Facilitating Translation

Print:

The integration and presentation of information from and in different formats by Information Technology (IT) business analysts in facilitating communication between technical staff and clients.

Industry Sector: Information Technology
Content Area: Literacy
Core Topic: Integrating and presenting information

Expand All | Collapse All

Common Core State Standards

SL.11-12.4: Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.

RST.11-12.7: Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question or solve a problem.

W.11-12.4: Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

WHST.11-12.2: Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes.

Adult Basic Education Standards

Reading Standard 1: Learners will comprehend and analyze a variety of texts for various purposes.

R1.4a Distinguish between fact and opinion, fact and fiction, relevant and irrelevant information.

R1.4d Summarize ideas and information from texts of increasing length and complexity of content.

R1.4f Draw conclusions and make predictions and inferences from information or ideas presented in texts of various genres (e.g. historical documents, newspaper and magazine articles, fiction and non-fiction, job-related materials).

R1.5b Evaluate the persuasiveness of a text on the basis of the quality of evidence provided to support its argument.

Writing Standard 1: Learners will express themselves through writing for a variety of purposes.

W1.4a Write correctly punctuated and constructed paragraphs describing how to make, build or do something.

Writing Standard 2: Learners will apply knowledge of English vocabulary, language structure, and mechanics when they write.

Writing Standard 3: Learners will use a variety of strategies to convey meaning through written English.

Industry Overview

From computer programmers to web developers, and from network administrators to technical support specialists caring for the IT infrastructure, there are information technology (IT) careers available in every sector of the economy. While some people in this field work for IT companies, IT skills and services are needed in fields as wide-ranging as financial services, medical services, biotechnology, engineering and environmental services[1]. The IT industry designs, develops, manages and supports the hardware, software, multimedia and networks we depend on in our daily lives and businesses. IT has revolutionized our world—from the ways we communicate to how we find information to how businesses operate. Job growth in the US IT industry is high and is projected to continue for many occupations within the industry. The field is constantly growing and changing and there are high levels of competition which makes it important for IT workers to keep updating their skills and to understand the latest technologies.

Careers in Information Technology[2]

Information technology careers are divided into four pathways: Network Systems, Information Support and Services, Programming and Software Development, and Web and Digital Communications.

Careers in Network Systems involve network analysis, planning and implementation, including design, installation, maintenance and management of network systems. Examples of network systems occupations include: network administrator, network technician, PC support specialist, telecommunications network technician, data communications analyst, and security administrator.

Careers in Information Support and Services involve IT deployment, including implementing computer systems and software, providing technical assistance, and managing information systems. Successful IT deployment is critical to the success of most organizations—the management and sharing of information depends on non-IT workers having functional computers, software and databases that meet their needs, and support when things aren't working. Information systems and support occupations include database administrator, enterprise systems engineer, help desk specialist, technical support specialist, and technical writer.

Careers in Programming and Software Development involve the design, development, implementation and maintenance of computer systems and software and require knowledge of computer operating systems, programming languages and software development. While many of the career opportunities in this area are in software companies, large organizations of other types—such as financial services—also offer many opportunities. Programming and software development careers include: software applications architect, operating systems designer/engineer, computer programmer, video game developer, applications engineer, and applications developer.

Careers in Web and Digital Communications involve creating, designing and producing interactive multimedia and social media products and services and include development of digitally-generated or computer-enhanced media used in business, training, entertainment, communications and marketing. Organizations of all types and sizes use digital media (such as the Internet and social media platforms) to communicate with existing and potential customers, to track transactions, and to collaborate with colleagues. Occupations in this pathway include web designer, webmaster, 3D animator, virtual reality specialist, and multimedia producer.

Mathematics and Literacy Skills Needed in Information Technology

The complexity of the IT industry, including the rapid pace of change in technology, requires workers to continuously upgrade their skills. Jobs in this industry require good problem-solving, critical-thinking, and reasoning; clear and professional communication; and a strong background in mathematics. Thus, in addition to technical skills specific to each job, mathematics and literacy skills are crucial for success in all occupations across the industry. Literacy is essential in this field as it is heavily dependent on written and oral communication, and workers need to be able to read, understand, and implement highly-technical content. Workers in this industry must communicate with clients, colleagues, and other departments and staff, including executives.

Regardless of how technologies change, a strong foundation in mathematics, particularly with such core areas as mathematical operations and number sense, measurement and estimation, ratios and proportions, and data analysis is very useful in this industry. For example, programmers and developers must be able to employ quick and competent computation and have the ability to select and apply the best mathematical model or formula to solve problem at hand.

Career Opportunities in IT with Education from Community Colleges

Massachusetts Community Colleges play a crucial role in preparing students for careers in IT across all sectors of the industry. The fifteen community colleges offer associate degree and certificate programs that prepare students to enter occupations across all sectors of the industry, from network administrators to technical support specialists to computer programmers to Web designers. For example, Cape Cod Community College's Department of Business has an IT program that prepares students for a range of positions through both the Information Technology A.S. degree and certifications that offer skills in specific concentrations in this field, such as networking and web design.

Recent Career Opportunities in Massachusetts

The following is a sample of IT job listings in Massachusetts that require associate's degree or certificate:

- Help Desk Technician [show]
- PC Technician [show]

The following is information about hires of recent IT graduates from Massachusetts community colleges:

- Bristol Community College, Computer information Systems: Computer Networks
- Mount Wachusett Community College, Computer Information Systems

Employment Outlook for Information Technology

Given the ubiquity of IT in the U.S. and the world today, employment in this industry continues to boom. Even during the current recession, there has continued to be high demand for workers with good technical, problem-solving and critical-thinking, and communication skills in the IT industry. The U.S. Bureau of Labor Statistics reported in its 2012-13 edition of the Occupational Outlook Handbook that employment in the industry is expected to grow "much faster than the average" of all occupations through 2020. Massachusetts has very high levels of employment and numbers of job openings in many IT occupations across the state. In 2011, it was one of the top seven states for employment opportunities in the industry. Furthermore, Middlesex and Suffolk counties were among the top 20 counties nationally listing IT positions.

However, within the IT industry, job growth and openings vary due to technological changes and competition (especially foreign). For example, employment for computer programmers in Massachusetts and nationally continues to be high, but is declining—future jobs will go to people with strong technical, cognitive, intrapersonal, and interpersonal skills. Likewise, lower-skilled jobs such as computer support specialists will have lower employment growth due to outsourcing (though help desk personnel are always needed in larger firms to assist non-IT staff with maintenance, troubleshooting, and repair). The highest growth areas in IT—nationally and in Massachusetts—are in such occupations as computer and information systems managers, computer systems analysts, and computer specialists.

Resources

Employment Outlook

- Massachusetts Career Information System
- U.S. Bureau of Labor Statistics: Occupational Outlook Handbook, Computer and Information Technology
- Jobs for the Future: An Examination of the Information Technology Job Market (2012)

Occupational Information

- Massachusetts Career Information System
- U.S. Bureau of Labor Statistics: Occupational Outlook Handbook, Computer and Information Technology
- WorkKeys Occupational Profiles
- WorkKeys: Occupations and Key Skills
- Information Technology Career Clusters
- Information Technology Career Frames

[1]http://www2.edc.org/ewit/materials/ITCCBRO.pdf

[2]As cited in http://www2.edc.org/ewit/materials/ITCCBRO.pdf

Workplace Scenario (8th Grade Level)

This scenario is based on the work of a business analyst. For more information, view this video.

You work as a business analyst in the Information Technology (IT) department. Your company is a publishing firm in the MetroWest area. You support the development of business programs for several projects. You also manage a small team of developers who do the technical work. You work with staff outside the IT department to determine their needs for projects. You are the contact between clients and the technical staff on your team. Your first task is to meet with the clients to identify their needs. You also identify the requirements for product development. Then, you define the needs in technical language for the software developers. You work with the developers to design the product.

Sometimes clients email additional information to you. They often send text, charts, or graphs about their organization. You share the important content with the team of developers to help them understand the task. You are also help work on the design, and you review designs for the user system interface. The interface is the design that allows users to work easily with the software. You are also responsible for managing the test planning and testing. Testing includes creating test scripts that help determine whether the system is working properly. During this time, you stay in constant communication with the client. You must explain all of the technical information to make it clear to non-technical people.

Workplace Scenario (High School Level)

This scenario is based on the work of a business analyst. For more information, view this video.

You are the business analyst in the Information Technology (IT) department of a medium-sized publishing firm in the MetroWest area. In this position, you evaluate the organization and the design of a business. It is your job to support the development of business applications for the firm's small- and medium-sized projects. You also manage a small team of developers who carry out the technical work. You work with staff from outside the IT department to determine their needs for these projects. You act as a contact between these "clients" and the technical staff on your team. Your first task is to meet with the clients to determine their needs, define the extent of the problem and the requirements for the product development. Then, you translate these into technical language for the software developers and work with them to design a solution.

Frequently, clients email additional information to you. They often provide information in the form of text, charts, graphs or other formats about their organization. The purpose of the additional information is to help you better understand their needs. You study the information and share the critical content with the team of developers in a way that helps them understand the task. You are also responsible for designing and reviewing designs for the user system interface. This interface is the design that allows users to work easily with their computers. You are also responsible for the business application and for coordinating test planning and testing. This work includes creating complex test scripts that help determine whether the system is working properly. Throughout this process you stay in constant communication with the client. Part of your job is to help translate all of the technical information into a format that is understandable and clear to non-technical people.

Core instructional context

Integrating and presenting information from different formats and in different formats requires students to use critical thinking skills along with presentation skills. Students must engage in higher order thinking as the identified by the updated version of Bloom's Digital Taxonomy

In order to integrate and create a new format of information, students will need to gather the additional information they need about the topic, understand how it fits together, and then create a different and more accessible version of the information. Steps students might take to integrate information and presenting information might include:

1. developing background knowledge about the topic;
2. evaluating sources of information they find, whether in print or online;
3. using critical thinking to analyze and synthesize information;
4. creating a new representation of the information; and
5. reflecting and self-assessing.

Consider reminding students that good presentations:

- are consistently clear and concise;
- take into consideration the audience;
- are well organized so that points have good transitions and are easy to follow;
- demonstrate mastery of content, application, and implications;
- contain creative and innovative visual aids and graphics that are illustrative and easy to understand;
- contain a summary that emphasizes the major points and recommendations; and
- use multimedia in a smart and necessary way.

Example

As described in the scenario, sometimes business analysts will need to translate technical jargon into language that non-technical people will need to understand. Consider introducing the topic by asking if anyone knows how to work with any kind of technological tool such as PowerPoint, Excel, or even Facebook. Using a personal computer, LCD projector or interactive whiteboard, ask the student to present the directions for one of these technological tasks (such as creating a PowerPoint slide, editing cells in Excel, creating a contact in a mobile phone, or resetting security settings in Facebook). Then assign students the task of writing the directions down for a simple technological task and trade with a partner to analyze the ease of use and appropriate diction.

When using the contextual scenario about the IT business analyst with students, consider also using strategies to scaffold the reading (if students need this type of reading assistance) and guide them to discuss the importance of presentation skills for a person in IT business analyst's job role.

- Begin with a KWL chart about the IT industry, specifically looking at what students know and would like to know about an IT professional's responsibilities. A great jumping off point is to begin with student experience as a technology user of a phone, computer or other technical device.
- Show a video on what it takes to work in IT such as Healthcare IT Consulting Jobs: Business Analyst Roles video or Communication Skills are Critical to IT Careers. Ask students to research online IT jobs through a job search engine such as Monster and make a list of the most frequent skills required for these kinds of roles.
- Identify and teach key vocabulary prior to reading or during reading.
- Read the scenario aloud to students and use organizers to outline text and to illustrate principles within a text, such as a storyboard, story map, character web, time line, Venn diagram, ranking ladder (Many of these graphic organizers are available at the Holt Interactive Graphic Organizers website.
- Use partner read alouds.
- Use thinking notes while reading.
- Point out that presentation skills are essentially communication skills with graphic images and writing and that these skills are an important aspect of employability in most professions. Someone working with clients must listen carefully to identify the clients' wishes and needs, and they must also be able to translate that information to their colleagues and staff through multimedia presentations and email communication.
- Poor presentation and integration skills may lead to missing key pieces of information and to a lack of client understanding and satisfaction.

Assessment

Use a classroom-developed rubric to assess student presentations and presentation skills. Other sample rubrics to review are:

- PowerPoint Rubric, Purdue University School of Education
- Oral Presentation Rubric, ReadWriteThink
- Technical Writing Rubric, National Adult Literacy Database
- Multimedia Presentation Rubric, Utah Education Network

Contextualized learning activities

Technology Survey and Presentation

Have students create a survey of technology proficiency and usage and then take the survey themselves. Students can then use the results of their own survey to create a presentation in PowerPoint using charts and graphs. Use directions for PowerPoint from Office.com such as Using Charts and Graphs in your Presentation and PowerPoint online tutorials such as Working with Charts and Create Organization Chart with Smart Art. Students can additionally work independently and then combine their presentations into a group PowerPoint presentation with additional help from the resource Copying from One Presentation to Another.

Gathering Information

Group students into pairs and ask them to design a personal website. Students will each come up with their own questions to ask the other student in order to obtain as much information as possible about how to construct the website. What color scheme should be used? What information and graphics should be displayed? Who will be visiting the website? What is the website's purpose? Each student will then draw up schematics of what the theoretical website will look like through drawings and diagrams. The other student will then review the website to give feedback and determine if there were any other questions that should have been asked.

Differentiating Relevant from Irrelevant Information

Students will read from a variety of newspapers, whether online or in paper format, and select an article. From the article, ask students to distinguish relevant from irrelevant information by using a graphic organizer to identify who, what, where, when, why and how. Alternatively, provide students with a piece of writing from a first-person point of view and ask them to distinguish fact from opinion.

Practice Giving Clear Directions

Have students write correctly punctuated and constructed paragraphs describing how to make, build, or do something for a particular audience. This could be something they know well, or even something as simple as a recipe or how to construct a paper airplane. Use a technical writing rubric such as the one here: Kansas State Department of Education Technical Writing Rubric. For an extension activity, partner students and invite them to attempt to recreate the item according to the directions.

Developing Resourcefulness and Research Skills

The IT field is always changing and new technologies and tools are constantly emerging. Students need to develop critical thinking skills and the ability to find answers. Ask students to build a structure using Popsicle sticks and tape. Independently, ask students to come up with the design plans for their structure, whether they going to build a model house, a car, or some type of figurine. Once they begin to build, tell them they may no longer use tape and must now use string instead. Students must adjust their design plans. When finished, students describe in a narrative what they did to complete their original design vision as best they could.

Additional Activities

1. Present a chart, graph or other graphical representation of information and ask students to translate it into a well-written paragraph.
2. Ask students to write an expository speech on a topic of their own choosing and select three key moments to illustrate their words with a graphical representation. Ask students to find the graphical representation on photo sharing site such as Flickr or by creating their own graphic. Alternatively, ask students to create a glossary of potentially unknown words to their audience in place of graphics.
3. Have students write directions to complete a task they are familiar with to two separate audiences (such as directions to bake a cake to a pastry chef and to someone who has never baked before). Students will then analyze the differences in the two separate directions, noting the vocabulary and extra or fewer steps described.

Contextualized test items

1. Give students some statistics from anything (sports, the IT job field, or any topic they are interested in) and ask them to come up with a simple, easy to read graphical representation. Alternatively, give them a graph or flow chart and ask them to translate the visuals into a clearly written paragraph.

2. Provide students with a mock email to IT listing any kind of basic problem (such as, "my computer doesn't work") or something that a novice would know the solution to and have students write a mock email back with questions (such as "is your computer turned on?" or "is your computer plugged in?") and/or directions on how to solve the issue.

3. Translate written directions for any type of task, technical or non-technical, into a Flow Chart.

Contextualized project

Possible ideas for a research project:

1. Assign students to research the IT field or interview an IT employee (perhaps from the college) and discover the range of tasks IT personnel handle on a day-to-day basis.

Synthesize/summarize the findings in writing to share with the rest of the class.

2. Complete an I-Search paper on the history of technology, ending with an analysis of the skills needed to work in the ever-changing IT field.

3. Learn how to create a screencast using Jing by reading Getting up and Running with Jing and create a screencast with a script on how to execute a basic technical task.

4. Ask students to research phishing scams and other IT potential hazards and how to deal with them.

Additional or extension activities, multimedia, readings and/or resources

Why Writing Skills are Important, About.com

Five Skills Every Technical Writer Needs, I'd Rather Be Writing

Technical Writing Is More Than "Click This, Select That" Podcast, I'd Rather Be Writing

Trends in Technical Communication Podcast, I'd Rather Be Writing

Analyzing Your Users and Needs Before Creating Help Deliverables Podcast, I'd Rather Be Writing

How to Create User-Centered Documentation Podcast, I'd Rather Be Writing

Edward Tufte

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