



ICT Literacy Assessment

Information and Communication Technology

Educational Testing Service (ETS)

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Topics

- What is ICT literacy, and why measure it?
- The development of the *ICT Literacy Assessment*
- The current test design
- Sample tasks
- Score reports

2



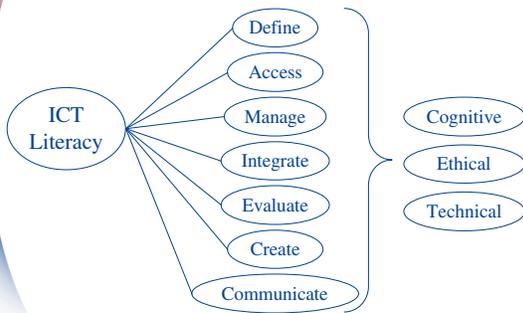
What is ICT
literacy, and why
measure it?

3

ICT literacy is...

... the ability to use digital technology, communication tools, and/or networks to
define
access,
manage,
integrate,
evaluate,
create, and
communicate
information ethically and legally in order to function in a
knowledge society.

Proficiency Model



Built on prior efforts

- International ICT Literacy Panel, *Digital Transformation: A Framework for ICT Literacy* (2002).
- Association of College and Research Libraries (ACRL), *Information Literacy Competency Standards for Higher Education* (2000).

ICT Literacy: a bridge between

Information and Communication Literacy

- Can you find information on the web?
- Can you create a persuasive presentation?

Technical
Literacy

Database	Word Processing	Presentation
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- Can you bold a word?
- Can you open a database?

Information Literacy

Access	Evaluate	Use
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- Can you find information?
- Can you evaluate authority?

Why measure ICT literacy?

- The nature, value, and availability of information has changed enormously, and this change impacts the way we live, learn, and work.
- To succeed, it is not enough to master technical skills: you must know how to apply them within an information society.
- There is a lack of information about the ICT literacy of students, and debate about how best to address this issue in academic curriculum.

The development
of the *ICT*
Literacy
Assessment



It started with our higher education partners

Charter Clients

- California Community Colleges
- California State University
- UCLA
- University of Louisville
- University of North Alabama
- University of Texas
- University of Washington

Expanded Consortium

- Arkansas State University
- Bowling Green State University
- Miami Dade College
- Oklahoma State University/Defense Ammunition Center
- Portland State University
- Purdue University
- University of Memphis

10



Development timeline

- Spring/Summer 2003 – Higher education partners identified
- July, 2003 – Initial definitional work began.
- December, 2003 – Test development began with charter client institutions.
- July, 2004 – Field trials of tasks began.
- January, 2005 – Operational version of large scale assessment released for use.

11



Next 6 months

- January – April 2005: multiple institutions are testing; goal is to test 6,000-7,000 students
- April – May 2005: more market research
- May – June 2005: analysis and score reporting; score reports sent to institutions
- June 2005: use analysis to finalize decisions re:
 - Design for 2006 Large Scale Assessment and individual reporting version
 - Testing schedule (Fall and Spring? Just Spring?)
- Summer 2005: design “workforce version” of the test

12

The current test design

The ICT Literacy Assessment

- Two separate sets of results:
 - ICT Literacy Large Scale Assessment (2005)—institutional profile only
 - ICT Literacy Individual Assessment (2006)—option to receive feedback at individual student level
- Use in higher education
 - Institutions: accreditation, state accountability, curriculum guidance
 - Individuals: academic guidance, fulfillment of info. literacy or tech. literacy requirement, certification

Basic Design Features

- Interactive tasks using simulated software with look and feel of typical applications (databases, search engines, spreadsheets, email, etc.)
- 4-minute, 15-minute, and 30-minute tasks
- Real-life scenarios
- “Get back on track” mechanisms if test-taker gets really lost
- Multiple scorable elements per task



Assessment Content

- Length of tasks
 - Long (30 minute)
 - Medium (15 minutes)
 - Short (4 minute)
- Contexts
 - Academic
 - Business
 - Personal
- Subject Areas
 - Humanities
 - Social Sciences
 - Natural Science
 - Practical Affairs
 - Popular Culture

16



Delivery and Scoring

- Delivery
 - Two-hour assessment window
 - Web delivery at client institutions through secure browser
- Scoring
 - Automated scoring
 - Proficiency estimation via IRT analysis

17



Validity and reliability research

- Validity research:
 - “Chain of validity” method used during development to ensure content validity
 - Extensive questionnaire before the test, to see how results correlate with self-reported exposure to and confidence in specific proficiencies
 - Questionnaire after the test to check face validity among test-takers
 - Larger validity study in progress with charter clients
 - Ongoing research planned
- Reliability efforts:
 - Analysis of November field test
 - Analysis of current 6,000-7,000 test-takers
 - Ongoing scrutiny

18

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Sample tasks

19

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Sample Tasks

- [Example 1: Comparing Information](#)
- [Example 2: Display Data](#)

20

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Comparing Information

- Simple task: Four-minute duration
- Purpose: Assess the test-takers' proficiency in integrating information
 - **Integrate:** The ability to interpret and represent information in an ICT context. This includes the ability to synthesize, summarize, compare, and contrast information from multiple sources.

21



Within the task

- Summarize information from three different types of sources
- Compare the information to reach a conclusion

22

Time 0:37 Section 1 of 3 Question 31 of 48 Higher Education ICT

In this task, examinees summarize information from a variety of sources and then draw conclusions from their summary.

Scenario: You are working in the office of a large architectural firm in which many of the architects are left-handed. The office manager has emailed you, saying:

Can you help me find a good source of products and gifts designed for left-handers? I'd like someplace that offers a wide range of merchandise with product guarantees—also that has an online catalog and online ordering. Discounts would also be a plus.

You've received emails about three potential sources; now you want to combine the information into a single table and rank the possibilities for your office manager.

You need to

- read the three emails in your inbox (some of which will have links to further information)
- fill out the table provided, showing whether each source has the features of interest to the manager

When you have finished your table, click "Next." You will then be asked to

- rank the potential sources from most preferable (1) to least preferable (3).

Time 0:37 Section 1 of 3 Question 31 of 48 Higher Education ICT

Examinees are presented with an information need and three different types of information sources:

Scenario: Your office manager has emailed you, saying:

Can you help me find a good source of products and gifts designed for left-handers? I'd like someplace that offers a wide range of merchandise with product guarantees—also that has an online catalog and online ordering. Discounts would also be a plus.

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Task: You need to

- read the three emails in your inbox (some of which will have links to further information)
- fill out the table provided, showing whether each source has the features of interest to the manager

When you have finished your table, click "Next." You will then be asked to

- rank the potential sources from most preferable (1) to least preferable (3).

From: Darryl Frankel
Date: 10/30 8:35 pm
Subj: The Left Stuff

Hey, how's it going? I think I've got a place that will come in handy, as it were. It's a store called "The Left Stuff." I got some good gifts there last summer and saw lots more cool things. Here's their link: www.leftstuff.com.

	The Left Stuff	Left-Overs	Left Field
Select...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Select...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Select...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Select...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Select...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Select...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Within the task

- Visually represent data in a graph
- Interpret the graph to answer research questions

31

Time 0:37 Section 1 of 3 Question 1 of 48 Higher Education ICT

Scenario: As part of a project for your cultural studies class, you need to examine long-term trends in the public's taste in books. Use the graph creator on the next page to illustrate how the popularity of different types of books, as measured by consumer spending, has varied since the advent of television half a century ago.

The radio buttons let you choose among different data displays. Once these are selected, the drop-down menus will let you select the data to display. When you have created a graph that effectively represents information you need for your project, use drop-down menus to complete each of the two statements that will appear below the graph.

In this task, examinees create a visual representation of data to answer two research questions.

Time 0:37 Section 1 of 3 Question 1 of 48 Higher Education ICT

Task: Use the graph creator on the right to illustrate how the popularity of different types of books, as measured by consumer spending, has varied since the advent of television half a century ago.

The radio buttons let you choose among different data displays. Once these are selected, the drop-down menus will let you select the data to display.

When you have created a graph that effectively represents information you need for your project, use drop-down menus to complete each of the two statements that will appear below the graph.

Note: "revenues"—money collected
"costs"—money paid out
"profit (loss)"—revenues minus costs

Graph Creator

What do you want to represent on the x (horizontal) axis? (Click to make or change selection)

Book Types Publishing Industry Data Time Span

What do you want to represent on the y (vertical) axis? (Click to make or change selection)

Book Types Publishing Industry Data Time Span

What do you want to represent with line(s) on the graph? (Click to make or change selection)

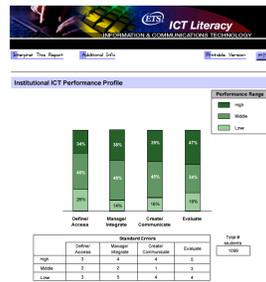
Book Types Publishing Industry Data Time Span

Examinees select which variables to display on each of the axes.

Score Reporting

- Score reporting will be online.
- Reports will come approximately eight weeks after close of testing window, with reporting time reduced for subsequent administrations.
- Group comparisons if adequate sampling provided.

Score Report Sample



- Performance levels by proficiency pairings
- Explanatory text to guide interpretation

Sample of explanatory text -

High

A High performance on ACCESS indicates that the students efficiently and effectively located information via browsing or searching. Students identified appropriate information resources (e.g., the correct database) for a particular research question or course assignment. At this level, examinees tended to use search terms and queries that yield useful results without a lot of irrelevant results (i.e., they conduct a *precise* search). Examinees executed their web or database search strategy carefully, going well beyond the specific words of the research statement or assignment. For example, examinees may have identified useful synonyms of key terms and constructed a search that takes into account both provided terms and these synonyms. At this level, examinees formulated an advanced search query that utilized Boolean operators and other syntactic elements . . .



Summary of plans for the future

- Individual student feedback in 2006
- Workforce version of the assessment by 2006, so that colleges can show employers that their students are ICT-ready.
- Considering assessments for international and/or K-12 markets

43



Questions?

Comments?

44
