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ECAR NATIONAL STUDY OF STUDENTS AND INFORMATION TECHNOLOGY IN HIGHER EDUCATION, 2011

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Source: Dahlstrom, Eden, Tom de Boor, Peter Grunwald, and Martha Vockley, with a Foreword by Diana Oblinger. *The ECAR National Study of Undergraduate Students and Information Technology, 2011* (Research Report). Boulder, CO: EDUCAUSE Center for Applied Research, October 2011, available from <http://www.educause.edu/ecar>

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STUDY OVERVIEW

ECAR STUDENT STUDY, 2011

RESEARCH OBJECTIVES

- Assess students' technology ownership and use
- Explore how effectively instructors and institutions are using technology
- Understand students' technology skill level
- Gauge students' technology perceptions, attitudes, and preferences

ECAR STUDENT STUDY, 2011

SAMPLE

- Responses from 3,000 students at 1,179 colleges and universities provided a nationally representative sample of students
- Data are weighted to match statistics from the National Center of Education Statistics for the composition of college students in the United States on the following variables:
 - Year (freshman, sophomore, junior, senior)
 - Gender
 - Age
 - Region
 - Major of study
 - Institution type (public, private, for-profit)
 - Institution size
 - Institution type (4-year vs. 2-year)
 - Ethnicity

ECAR STUDENT STUDY, 2011

SAMPLE COMPOSITION

| Year | Percentage | N | Major | Percentage | N |
|-----------------------------------|------------|-------|-------------------------------------------|------------|-------|
| Freshman | 21% | 640 | Biological/life sciences | 14% | 408 |
| Sophomore | 31% | 918 | Business, management, marketing | 21% | 642 |
| Junior | 25% | 760 | Education, including physical education | 7% | 198 |
| Senior | 23% | 682 | Engineering, including computer science | 7% | 213 |
| Gender | | | Liberal arts and sciences/general studies | 11% | 342 |
| Male | 43% | 1,283 | Physical sciences, including math | 2% | 72 |
| Female | 57% | 1,717 | Social sciences | 17% | 498 |
| Age | | | Fine arts | 6% | 168 |
| 18–24 | 60% | 1,802 | Other | 13% | 402 |
| 25–34 | 23% | 709 | Undecided | 2% | 57 |
| 35–44 | 9% | 259 | Institution Type | | |
| 45+ | 8% | 230 | Public | 73% | 2,190 |
| Region | | | Private | 23% | 691 |
| Northeast | 21% | 630 | For-profit | 4% | 118 |
| South | 25% | 750 | Enrollment | | |
| Midwest | 33% | 990 | Less than 500 | 1% | 30 |
| West | 21% | 630 | 500 to 999 | 3% | 90 |
| Ethnicity | | | 1,000–4,999 | 19% | 570 |
| White | 66% | 1,975 | 5,000–9,999 | 18% | 540 |
| Black/African American | 13% | 398 | 10,000–19,999 | 24% | 720 |
| Hispanic | 11% | 344 | 20,000 or more | 35% | 1,049 |
| American Indian or Alaskan native | 1% | 30 | Type | | |
| Asian/Pacific Islander | 7% | 201 | A two-year or community college | 37% | 1,110 |
| Other | 1% | 37 | A four-year college or university | 63% | 1,890 |
| Prefer not to answer | 2% | 65 | Student Enrollment Status | | |
| | | | Full-time | 82% | 2,459 |
| | | | Part-time | 18% | 541 |

KEY FINDINGS

ECAR STUDENT STUDY, 2011

KEY FINDINGS

- Students are drawn to hot technologies but rely on more traditional devices.
- Students recognize major academic benefits of technology.
- Students report uneven perceptions of institutions and instructors on technology.
- Facebook-generation students juggle personal and academic interactions.
- Students prefer, and say they learn more in, classes with online components.

KEY FINDING 1 – STUDENTS ARE DRAWN TO HOT TECHNOLOGIES BUT RELY ON TRADITIONAL DEVICES

DRAWN TO HOT TECHNOLOGIES... PREFER SMALL, MOBILE DEVICES

Technology Ownership



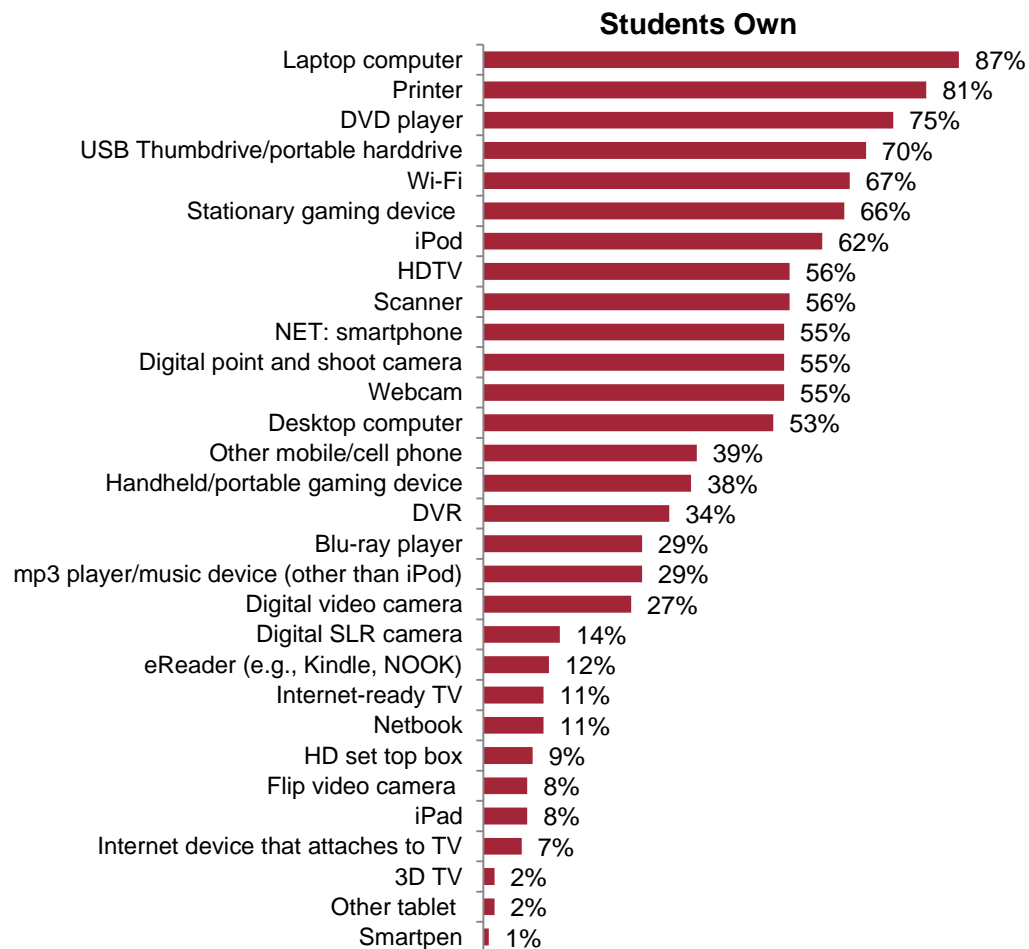
| Technology | Students Own |
|----------------------------|--------------|
| 1 Laptop | 87% |
| 2 Printer | 81% |
| 3 DVD Player | 75% |
| 4 USB Thumbdrive | 70% |
| 5 Wi-Fi* | 67% |
| 6 Stationary gaming device | 66% |
| 7 Ipod | 62% |
| 8 HDTV | 56% |
| 9 Smartphone | 55% |
| 10 Digital Camera | 55% |
| 11 Webcam | 55% |
| 12 Desktop Computer | 53% |
| 13 Handheld Gaming Device | 38% |
| 14 Netbook | 11% |
| 15 iPad | 8% |

*Likely interpreted by the respondent as having access to Wi-Fi

Traditional age college students (18-24) and those from households of \$100K+ own more technology than their counterparts. 10

Q1. Which of the following items do you own?

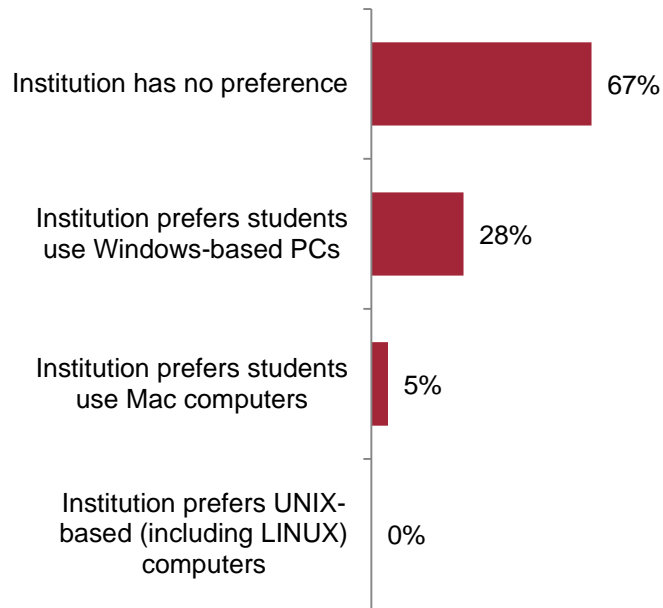
DRAWN TO HOT TECHNOLOGIES... RELIANT ON TRADITIONAL DEVICES



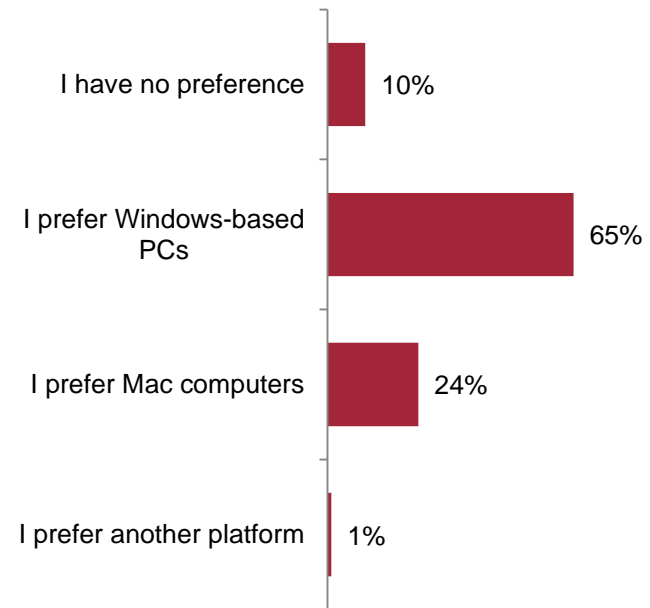
Q1. Which of the following items do you own?

DRAWN TO HOT TECHNOLOGIES... *OPINIONS ON PLATFORM PREFERENCE*

Institution Preference



Student Preference



Q4b. Does your college or university officially prefer you use one computing platform over another?
Q4c. And, what is your preference? Do you prefer to use one platform over another?

DRAWN TO HOT TECHNOLOGIES...

CARNEGIE CLASS DIFFERENCES

- Students at community colleges are more likely to own stationary technologies (e.g., desktop computers and stationary gaming and video devices), particularly in comparison to students at research institutions
- Students at institutions that award master's and doctorate degrees are more likely to own portable technologies (e.g., laptops, iPods, webcams, thumb drives, and Wi-Fi devices)
- Still, there are both mobile devices (e.g., iPads) and stationary technologies (e.g., HDTVs) for which no significant differences exist among students at institutions of different Carnegie Classifications.

KEY FINDING 2 – STUDENTS RECOGNIZE MAJOR ACADEMIC BENEFITS OF TECHNOLOGY

ACADEMIC BENEFITS... DEVICES USED FOR ACADEMICS

Technology use for academics



Technology

Students Use For Academics

| | Students Use For Academics | |
|-----------------------------|----------------------------|--------------|
| | Total | (Owners) |
| 1 Laptop | 85% | (92%) |
| 2 Printer | 79% | (84%) |
| 3 Desktop Computer | 63% | (78%) |
| 4 Wi-Fi | 60% | (75%) |
| 5 USB Thumbdrive | 59% | (74%) |
| 6 Smartphone | 37% | (60%) |
| 7 DVD Player | 30% | (33%) |
| 8 iPod | 23% | (22%) |
| 9 Digital Camera | 21% | (32%) |
| 10 HDTV | 18% | (26%) |
| 11 Webcam | 17% | (24%) |
| 12 Stationary gaming device | 12% | (15%) |
| 13 iPad | 12% | (67%) |
| 14 Netbook | 11% | (70%) |
| 15 Handheld Gaming Device | 7% | (13%) |

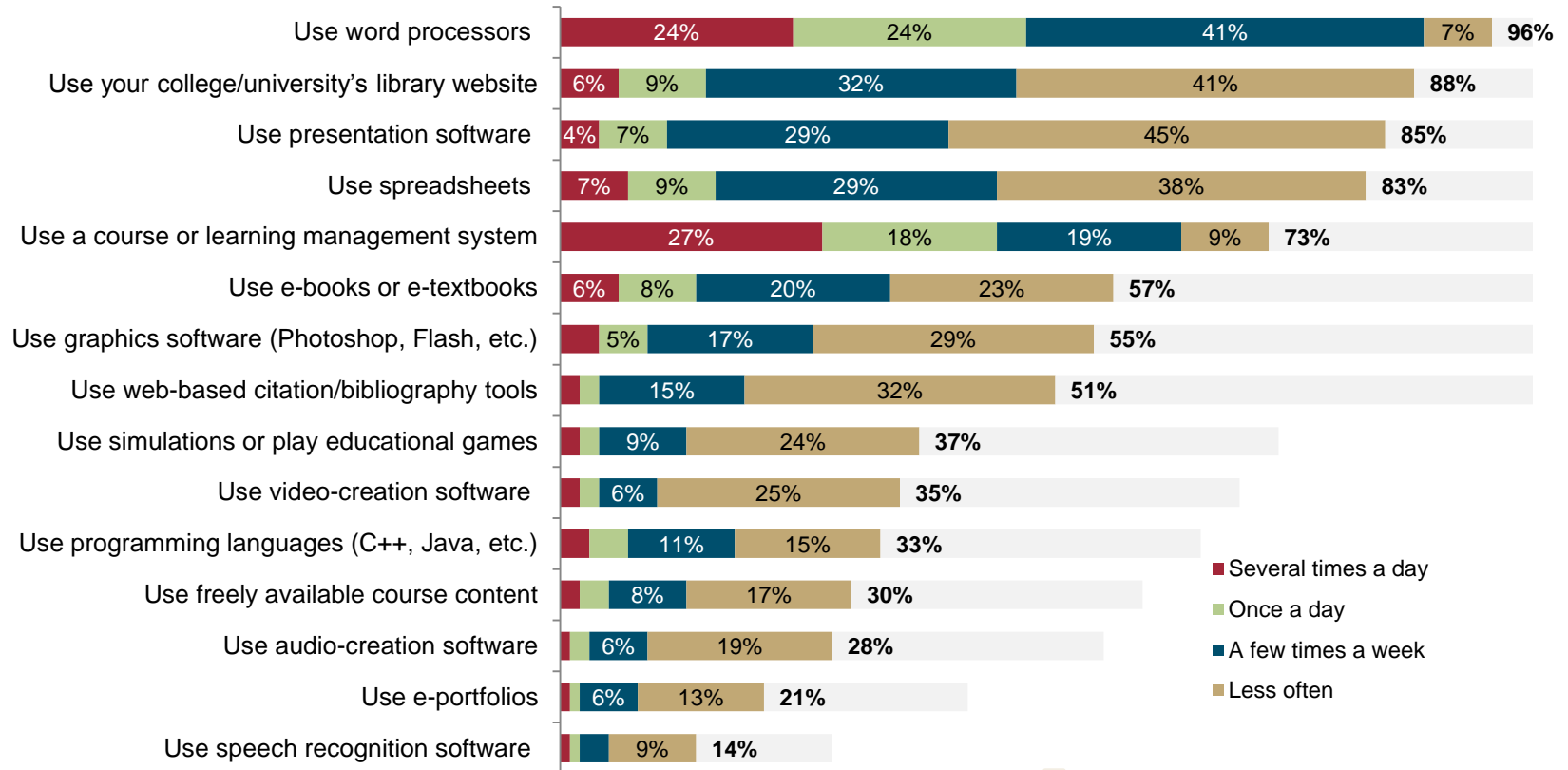
() = use among owners

Q1. Which of the following items do you own?
Q2a. Regardless of whether you own it, which of the following have you used for at least one course or academic activity in the past year?

Traditional age college students (18-24) and those from households of \$100K+ use more technology than their counterparts

ACADEMIC BENEFITS... CORE SOFTWARE IS CENTRAL TO SUCCESS

Frequency of Use for School or Personal Purposes



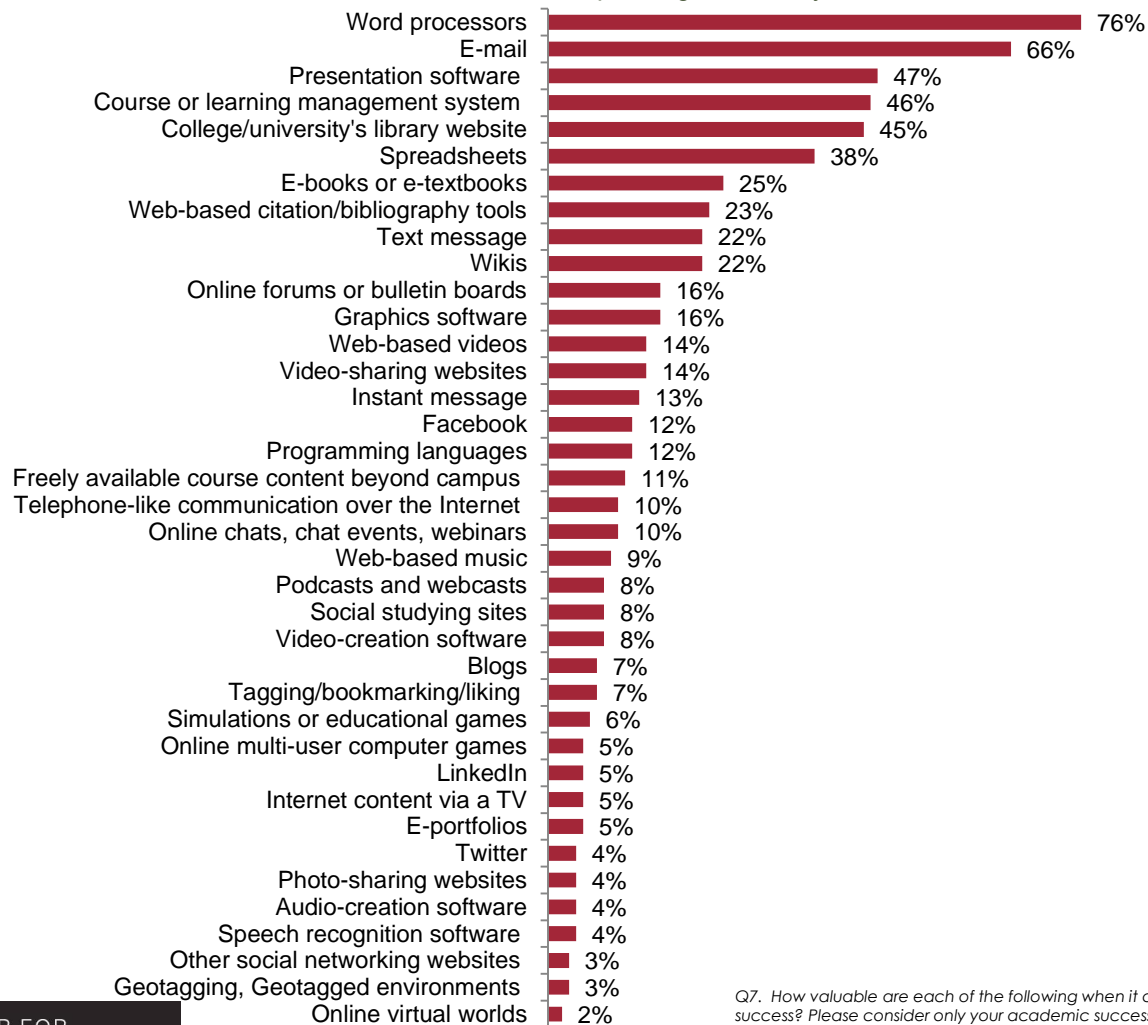
Q5b. Thinking about the most recent school year, how often did you do the following, whether it was for school or personal purposes?

ACADEMIC BENEFITS...

STUDENTS VALUE SOFTWARE BASICS

Value of Technology to Academic Success

Percent Responding "Extremely Valuable"



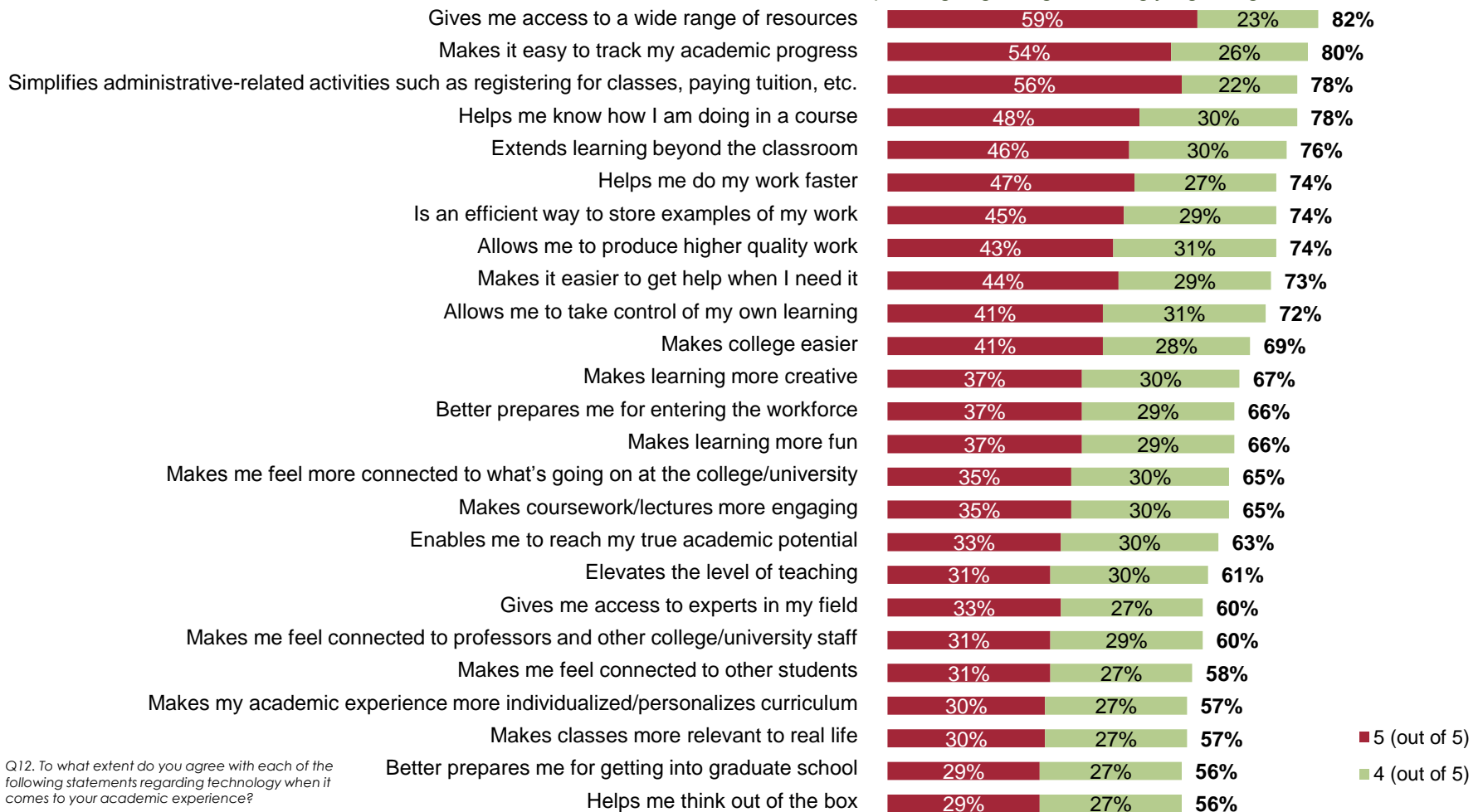
Q7. How valuable are each of the following when it comes to your academic success? Please consider only your academic success when rating these technologies, not the other aspects of your life.

ACADEMIC BENEFITS...

ACCESSING RESOURCES AND EFFICIENCY

Agreement with Statements about Academic Success

Percent Responding "Agreeing or Strongly Agreeing"



■ 5 (out of 5)

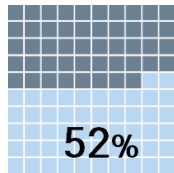
■ 4 (out of 5)

Q12. To what extent do you agree with each of the following statements regarding technology when it comes to your academic experience?

ACADEMIC BENEFITS...

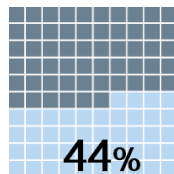
FOUR FACTORS FOR ACADEMIC SUCCESS

Avg. Agreement
with Statements



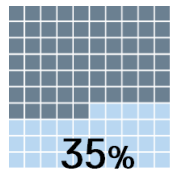
Gives Students Access to Resources and Progress Reports

- Easy to track my academic progress
- Gives me access to resources
- Helps me know how I am doing
- Easier to get help when I need it
- Simplifies administrative-related activities



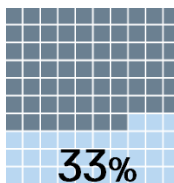
Makes Students More Efficient

- Helps me do my work faster
- Efficient way to store examples of work
- Allows me to produce higher-quality work
- Makes college easier



Facilitates Connecting with Others

- Feel connected to other students
- Feel connected to what's going on
- Feel connected to professors/staff
- Gives me access to experts in my field



Makes Learning More Engaging and Relevant

- Learning more creative
- More relevant to real life
- Take control of own learning
- Learning more fun
- More engaging
- Extends learning beyond classroom
- Think out of the box
- Elevates teaching
- Prepares me for the workforce
- Individualized/personalized
- Reach academic potential
- Prepares me for graduate school

ACADEMIC BENEFITS...RELATIONSHIPS BETWEEN TECHNOLOGIES AND BENEFITS

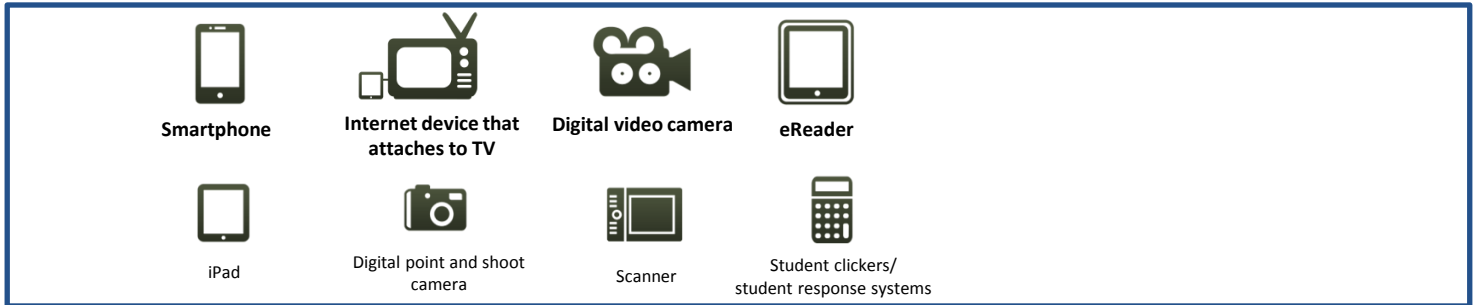
Access to
Resources &
Progress Reports



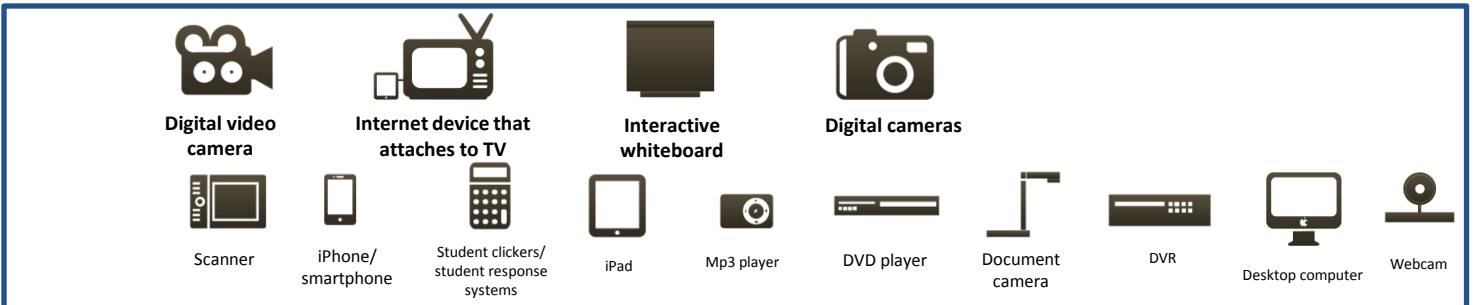
Efficiency



Connecting With
Others

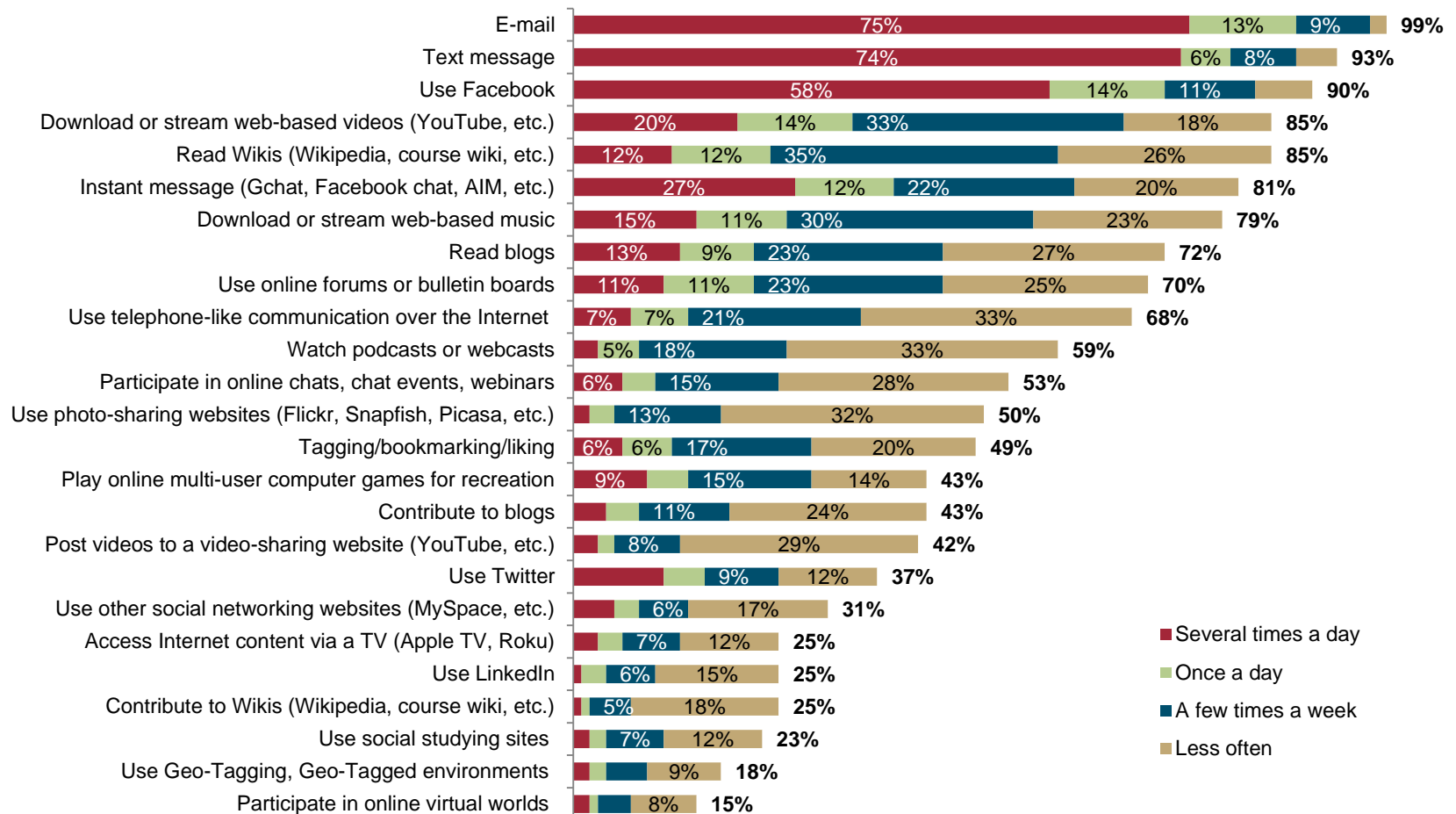


Engagement
and Relevance



ACADEMIC BENEFITS... COMMUNICATION TOOLS - MASS ADOPTION

Frequency of Use for School or Personal Purposes



Q5a. Thinking about the most recent school year, how often did you do the following, whether it was for school or personal purposes?

ACADEMIC BENEFITS...

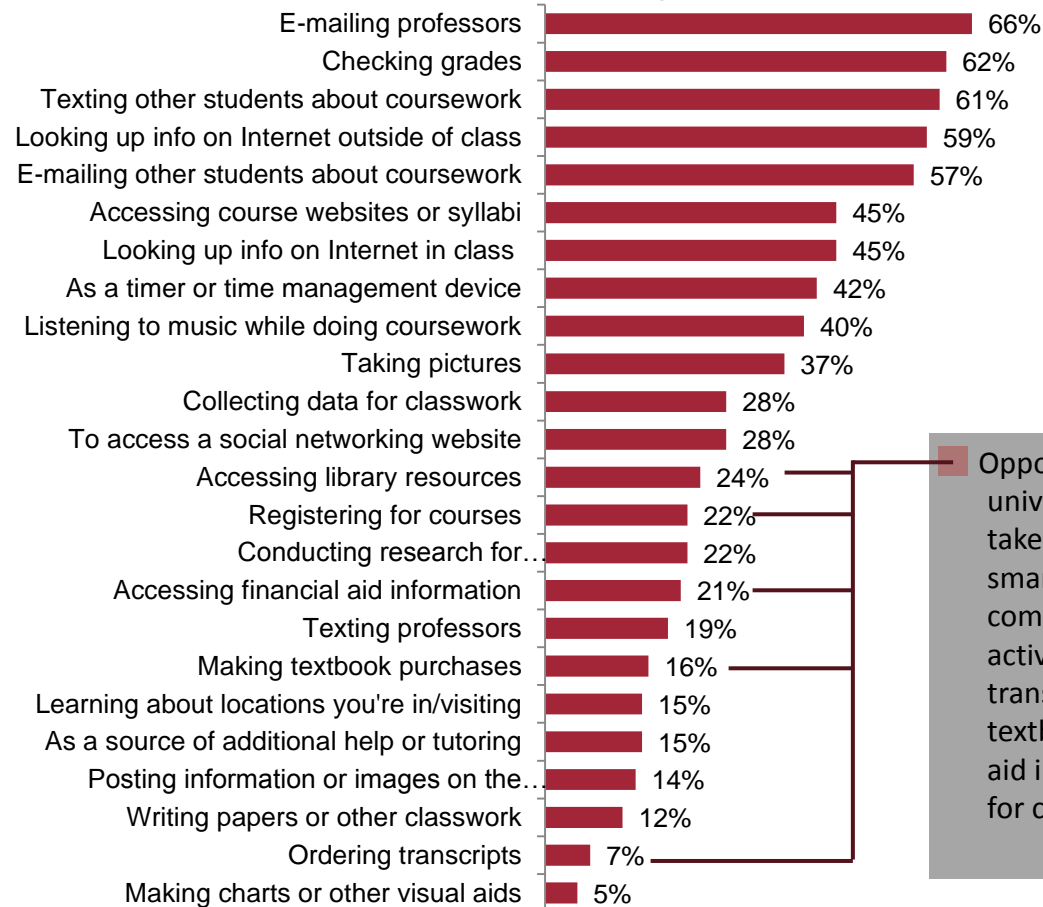
A BLIZZARD OF MESSAGES

- Frequent e-mail users (75% of students) send or receive an average of 25 e-mails a day.
- Frequent texters (74% of students) send or receive an average of 84 text messages a day.
- Frequent Facebook users (58% of students) log into and/or check Facebook 13 times a day.
- Frequent Twitter users (11% of students) read or post 112 tweets a day.

ACADEMIC BENEFITS...SMARTPHONES—NOT JUST FOR COMMUNICATION

Ways Smartphones Are Used for Academic Work

(Among Users) n= 1,122



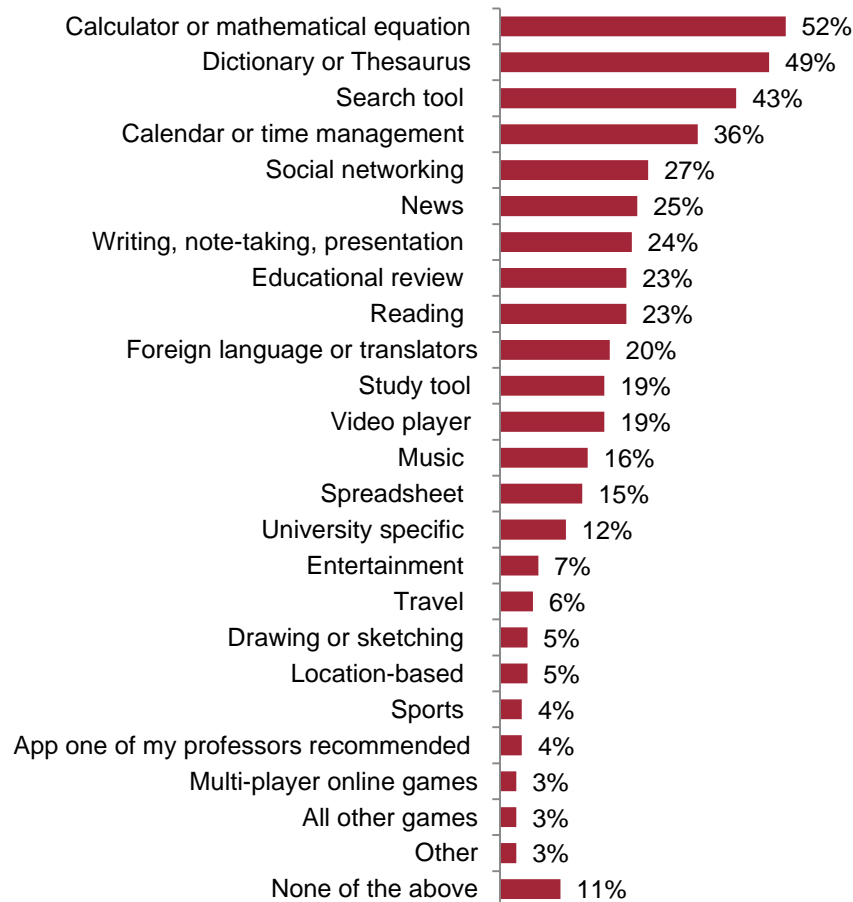
Opportunities exist for universities and students to take greater advantage of smartphone technology when it comes to administrative activities, such as ordering transcripts, purchasing textbooks, accessing financial aid information, and registering for courses.

Q11. You said you own an iPhone or smartphone. Which of the following are ways you use your iPhone or smartphone for your academic work?

ACADEMIC BENEFITS...

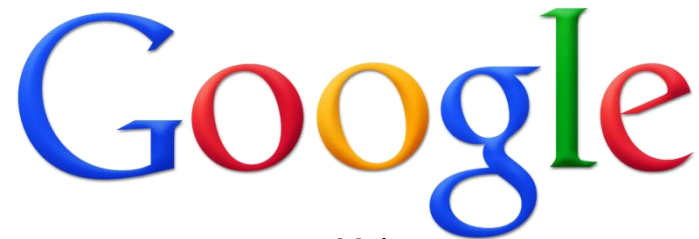
TOP APPS FOR MOBILES

Types of Apps Used Most For Coursework and other University-Related Activities
 (Among smartphone and tablet users) n= 1,230



Q10b. Which of the following types of mobile or tablet apps do you use for coursework or other college/university-related activities? Please do not include any apps that you only use for personal, non-academic purposes.

ACADEMIC BENEFITS...*THE ONE WEBSITE STUDENTS CAN'T LIVE WITHOUT*



36%



WIKIPEDIA
The Free Encyclopedia

11%



Blackboard

8%



3%



2%



2%



2%

An additional 88 websites/online resources were mentioned by less than 2% of the sample.

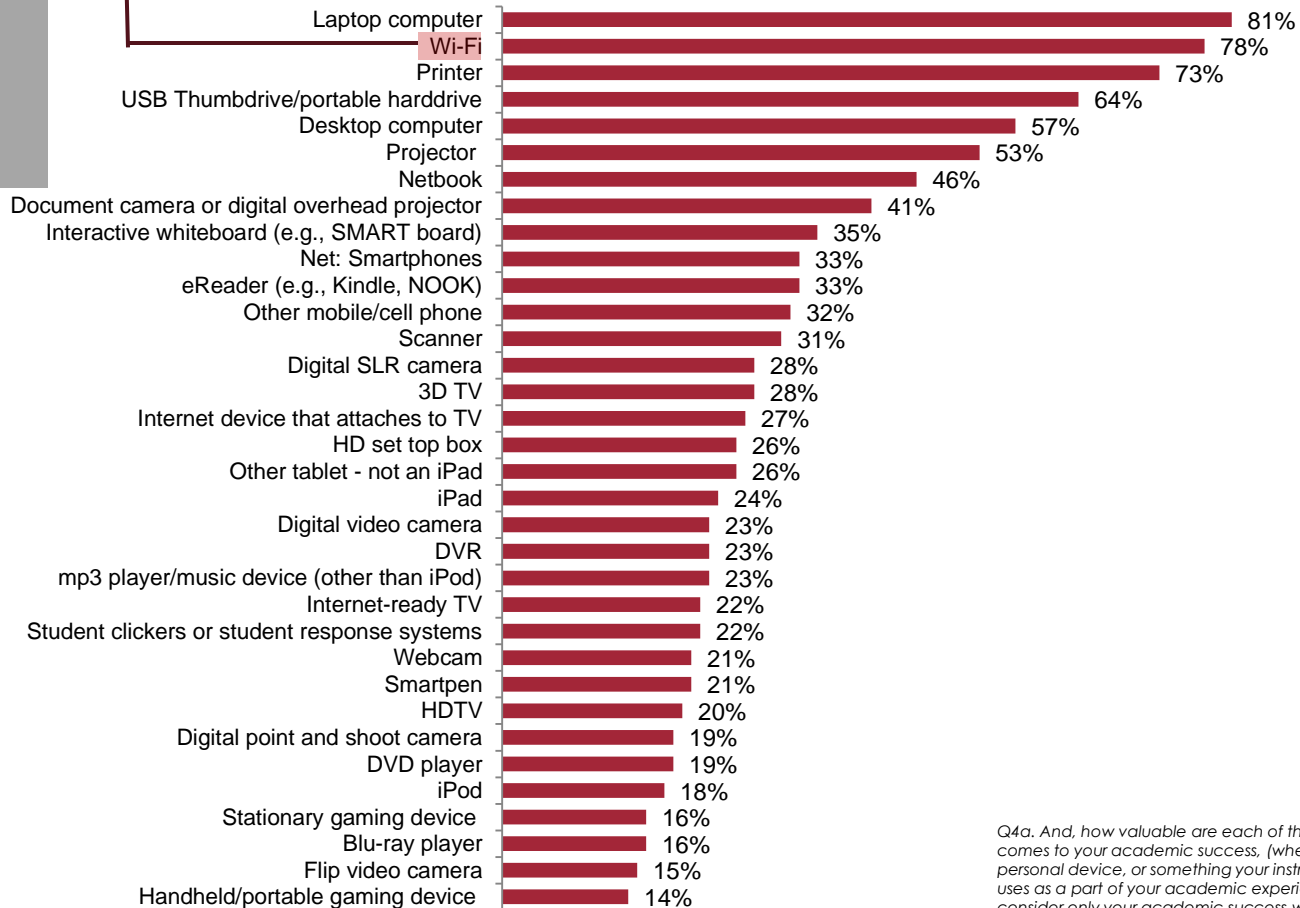
Q15. When it comes to your success as an undergraduate, what is one website or online resource you couldn't live without?

ACADEMIC BENEFITS...

VALUE ANYTIME, ANYWHERE ACCESS

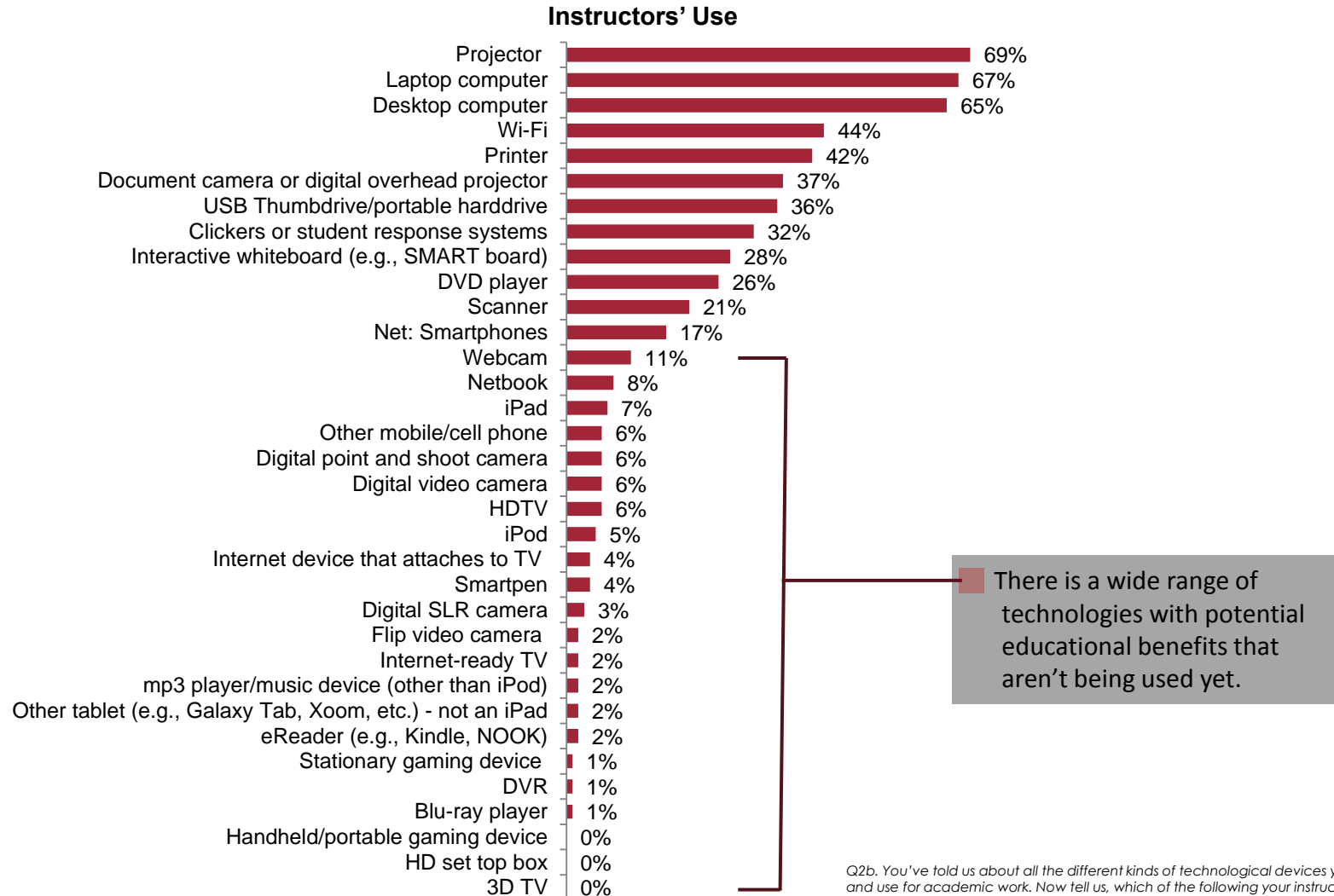
Value of Technology for Academic Success
 Percent Responding "Extremely Valuable"
 (Among users and those whose instructors use)
 N = bases vary

Wi-Fi access is instrumental to student success, and students want access from everywhere on campus.



Q4a. And, how valuable are each of the following when it comes to your academic success, (whether it's your own personal device, or something your instructor or university uses as a part of your academic experience)? Please consider only your academic success when rating these technologies, not the other aspects of your life.

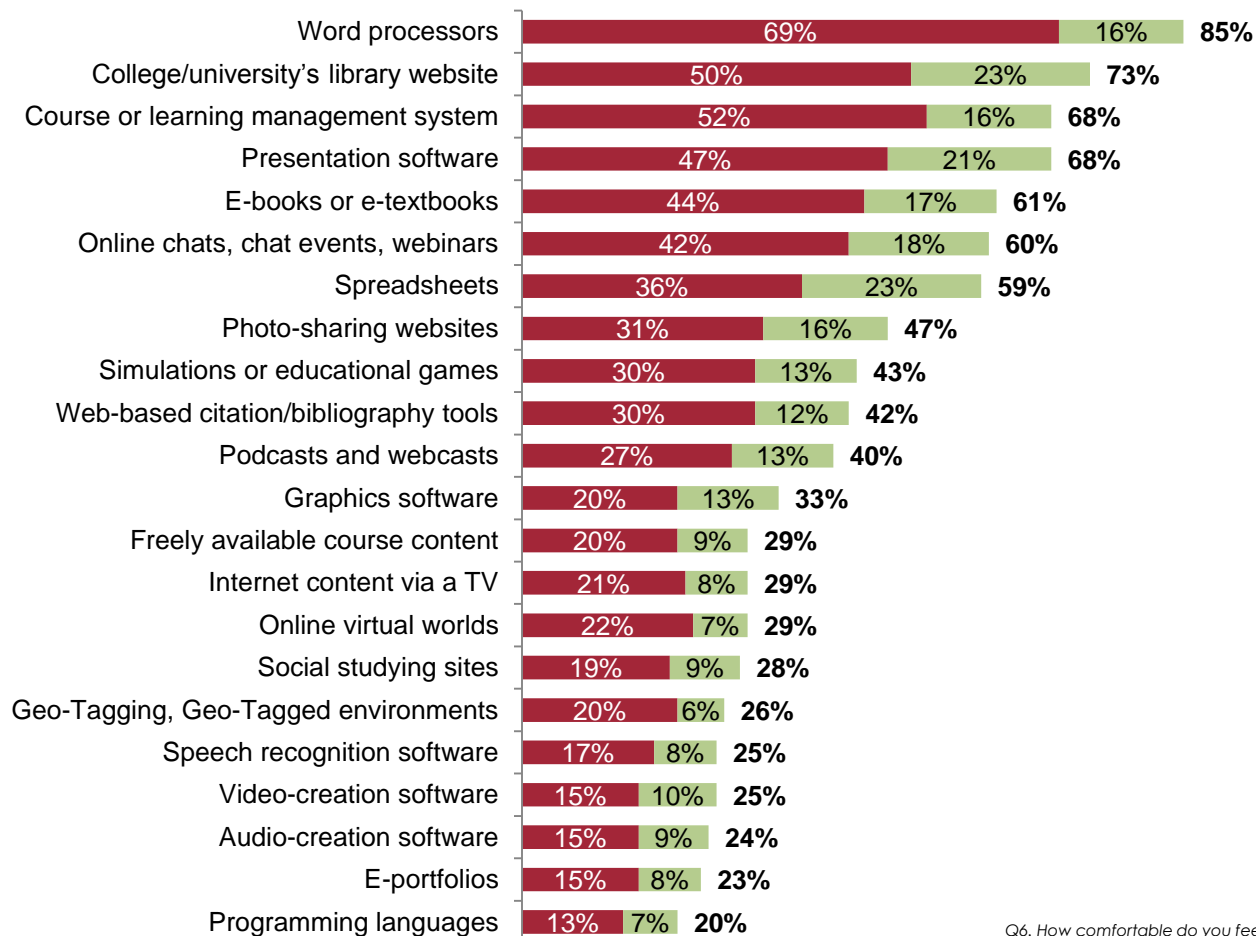
ACADEMIC BENEFITS... *TECHNOLOGIES VALUED ALIGN WITH INSTRUCTORS' USE*



ACADEMIC BENEFITS... MANY LACK CONFIDENCE IN THEIR SKILLS

Student Technology Skill Level

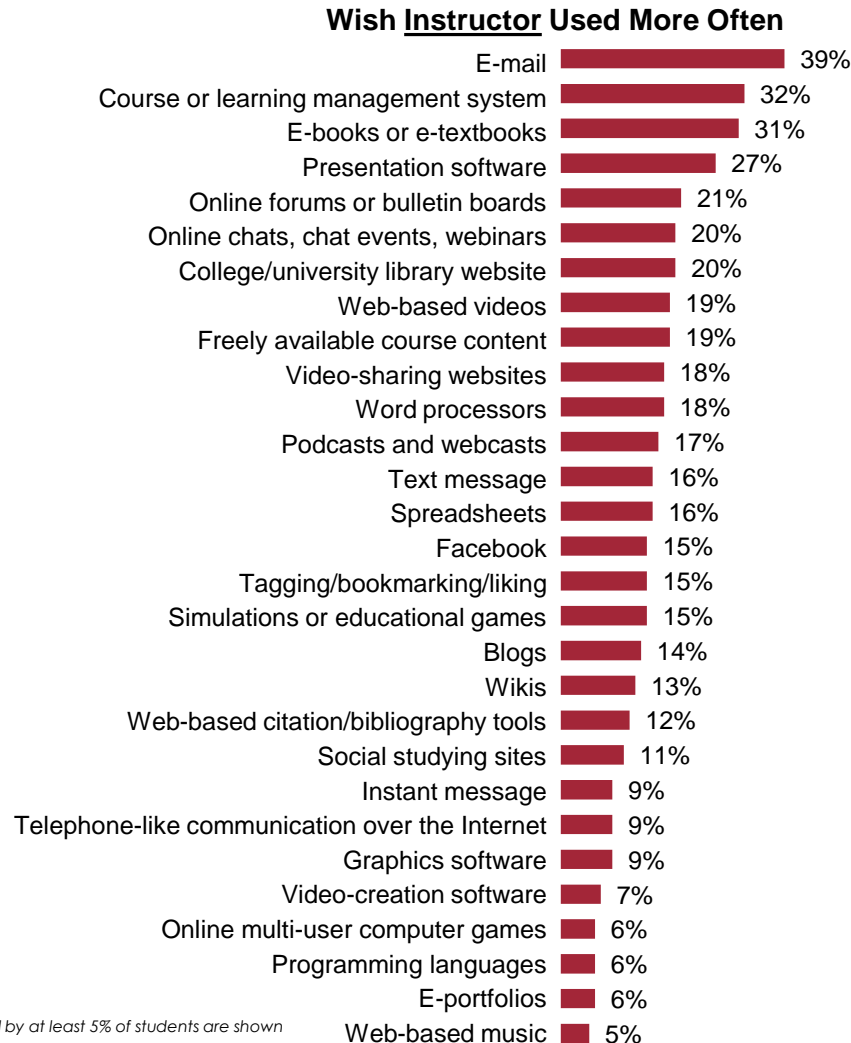
Percentage Responding 4 or 5 "My skill level meets my needs" (out of 5)



Q6. How comfortable do you feel with your ability to use each of the following?

ACADEMIC BENEFITS...

E-MAIL HITS THE TOP OF WISH LIST



*Only items mentioned by at least 5% of students are shown

Why Students Say they Want "More" (From open-end responses)

"I wish instructors **e-mailed** more so that students and teachers could communicate easier, faster, and more efficiently."

"**Blackboard** makes viewing things in your class easier and more convenient."

"**E-books** are cheaper than regular hardbound textbooks, easier to carry around, and more accessible all the time."

"I find **PowerPoint** presentations easy to follow & understand."

ACADEMIC BENEFITS... *CARNEGIE DIFFERENCES IN TECHNOLOGY VALUE*

- Students in community colleges are generally less likely to engage in many technology applications and activities than students at institutions of other Carnegie Classifications.
- Students in community colleges tend to find non-core technologies more valuable than do students in doctoral-granting institutions. These technologies include multi-user games, educational simulations and games, speech recognition software, and, to a lesser extent, virtual worlds, geotagging, and graphics software.

ACADEMIC BENEFITS...*CARNEGIE* *DIFFERENCES IN TECHNOLOGY VALUE*

- Across a broad range of technologies, students at institutions that award doctorate degrees are more comfortable with their skills than students at community colleges and, in many cases, students in institutions that award bachelor's and master's degrees.
- Students at institutions that award doctorate degrees tend to find a number of core communication, course, and social networking tools more valuable than their counterparts in community colleges.

KEY FINDING 3 – STUDENTS REPORT UNEVEN PERCEPTIONS OF INSTITUTIONS AND INSTRUCTORS ON TECHNOLOGY

UNEVEN PERCEPTIONS OF TECHNOLOGY... *EFFECTIVE, FREQUENT, AND SEAMLESS USE*

- The strongest predictors of how students rate their institution in its use of technology
 - their instructors' effective use of technology
 - their instructors' use of technology frequently enough
 - the seamless integration of technology into their courses
- These three predictors alone accounted for approximately 54% of the variance in students' perceptions of their institution's effectiveness in using technology.

UNEVEN PERCEPTIONS OF TECHNOLOGY...

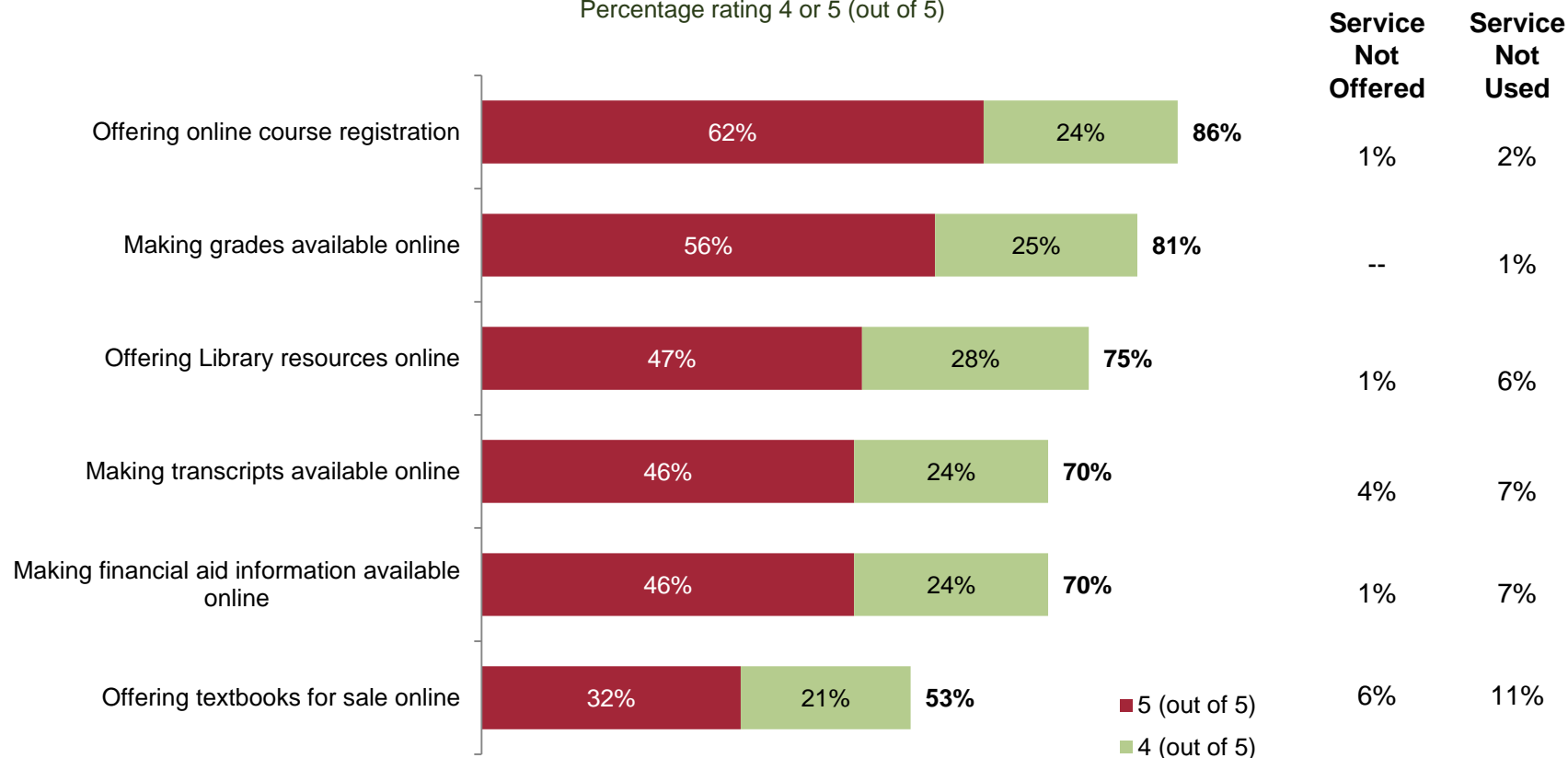
NO MAGIC BULLETS

- Students at institutions rated as highly effective in the use of technology say they engage in about as many software activities as their peers and that their instructors use about the same number of devices in their coursework.
- There are no significant differences between students' frequency of use of most software applications at institutions rated effective and less effective in their use of technology.
- Virtually no high or even moderate correlations exist between individual technologies and any of the major academic benefits of technology described earlier.
- Differentiating technologies, where they exist, often are mundane (e.g., printers, spreadsheets, even USB thumb drives).

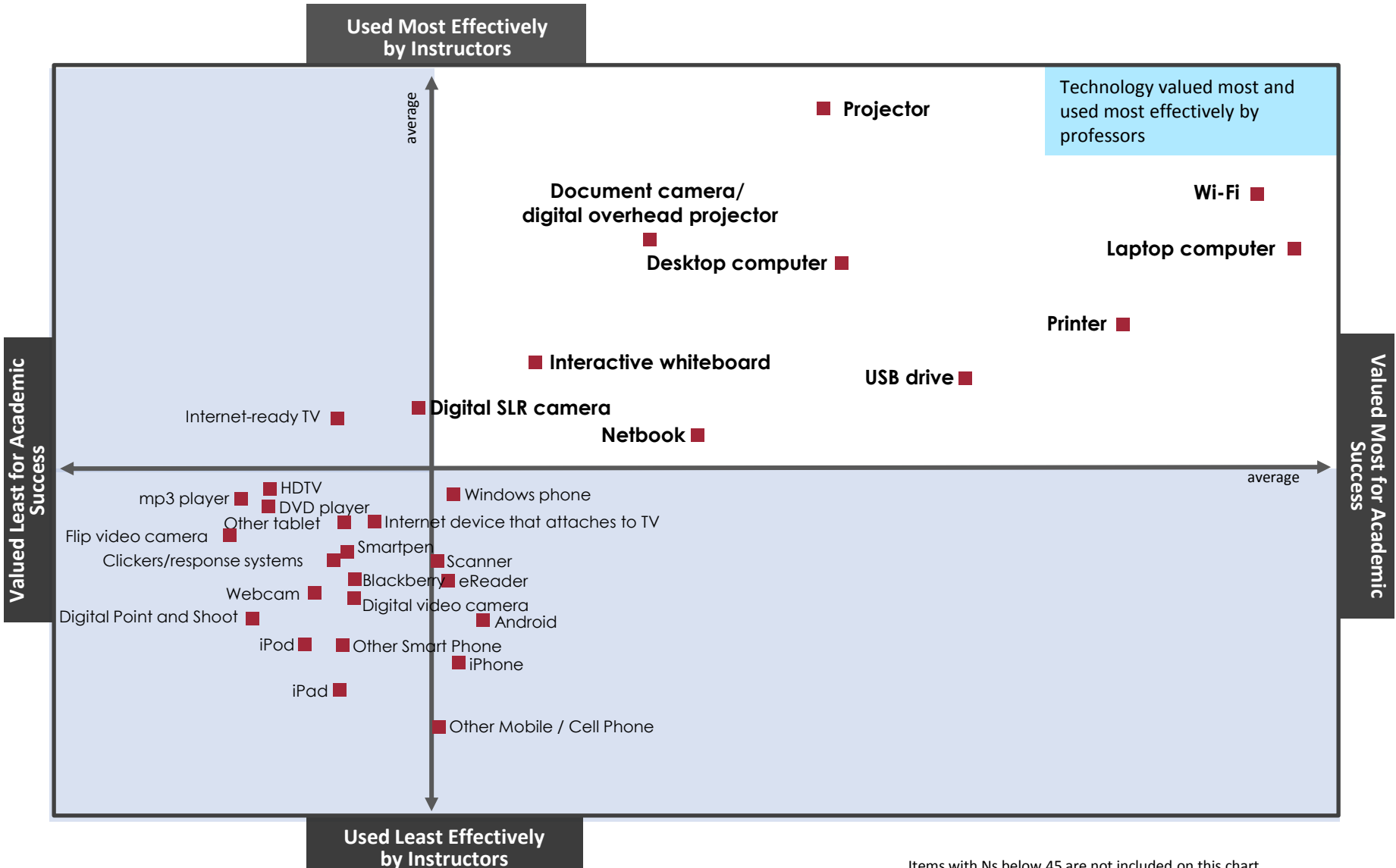
UNEVEN PERCEPTIONS OF TECHNOLOGY... DELIVERY OF BASIC ONLINE SERVICES

Institutional Performance in Online Delivery of Services

Percentage rating 4 or 5 (out of 5)

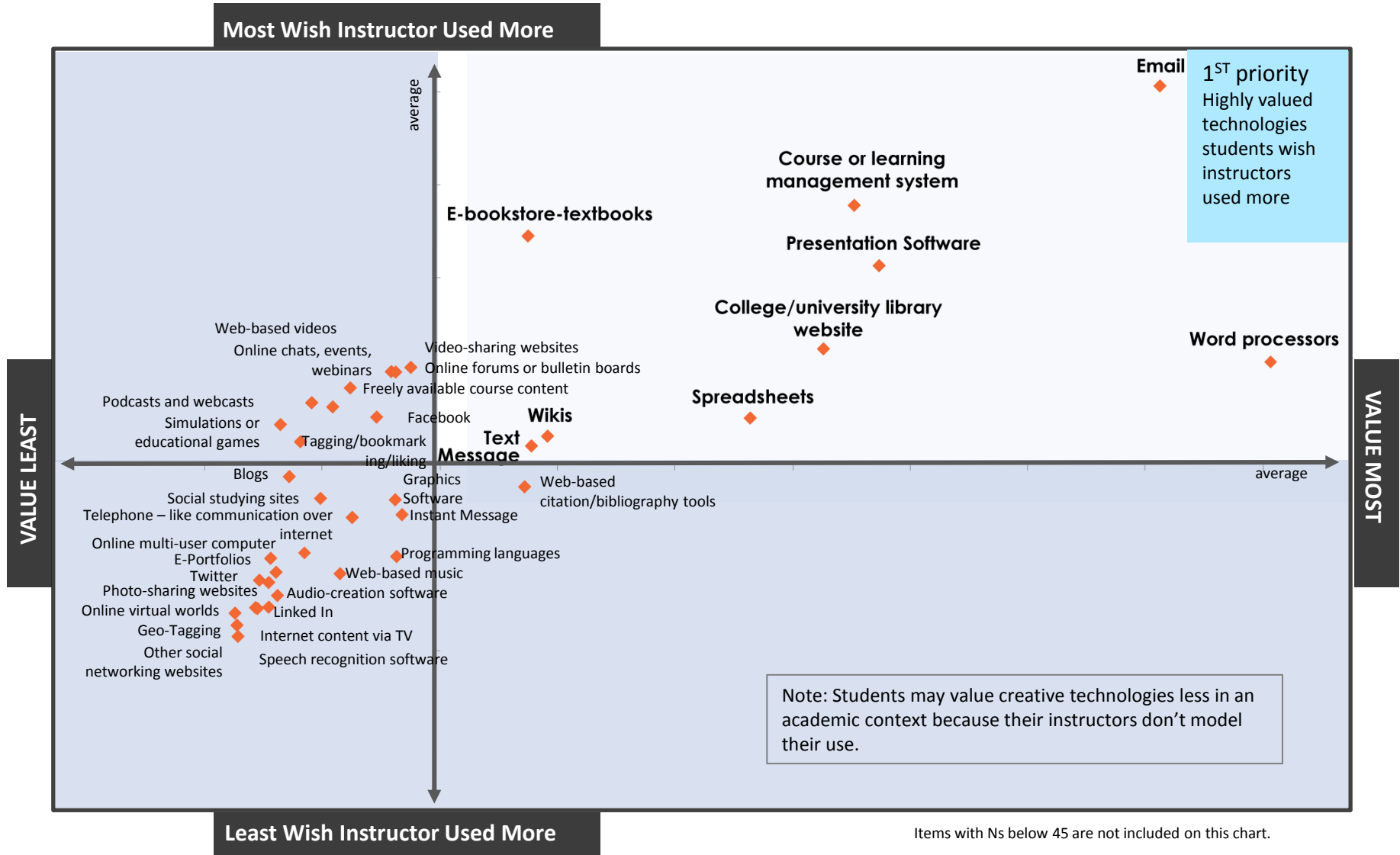


UNEVEN PERCEPTIONS OF TECHNOLOGY... VALUE VS. EFFECTIVE USE



Items with Ns below 45 are not included on this chart.

UNEVEN PERCEPTIONS OF TECHNOLOGY... SOFTWARE VALUE VS. WISHED USED MORE



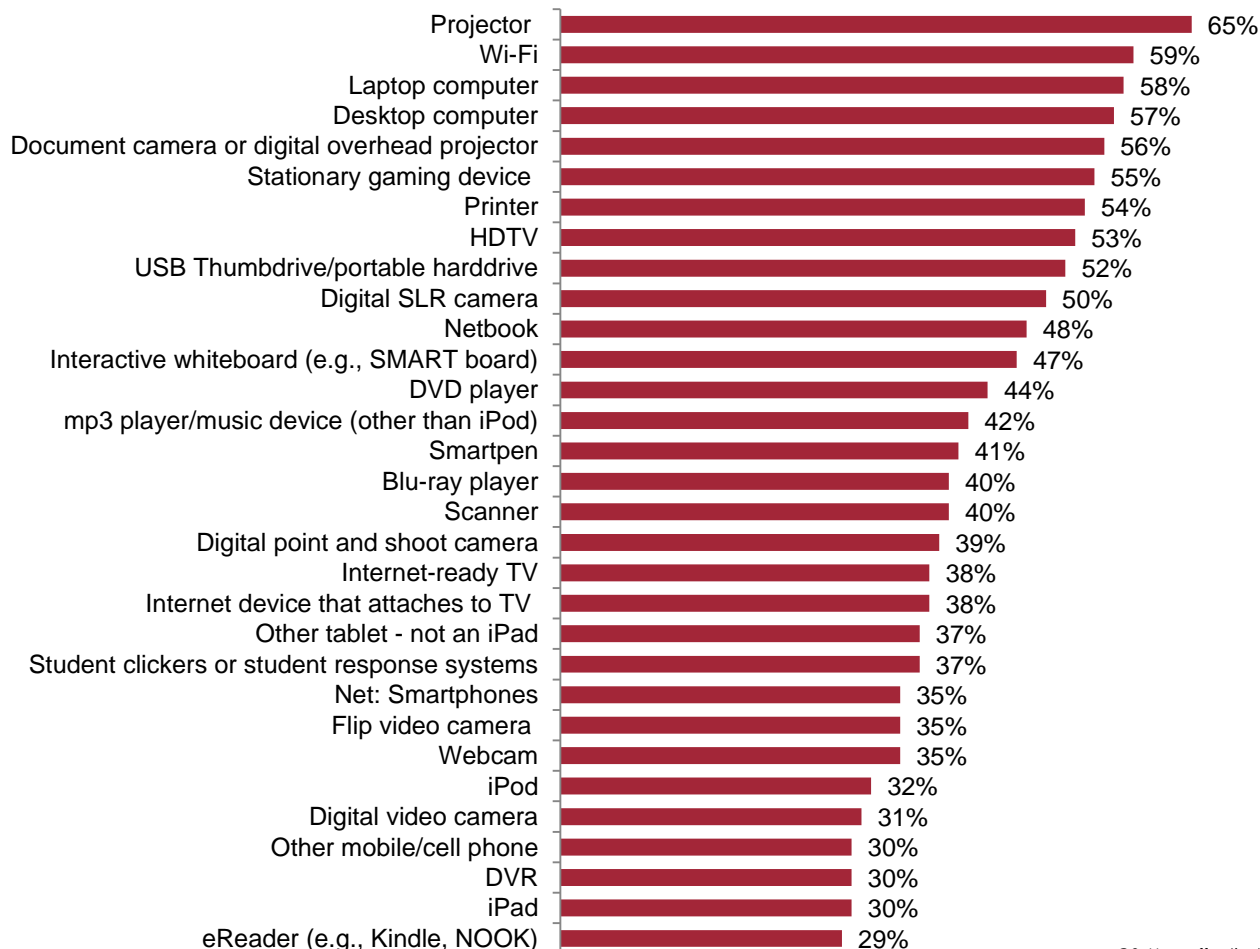
Q7. How valuable are each of the following when it comes to your academic success?
Q8A. Which things do you wish your instructors used more?

UNEVEN PERCEPTIONS OF TECHNOLOGY... INSTRUCTORS USE “TYPICAL” TECHNOLOGY

Instructors' Effective Use of Technology

Percentage responding “extremely effectively”

(Among those whose instructors use), n=base sizes vary

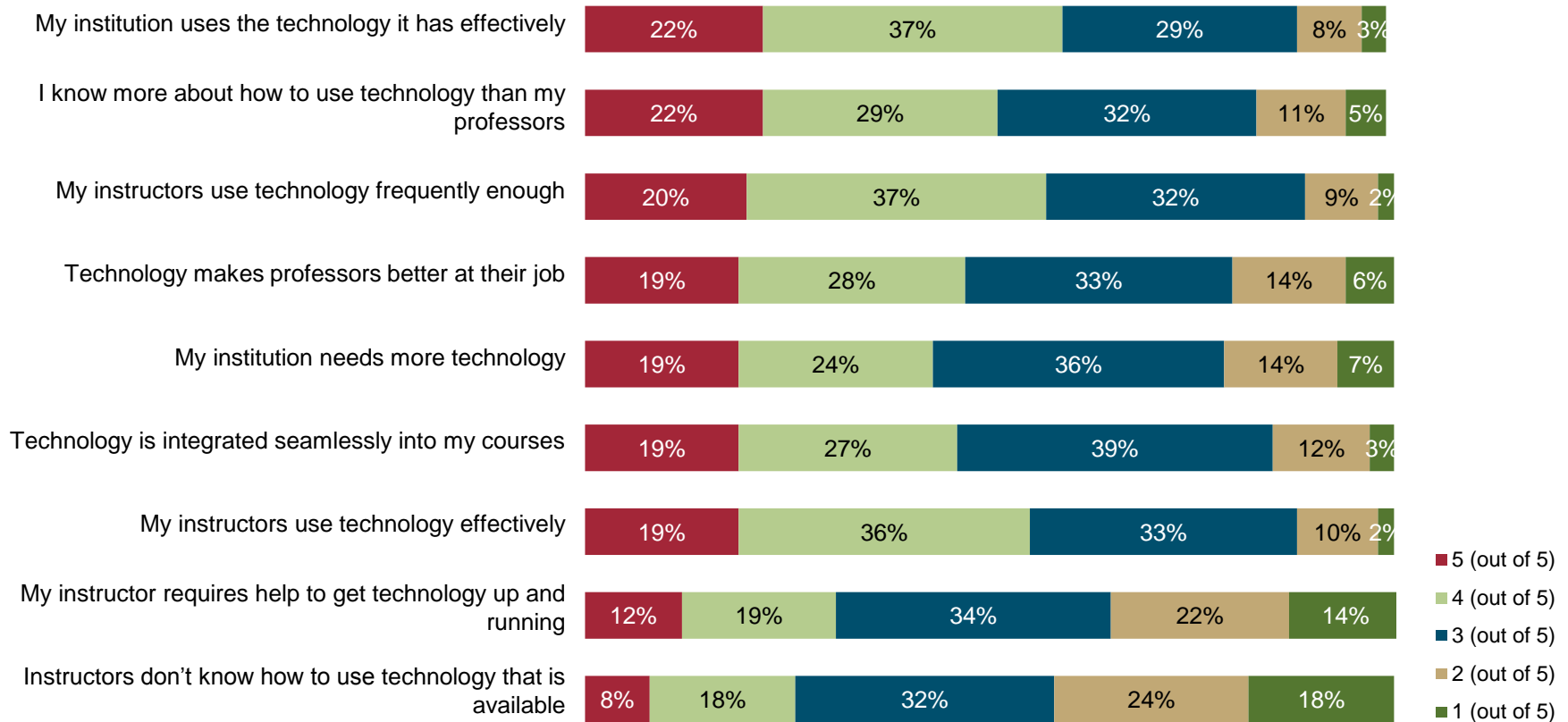


Q3. How effectively did your instructors use these technologies to teach, mentor and communicate with you in the past year?

UNEVEN PERCEPTIONS OF TECHNOLOGY... *OPPORTUNITIES FOR IMPROVEMENT*

Agreement with Statements about Technology

Strongly Agree ← ————— → Strongly Disagree



Q13. And how much do you agree with each of the following statements about technology, as it relates to your college experience?

UNEVEN PERCEPTION OF TECHNOLOGY... *TECHNOLOGY ASSISTANCE OPPORTUNITIES*

“Professors should be able to actually use the technology that is available to them. Many of my professors must enlist the help of students to get the technology up and running which wastes valuable class time.

“I hate that when you actually need the technology to work at our school, it never does.

“The campus needs a more **reliable Wi-Fi connection, available everywhere**. It's gone out repeatedly and there always seems to be new bugs every month!

“I'd like them to **use Blackboard to give us more resources outside the classroom, to post grades, and to have discussions outside the classroom**. The tools are all there, but they're not used.

“Professors can **utilize emails a lot more** to inform the class of important announcements.

“I would like if my college had more **up-to-date technology**.

“**Videoconferencing and webcams could and should be more widely used**. The technology is widely available and is easy to use, and can help bring these online classes to life and give the teacher more influence over their material.

“Make the technology more **integrated to the learning environment** and use more than just PowerPoint.

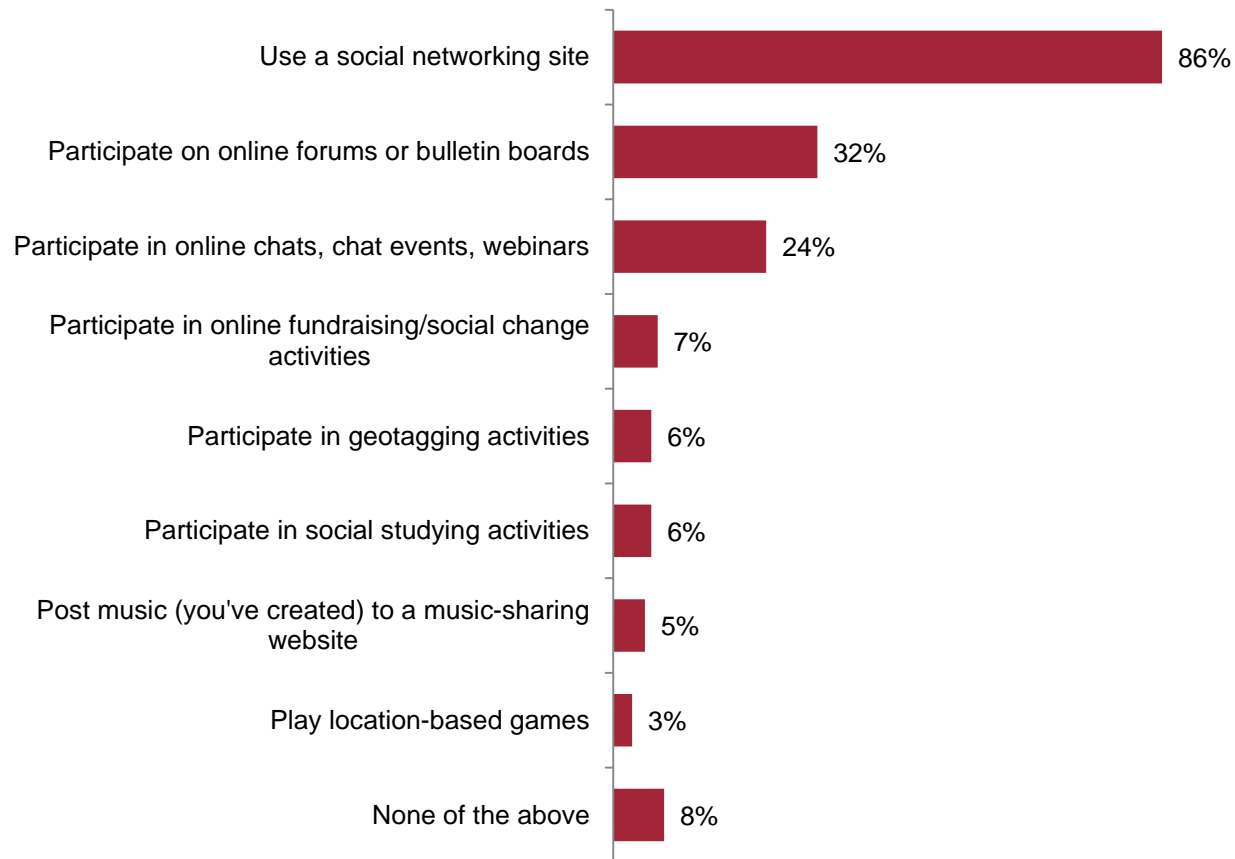
“Finding some way to make **eBooks** more widely available to students would be amazing.

Q14. Please describe in as much detail as you can how your college/university or professors could use technology better when it comes to providing you with the best possible college and learning experience. Please mention any additional technology that you think would be beneficial to your education, or ways to make current technology use more effective.

KEY FINDING 4 – FACEBOOK-GENERATION STUDENTS JUGGLE PERSONAL AND ACADEMIC INTERACTIONS

JUGGLE INTERACTIONS... *SOCIAL NETWORK USE—NOT UNIVERSAL*

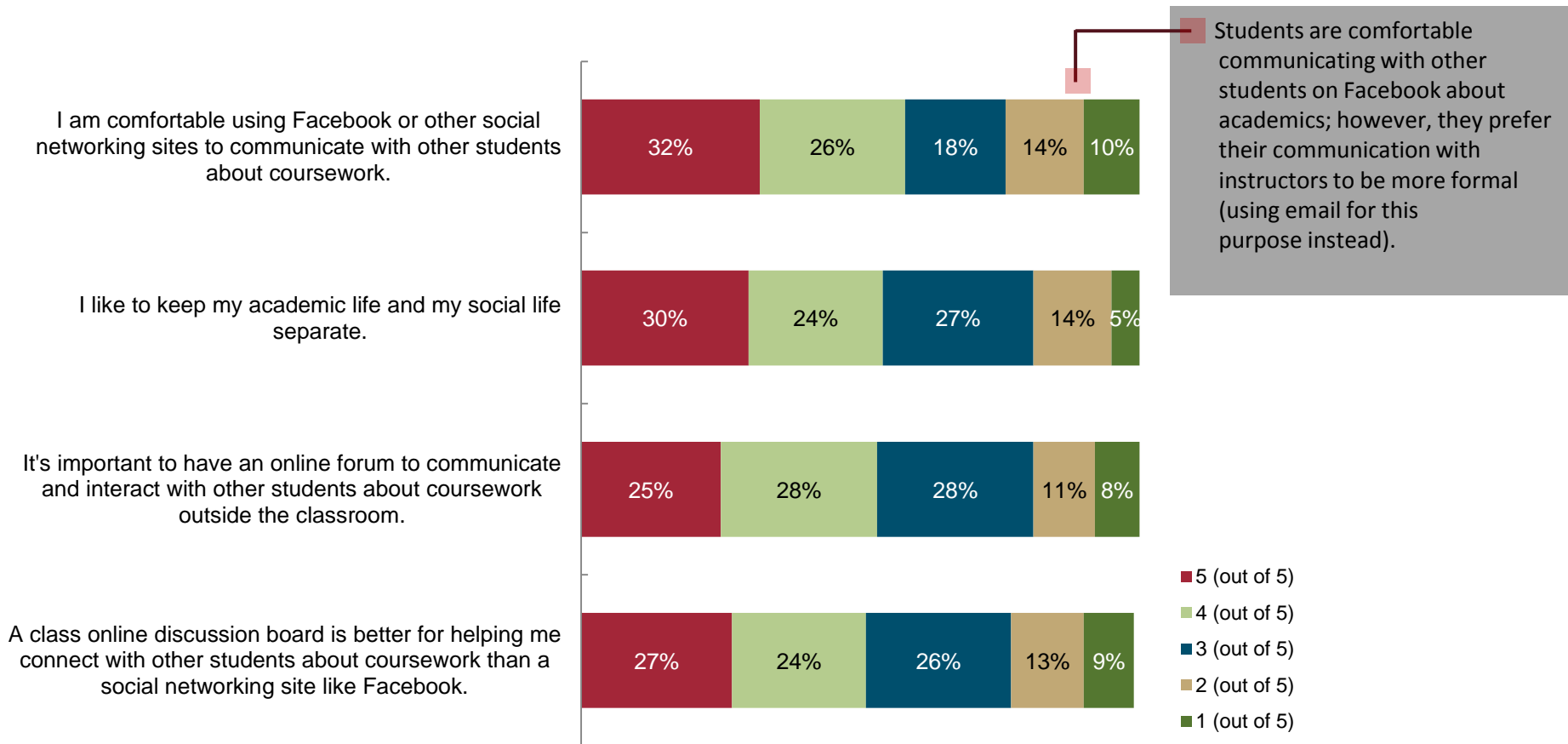
Social Networking Activities Students Do At Least Once a Month



Q19. Do you do any of the following activities on a regular basis (by "regular" we mean at least once a month)?

JUGGLE INTERACTIONS... USE FACEBOOK TO COMMUNICATE

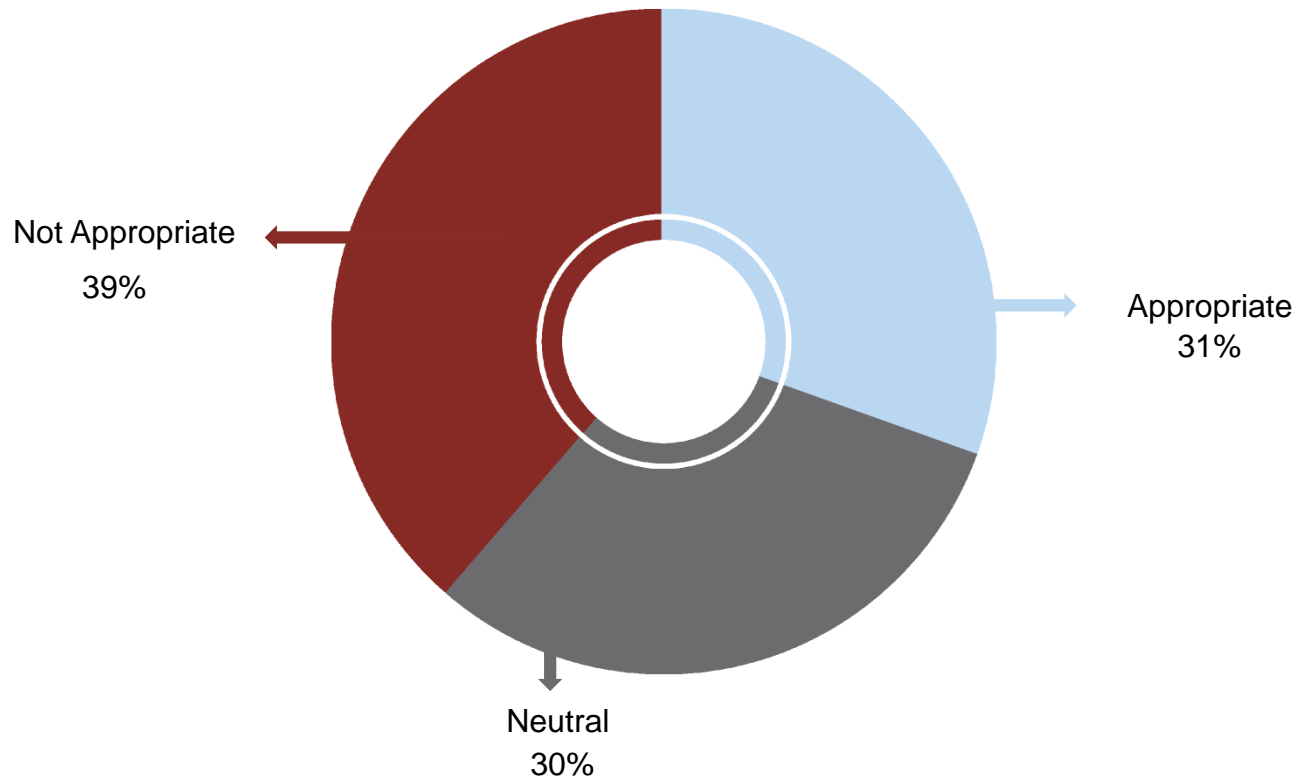
Agreement with Statements about Social Networking



Q20. How much do you agree with the following statements about the use of social networking sites such as Facebook in conjunction with your learning?

JUGGLE INTERACTIONS... “FRIENDING” BY AN INSTRUCTOR?

Appropriateness of Teacher or Professor
“Friending” You for Academic Purposes

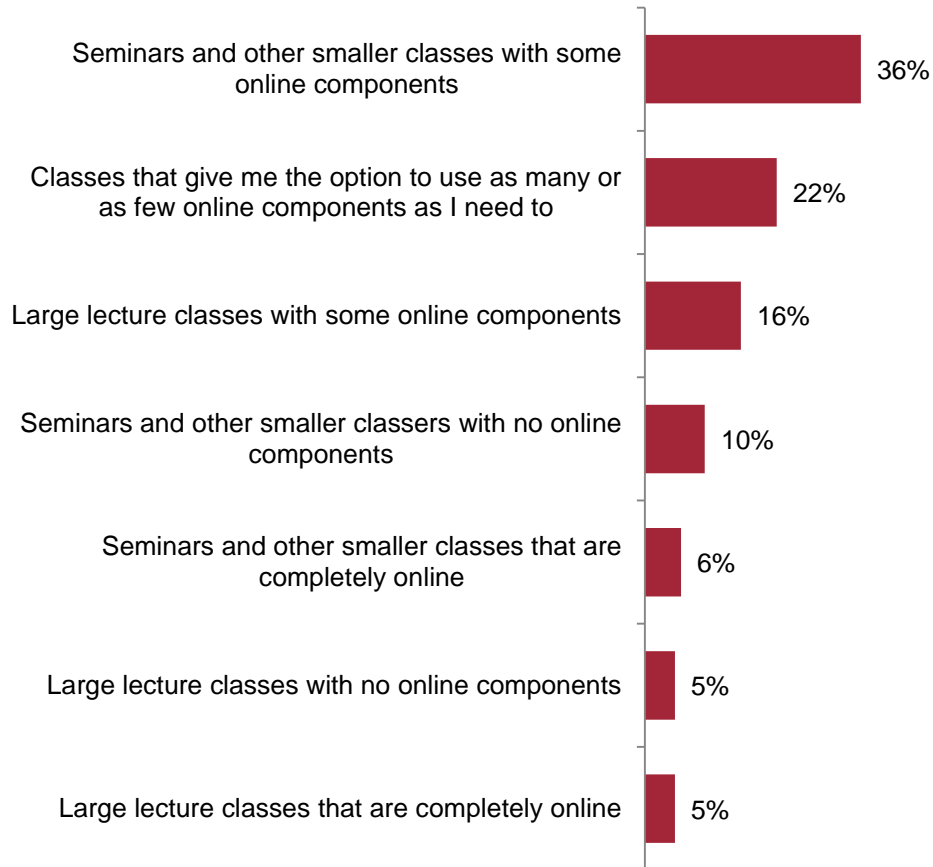


Q21. Let's say a teacher or professor wanted to "Friend" you for academic purposes. Is that appropriate?

KEY FINDING 5 – STUDENTS PREFER, AND SAY THEY LEARN MORE, IN CLASSES WITH ONLINE COMPONENTS

STUDENTS PREFER ONLINE COMPONENTS... *BLEND TRADITIONAL AND ONLINE*

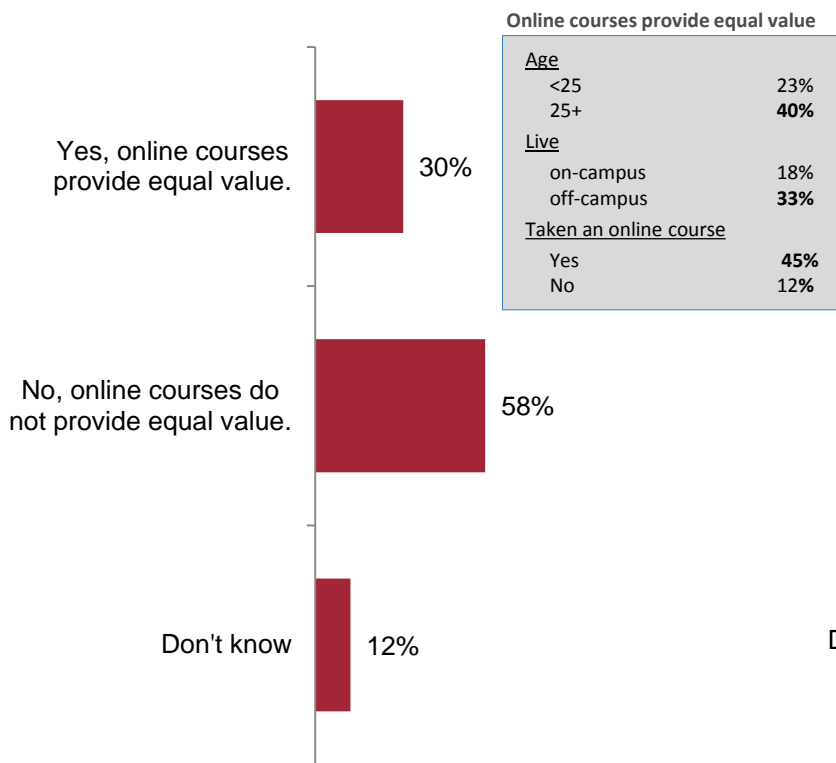
Preferred Learning Environment



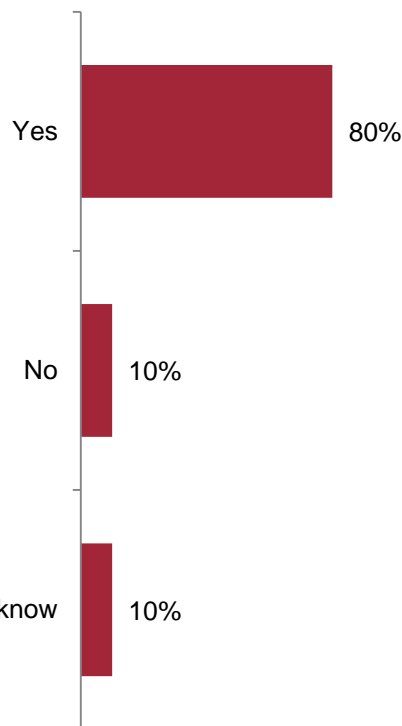
Q17. What type of learning environment do you generally prefer?

STUDENTS PREFER ONLINE COMPONENTS... MIXED SIGNALS ABOUT ONLINE-ONLY

Does an online course have the same educational value as an in-person course?

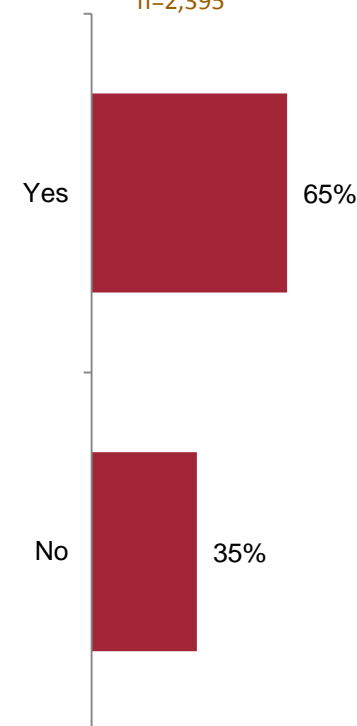


Does your institution offer exclusively online courses?



Have you taken a course entirely online?

(Among those whose institutions offer online courses)
n=2,395



Q18b. Generally speaking, do you believe a course taken only online provides an equal educational value compared with a course taken in person in a classroom, or not?

Q18c. Does your institution offer any courses for which the instruction takes place exclusively in an online environment, or not?

Q18d. Have you ever taken a course entirely online?

ECAR RECOMMENDATIONS

RECOMMENDATIONS

- Investigate *your* students' technology needs and preferences, and create an action plan to better integrate technology into courses and help students access institutional and academic information from their many and diverse devices and platforms.
- Provide professional development opportunities and incentives so that instructors can make better use of the technology they have and feel more comfortable with the technologies students find more engaging and relevant.

RECOMMENDATIONS, cont.

- Expand or enhance students' involvement in technology planning and decision making.
- Nail the basics. Help faculty and administrators excel at supporting students' use of core productivity software and applications for academic use, including, e-mail, word processing, spreadsheets, content or learning management systems, library sites, and bibliography tools.

RECOMMENDATIONS, cont.

- Meet students' expectations for anytime, everywhere, Wi-Fi access on the devices they prefer to use.
- Make more and better use of technologies that students value—and those that are easily integrated into learning experiences in the shared environments in higher education (e.g., tablets, smartphones, student response systems or clickers). In many cases, these are the technologies that distinguish highly rated from less highly rated institutions on the effective use of technology today.

RECOMMENDATIONS, cont.

- Meet students' expectations for joining the consumer migration to e-content.
- Establish/refine social media policies utilizing information about how your students use social media to enhance their educational experience.
- Use technology in more transformative ways, such as participatory and collaborative interactions and for higher-level teaching and learning that is engaging and relevant to students' lives and future plans. Use technology more to extend learning beyond the classroom.

RECOMMENDATIONS, cont.

- Give students different options for interacting with the institution and with instructors, including “standard” and more forward-leaning options. Leverage the value that students find in instructional relationships, using face-to-face, online, and blended strategies.
- Move strategically toward blended/hybrid learning environments to meet students’ preferred styles of learning. Offer many different ways for students to engage in learning using technology and meet differentiated needs (e.g., for different student populations and preferences, academic disciplines, and coursework).

FOR MORE INFORMATION

*ECAR National Study of Students and Information
Technology in Higher Education, 2011*

<http://www.educause.edu/library/ERS1103>

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