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Information and Communication Technology Literacy among First-Year Honors and Non-Honors Students: An Assessment

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Today's students should be able to retrieve and critically evaluate information from digital media; to organize, interpret, and apply the information; and to compose an effective presentation that responds to a clearly articulated research problem and communicates to a particular audience. These skills have been of special concern to the honors community, as evidenced by the 2009 JNCHC Forum on "Honors in the Digital Age." Development of these twenty-first-century competencies, called information and communication technology (ICT) literacy, is the object of a curriculum enhancement project underway in the honors program, jointly with general education, at Louisiana Tech University. Recently, in the project's initial phase, an assessment of student performance was conducted using the Educational Testing Service's (ETS) *iSkills* test. This article reports results which respond to the following questions: How ICT-literate are the university's freshmen? Do first-year honors students demonstrate greater proficiency in these skills than non-honors freshmen? How do Louisiana Tech's honors freshmen compare to those at other four-year colleges?

The Louisiana Tech University Honors Program has grown significantly in the last few years. The program currently counts between 460 and 480 students in its program, with a little more than half of those students majoring in science and engineering. Students are admitted to the program as freshmen if they meet one of two criteria: a 26 composite ACT score or a ranking in the top 10% of their graduating class. Our program is reworking its curriculum to place greater emphasis on undergraduate research, that is, to focus on the process of generating knowledge and to develop students' college-level competencies in original inquiry, evidentiary analysis, critical use of information, and purposeful communication in writing or public presentation. The

program is promoting information and communication technology literacy because the abilities to marshal and interpret sources in the digital environment of the twenty-first century are indispensable to undergraduate research, expected by institutions of higher learning, desired by employers, and required by accrediting agencies.

Funded by a Traditional Enhancement Program grant from the Louisiana Board of Regents Support Fund, principal investigator Brian Etheridge, Director of the Louisiana Tech Honors Program and Chair of the University's General Education Requirements Committee, assisted by co-principal investigator Boris Teske, College of Liberal Arts Liaison Librarian, administered the ETS *iSkills* test to a total of 97 freshmen and 73 juniors during fall quarter 2009. The object was to pilot a nationally renowned, standardized performance assessment to inform curriculum enhancement: to establish a baseline for cross-sectional and longitudinal analysis through repeated and multiple authentic assessments, such as the evaluation of portfolios; to identify practices proven to be effective; and to adapt and apply them to general education using the honors program as a "laboratory" or test bed for curricular innovation.

THE ASSESSMENT

The *iSkills* test was a product of evidence-centered design: performed tasks elicit test takers' behaviors, and inference from this evidence reveals and estimates their proficiencies (Egan & Katz; Katz; Somerville, Smith & Macklin). Originally developed in 2003 as the ETS's *ICT Literacy Test*, *iSkills* has been emended and replaced since November 2009 by the *iCritical Thinking*™ *Certification* offered jointly by the ETS and Certiport. The ETS has also developed concordance tables to enable reliable comparisons of *iSkills* and *iCritical Thinking Certification* scores (Educational Testing Services 2009). The seven proficiencies and fifteen specific tasks of *iSkills* were derived from and closely aligned with the standards, performance indicators, and learning outcomes of the *Information Literacy Competency Standards for Higher Education* (Association of College & Research Libraries 2000); see Figure 1.

This assessment instrument was Web-based and delivered online to client institutions through a secure browser. Unlike multiple-choice standardized tests, *iSkills* was a performance assessment. It was a timed test, taking a total of seventy-five minutes. Equipped with a PC, test takers responded to fourteen short tasks, each targeting a single skill, and one longer task targeting two skills. Providing opportunities to demonstrate problem-solving skills and measuring the application of knowledge, *iSkills* engaged students in interactive tasks based on authentic, real-world scenarios. Test takers,

Figure 1: Information & Communication Technology Literacy Skill Areas

Define	Formulate a research statement to facilitate the search for information
Access	Find and retrieve information from a variety of sources
Evaluate	Judge the usefulness and sufficiency of information for a specific purpose
Manage	Organize information for later retrieval
Integrate	Summarize or otherwise synthesize information from a variety of sources
Create	Generate or adapt online information to express and support a point
Communicate	Adapt information for an audience or for delivery via a different medium (e.g., e-mail, slide presentation, text document, spreadsheet)

using simulated software rather than demonstrating proficiency with any particular proprietary package, queried a Web search engine, extracted information from a database, created spreadsheets, composed email research reports, and performed other digital research and composition.

The ETS offered two versions of *iSkills*. The Core version, for students beginning the first year of postsecondary education, comprised more straightforward scenarios and fewer choices. The Advanced version, for rising juniors or transfers transitioning to upper-division coursework, measured ICT literacy readiness for advanced study and implemented assessments of how well programs develop student proficiencies over time.

The ETS communicated a variety of reports to the test administrator. A spreadsheet tabulated *iSkills* test takers' scores as well as the demographic and educational data each supplied in the Background Questionnaire. Two reports provided aggregate data useful for demonstrating strengths and weaknesses of cohorts or subgroups defined by attributes such as class year or academic major. An Institutional Skill Area Report for each cohort of test takers compared their overall performance in the seven skill areas to the national average. An Aggregate Task Performance Feedback Report for each cohort of test takers, requiring a minimum sample size of fifty, compared to the national average their frequency of giving the best, highest-scoring response to each task. Finally, the Individual Performance Feedback Report documented each student's overall score and responses to the tasks. These individual reports could be used in advising and guidance for each student's decision making about a major, prerequisites, placement, need for improvement or remediation,

satisfaction of graduation requirements, and readiness for the demands of graduate study or a profession.

RESULTS

During the first two weeks of October 2009, a total of 97 Louisiana Tech freshmen, including 54 honors students, took the Core version of *iSkills*. The Advanced version was administered to 73 juniors, of whom 33 were honors students. This study is confined to the assessment of the freshmen.

Expectations of student performance in this pilot test were low. Nationally, only 39% of four-year college freshmen tested with *iSkills* between 2005 and 2008 met or exceeded the Core version's cut score of 165, the minimal standard for satisfactory performance, out of a range of 0–300 (Tannenbaum & Katz 2008). Louisiana Tech's non-honors freshmen met or exceeded the cut score more often (44.2%) than the national average with an average score of 149.8. Honors freshmen passed at double their rate (88.9%) with an average score of 179.2.

Figure 2: Louisiana Tech Freshmen Attainment of iSkills Core Cut Score

Freshmen	Did not meet	Met	Exceeded	% at or above
Honors (n=54)	6 (11.1%)	1 (1.9%)	47 (87%)	88.9%
Non-Honors (n=43)	24 (55.8%)	5 (11.6%)	14 (32.6%)	44.2%

We received from the ETS an Aggregate Task Performance Report comparing 53 of the 54 honors and 42 of the 43 non-honors freshmen from Louisiana Tech to four-year college freshmen nationwide. This report refers only to percentages of test takers who responded with the best answer. Bar graphs below represent these comparisons of freshmen responses given while performing the fifteen specific tasks in the seven skill areas.

Individual reports of each Louisiana Tech student's performance document not only when the test takers selected best answers (scored 1.0) but also the responses that were partially correct or somewhat appropriate (scored 0.5) and those that were inappropriate, incorrect, or incomplete (scored 0.0). These data afford a more thorough analysis of student performance and differentiation between honors and non-honors, but, unlike the aggregate reports, they do not provide national peer comparison. Unfortunately, these data are incomplete and represent only portions of the two groups of Core test takers. Just prior to the ETS's deactivation of *iSkills* and suspension of customers' access to their data files on November 15, 2009, individual reports were made available for only 35 of the 53 honors freshmen and only 22 of the 42 non-honors freshmen. Furthermore, a couple of these test takers did not

have the opportunity to see or to perform particular tasks. One honors student's online access froze midway through the test, and a non-honors student left without proceeding to the second half of the test. In some instances test takers appear to have left tasks incomplete by having either timed out or prematurely moved on to the next task.

We believe, nonetheless, that with the use of the aggregate reports (which are nationally-normed) and the available individual reports (which are not nationally-normed but provide greater specificity for those students for whom we have reports), meaningful conclusions can be drawn about proficiency among honors students in information and communication technology literacy.

What follows is a discussion of each of the ICT literacy skill areas and how our first-year honors students performed compared to non-honors students at Louisiana Tech and, in best responses, to the national average among four-year college freshmen. Two sets of related data are used to inform this discussion: the numbers of students, according to their individual reports, whose responses earned full credit, partial credit, or no credit; and the percentage of students in each population who gave the best answer, illustrated by bar graphs.

DEFINE

In this skill area, students demonstrated their ability to understand and articulate the scope of an information problem in order to facilitate the electronic search for information. Tasks included:

- distinguishing a clear, concise, and topical research question from poorly framed questions that are overly broad or do not otherwise fulfill the information need;

- asking questions of a "professor" that help clarify a vague research assignment;

- conducting effective preliminary information searches to help frame a research statement.

The data suggest that honors freshmen were more proficient at inquiry-guided research than the non-honors students. While a very high percentage (83%) of honors freshmen chose the best research question, only half the non-honors did, and one third chose a question not likely to clarify the research project.

CHOOSE A RESEARCH TOPIC ACCORDING TO SPECIFIC CRITERIA

Based on individual reports, although not many accounted for all criteria, 22 of 35 honors freshmen and 13 of 22 non-honors chose topics fulfilling some criteria while 25 of the 35 and 15 of the 22 reported some of the criteria fulfilled.
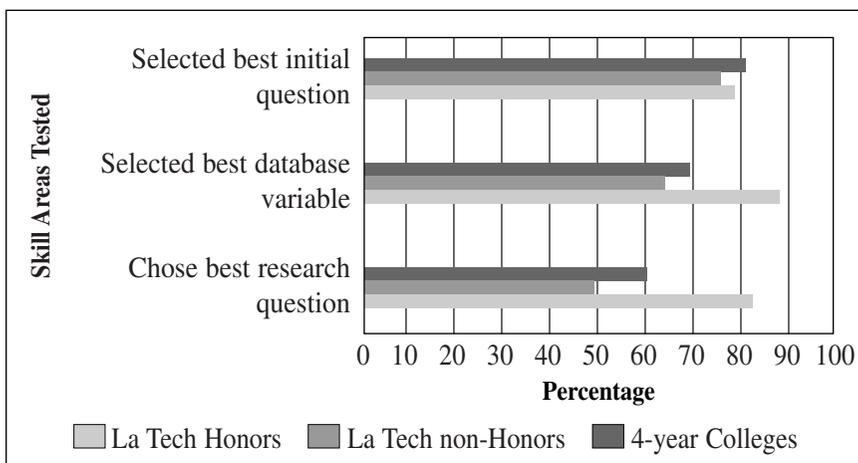
Figure 3: Best Responses (from aggregate reports)
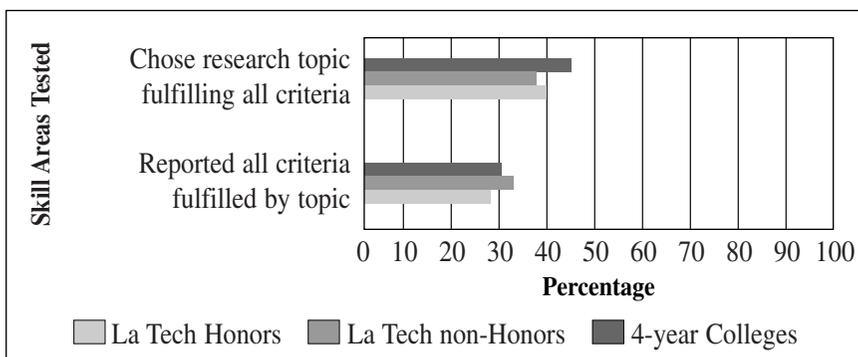
ANSWER THREE QUESTIONS TO CLARIFY A RESEARCH PROJECT

According to our individual reports, whereas 12 of 21 non-honors freshmen selected at least a reasonable research question, if not the best, a third of them chose a question not likely to clarify the project.

Figure 4: Best Responses (from aggregate reports)

ACCESS

In this skill area, students demonstrated their ability to collect and/or retrieve information in digital environments. Information sources might be Web pages, databases, discussion groups, e-mail, or online descriptions of print media. Tasks included:

- generating and combining search terms (keywords) to satisfy the requirements of a particular research task;

- browsing one or more resources efficiently to locate pertinent information;

- deciding what types of resources might yield the most useful information for a particular need.

Louisiana Tech's freshmen searched the simulated database and search engine fairly well, honors somewhat better than non-honors. All or nearly all honors freshmen and high percentages of non-honors used at least reasonable search terms, if not the best; missed no more than one appropriate item in the database; and selected reasonable Web pages, if not the best, from the search engine. At alarming rates, however, two fifths of honors freshmen and more than a quarter of non-honors selected more than one inappropriate item, three fifths of honors and nearly half of non-honors did not retrieve many relevant returns even after multiple database searches, and two fifths of honors and two thirds of non-honors either needed to search the search engine numerous times to find the best Web pages or simply did not select them.

SEARCH A STORE'S DATABASE IN RESPONSE TO A CUSTOMER'S INQUIRY

The individual reports show that all 35 honors freshmen and a total of 19 of 22 non-honors missed no more than one appropriate item. On the other hand, 15 of 35 honors freshmen and 6 of 21 non-honors selected more than one inappropriate item.

Figure 5: Best Responses (from aggregate reports)
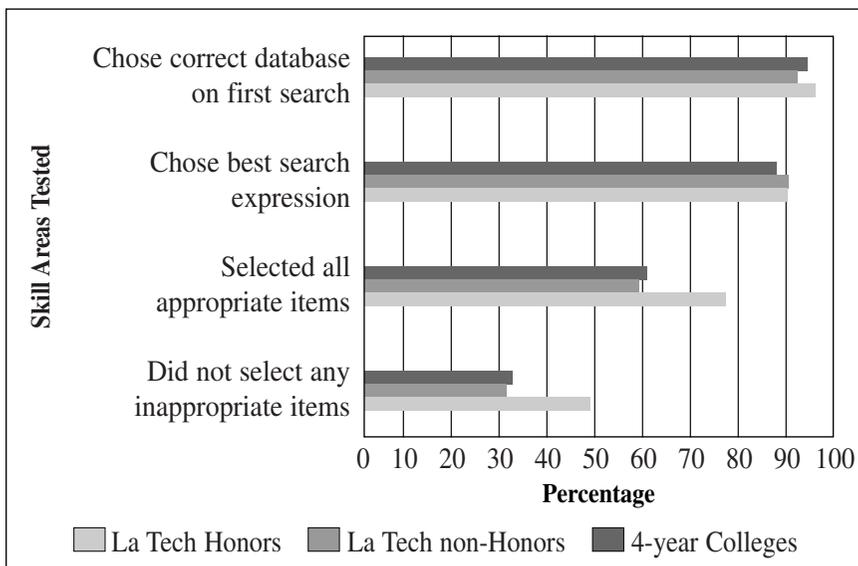
LOCATE TWO WEB PAGES FOR A RESEARCH PROJECT

Our individual reports illustrate that all 35 honors freshmen and 20 of 22 non-honors used reasonable if not optimal search terms. Even after multiple searches, however, 21 honors freshmen and 10 non-honors did not retrieve many relevant returns.

Figure 6: Best Responses (from aggregate reports)
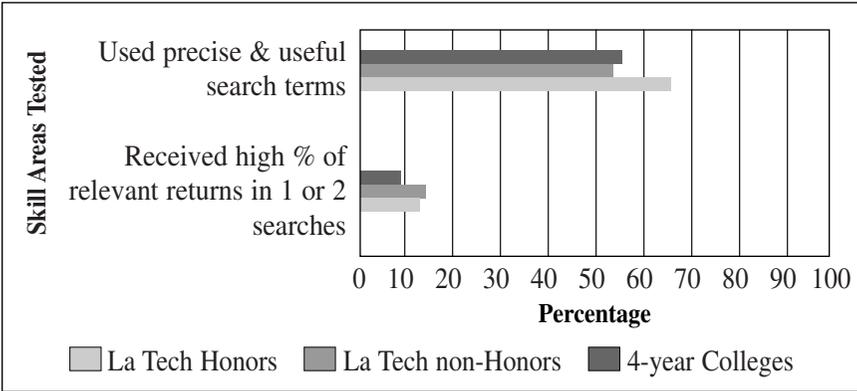
EVALUATE

In this skill area, students demonstrated their ability to judge whether information satisfies an information problem by determining the authority, bias, timeliness, relevance, and other aspects of materials. Tasks included:

- judging the relative usefulness of provided Web pages and online journal articles;

- evaluating whether a database contains appropriately current and pertinent information;

- deciding about the extent to which a collection of resources sufficiently covers a research area.

Results varied with respect to critical evaluation of a research topic, database, articles, Web pages, and Web sites. Nearly all of the honors and the non-honors freshmen chose a research topic according to at least some of the criteria, if not all, though majorities accounted only for some criteria. Majorities also correctly evaluated sources from a database according to currency, relevance, authority, and objectivity while freshmen in very high percentages correctly judged the database's usefulness. At alarming rates, however, nearly half of honors freshmen and more than half of non-honors did not select the best articles. In evaluating Web pages, honors freshmen made no major mistakes, mostly just minor mistakes in judging relevance and authority. Most non-honors freshmen made minor mistakes regarding relevance and authority, and nearly half made minor mistakes judging point of view, while nearly half made major mistakes in evaluating currency. Very high percentages of honors freshmen selected the best Web site and made no more than minor mistakes evaluating Web sites for authority, bias, and currency. On the other hand, half of non-honors freshmen did not select the best Web site, and considerable numbers made major mistakes in critical evaluation: nearly half in judging the authority, more than a third in judging bias, and nearly a third in judging currency of Web sites.

EVALUATE A DATABASE IN ORDER TO DETERMINE ITS USEFULNESS FOR A PROJECT

Based on the individual reports, while most of Tech's freshmen correctly evaluated the database's usefulness without the benefit of explicit criteria, 16 of 35 honors freshmen and 12 of 22 non-honors either incorrectly determined its usefulness or did not select the best articles.

In evaluating databases and selecting sources 16 of 35 honors freshmen and 9 of 22 non-honors incorrectly judged currency, 15 honors and 10 non-honors misjudged relevance, and only 10 honors and 8 non-honors incorrectly assessed authority and objectivity.

**Figure 7: Best Responses (from aggregate reports)**
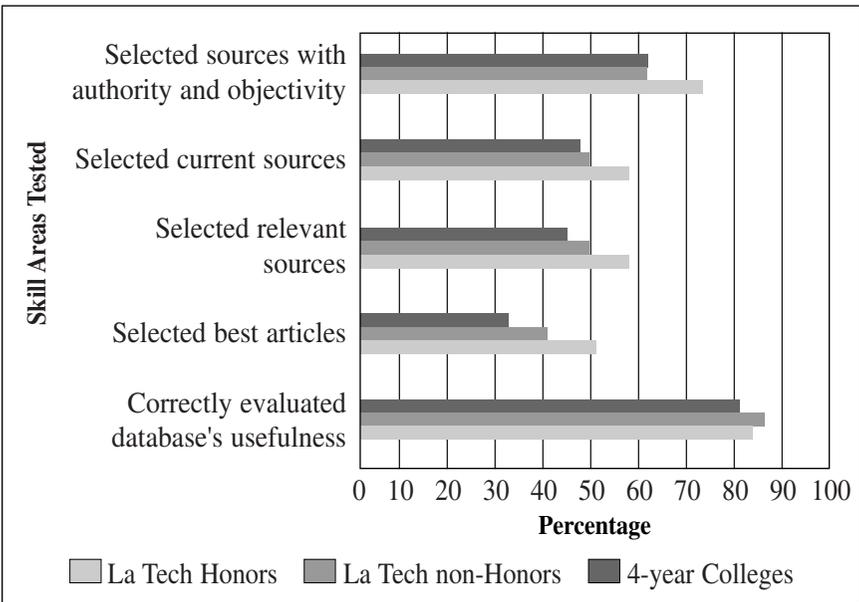
JUDGE USEFULNESS OF WEB PAGES FOR A RESEARCH PROJECT

According to our individual reports, whereas for 15 of 34 honors freshmen it took only one search to find the best Web pages, as many either needed numerous searches or did not select the best Web pages. Likewise 9 of the 13 non-honors freshmen for whom a response was reported were inefficient or unsuccessful. While all but one of the 35 honors freshmen chose Web pages that were at least reasonable if not best, 5 of 21 non-honors selected inappropriate Web pages.

In evaluating Web pages, the 35 honors freshmen made no major mistakes. Minor mistakes were committed by 25 regarding relevance, 19 regarding authority, 4 regarding point of view, and 6 regarding currency. Among the 21 non-honors freshmen, mistakes were more often minor than major regarding relevance [13 minor vs. 6 major], authority [13 minor vs. 2 major], and currency [10 minor vs. 3 major]. In their evaluation of Web pages regarding point of view, however, 2 made minor mistakes and 10 made major mistakes.

**Figure 8: Best Responses (from aggregate reports)**
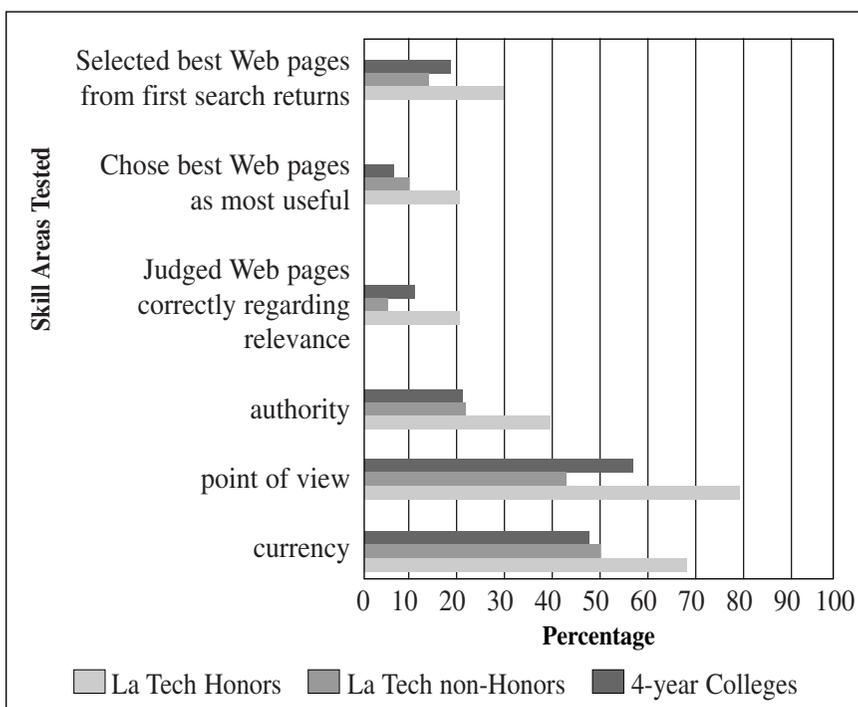
Judge the Probable Usefulness of Sites Returned in a Web Search

Our individual reports show that half of the 20 non-honors freshmen did not select the best Web site.

In evaluating Web sites, only 1 of 34 honors students made major mistakes. Minor mistakes were committed only by 4 in judging authority. Among 20 non-honors to perform the task, major mistakes were committed by 9 in judging authority, 7 in judging bias, and 6 in judging currency.

Figure 9: Best Responses (from aggregate reports)
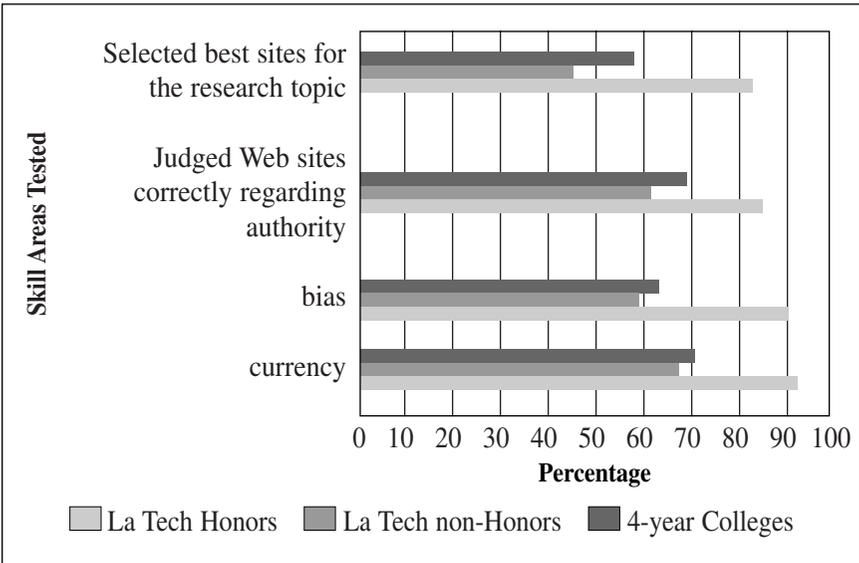
MANAGE

In this skill area, students demonstrated their ability to organize information to facilitate later retrieval. Tasks included:

- categorizing e-mails into appropriate folders based on a critical view of the e-mails' contents;

- arranging personnel information into an organizational chart;

- sorting files, e-mails, or database returns to clarify clusters of related information.

Louisiana Tech freshmen were proficient in completing the task of filling in an organizational chart, though some honors and two fifths of non-honors students failed to delete unused cells. A very high percentage of honors freshmen and two thirds of the non-honors moved at least most if not all the e-mail files into their proper folders; nearly half of each group moved most files. Two fifths of both groups deleted all unnecessary folders while more than half of honors and two fifths of non-honors deleted only some of those folders.

FILL IN AN ORGANIZATIONAL CHART

Based on individual reports, Louisiana Tech freshmen completed the organizational chart with little difficulty. Only 3 of 22 non-honors freshmen did not include all required elements and misrepresented several reporting relationships. Unused cells were not deleted, however, by 4 of 35 honors freshmen and 9 non-honors.

Figure 10: Best Responses (from aggregate reports)
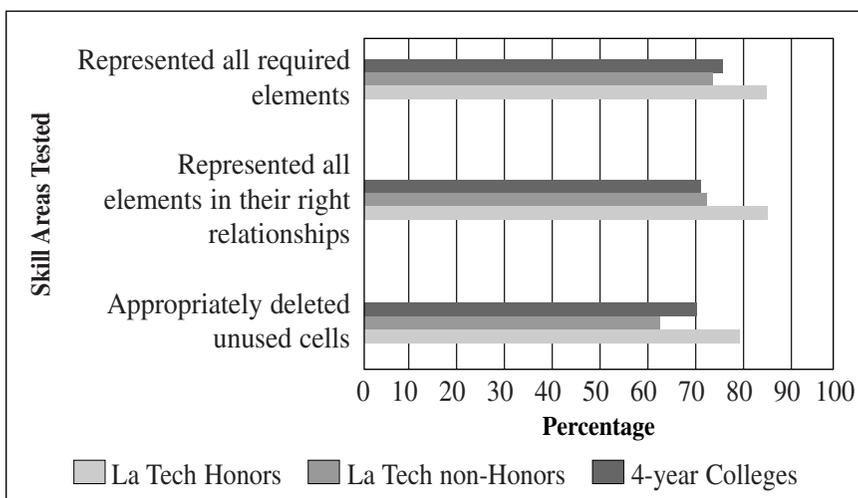
ORGANIZE FILES INTO PROPER FOLDERS ON A HARD DRIVE

As our individual reports illustrate, whereas 14 of 35 honors freshmen and 4 of 21 non-honors moved all files into their proper folders, 17 honors and 10 non-honors moved most but not all files, and 4 honors and 6 non-honors did not move a number of them. Whereas 14 of 35 honors freshmen and 8 of 20 non-honors deleted all unnecessary folders, 18 honors and 8 non-honors made combinations of appropriate and inappropriate deletions while all deletions by 3 honors and 4 non-honors were inappropriate.

Figure 11: Best Responses (from aggregate reports)
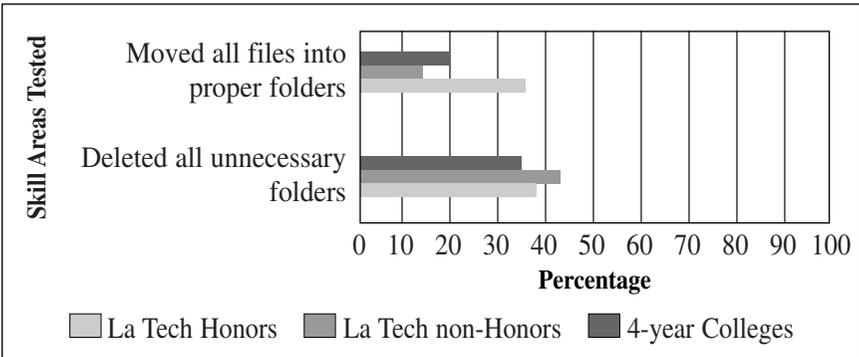
INTEGRATE

In this skill area, students demonstrated the ability to interpret and represent information by using digital tools to synthesize, summarize, compare and contrast information from multiple sources. Tasks included:

- comparing advertisements, e-mails, or Web sites from competing vendors by summarizing information into a table;

- summarizing and synthesizing information from a variety of types of sources according to specific criteria in order to compare information and make a decision;

- copying results from an academic or sports tournament into a spreadsheet to clarify standings and decide the need for playoffs.

Non-honors freshmen demonstrated deficiencies in their ability to compile a spreadsheet and a table. While honors freshmen had no trouble formatting the spreadsheet and both they and non-honors freshmen interpreted it accurately for the most part, considerable numbers of non-honors made major mistakes, nearly half in selecting proper headings and more than a quarter in representing information in the cells. Honors freshmen had little trouble formatting the table. A very high percentage of them and two thirds of the non-honors subsequently ranked the checking accounts accurately. At alarming rates, however, nearly a third of honors and more than half of non-honors made mistakes selecting column headings, and two fifths of non-honors committed numerous errors in representing information.

FILL OUT A SPREADSHEET TO DETERMINE SEASON RECORDS OF VOLLEYBALL TEAMS

The individual reports highlight that our non-honors students had some difficulty with the spreadsheet: 10 of 22 non-honors freshmen did not select proper headings, 3 made minor mistakes, and 6 were inaccurate in representing information in cells. Whereas all 35 honors freshmen and 18 of 22 non-honors were at least partially accurate in their interpretation of the information presented, 3 non-honors did not accurately interpret and 1 did not respond.

Figure 12: Best Responses (from aggregate reports)
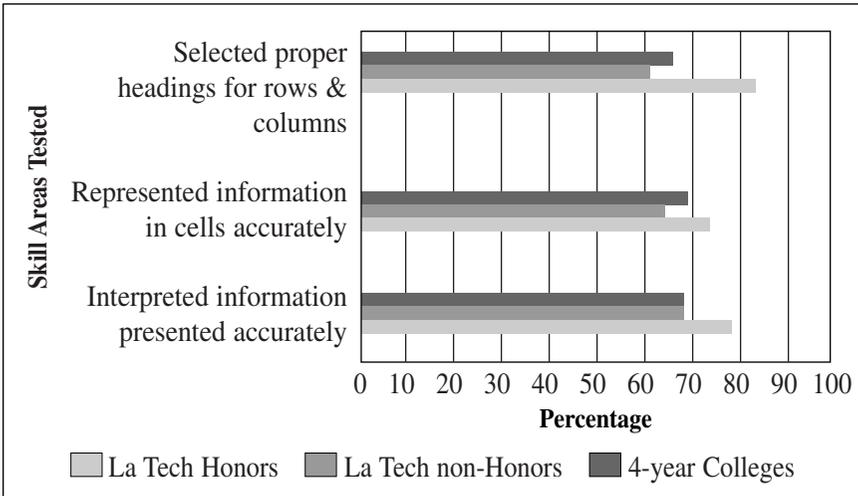
COMPLETE A TABLE COMPARING CHECKING ACCOUNTS ACCORDING TO SPECIFIC CRITERIA

According to individual reports, in selecting column headings, 11 of 34 honors freshmen and 12 of 21 non-honors made a number of mistakes. Whereas 4 honors freshmen and 3 non-honors made minor mistakes representing information in the table, 9 non-honors committed numerous errors, and 5 non-honors ranked the checking accounts incorrectly.

Figure 13: Best Responses (from aggregate reports)
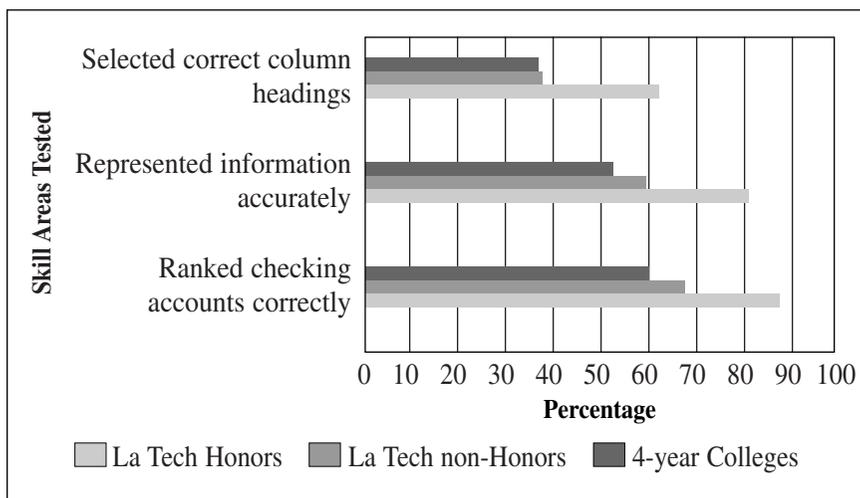
CREATE

In this skill area, students demonstrated the ability to adapt, apply, design, or construct information in digital environments. Tasks included:

- editing and formatting a document according to a set of editorial specifications;

- creating a presentation slide to support a position on a controversial topic;

- creating a data display to clarify the relationship between academic and economic variables.

Louisiana Tech freshmen demonstrated competence in composing a data display and a slide, with some notable exceptions. Very high percentages of honors freshmen and majorities of non-honors created the data display with at least reasonable efficiency, selecting all or nearly all the necessary content and using a logical and effective layout. A very high percentage of honors freshmen and a majority of non-honors also drew the correct conclusion from the display. Likewise, very high percentages of honors and majorities of non-honors chose the best layout, title, and image for the slide. At alarming rates, however, nearly half of the honors and more than a quarter of the non-honors selected some inappropriate text; over a third of the honors and two fifths of the non-honors did not choose appropriate text; nearly half of the non-honors did not choose any text at all; and two fifths of the honors and more than two thirds of the non-honors formatted the slide ineffectively.

CREATE A DATA DISPLAY

As our individual reports show, whereas all 35 honors freshmen selected all or nearly all the necessary content, 9 of 22 non-honors selected all, 8 selected nearly all, and 5 selected none. Only 1 honors student and 3 non-honors organized the layout with less than optimal logic and effectiveness while 3 other non-honors did not organize logically or effectively. All 35 honors freshmen and 18 non-honors created the display with at least reasonable efficiency. No honors freshmen and 4 non-honors drew an incorrect conclusion from the data display while 3 honors and 2 non-honors did not indicate a conclusion.

Figure 14: Best Responses (from aggregate reports)
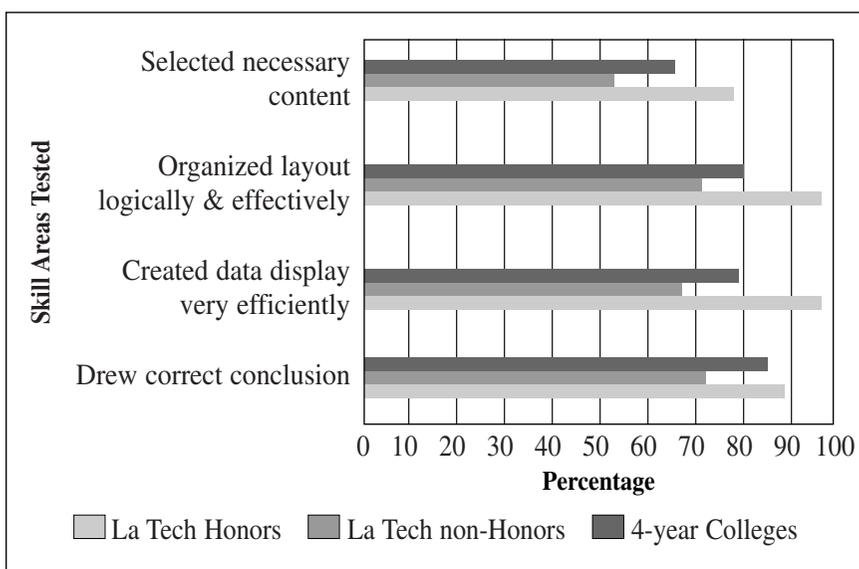
CREATE A SLIDE FOR A GROUP PRESENTATION

Based on the individual reports, in creating a slide 4 of 35 honors freshmen and 6 of 20 non-honors did not choose the best layout, 2 honors and 2 of 21 non-honors chose an inappropriate title, and 5 non-honors did not choose a title. Only 7 honors and none of the non-honors chose the best text, 16 honors and 6 non-honors resorted to some inappropriate text, 12 honors and 9 non-honors did not choose appropriate text, and 6 non-honors did not choose text at all. Only 4 honors and 10 non-honors did not choose an image, as many non-honors as chose the best image. As many as 15 of the 35 honors and 11 of the 16 non-honors freshmen who created a slide formatted it ineffectively.

Figure 15: Best Responses (from aggregate reports)
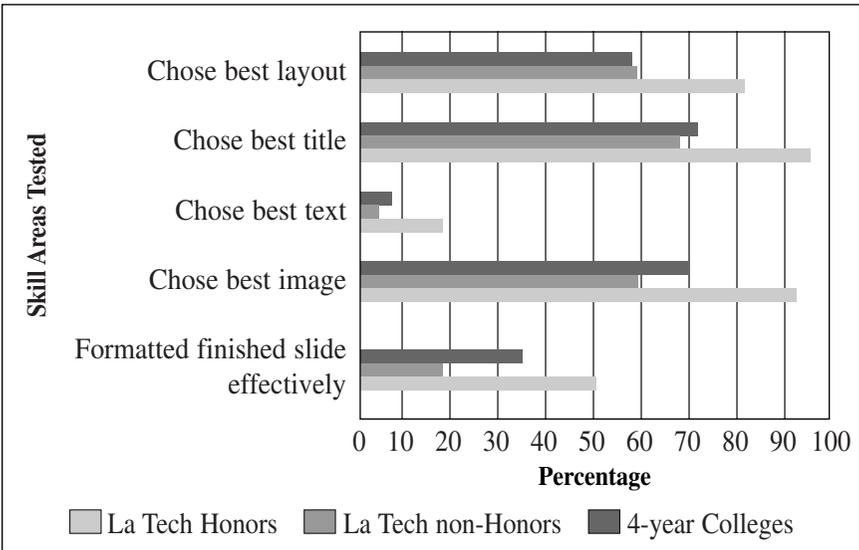
COMMUNICATE

In this skill area, students demonstrated the ability to disseminate information tailored to a particular audience in an effective digital format. Tasks included:

- formatting a document to make it more useful to a particular group;

- transforming an e-mail into a succinct presentation to meet an audience's needs;

- selecting and organizing of slides for distinct presentations to different audiences;

- designing of a flyer to advertise to a distinct group of users.

Louisiana Tech freshmen struggled with the selection and organization of slides for two distinct presentations to different audiences. At alarming rates, more than a quarter of the honors and more than half of the non-honors made incorrect selections of slides and titles for the first presentation, which two thirds of the honors and half of the non-honors sequenced incorrectly. A third of non-honors selected incorrect slides and titles for the second presentation while another third did nothing, and over a third of the honors and two fifths of the non-honors sequenced the second presentation incorrectly. Furthermore, more than two fifths of the honors freshmen and of the non-honors made an incorrect decision as to delivery mode. Most remarkably, four fifths of the honors and more than two thirds of the non-honors did not indicate any awareness of the two audiences' different needs.

The honors freshmen outperformed the non-honors in the selection of the advertisement. Nearly all the freshmen made no more than one or two mistakes in analyzing the key details and applying the electronic mailing list policy. Whereas nearly every honors freshman chose the best advertisement, suitable to the audience in language and tone, nearly a third of the non-honors selected a no better than reasonable advertisement, more than a quarter chose an inappropriate advertisement, and nearly half opted for an advertisement not suited to the audience in language and tone.

SELECT AND ORGANIZE SLIDES FOR TWO PRESENTATIONS TO DIFFERENT AUDIENCES

According to the individual reports, for the first presentation half of 34 honors freshmen and 6 of 21 non-honors selected some of the best slides and titles; 9 honors and 12 non-honors made incorrect selections; and 23 honors and 10 non-honors sequenced the slides incorrectly. For the second presentation, 14 of 34 honors freshmen selected the best slides and titles, and 15

selected some of the best but not all while a third of 21 non-honors freshmen either did not select correct slides and titles, and another third did nothing. Half of 32 honors freshmen and 6 of 14 non-honors sequenced the slides for the second presentation correctly; sequencing by 5 honors and 2 non-honors was adequate but not optimal; and 11 honors and 6 non-honors sequenced the slides incorrectly. Regarding the delivery mode, 14 of 34 honors freshmen and 9 of 21 non-honors decided incorrectly. Only 3 of 31 honors freshmen and 1 of 13 non-honors indicated an awareness of the two audiences' different needs; another 3 honors and 3 non-honors indicated some awareness; but 25 honors and 9 non-honors did not indicate any awareness.

Figure 16: Best Responses (from aggregate reports)
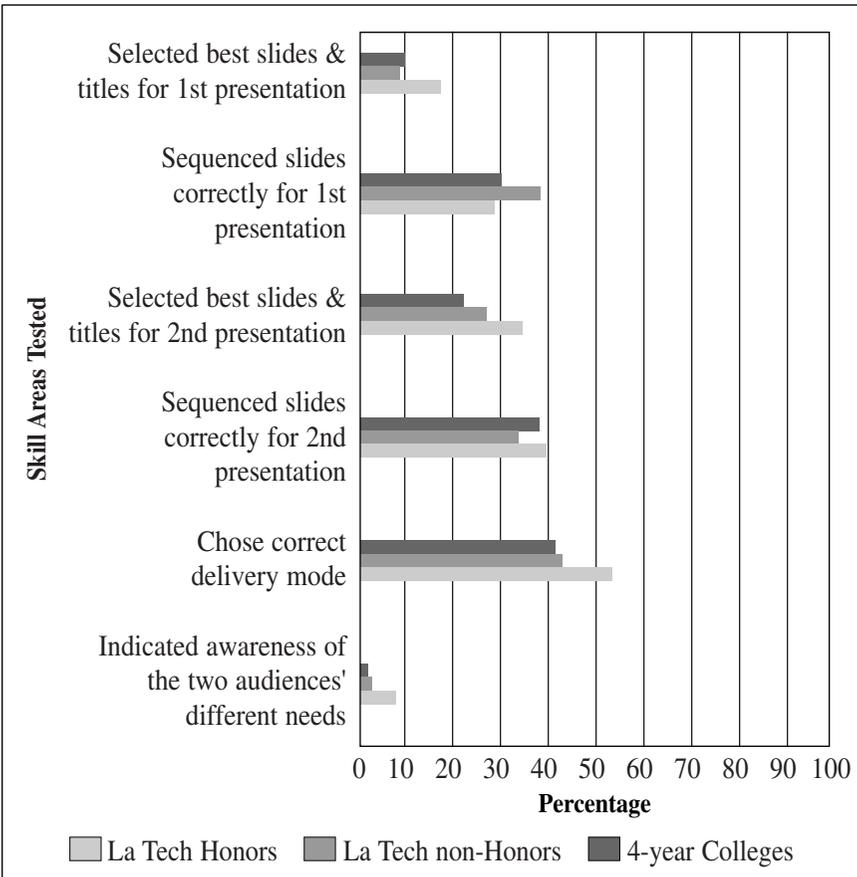
SELECT BEST ADVERTISEMENT TO USERS OF AN ELECTRONIC MAILING LIST

Based on the individual reports, the analysis of key details by 27 of 35 honors freshmen and 11 of 22 non-honors was correct while 7 honors and 9 non-honors made one or two mistakes. The application of the mailing list policy by 18 honors and 4 of 20 non-honors was correct while 17 honors and 14 non-honors made one or two mistakes. Only 1 of 35 honors freshmen chose an advertisement not suitable to the audience in language and tone while 10 of 22 non-honors made an inappropriate choice. Whereas 33 of 35 honors freshmen selected the best advertisement for the mailing list, only 1 made a reasonable but not optimal choice, and another 1 selected an inappropriate advertisement, just 9 of 22 non-honors selected the best, 7 made a reasonable but not optimal choice, and 6 selected an inappropriate advertisement.

Figure 17: Best Responses (from aggregate reports)
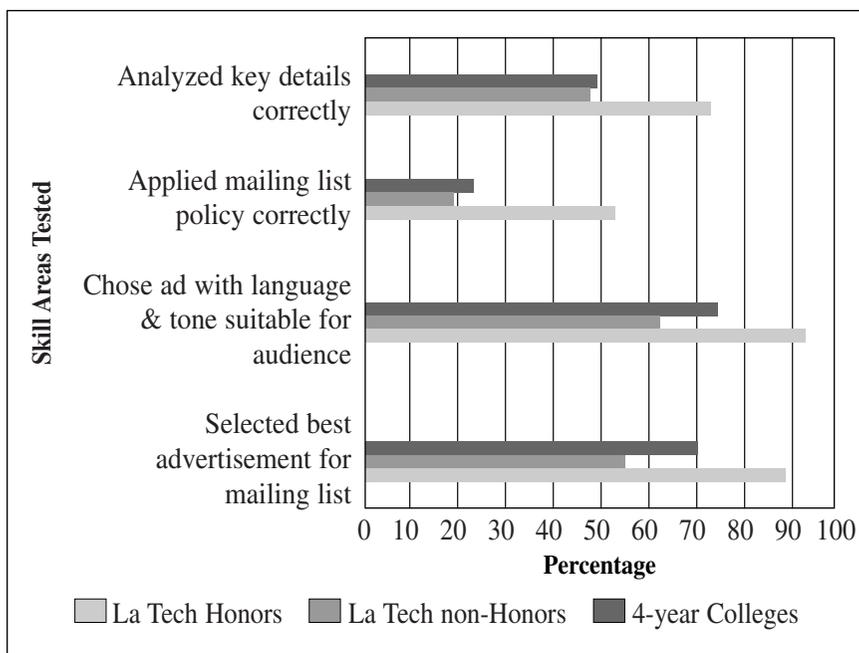
DISCUSSION

Our assessment suggests that our honors students are equipped to handle the digital age better than both our non-honors freshmen and the typical four-year freshman in the United States. Eighty-nine percent of our first-year honors students passed the cut score as compared to 44% of our non-honors and 39% of four-year college freshmen nationwide.

More specifically, both honors and non-honors freshmen at Louisiana Tech outperformed four-year college freshmen nationwide in selecting best answers to 18 of the 56 responses. The honors freshmen outperformed the non-honors in all but two of these responses: evaluating a database for usefulness to a research project (Evaluate) and deleting all unnecessary folders in the organization of files (Manage).

Honors freshmen outperformed the four-year college freshmen nationwide while non-honors freshmen did not in selecting 34 of the 56 responses, but in selecting two of these responses non-honors matched the national average: evaluating the database correctly and selecting sources with authority and objectivity (Evaluate), and accurately interpreting the information presented on the spreadsheet (Integrate).

The evidence shows that in many crucial areas, however, honors students did not perform substantially better than the other cohorts. Particularly when the assessment tested their mastery of detail and fine-grained analysis, honors freshmen did not significantly outperform other students, as evident, for example, in the students' abilities to evaluate Web resources correctly. In general, honors freshmen performed well in assessing the utility, bias, and relevance of a Web site, often at a significantly higher rate than the national four-year-college average, but when it came to judging and evaluating specific Web pages, they did not distinguish themselves.

A similar pattern holds true for the other areas. Honors students did better than their cohorts in the general use of databases and search engines, but they did not prove to be that much more efficient in using them. In managing information and organizing information for presentations (spreadsheets and slides), honors students did not outpace their non-honors peers. In using applications for accessing, managing, and presenting information, honors students demonstrated facility but not mastery.

Overall, the data suggest that we should feel confident engaging digital media more explicitly in our honors courses but that we need to do a better job of guiding students in the process. Based on our research, honors students enter our institution better prepared to work with information, but we should not infer that they have already achieved mastery over these skills. Honors students seem significantly better than their non-honors peers in finding relevant and useful information, but they still appear to have problems

critically evaluating specific information and using that information to communicate effectively to a target audience. Moreover, they distinguished themselves in identifying relevant material, but they did not outperform their peers in weeding out irrelevant information, a skill which is absolutely essential in an information-saturated society.

Based on this assessment, our honors program is working on curriculum designs that mentor students more explicitly in engaging digital media in their coursework and research projects. Broadly speaking, we are seeking to promote the use of more class time to work with students in a "guide-by-side" advisory approach to help them access, evaluate, understand, and use digital material in their assignments and research projects. More specifically, our ideas have included the following: as part of instruction, encouraging students to find and judge relevant sources on their own and then bring those sources to class for evaluation by peers; and as part of their research presentations, asking students to organize and present information in multiple digital formats, including wikis, blogs, and videos. Based on the data generated by our assessment with *iSkills*, an endeavor made possible with generous funding from the Louisiana Board of Regents, we believe such curricular enhancements will better position our students to compete and succeed in the increasingly information-rich environment of the twenty-first century.

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