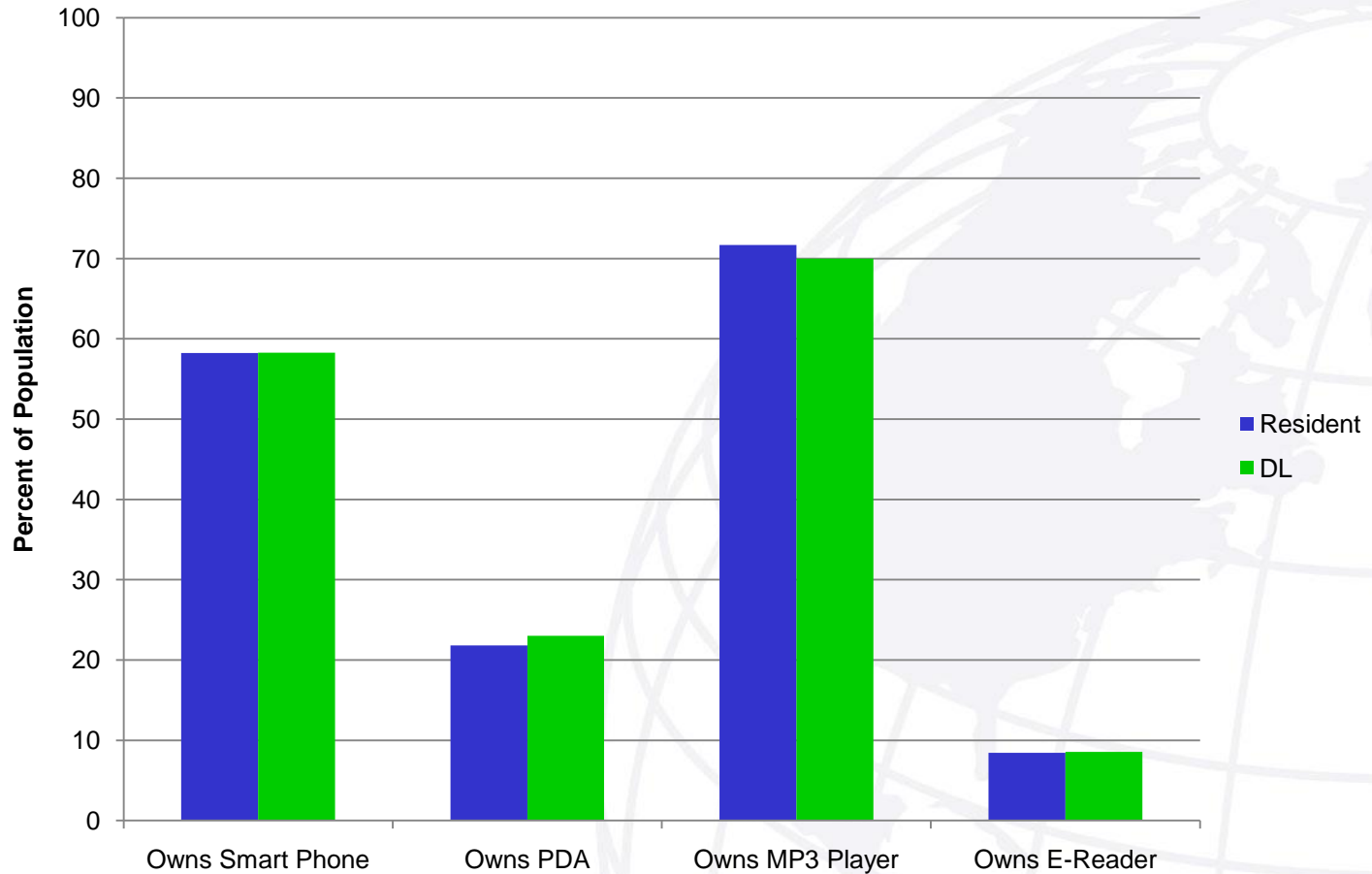
# What Types of Devices Do Students Currently Own?

- 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.”*



# MP3 Players and Smart Phones Most Commonly Owned

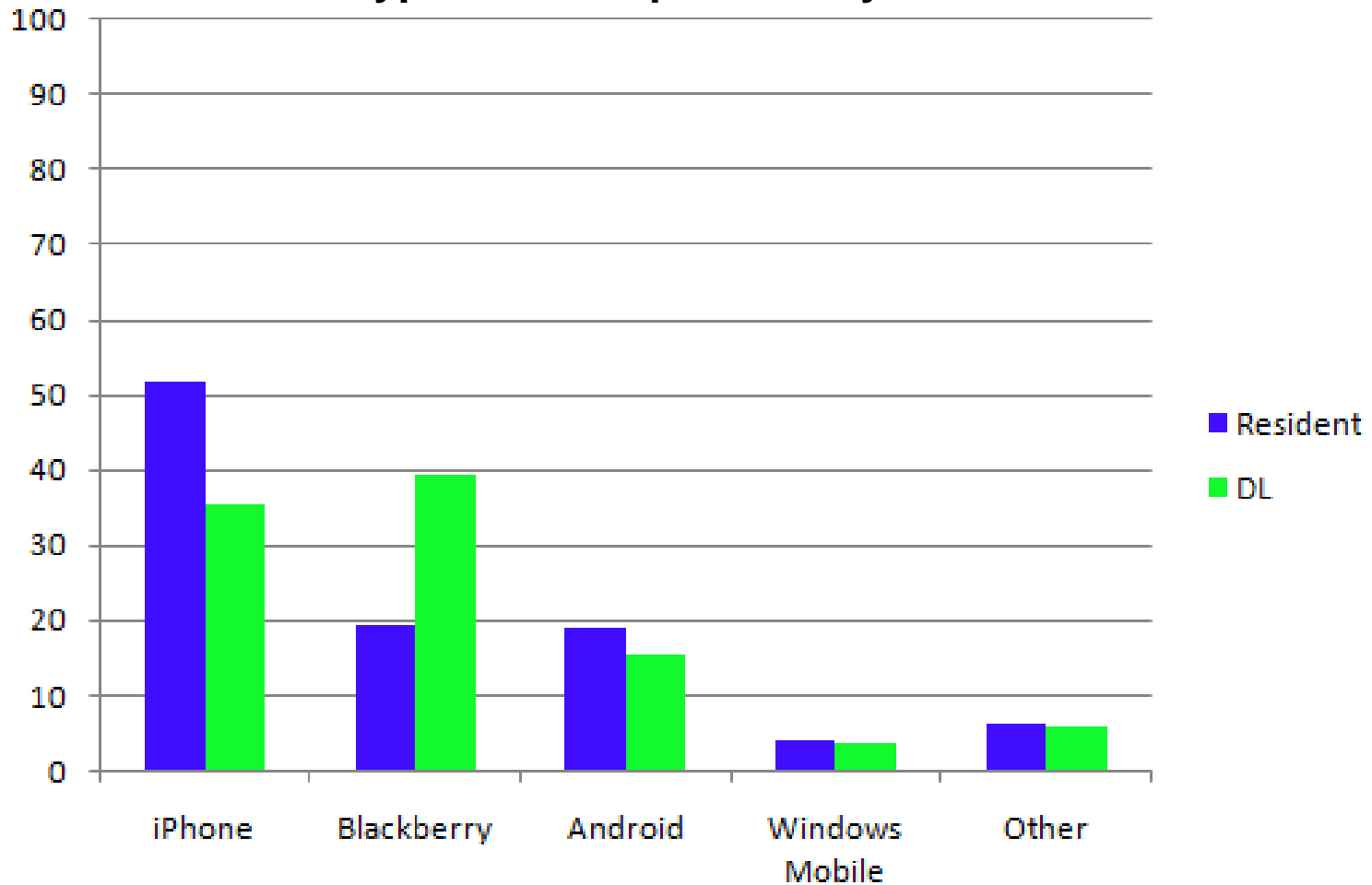
## Mobile Devices Currently Owned





# For Smart Phones, iPhone Most Commonly Owned

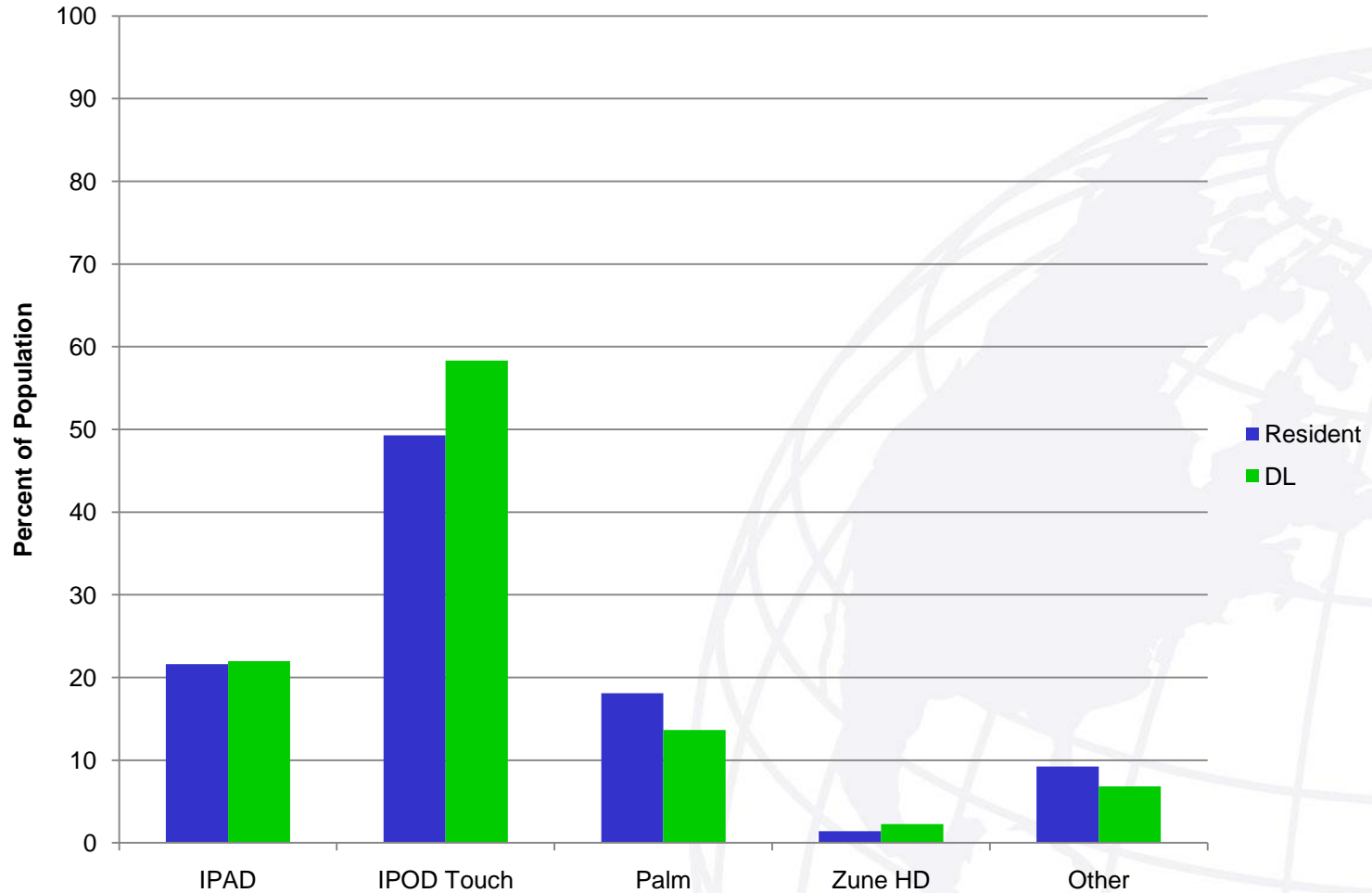
## What type of smart phone do you own?





# For PDAs, iPod Touch and iPad Most Commonly Owned

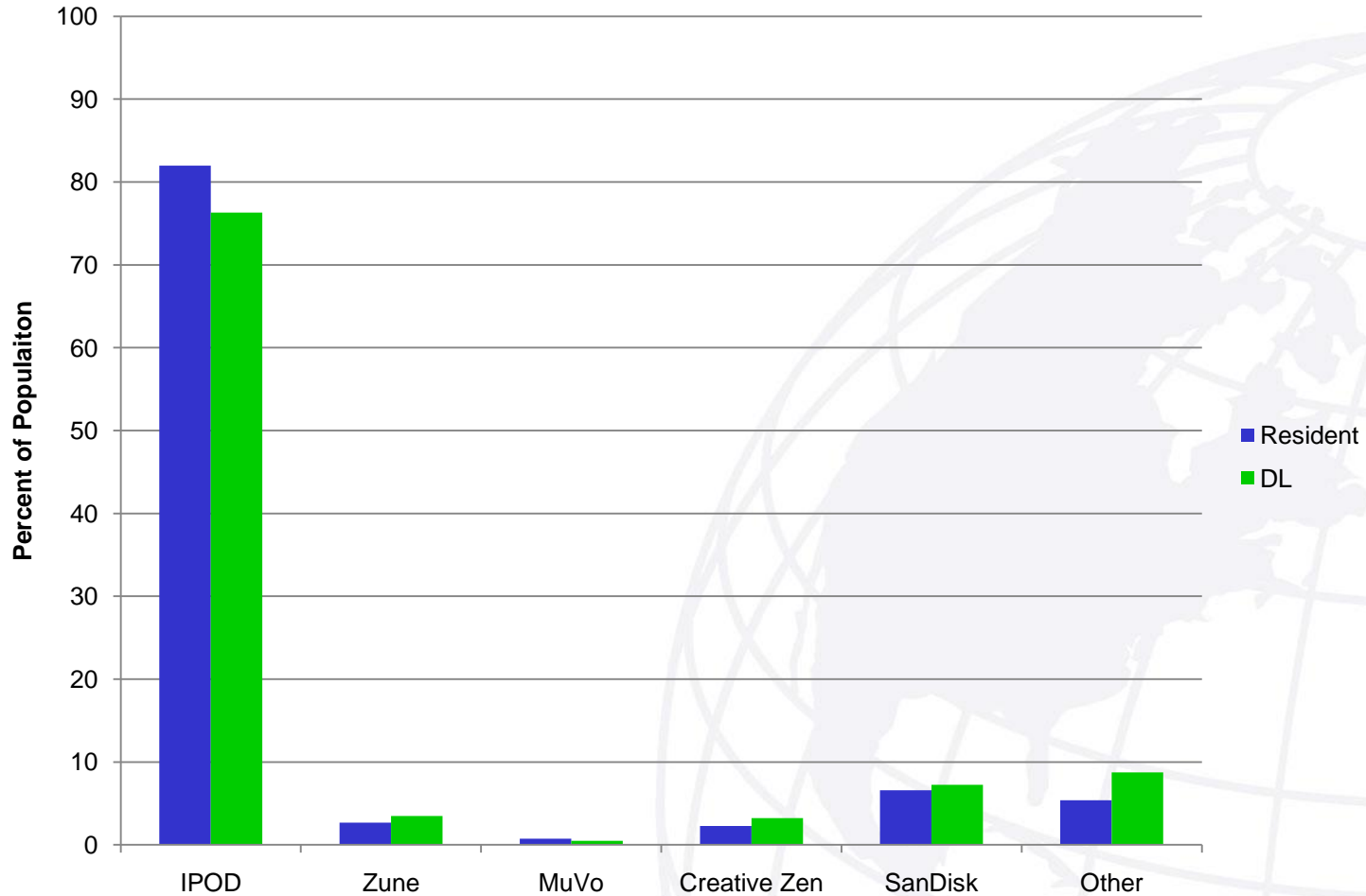
What type of PDA do you own?





# For MP3 Players, iPod Most Commonly Owned

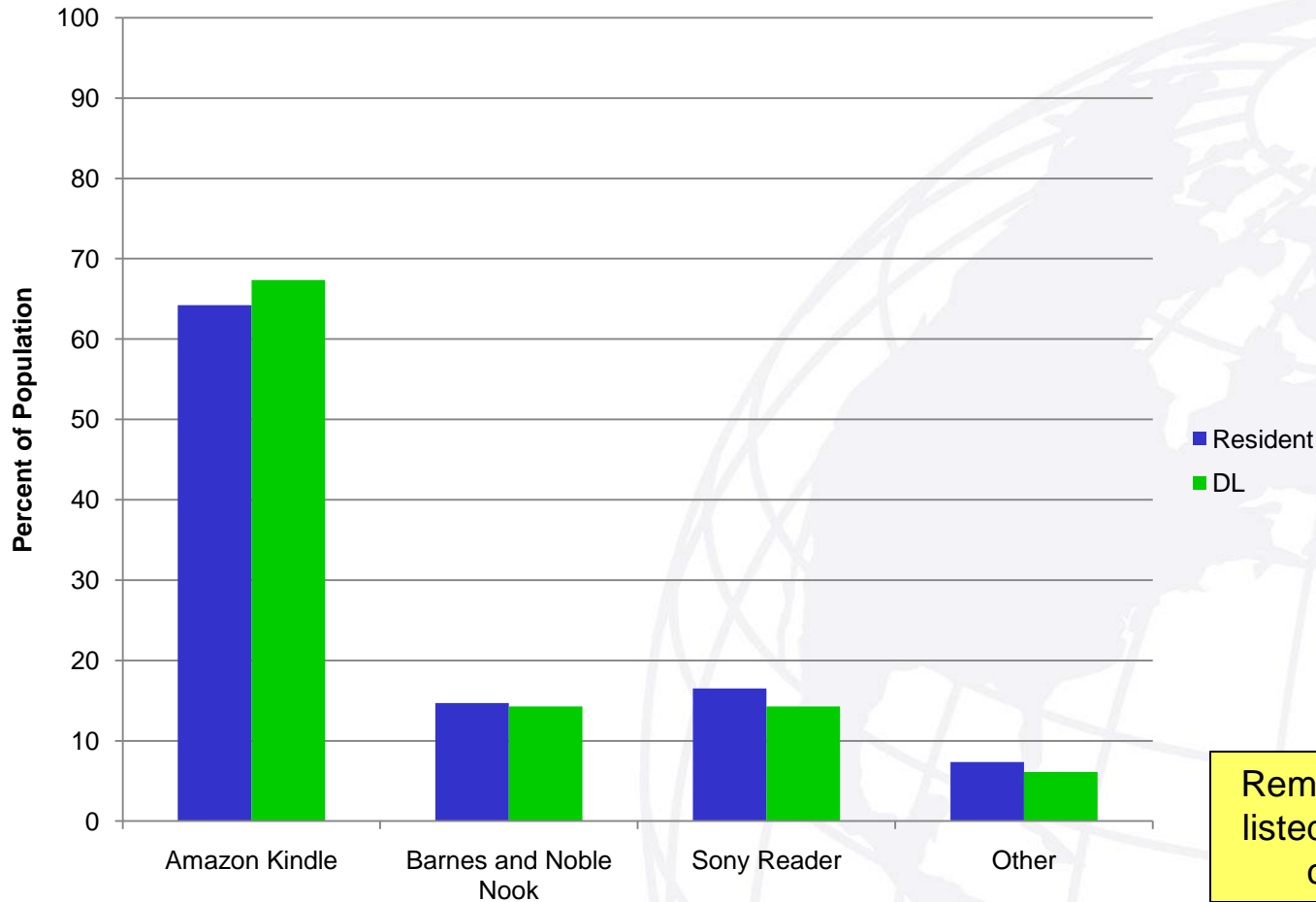
What type of MP3 Player do you own?





# For e-Readers, Kindle Most Commonly Owned

## What type of E-Reader do you Own?



Remember: iPad listed under PDA category

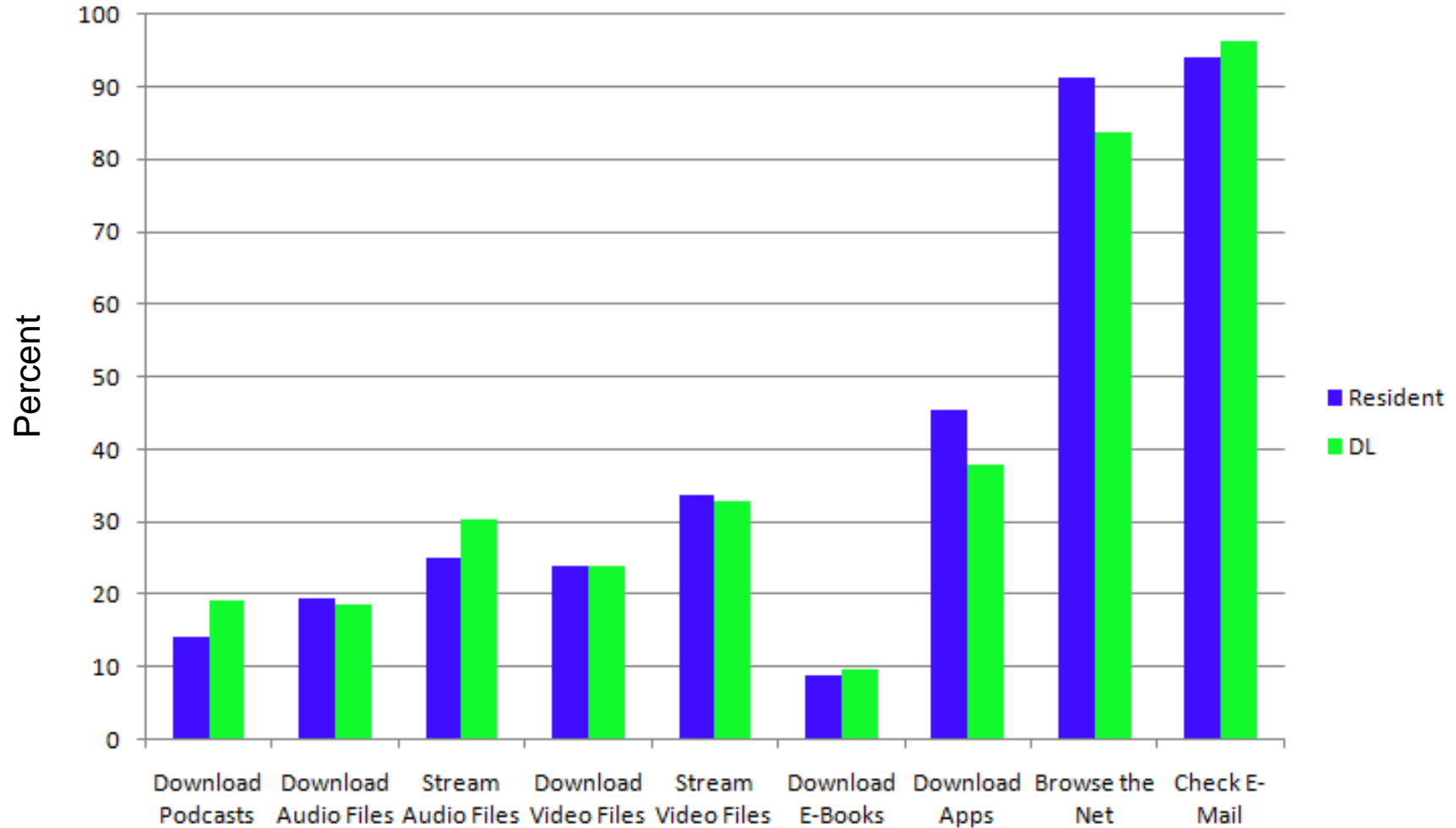


# Current Mobile Device Uses

- Tasks frequently performed
- Types of files viewed
- NPS educational tools accessed



# Tasks Frequently Performed on Smart Phones

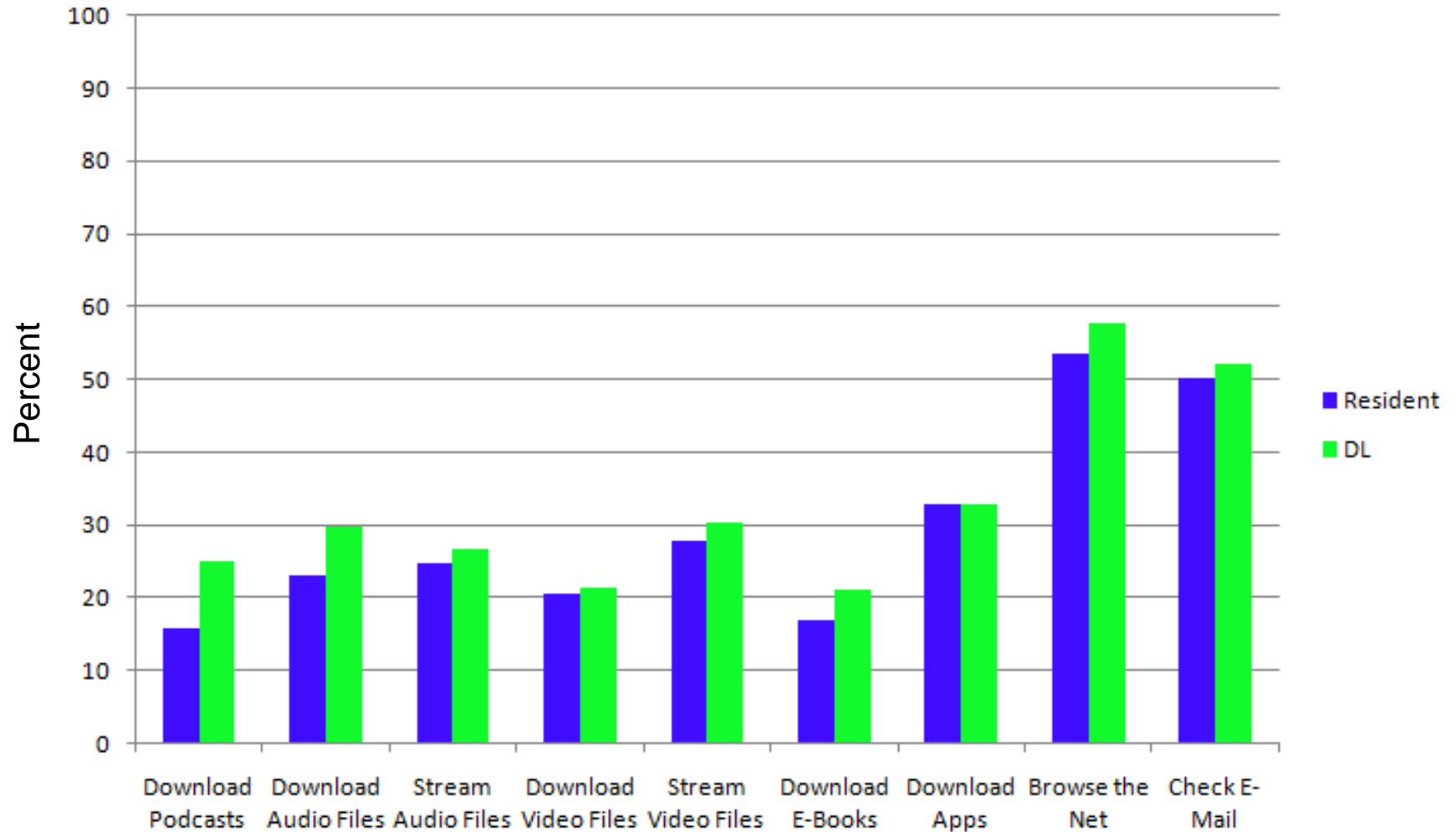


Remember: 58% of students own smart phones





# Tasks Frequently Performed on PDAs



Remember: 22%  
of students own  
PDAs

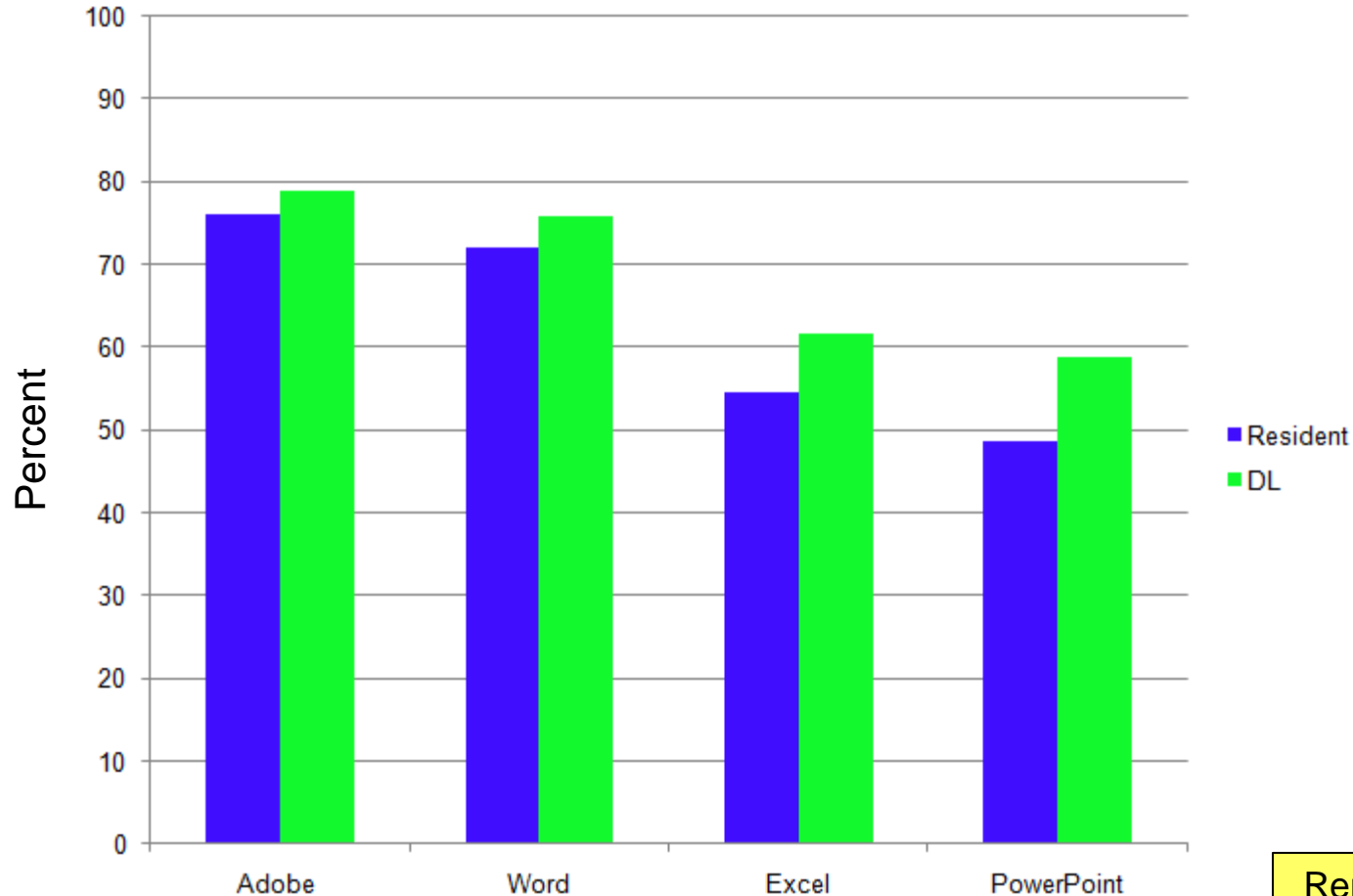


# Tasks Frequently Performed on MP3 Players and e-Readers

- 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



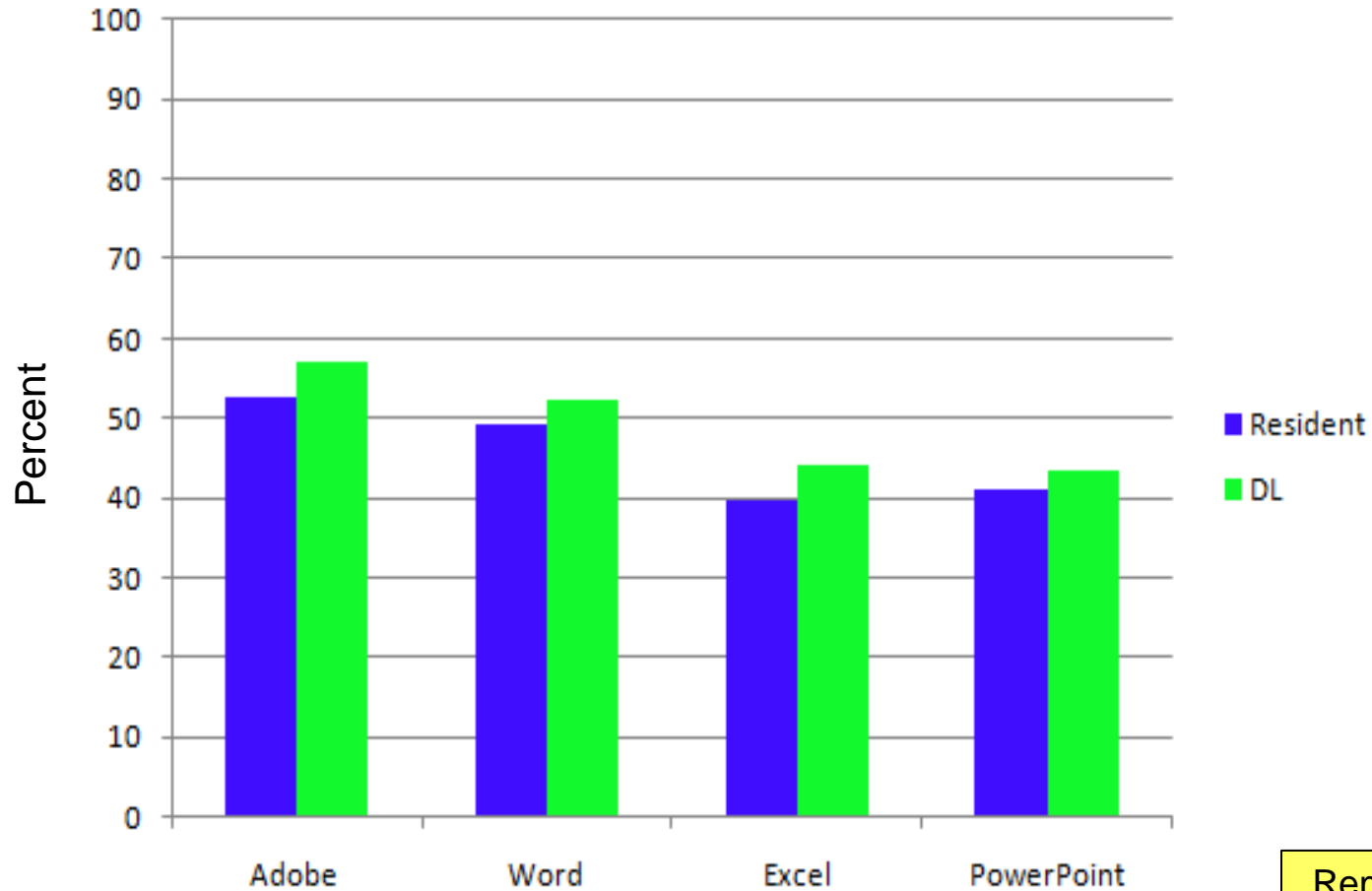
# Types of Files Viewed on Smart Phones



Remember: 58%  
of students own  
smart phones



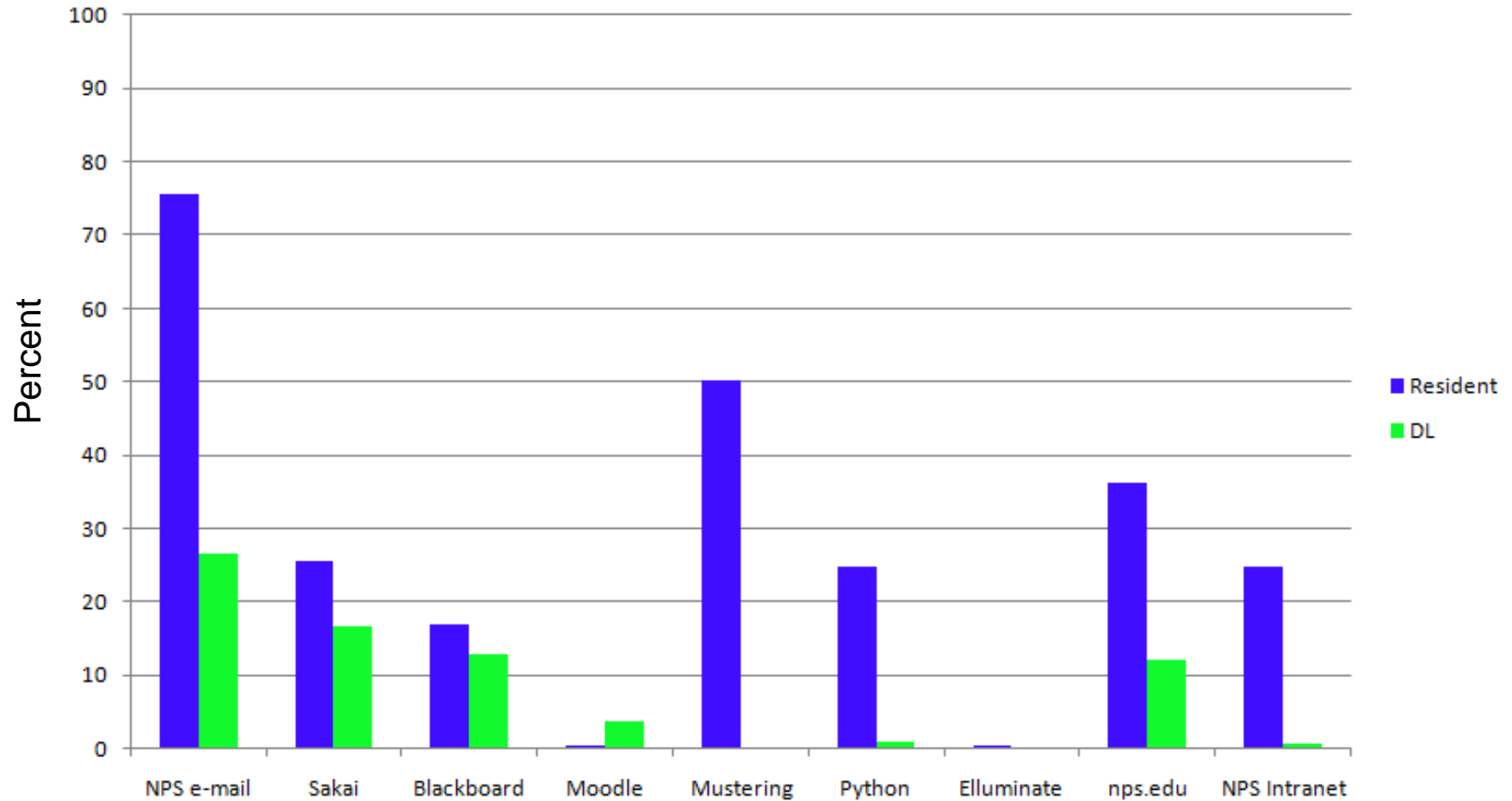
# Types of Files Viewed on PDAs



Remember: 22% of students own PDAs



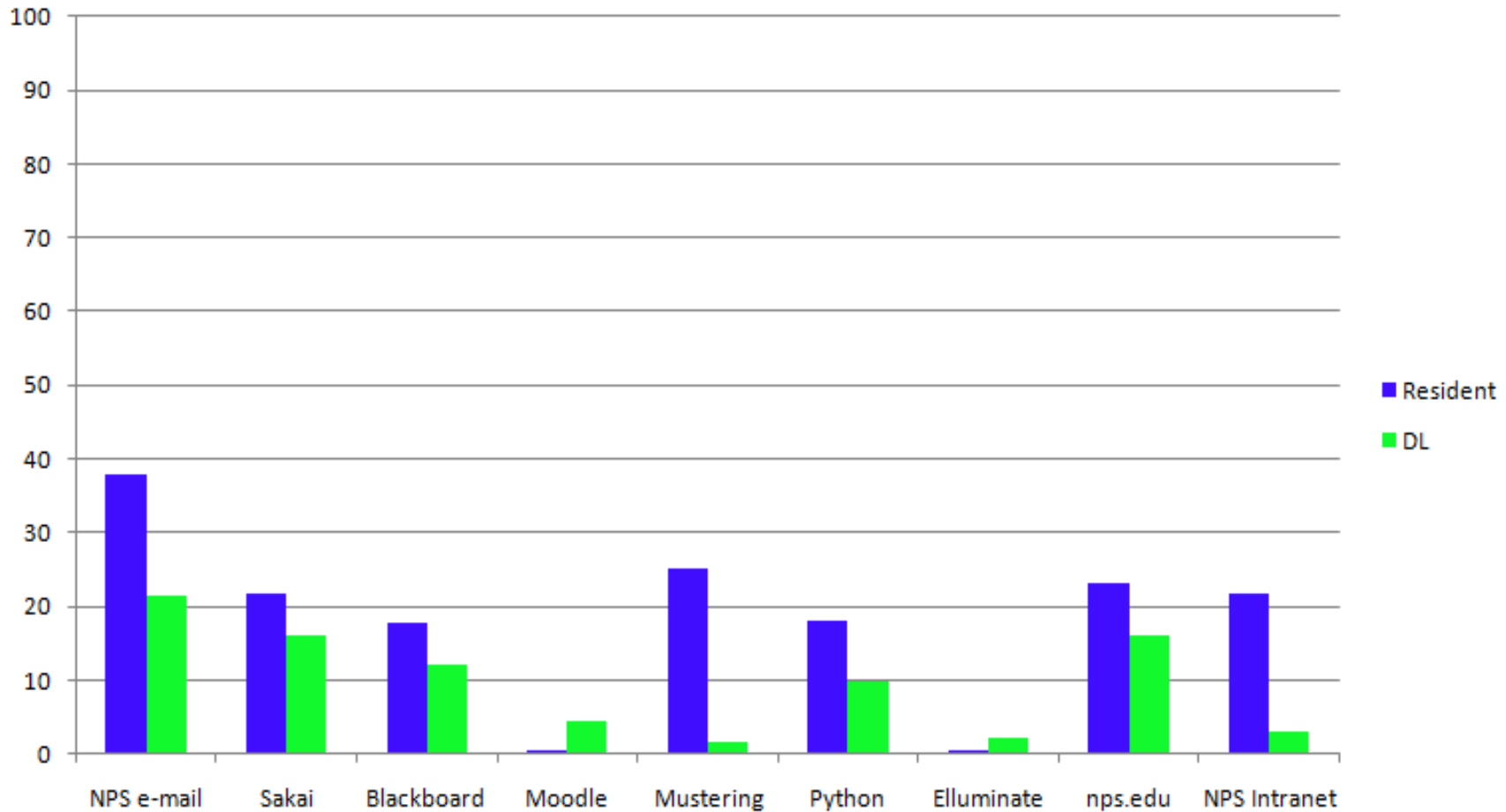
# NPS Educational Tools Accessed Via Smart Phone



Remember: 58%  
of students own  
smart phones



# NPS Educational Tools Accessed Via PDA



Remember: 22%  
of students own  
PDAs

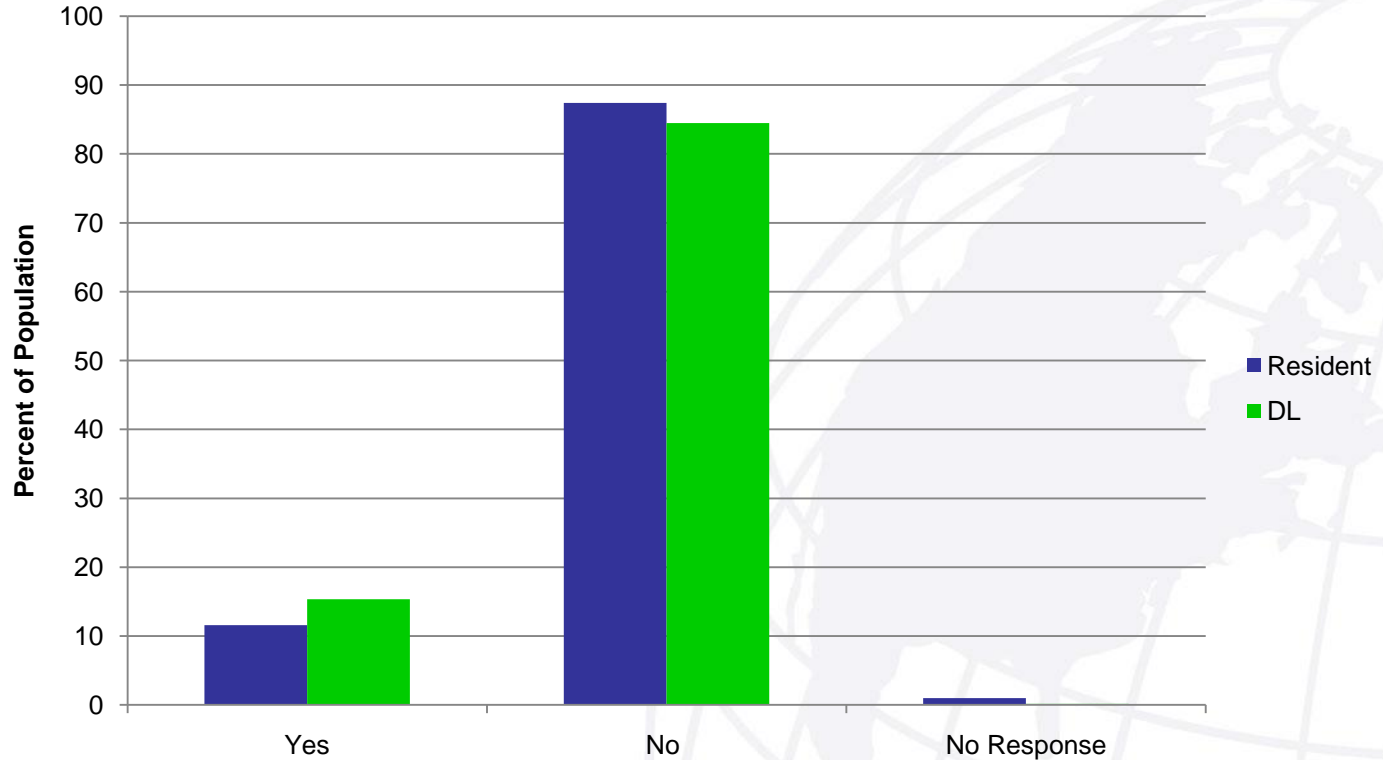


- Most students have not utilized mobile learning on their hand-held devices in the past
- Desired course content
  - DL: Podcasts rank number one
  - Resident: Course calendar syncing, textbooks, SAKAI, and Applications for class-work



# Experience with Mobile Learning

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

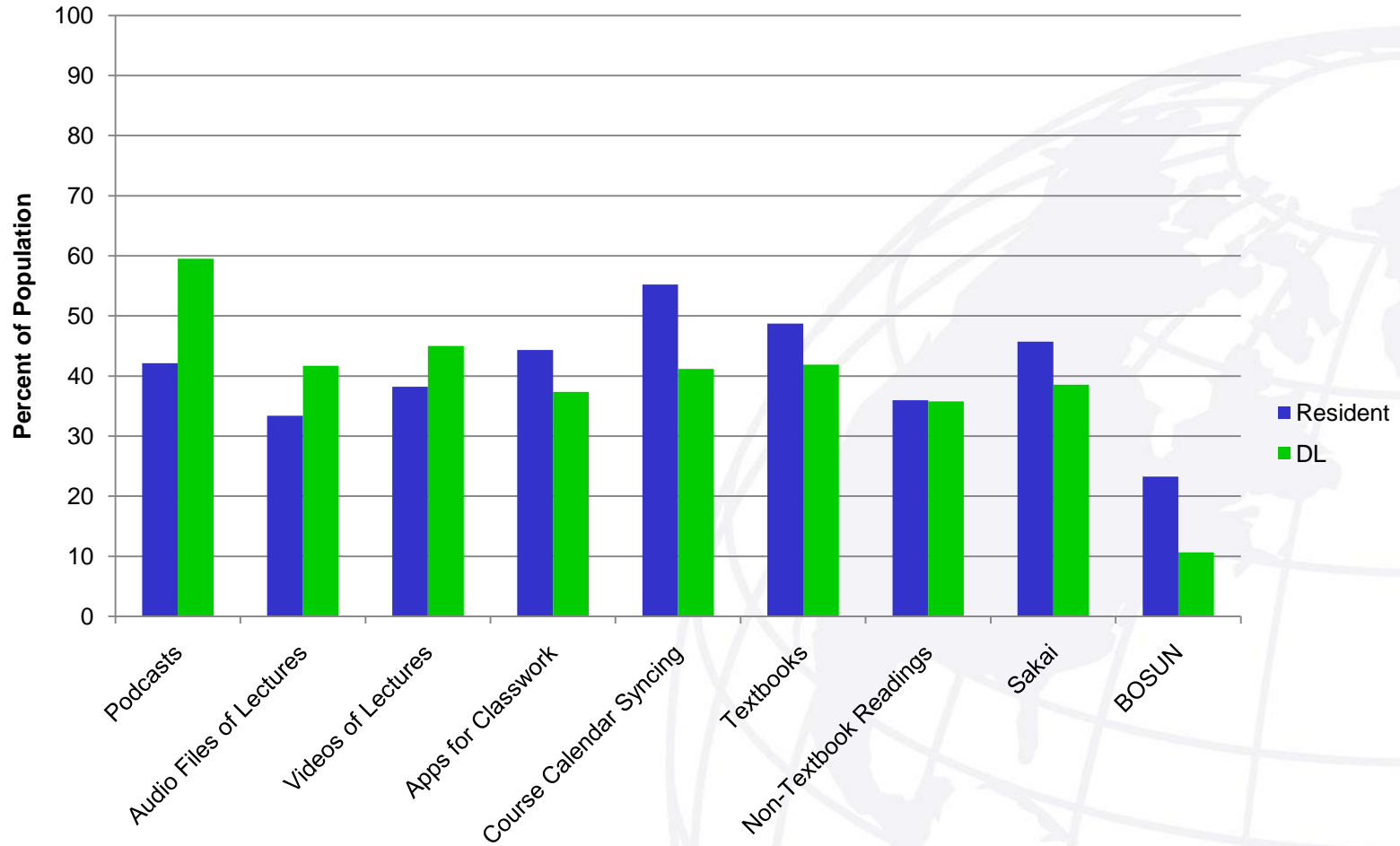






# What educational materials do you want to access on your mobile device?

## Educational Materials you would like to access?



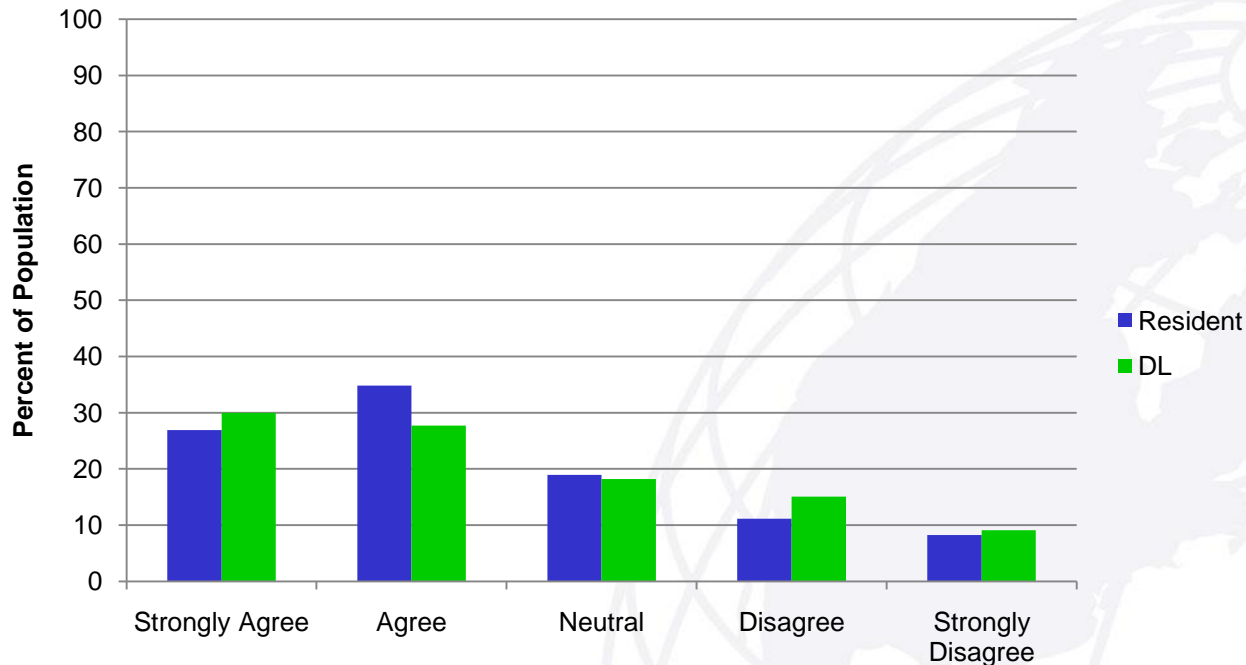


- 60% of Resident and about 55% of DL students stated that they would use mobile learning if it were available in their curriculum
- ~80% of the population interested in purchasing or upgrading to a smart phone or PDA to access NPS educational material
- ~20% of each population are not interested in 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?

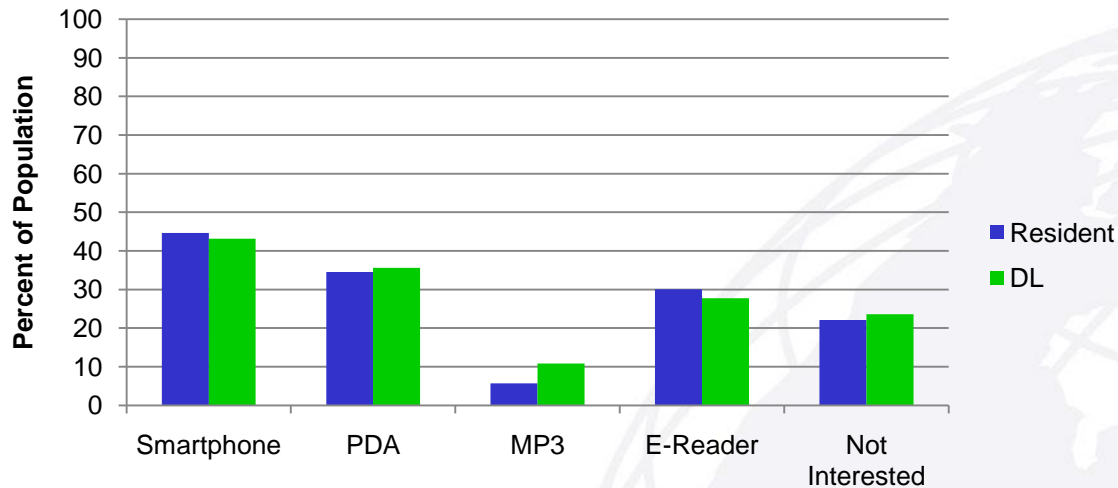


“I would like to have dedicated APPs for NPS, Python, Library, and Blackboard. I much prefer to watch my lectures on a mobile device or laptop. I rather have my textbooks in electronic format to take with me on TDY. Please be forward leaning in this matter. Thank you.”



# What device would you purchase or upgrade to?

What device would you purchase or upgrade to in order to access NPS educational tools?



“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.”

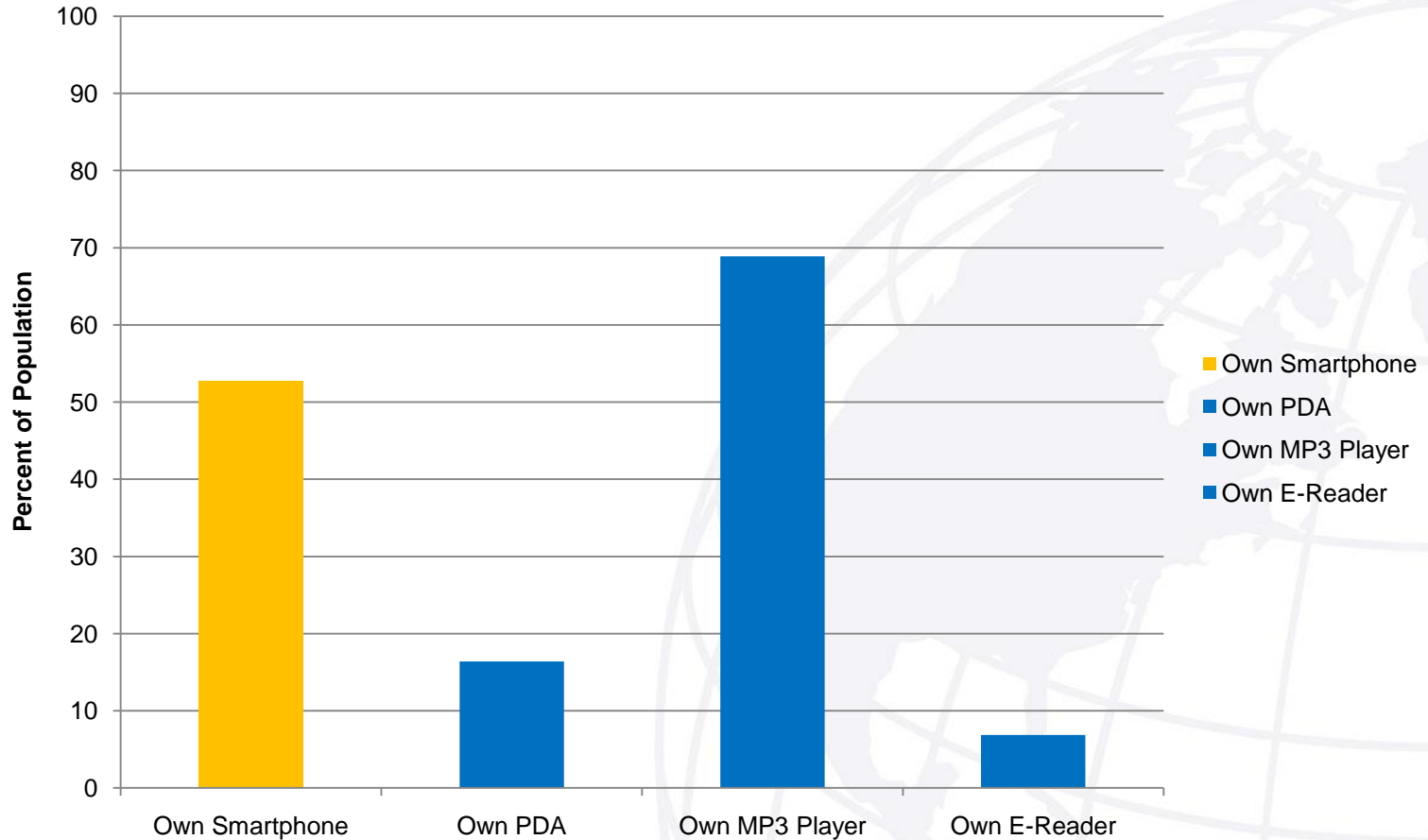
“Mobile learning would greatly enhance any curriculum. In my opinion the iPad would be the best platform for the school to base its mobile learning.”

“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?

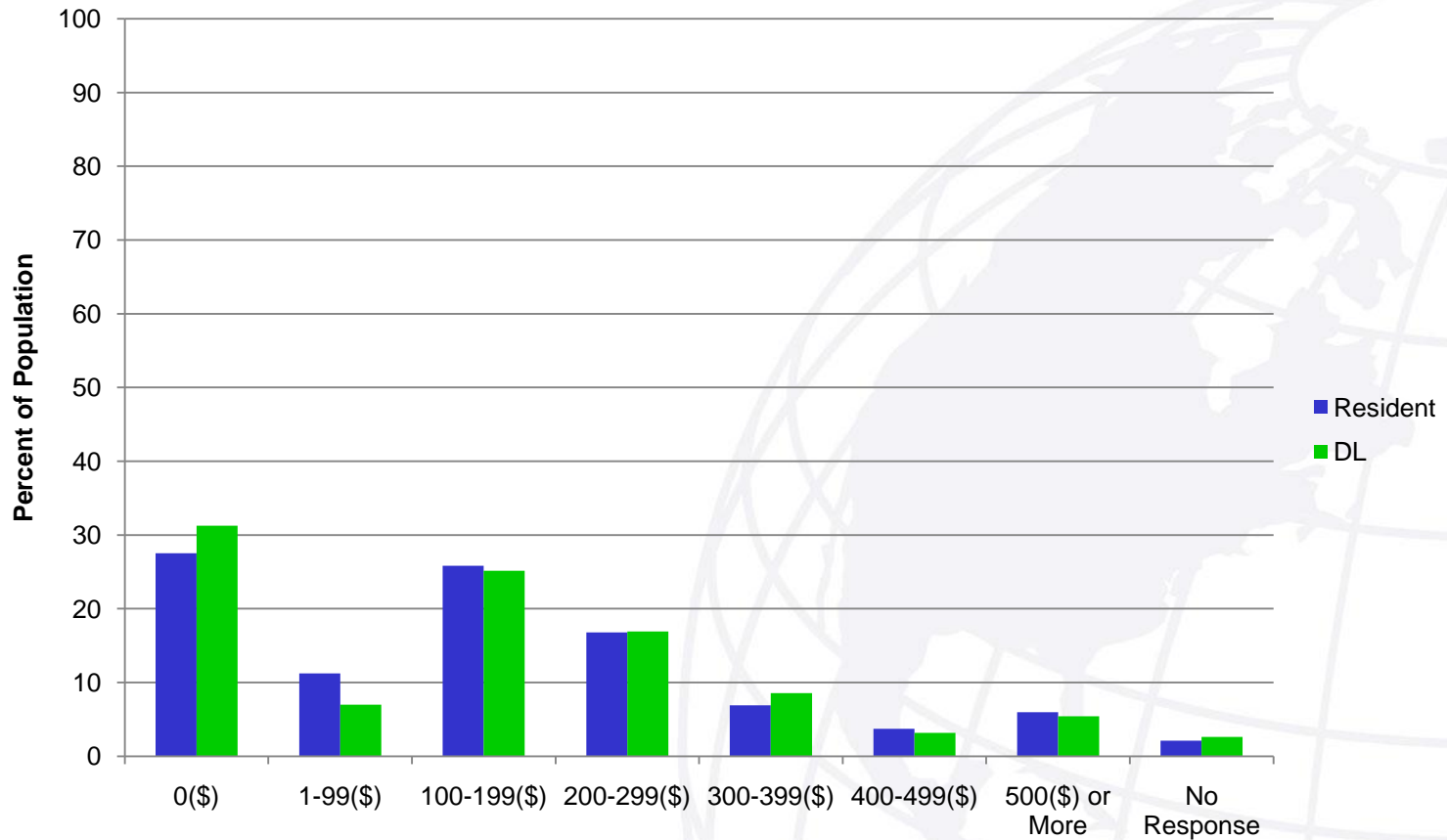
## Not Interested in purchasing or upgrading to access NPS educational tools





# How much would you spend on a hand held device?

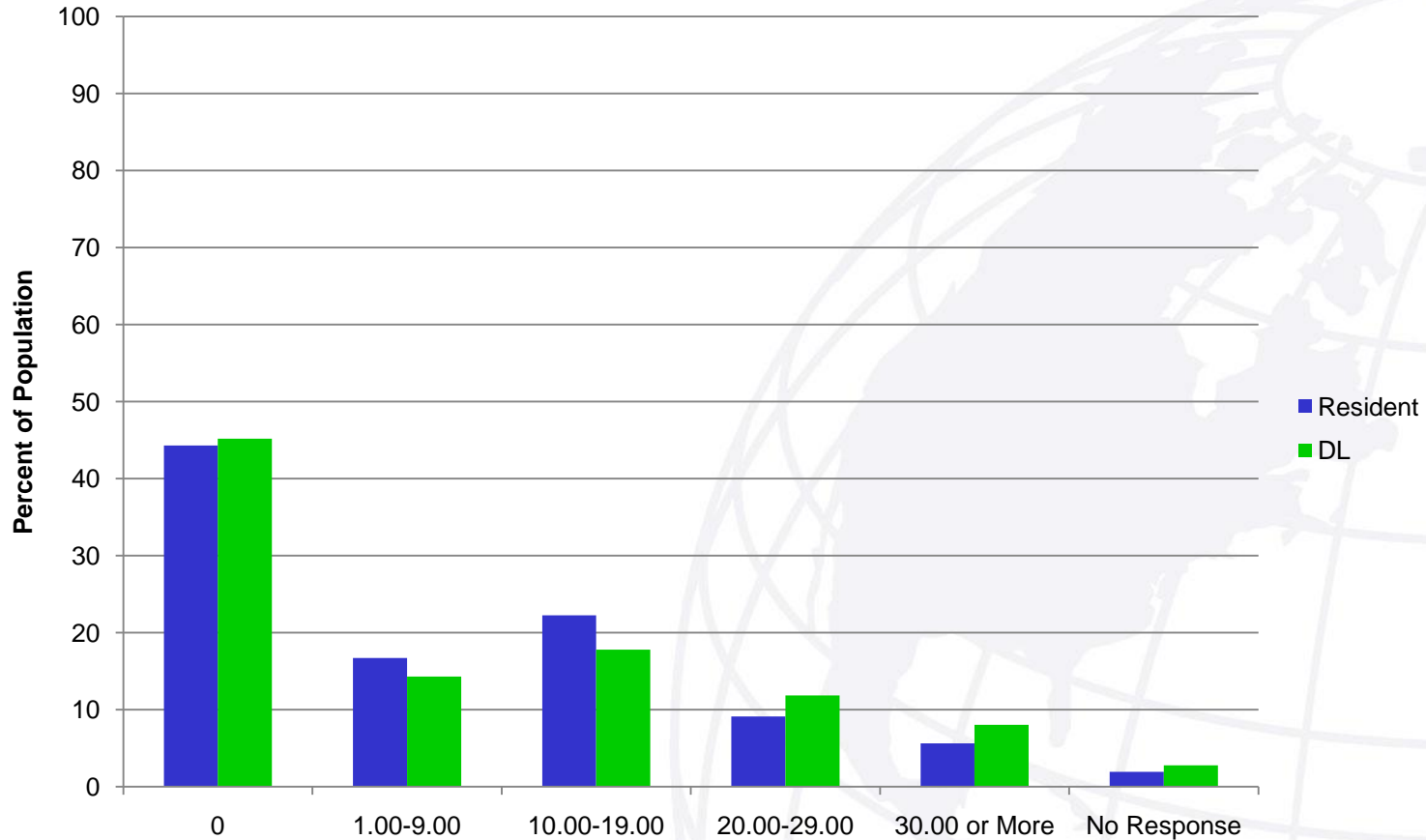
## How much would you spend on a hand held device to access NPS educational tools?





# How much would you spend to add/upgrade data package?

How much would you spend to add/upgrade your data package to access NPS educational tools per month?





# Only a Small Fraction of Students Do Not Have Phone and Won't Spend \$\$

**~19% of student population**

**What type of phone and data plan do you currently have?**

**How much would you spend to upgrade data plan?**

	No Smartphone	Smartphone (Limited data)	Smartphone (Unlimited data)
<b>Spend Nothing</b>	<b>42% (349)</b>	10% (83)	<b>48% (399)</b>
<b>Spend 1.00-9.00</b>	51% (152)	9% (27)	40% (119)
<b>Spend 10.00-19.00</b>	40% (156)	13% (51)	47% (183)
<b>Spend 20.00-29.00</b>	38% (71)	12% (22)	50% (93)
<b>Spend 30.00 or more</b>	24% (29)	6% (7)	70% (83)

“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



- 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