

Accessing Blackboard with JAWS

Phase I - V

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Introduction

Northern Illinois University may receive several students a year who are blind or visually impaired and need to access information posted on the web-based Blackboard system for one or more courses. Some students require immediate and effective instruction in order to have the tools to be successful in courses that use Blackboard. The instruction described herein will provide trainers and learners with the techniques to access Blackboard using JAWS, a screen reader that allows persons who are blind or have a visual impairment to access applications on a personal computer (PC) running Microsoft Windows. If students are unfamiliar with accessing the internet using JAWS, they will need to undertake training prior to learning how to access Blackboard. If students have used JAWS to access the internet previously, but would like to reinforce their skills, they will be provided with material for independent review of basic Hypertext Markup Language (HTML) concepts and JAWS specific commands for accessing the internet.

Needs Assessment

The target audience is students at Northern Illinois University (NIU) who are blind or visually impaired and have a need to use the NIU Blackboard system with JAWS. While the students can seek assistance at any point in their university education, they will likely initially encounter the need to access Blackboard during their first semester of school. Blackboard is a web-based tool that provides one location for students to access documents, manage assignments, and communicate with their teachers and peers. Many professors at NIU post information on the NIU Blackboard website and require student interaction with this site in a variety of ways, making Blackboard a key component of some courses. Students need to be able to read information,

access hyperlinks links to other websites, download files, and participate in discussion groups, all of which is presented within the Blackboard environment. The resources the student will be required to access will vary with the course.

Some students who are blind or visually impaired will be able to access Blackboard without assistance upon first encountering the need to do so. Other learners will require an introduction to either the processes of gaining access, the content and layout of Blackboard, or both. The first indication that a discrepancy exists between what the learner needs to be able to do and what they are able to do, could come from the learner, the Center for Access-Ability Resources (CAAR), or the professor. These sources will indicate that either the student was unable to access the materials they required for class, or it took them an inordinate amount of time to do so and interfered with their ability to complete the assignment by the due date. When a student is unable to access the course materials in the same general way as their peers, their opportunities to gain knowledge, participate in group activities, express their abilities to their professors, and obtain an accurate assessment of their own performance can be severely limited. Emotionally, these limitations can be extremely frustrating and demotivating.

One way to solve this problem is to simplify the task. While simplifying the setup of Blackboard is possible, it requires communication with the manufacturer of the software and any changes would be at the manufacturer's discretion. It would be a worthwhile, but time-consuming endeavor. Materials could also be provided in an alternative format, such as braille or large print. If materials were provided at the same time the rest of the class had access to them, such a plan would solve the problem. Often though, the student has to wait to have materials produced in an

alternative format. Since Blackboard provides instant access and materials are generally accessible using a screen reader and/or optical character recognition (OCR) software, it is a good solution. By providing training in the use of Blackboard with JAWS, Blackboard can be utilized effectively by the blind or visually impaired population.

Learner Analysis and Characteristics

Attitudes and Motivation:

Because many of the students' professors will be posting information on the NIU Blackboard website, the learners will need to be able to access resources that are posted on that site. The learners have either requested additional help or have been put in touch with a trainer by CAAR. This indicates that they have experienced difficulty getting access to the materials they require for class. The students realize that getting access to these materials is crucial to keeping up with their coursework and are expecting that, at the conclusion of training, they will be able to independently download the materials they need from Blackboard. Students will likely use these skills on a regular basis, perhaps as often as once or more per day, or as seldom as once a week.

It is assumed that the students share the common goal of successfully completing their classes and graduating from college. Many students are motivated to learn more about internet access, as they recognize that it applies to many areas of communication and research, both within and outside of school. Because accessing Blackboard with JAWS is somewhat complex and involves numerous steps, the students may have been frustrated by previous attempts to access Blackboard without instruction. Students will likely have had a

long history of receiving one-on-one assistance. They may have been repeatedly disappointed because the assistance did not meet their needs. Students may feel that sighted instructors do not understand what they are experiencing or how to help them. Students are likely to express a range in the level of independence they prefer. Some may value independence to the extent that they resist asking for help, while others may be complacent to the point where they are hesitant to embrace independence.

Learner Characteristics

Learners will have succeeded in gaining admission to NIU and will be blind or visually impaired, but may have few other characteristics in common. The age range of the target audience is that which is appropriate for college, likely 18 to 30 years of age, but could range from 17 years old and up. The learners could potentially be of either gender and could be of any ethnic background. Some may live with their parents; others will live in the dormitory or in an off-campus apartment. Most will not have children at home, although some may have a significant other. It is assumed that they will speak English.

Learner Background:

The learners will have had a variety of experiences by the time they enter the college environment. They will have had a high school education or its equivalent and have a reading level appropriate for college. The students will likely have had significant experience learning in a one-on-one situation using Braille or large-print materials, verbal instruction, and audio training materials. Students will likely have had exposure to computers, the JAWS

application, and the internet. Students using JAWS, will generally have good keyboarding skills and the manual dexterity necessary for typing. The level of comfort they exhibit using JAWS and the internet will vary. They may or may not have been employed in jobs that required the use of computers or the internet.

Prerequisites

Students will need to be able to touch type, be familiar with the layout of the keyboard, be able to start their computers, understand basic Windows commands and structure, understand the basic reading commands used for JAWS, be able to connect to an internet service provider (ISP), open Internet Explorer and read a web page on a familiar computer, and be able to read Braille or hear the instruction. Their abilities to access Blackboard will vary based on past experiences accessing the internet with JAWS.

The student will require a computer with JAWS 5.1 or newer installed; Internet Explorer 6 access to the internet; a username and password to access Blackboard; enrollment in at least one class that has material posted on Blackboard for download; and access to a CD player to utilize the instructional audio CD.

Learning Context

Students will be able to choose a setting in which they feel most comfortable. The setting may be in their home or dormitory room using their own computer, in one of NIU's computer labs, or in the CAAR office. If training is to take place at their home, and a trainer would

have to travel more than 15 minutes from NIU, training will be done at one of the NIU ITS computer labs instead. The trainer is expected to meet with the student one-on-one. The student should set aside two hours for the initial training, and allow time as necessary once or twice a week for follow-up. The training should not take more than three sessions, but more can be done if necessary. The CAAR office can provide additional support, in terms of a Braille embosser and readers to support the student. General computer support is provided by the NIU ITS helpdesk.

Goal

The student will be able to efficiently utilize Blackboard and JAWS to download course related documents.

Questionnaire (to be delivered verbally)

1. Do you own a computer?
2. How frequently do you use a computer?
3. What do you like to do with the computer?
4. Are you comfortable accessing Windows?
5. Do you experience problems with computer files getting lost or misplaced frequently, occasionally, or never?
6. Are you a JAWS user? If so, how long have you been using JAWS?
7. Do you feel that you have generally had positive, negative, or mixed experiences with JAWS?
8. How often do you access the internet?
9. Describe HTML generally and how it works.
10. What is Blackboard?
11. Have you attempted to access Blackboard? If so, were you successful?
12. In general, have you had positive experiences accessing Blackboard?
13. How do you feel about having course documents and other course related materials posted on Blackboard?
14. Have you received previous instruction on Windows, JAWS or Blackboard? If so, which one(s)?
15. Do you prefer to have instructional materials provided in Braille, large print, from an audio CD, verbally, or from a computer?

JAWS Pretest (to be delivered in preferred format)

1. To use JAWS effectively, NumLock should be off.
 - a. True
 - b. False
2. To stop JAWS from talking (without taking any other action), use the following keys:
 - a. ALT
 - b. CTRL
 - c. INSERT
 - d. CAPS LOCK
3. To read the Title bar of the active window, use the following keys:
 - a. INSERT + Right Arrow
 - b. INSERT + T
 - c. INSERT + Down Arrow
 - d. INSERT + 1 on the number row
 - e. INSERT + F1 twice quickly
4. To get application specific help in a standard help system, including a list of keyboard shortcuts, use the following keys:
 - a. INSERT + Right Arrow
 - b. INSERT + T
 - c. INSERT + Down Arrow
 - d. INSERT + 1 on the number row
 - e. INSERT + F1 twice quickly
5. To turn on keyboard help, use the following keys:
 - a. INSERT + Right Arrow
 - b. INSERT + T
 - c. INSERT + Down Arrow
 - d. INSERT + 1 on the number row
 - e. INSERT + F1 twice quickly
6. To read a whole webpage, use the following keys:
 - a. INSERT + Right Arrow
 - b. INSERT + T
 - c. INSERT + Down Arrow
 - d. INSERT + 1 on the number row
 - e. INSERT + F1 twice quickly
7. To move to the next word and speak it, use the following keys:
 - a. INSERT + Right Arrow
 - b. INSERT + T
 - c. INSERT + Down Arrow
 - d. INSERT + 1 on the number row
 - e. INSERT + F1 twice quickly

8. To move from one link to another on a webpage using the keyboard, use the following key:
 - a. CTRL
 - b. INSERT
 - c. TAB
 - d. ALT
 - e. ENTER
16. To activate a hyperlink using the JAWS, use the following key:
 - a. CTRL
 - b. INSERT
 - c. TAB
 - d. ALT
 - e. ENTER
17. To get a list of links in JAWS, use the following keys:
 - a. INSERT + F1
 - b. INSERT + F5
 - c. INSERT + F7
 - d. INSERT + F9
 - e. INSERT + F11
18. To get a list of frames in JAWS, use the following keys:
 - a. INSERT + F1
 - b. INSERT + F5
 - c. INSERT + F7
 - d. INSERT + F9
 - e. INSERT + F11
19. To access Forms Mode in JAWS when a form field has focus, use the following key:
 - a. CTRL
 - b. INSERT
 - c. TAB
 - d. ALT
 - e. ENTER
20. What is the purpose of Forms Mode in JAWS?

Observation

Obtain permission from student to observe while they browse the internet using JAWS. Start the student from the Desktop and have them access Google and perform a search. Listen for the keyboard commands used while the student browses the internet. Note if the user is simply using the tab key and the basic JAWS reading keys or is taking advantage of more advanced JAWS commands, such as the Links list, Frames list, or the JAWS Find command.

Tasks	Objective and Prerequisite Skills, Knowledge, or Abilities
1. Start the computer and Internet Explorer 1. Turn on computer 2. Login if necessary 3. Open Internet Explorer.	Prerequisites: • Ability to use the keyboard and knowledge of keyboard layout • Ability to hear JAWS or read Braille on a Braille display • Ability to understand English spoken through a speech synthesizer • Knowledge of what Internet Explorer is • Understanding of the Windows environment • Ability to navigate to the desktop or start menu • An Internet connection • Ability to connect the computer to the Internet • JAWS installed on the computer • Understanding of what a web page is • Ability to press two keys at once
2. Log into Blackboard 1. Press CTRL+O to open a web page. 2. Type: webcourses.niu.edu and press Enter 3. The page will load. Press INS+F7 to access a list of links. Choose Login and press Enter. 4. Choose Yes if a dialog box pops up prompting you to accept the certificate. 5. Press CTRL+HOME to get to the top of the page. Press the letter F to get to the first form field. 6. Press Enter to go into Forms Mode so that you can enter information in the form. 7. Enter your Z ID. 8. Press the TAB key. 9. Enter your password. Press Enter. You will be taken into the Blackboard site where you can access your courses. 10. If a dialog box appears, choose Yes.	Prerequisites: • User name (Z ID) and password through NIU • Knowledge of what a dialog box is Objectives: • Understanding of the way hyperlinks work • Ability to navigate Links List dialog box • Understanding of JAWS hotkeys for the Internet • Concept of form field • Understanding of Forms Mode

Tasks	Objective and Prerequisite Skills, Knowledge, or Abilities
3. Find course page in Blackboard 1. Press INS+F7 to get a list of links. Press C for Courses, when you hear Courses, press Enter. 2. Press INS+F9 to get a list of frames. Press C for Content. When you hear Content, press Enter. 3. Press Tab. When you hear Skip Course Search Module, press Enter. 4. Press the TAB key until you hear the course you would like to access. When you have found it, press Enter.	Prerequisite: • Knowledge of current course names Objectives • Understanding of frames in web pages • Ability to navigate the Frames List dialog
4. Find the file to download 1. Press INS+F9 for a list of frames. Press the M key until you hear Menu Frame. Then press Enter. 2. Press the TAB key until you hear Course Documents or Course Materials. Then press Enter. 3. On the next page, press INS+F9 to get a list of frames. Press C until you hear the Course Content Frame. Then press Enter. 4. Press Tab until you hear Skip Navigation Links; then press Enter. 5. Press Tab until you hear the folder you want; then press Enter. 6. Repeat step 5 as needed. 7. Press TAB until you hear the file you want	
5. Download the file to the My Documents folder 1. After locating the hyperlink for the file to download, press the NUMPAD ASTERISK 2. In the menu that appears, press the down arrow to "Save Target As". The Save As dialog will open. 3. Press ALT+I to get to the Save In combo box. 4. Press the Down Arrow to open the combo box. 5. Press M until you hear "My Documents"; then hit enter 6. Press ENTER to save the file in the My Documents folder.	Prerequisites: • Understanding of the layout of the Save As dialog box • Understanding of file organization and folder structure in Windows Objective: • Download a file from Blackboard

Phase II Design

Module 1

Lesson 1

Topic: Hyperlinks

Time: 5 minutes

Objective: The student will be able to verbally explain, to the instructor, the function of hyperlinks in a web page and then demonstrate the function of hyperlinks in a web page without other assistance by the end of the first week of school.

Conditions: a computer running JAWS; a sample web page; and a list of commands in accessible format.

INSTRUCTIONAL SEQUENCE	INSTRUCTOR ACTIVITY	STUDENT ACTIVITY	TECHNOLOGY TOOLS
Focus on goals	This lesson will discuss hyperlinks , which are the main way people navigate the Internet. Inform the student that this lesson will help them to navigate this motivating sample web site and other sites they are interested in.	Student will briefly examine a sample motivating web page opened by the instructor.	A motivating web page containing several hyperlinks that lead to distinctly different locations.
Recall relevant content knowledge	Selecting a hyperlink opens a new document, similar to opening another document in MS Word.	Have student come up with other comparisons to their previous computer experience.	
Present and organize content knowledge	Explain that hyperlinks are text that, when selected, take a user from one page to another. When using JAWS, the student can get from one hyperlink to the other using the tab key. The links can be named whatever the designer wants. Jaws indicates the presence of a link by announcing the word "Link"	Student will briefly examine a sample motivating web page opened by the instructor.	A motivating web page containing several hyperlinks that lead to distinctly different locations.
Take action and monitor learning progress	Observe student; direct to appropriate behavior if necessary; answer any questions. Indicate that the student should attend to the page summary information that JAWS speaks when the page first opens.	Student will practice using the tab key to move between hyperlinks and activate them.	A motivating web page containing several hyperlinks that lead to distinctly different locations.

INSTRUCTIONAL SEQUENCE	INSTRUCTOR ACTIVITY	STUDENT ACTIVITY	TECHNOLOGY TOOLS
Synthesize and evaluate	Listen for student understanding and correct if necessary. The student should indicate that hyperlinks move the user from page to page by using the tab and enter keys.	Student summarizes how links work, how to get to them, and activate them.	
Extend and transfer	Prompt student to think about different ways they might find links organized on a web page. Indicate that some web pages have general site links at the top of the page and more specific links further down. A site that uses this strategy is www.afb.org .	Student indicates when they have found links to be most helpful and how they might design a page to be user friendly.	

Module 1

Lesson 2

Topic: Form fields

Time: 5 minutes

Objective: The student will be able to verbally explain, to the instructor, the function of form fields and forms mode in a web page and then demonstrate the function of form fields and forms mode in a web page without other assistance by the end of the first week of school.

Conditions: a computer running JAWS; a sample web page; a tactile example of a form; and a list of commands in accessible format.

INSTRUCTIONAL SEQUENCE	INSTRUCTOR ACTIVITY	STUDENT ACTIVITY	TECHNOLOGY TOOLS
Focus on goals	This lesson will cover form fields in a web page. Being able to use forms is essential to successfully using Blackboard. Inform the student that this lesson will help them to navigate this motivating sample web site and other sites they are interested in.	Student will briefly examine a sample motivating web page opened by the instructor.	A motivating web page containing several form fields.
Recall relevant content knowledge	Forms in on the Internet are similar to paper forms. They can ask for any information and are typically collecting information to store.	Listen, answer and ask questions	Tactile example of paper form.
Present and organize content knowledge	Explain the forms mode feature. First describe forms as the way that information is entered into a web page. Explain that a form field is a component of a form. One example of a form field is a text box. A text box holds information such as a name or address. JAWS indicates the presence of a text box by speaking the word "Edit". Ask if the student has ever used forms mode. Let the student know that to use forms, JAWS must be placed in forms mode. Indicate to the student that this feature exists to disable other JAWS keyboard shortcuts and allow data entry into a form. Remind the student that to get into forms mode, press the enter key when a form field has focus. The F key is the keyboard shortcut to get to a form field.	Student examines tactile example.	Present tactile example of a form on a web page.

INSTRUCTIONAL SEQUENCE	INSTRUCTOR ACTIVITY	STUDENT ACTIVITY	TECHNOLOGY TOOLS
Take action and monitor learning progress	Help student to navigate to the sample web page where they can enter and submit information. Indicate that the student should attend to the page summary information that JAWS speaks when the page first opens. Also, have the student listen for the word “Edit” as the page is read.	Student will use forms mode to enter information in a sample web form and submit the information.	Sample web site with forms and a page indicating that the submitted form has been received.
Synthesize and evaluate	Ask the student the keystroke to get to a form field, how to get into forms mode. Ask the student why forms mode is used.	Student starts at a new page. Have them find the form field, enter information, and submit the form.	A second sample website with a form that can be submitted and a confirmation page.
Extend and transfer	Ask the student where on the web they typically encounter forms and what kinds of information they might be asked to enter. Also discuss the importance of making sure a site is secure and reputable before entering personal information. Discuss whether they feel that it would be safe to enter personal information at Amazon.com.	Listen, answer and ask questions.	

Module 1

Lesson 3

Topic: Frames

Time: 5 minutes

Objective: The student will be able to verbally explain, to the instructor, the function of frames in a web page and then demonstrate the function of frames in a web page without other assistance by the end of the first week of school.

Conditions: a computer running JAWS; a sample web page; a tactile example of a frames page; and a list of commands in accessible format.

INSTRUCTIONAL SEQUENCE	INSTRUCTOR ACTIVITY	STUDENT ACTIVITY	TECHNOLOGY TOOLS
Focus on goals	This lesson will discuss the use of a web page component called frames which are used in Blackboard. Inform the student that this lesson will help them to navigate this motivating sample web site and other sites they are interested in.	Student will briefly examine a sample motivating sample web page opened by the instructor.	A motivating web page containing several hyperlinks that contains three frames.
Recall relevant content knowledge	Frames divide content on a web page, just like a window frame divides areas of a window.	Listen, answer and ask questions.	
Present and organize content knowledge	Indicate that all frames are displayed at the same time and each frame contains related information. JAWS indicates the presence of a frame by announcing “frame begin” and frame end.”	The Student explores a tactile version of the NIU Blackboard website with frames as well as an sample web page.	A tactile page that is divided into three sections in the same way Blackboard web page is divided.
Take action and monitor learning progress	Indicate that the student should attend to the page summary information that JAWS speaks when the page first opens. As the student is doing the activity, indicate to them when JAWS is speaking the name of the frame. Point out that one frame contains navigation information while the other frame contains the actual page content. Have the student revisit the navigation or title frame to notice that those pages do not change, even when the content area does.	The student moves from one frame to another in the sample web page.	A sample web page with three frames: a navigation frame, a title frame, and a content frame. All frames must be named.

INSTRUCTIONAL SEQUENCE	INSTRUCTOR ACTIVITY	STUDENT ACTIVITY	TECHNOLOGY TOOLS
Synthesize and evaluate	Ask the student to indicate the title and function of the different frames as they are encountered.	Student describes frames in their own words. Given a different web page with frames, student can navigate to the various sections.	A sample web page with three frames: a navigation frame, a title frame, and a content frame. Names should differ from those used in practice.
Extend and transfer	Remind students that frames can be arranged in a variety of ways and can have any name, depending on what the designer of the web page prefers.	Have students brainstorm different designs for web pages and come up with different names for the sections.	Heat sensitive pen that creates raised lines on paper for student to draw ideas.

Module 2

Lesson 1

Topic: Links List dialog

Time: 5 minutes

Objective: The student will be able to verbally explain, to the instructor, the function of the Links List dialog in JAWS and demonstrate the function of the Links List dialog in JAWS without other assistance by the end of the first week of school.

Conditions: a computer running JAWS; a sample web page; and a list of commands in accessible format.

INSTRUCTIONAL SEQUENCE	INSTRUCTOR ACTIVITY	STUDENT ACTIVITY	TECHNOLOGY TOOLS
Focus on goals	Web pages can have many of hyperlinks on them the student may not be interested in. Being able to quickly access the links the student wants will save a great deal of time and confusion. Inform the student that this lesson will help them to navigate this motivating sample web site and other sites they are interested in.	Student will briefly examine a sample motivating sample web page opened by the instructor.	A motivating web page containing several hyperlinks that lead to distinctly different locations.
Recall relevant content knowledge	Ask the student to describe a hyperlink. The Links List dialog organizes these hyperlinks. Describe the term dialog as a window that opens, just like the Save or Open windows in MS Word.	The student describes a hyperlink.	
Present and organize content knowledge	Indicate the proper keystrokes to open this dialog and show the student that typing the first letter of the link will take them to that link quickly. If there are multiple entries that begin with the same letter as the item they are looking for, the student may have to press the first letter of that item more than once. Student should be able to indicate what the dialog contains and what the various features are used for. Supplement their understanding if necessary.	Have the student tab through the dialog to become familiar with the different components and features.	Computer with JAWS displaying this dialog box.

INSTRUCTIONAL SEQUENCE	INSTRUCTOR ACTIVITY	STUDENT ACTIVITY	TECHNOLOGY TOOLS
Take action and monitor learning progress	Observe student doing the activity and correct behavior as necessary. Suggest shortcuts, such as choosing the link by pressing the first letter of the link and then hitting enter to activate it instead using the arrow keys and then tabbing to the OK button. This is just like clicking the link and will take the user to a different web page when the dialog closes.	Using several sample web pages, have the student open the dialog box, examine the links, and activate them to go to another page.	A sample web page with a number of distinct links.
Synthesize and evaluate	Prompt student to come up with as many features of the dialog as possible. Verify correct understanding of how to get into and out of the dialog.	Student recites the methods of getting into the Links List dialog and describes the most salient features of this dialog.	Student can use a sheet with the list of commands if they do not remember.
Extend and transfer	Discuss how the names of the links are taken out of context in a links list dialog; ask student the implications of this.	Student can discuss that it requires that the link be well named or that the user knows the name of the links they want.	

Module 2

Lesson 2

Topic: Frames List dialog

Time: 5 minutes

Objective: The student will be able to verbally explain, to the instructor, the function of the Frames List dialog in JAWS and demonstrate the function of the Frames List dialog in JAWS without other assistance by the end of the first week of school.

Conditions: a computer running JAWS; a sample web page; and a list of commands in an accessible format.

INSTRUCTIONAL SEQUENCE	INSTRUCTOR ACTIVITY	STUDENT ACTIVITY	TECHNOLOGY TOOLS
Focus on goals	Blackboard uses frames to organize content. While this is initially a little more challenging, it makes it easier to find the content the user is interested in. Inform the student that this lesson will help them to navigate this motivating sample web site and other sites they are interested in.	Student will briefly examine a sample motivating sample web page opened by the instructor.	A motivating web page containing three named frames.
Recall relevant content knowledge	Frames were discussed in a previous lesson. This is a way to quickly access a frame.	Student explains what a frame is in a web page	
Present and organize content knowledge	Indicate the proper keystrokes to open the Frames List dialog . Indicate the user can type the first letter of the frame to get to the frame quickly. If there are multiple entries that begin with the same letter as the item they are looking for, the student may have to press the first letter of that item more than once.	Have student tab through the dialog to become familiar with the different components and features.	Using a sample web page containing clearly named frames.

INSTRUCTIONAL SEQUENCE	INSTRUCTOR ACTIVITY	STUDENT ACTIVITY	TECHNOLOGY TOOLS
Take action and monitor learning progress	Observe the student as they move through the dialog and select links. Check their understanding by having them explain what their doing and the consequences as they do it.	Have the student open the dialog box, examine the frames, and activate them to go to another page.	Using several simple sample web pages containing clearly named frames. Have the tactile version used previously with frames named in Braille. Student can read the Braille and then compare this to what appears in the Frames List dialog.
Synthesize and evaluate	One of the main differences between the Links List and Frames List is that the Links List takes the user to a new page, while the Frames List takes her to a different spot on the same page.	Have the student discuss the difference between as Links List and Frames List dialog box.	
Extend and transfer	Discuss areas where the Frames List dialog would be helpful, and when it is easier just to read through the web page. The student should also be informed of the M shortcut key, which cycles the user through frames without using the frames list dialog.	Student can articulate how different frame configurations would change what appears in the Frames List dialog.	

Module 3

Lesson 1

Time: 10 minutes

Topic: Logging into Blackboard

Objective: The student will be able to log into Blackboard successfully in 4 out of 5 trials without other assistance by the end of the first week of school.

Conditions: a computer running JAWS; access to NIU's Blackboard System; and a list of steps in an accessible format.

INSTRUCTIONAL SEQUENCE	INSTRUCTOR ACTIVITY	STUDENT ACTIVITY	TECHNOLOGY TOOLS
Focus on goals	The tutorial will indicate that in order to use Blackboard, all users must login to get their customized information	Listen, answer and ask questions.	Computer Tutorial
Recall relevant content knowledge	Indicate that this step will use the hyperlinks in the Links List dialog and the student will be required to enter information in a form using forms mode.	Listen, answer and ask questions.	Computer Tutorial
Present and organize content knowledge	The tutorial will first present an audio and visual walk through example of how to do the procedure. Instructor is available for questions. The steps that will be presented are: 1. Press CTRL+O to open a web page. 2. Type: webcourses.niu.edu and press Enter 3. The page will load. Press INS+F7 to access a list of links. Choose Login and press Enter. 4. Choose Yes if a dialog box pops up prompting you to accept the certificate. 5. Press CTRL+HOME to get to the top of the page. Press the letter F to get to the first form field. <i>(Continued on next page)</i>	Listen, answer and ask questions.	A computer Tutorial as well as large print and braille materials describing the steps will be provided.

INSTRUCTIONAL SEQUENCE	INSTRUCTOR ACTIVITY	STUDENT ACTIVITY	TECHNOLOGY TOOLS
	6. Press Enter to go into Forms Mode so that you can enter information in the form. 7. Enter your Z ID. 8. Press the TAB key. 9. Enter your password. Press Enter. You will be taken into the Blackboard site where you can access your courses. 10. If a dialog box appears, choose Yes.		
Take action and monitor learning progress	The application will prompt with the next step, but will allow only correct input. Student will be given two tries in each step. Instructor is available for questions.	Student will follow instructions to proceed through the proper steps.	A computer Tutorial as well as large print and braille materials describing the steps will be provided.
Synthesize and evaluate	A conclusion screen will recite the steps quickly. After successful completion of the mock login process, student will be given a count of how many times they made a keystroke mistake. They will be prompted if they want to do this lesson over again or continue to the next lesson.	Student listens to summary and practices steps again or moves to next lesson.	Computer Tutorial
Extend and transfer	Student will be given the opportunity to temporarily exit the training program to try the procedure in the real Blackboard environment. If they do not succeed in that environment, they will be given troubleshooting tips. The student can return to the training program at any time.	Student practices in real Blackboard environment.	Computer Tutorial, Actual Blackboard session.

Module 3

Lesson 2

Time: 10 minutes

Topic: Locate the Courses page

Objective: The student will be able to access the main page for each course that posts information on Blackboard without other assistance by the end of the first week of school.

Conditions: a computer running JAWS; access to NIU's Blackboard System; and a list of steps in an accessible format.

INSTRUCTIONAL SEQUENCE	INSTRUCTOR ACTIVITY	STUDENT ACTIVITY	TECHNOLOGY TOOLS
Focus on goals	The tutorial will indicate that Blackboard can contain sections for some or all of the students' classes. Once in this section, all files for that class will be available.	Listen, answer and ask questions.	Computer Tutorial
Recall relevant content knowledge	The tutorial will indicate that this step requires the use of hyperlinks, the Links List dialog, and the Frames List dialog.	Listen, answer and ask questions.	Computer Tutorial
Present and organize content knowledge	The tutorial will first present an audio and visual walk through example of how to locate the Courses page. Instructor is available for questions. The steps that will be presented are: 1. Press INS+F7 to get a list of links. Press C for Courses, when you hear Courses, press Enter. 2. Press INS+F9 to get a list of frames. Press C for Content. When you hear Content, press Enter. 3. Press Tab. When you hear Skip Course Search Module, press Enter. 4. Press the TAB key until you hear the course you would like to access. When you have found it, press Enter.	Listen, answer and ask questions.	A computer Tutorial as well as large print and braille materials describing the steps will be provided.

INSTRUCTIONAL SEQUENCE	INSTRUCTOR ACTIVITY	STUDENT ACTIVITY	TECHNOLOGY TOOLS
Take action and monitor learning progress	The application will prompt with the next step then allow only correct input. Student will be given two tries in each step. Instructor is available for questions.	Student will follow instructions to proceed through the proper steps.	A computer Tutorial as well as large print and braille materials describing the steps will be provided.
Synthesize and evaluate	A conclusion screen will recite the steps quickly. After successful completion of the mock login process, student will be given a count of how many times they made a keystroke mistake. They will be prompted if they want to do this lesson over again or continue to next lesson.	Student listens to summary and practices steps again or moves to next lesson.	Computer Tutorial
Extend and transfer	Student will be given the opportunity to temporarily exit the training program to try the procedure in the real Blackboard environment. If they do not succeed in that environment, they will be given troubleshooting tips. The student can return to the training program at any time.	Student practices in real Blackboard environment.	Computer Tutorial, Actual Blackboard session

Module 3

Lesson 3

Time: 10 minutes

Topic: Finding and downloading file

Objective: the student will be able to download three files from the course documents/course materials area of that system into the My Documents folder without other assistance by the end of the first week of school.

Conditions: a computer running JAWS; access to NIU's Blackboard System; and a list of steps in an accessible format.

INSTRUCTIONAL SEQUENCE	INSTRUCTOR ACTIVITY	STUDENT ACTIVITY	TECHNOLOGY TOOLS
Focus on goals	The tutorial will indicate that, for any course, several files can be posted on Blackboard. These can best be accessed by downloading them to the computers hard drive and opening them from there.	Listen, answer and ask questions.	Computer Tutorial
Recall relevant content knowledge	The tutorial will indicate that this step requires the use of hyperlinks, the Links List dialog, and the Frames List dialog. The student will be saving the file using steps that are very similar to saving a file in MS Word.	Listen, answer and ask questions.	Computer Tutorial
Present and organize content knowledge	The tutorial will first present an audio and visual walk through example of how to do the procedure. Instructor is available for questions. The steps that will be presented are: 1. After locating the hyperlink for the file to download, press the NUMPAD ASTERISK 2. In the menu that appears, press the down arrow to "Save Target As". The Save As dialog will open. 3. Press ALT+I to get to the Save In combo box. 4. Press the Down Arrow to open the combo box 5. Press M until you hear "My Documents"; then hit enter 6. Press ENTER to save the file in the My Documents folder.	Listen, answer and ask questions.	A computer Tutorial as well as large print and braille materials describing the steps will be provided.

INSTRUCTIONAL SEQUENCE	INSTRUCTOR ACTIVITY	STUDENT ACTIVITY	TECHNOLOGY TOOLS
Take action and monitor learning progress	The application will prompt the student with the next step then allow only input correct input. Student will be given two tries in each step. Instructor is available for questions.	Student will follow instructions to proceed through the proper steps.	A computer Tutorial as well as large print and braille materials describing the steps will be provided.
Synthesize and evaluate	A conclusion screen will recite the steps quickly. After successful completion of the mock login process, the student will be given a count of how many times they made a keystroke mistake. They will be prompted if they want to do this lesson over again or continue to next lesson.	Student listens to summary and practices steps again or moves to next lesson.	Computer Tutorial
Extend and transfer	Student will be given the opportunity to temporarily exit the training program to try the procedure in the real Blackboard environment. If they do not succeed in that environment, they will be given troubleshooting tips. The student can return to the training program at any time.	Student practices in real Blackboard environment.	Computer Tutorial, Actual Blackboard session

Trainer technical skills

For a trainer to be able to successfully teach this lesson, they will need a few basic skills. The trainer must be comfortable with the basics of Internet Explorer, JAWS and Blackboard. Specifically, the trainer should be familiar with the reading commands in JAWS as well as the keyboard shortcuts used on the Internet. The trainer needs to become familiar with the layout of the NIU Blackboard site and any unique attributes of that site. Help information for Blackboard is available on the NIU ITS website as well as the Blackboard website. Additionally, numerous resources and useful links for are also available at the website www.niu.edu/facdev. Help for Blackboard can also be obtained by browsing to webcourses.niu.edu and selecting the Student Help link. Technical support for Blackboard can be obtained from the NIU helpdesk. JAWS has excellent help resources. These can be obtained by navigating to the JAWS folder in the Windows start menu, and selecting help. View the section on using the Internet with JAWS. JAWS also produces a tutorial designed to teach web browsing skills called Surf's Up!, which is available from www.freedomscientific.com.

Support availability

For computers in NIU labs, technical support is available by calling the Help Desk or submitting a trouble ticket. If this procedure is followed, it is unlikely the problem will be resolved during class time. For JAWS support, a toll call can be made to the Freedom Scientific help line. The problem may or may not be resolved during class time. Prior to teaching the lesson, it is recommended that the trainer run through the lesson on the computer that will be used for the training to verify that it is working properly. If the client is using a computer in their home, they will be required to have access to any support resources, including their Internet service provider, hardware warranty support, and Freedom Scientific telephone support.

There are limited resources on the NIU campus to aid in the development of training materials. NIU ITS may be able to provide some support in creating materials for Blackboard and the CAAR office may be able to provide assistance in creating training materials for JAWS and the Internet. The CAAR office also has Braille translation software and Braille embossers for use in creating handouts and tactile representations of the Internet.

Equipment availability

The availability of equipment will be contingent upon the location of the training. If the training takes place in the student's home, it is the student's responsibility to make sure they have a computer running Internet Explorer 6 with Internet access and JAWS properly installed. Since this training will be done in a one-on-one setting, only one computer is required. NIU has one Windows based PC computer with JAWS installed in virtually every computer lab on campus. The student can choose the lab that they prefer. The software available in the NIU lab includes Internet Explorer 6 and JAWS 5.x. These versions are compatible with the instructions in this lesson. The student may wish to bring a USB storage device to save any files they download. Most of these specialized computers are very accessible to students with disabilities. For students with physical disabilities, it will be important to verify that the computer lab is accessible via a method other than stairs. Stairs are typically an obstacle in some of the residence hall labs. Some labs have tables with a height adjustment while others do not. Student in a wheelchair may find an adjustable table preferable. If students want to practice, and they do not have the required equipment at home, the NIU computer labs are open late. Because JAWS is only available for Windows based computers, students would not be able to use these lessons with a Macintosh.

Phase III

Development

Introduction

In the development phase, the results of the analysis and design phases are used to create a tangible product, which includes a flowchart and storyboards. The effectiveness of this product and any needed improvements to it are then determined by performing a pilot test. The product being designed is intended to instruct a visually impaired student to access the Northern Illinois University Blackboard site with JAWS and download a file.

Facilitating the Lesson

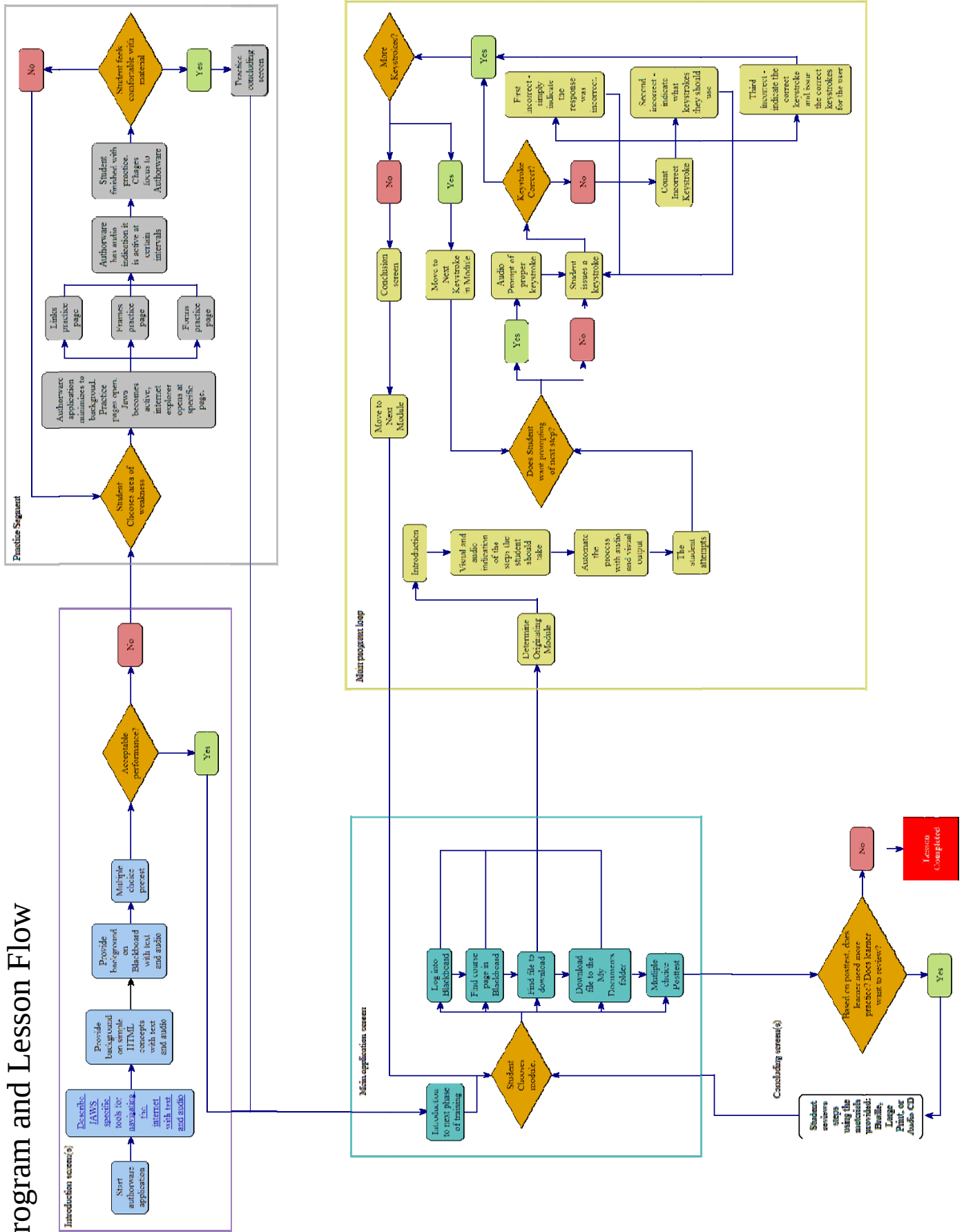
Before the lesson begins, the learner is asked to take a pretest. This same test will be given as the posttest at the conclusion of the lesson. The lesson itself starts by reviewing basic web concepts. The concepts covered are hyperlinks, form fields and frames. The learner is given an opportunity to practice each of these using simple web pages designed to demonstrate these specific concepts.

After having an opportunity to practice, the student is provided with an overview of Blackboard and instructed how to download a file to his or her computer from Blackboard. The instructions are divided into the broader categories of logging into Blackboard; finding the correct course page; finding the file to download; and downloading the file to the My Documents folder.

There are a number of alternatives for providing instruction. The instruction can be delivered verbally by the instructor; the student can follow instructions provided by an audio CD; JAWS can be used to read from a computer document; Braille instructions can be followed; or the

student can use a computer-based training application that verbally prompts for the correct input and then only accepts that input (this application will be discussed in more detail later). However the student decides to receive instruction, the student should be encouraged to practice the steps independently at the conclusion of the guided lesson. The student will be asked to complete the posttest and provide feedback. For a more detailed description of the lesson components, see the flowchart and storyboard that follow.

Program and Lesson Flow



Pretest/Posttest

1. To move from one link to another on a webpage using the keyboard, use the following key:
 - a. CTRL
 - b. INSERT
 - c. TAB
 - d. ALT
 - e. ENTER
2. To activate a hyperlink using the JAWS, use the following key:
 - a. CTRL
 - b. INSERT
 - c. TAB
 - d. ALT
 - e. ENTER
3. To get a list of links in JAWS, use the following keys:
 - a. INSERT + F1
 - b. INSERT + F5
 - c. INSERT + F7
 - d. INSERT + F9
 - e. INSERT + F11
4. To get a list of frames in JAWS, use the following keys:
 - a. INSERT + F1
 - b. INSERT + F5
 - c. INSERT + F7
 - d. INSERT + F9
 - e. INSERT + F11
5. To access Forms Mode in JAWS when a form field has focus, use the following key:
 - a. CTRL
 - b. INSERT
 - c. TAB
 - d. ALT
 - e. ENTER
6. The proper sequence of events to download a file from Blackboard is:
 - a. Open webcourses.niu.edu, find your course, download your file, find your file, login
 - b. Login, find your course, download your file, find your file, open webcourses.niu.edu
 - c. Open webcourses.niu.edu, login, find your course, find your file, download your file
 - d. Download your file, login, open webcourses.niu.edu, find your course, find your file
7. If your instructor has placed a file on Blackboard, a likely location for the file is:
 - a. Assignments
 - b. Course Documents
 - c. Staff Information
 - d. External Links
8. Blackboard uses frames to help organize content:
 - a. True
 - b. False
9. To download a file from Blackboard, the only place you have to use forms mode is on the login page.
 - a. True
 - b. False



Introduction

- We will be discussing how to use JAWS to access Northern Illinois University's Blackboard system. Specifically, we will be discussing how to download a file from Blackboard. In order to access Blackboard, you will need to have an NIU ZID and a password.
- By the end of the lesson, you should be able to download a file from Blackboard without any assistance.
- Before we discuss using JAWS and Blackboard, we will review some basic web concepts. Hyperlinks, form fields and frames will be discussed and you will have an opportunity to practice using each of these on some simple web pages. In addition, we will be discussing how to access hyperlinks quickly using the Links List dialog and how to use the Frames List dialog to efficiently move to a specific area of a web page.
- By the end of the lesson you should be able to verbally explain and demonstrate the function of hyperlinks, form fields and frames both with and without the Links List and Frames List dialogs.

Selected JAWS Shortcuts for the Web

- JAWS is a screen reader that is designed to assist the user in accessing Windows solely from the keyboard. Because of this, it utilizes a large number of keyboard shortcuts. Keys must be pressed quickly in order for the shortcuts to work correctly.
- Keep the following keyboard shortcuts in mind. The context in which they will be applied will be discussed later.
 - TAB: Moves from link to link in Internet Explorer
 - SHIFT+TAB: move backward through hyperlinks
 - ALT+LEFT ARROW: go back to a previous web page
 - INSERT+DOWN ARROW: read an entire web page in JAWS
 - F: moves from form field to form field
 - M: moves between frames
 - INSERT + F7: opens the links list dialog (use the keypad INSERT)
 - INSERT + F9: opens the frames list dialog (use the keypad INSERT)
 - NUMPAD ASTERISK: opens a context sensitive menu; similar to a right-click
 - ENTER (when an editable form field has focus): starts Forms Mode
 - ENTER: activates hyperlink or button



Hyperlinks

- Here we will discuss hyperlinks, which are the main way people navigate the internet.
- Hyperlinks are text that, when selected, take you from one page to another. Selecting a link is similar to opening a new document in a word processor. The text of the link can be whatever the designer of the web page wants; hopefully, the link will give you some information about where it will take you.
- JAWS indicates the presence of a link by announcing the word “Link”
- You can get from one Hyperlink to another using the TAB key. JAWS will skip all the text between links and automatically read the link to you.
- When using any of the sample pages, attend to the page summary information that JAWS speaks when the page first opens. To listen to the entire page, press INSERT+DOWN ARROW. To stop reading press the CONTROL key.
- The sample web page that follows provides information about a non-existent café named Jim’s Café at Innisport. Note that some of the links on the page take you to another part of the same page, while other links are designed to take you to a new page.

Hyperlinks Training Page



Jim's Cafe was founded in 1946 by Jim Smith. At that time, Jim was a sergeant in the United States Army, who had just finished a four year tour of duty in Europe. Ready to begin civilian life, he settled down in the sleepy town of Innisport with his wife, Charlotte, and their son, James Jr.

Taking a second mortgage out on his home, he purchased a run-down book shop in downtown Innisport and set about realizing his dream of owning a successful restaurant. The first few years were lean, but as the town of Innisport grew and prospered, Jim's Cafe became a favorite place for lunch breaks and Saturday night dinners.

For almost 50 years, Jim's Cafe has been renowned for excellent service, a dazzling variety of dishes and appetizers, and scenic location. Use the links below to read more:

[Reputation for Quality Service](#)

[Dishes and Appetizers](#)

[Driving Directions](#)

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Form Fields

- In order to get access to Blackboard, you will need to be able to use forms.
- As you would guess, web-based forms are similar to paper forms. They are used to enter and submit information on a web page. The information is likely then e-mailed, stored in a database, or checked against a database, as is the case when logging in on a website.
- A form field is a component of a form. One example of a form field is a text box. A text box holds information such as a name or address. JAWS indicates the presence of a text box by speaking the word “Edit”.
- The easiest way to get to a form field is to press the F key until JAWS speaks the name of the field you want.
- To use the form, JAWS must be placed in Forms Mode. This feature exists so that other JAWS keyboard shortcuts discussed earlier can be disabled when typing in a form field.
- To get into Forms Mode, place the focus on a form field and press enter. When the form is submitted, Forms Mode is automatically turned off.
- The sample web page that follows is a mock screen from a hypothetical customer tracking system. There are several text fields that already contain information for a customer named Robert Green. Feel free to add to or change this information for practice.

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Frames

- ❑ Blackboard uses a feature of web pages called frames. Frames divide content on a web page just like a window frame divides a window.
- ❑ Frames can be arranged in a variety of ways, but often web pages have two or three frames. One frame often contains the page title; one often contains navigational links; and the third often contains the actual content.
- ❑ Frames help to access information efficiently by allowing you to get to a specific category of information, such as a page index without having to read through all the other page content.
- ❑ Suppose there is one frame for navigation and one for content. If you select a link in the navigation frame, the content of the page changes, but the navigation information stays the same.
- ❑ In Blackboard, the frames are named. JAWS can read these names and move you to that particular area of the web page. The names are determined by the author of the web page and can be anything that he or she chooses. JAWS indicates the presence of a frame by announcing “frame begin” and frame end.”
- ❑ The training page that follows has three frames. Each frame contains different information about Freedom Scientific, the company that makes JAWS. One frame contains contact information, one a brief company history, and the third contains a mission statement.

Frames Training Page

**Freedom Scientific Blind/Low Vision
Group and Corporate Offices**
11800 31st Court North
St. Petersburg, FL 33716

Tel : (800) 444-4443 or (727) 803-8000
Fax: (727) 803-8001
Info@FreedomScientific.com

Learning Systems Group
480 California Avenue
Suite 200

Palo Alto, CA 94036-1609
Tel: (888) 223-3344 or (650) 475-5435
Fax: (650) 475-1067
wynn@FreedomScientific.com

European Headquarters
Freedom Scientific GmbH
Line - Eid - Strasse 1

78467 Konstanz
Tel: +49 7531 94239-30
Fax: +49 7531 94239-59
Info@FreedomScientific.de

Freedom Scientific

In April 2000, Freedom Scientific was formed by combining three companies: Blazie Engineering, Henter-Joyce and Arkenstone. A brief biography of those who founded these three companies along with Freedom Scientific's President and CEO can be found below.

Freedom Scientific has a nine-person board of directors, including three independent business executives; two are blind users of the company's products. Another director's daughter, who is blind, also is a long-time customer. In addition, many of our associates are blind or visually impaired.



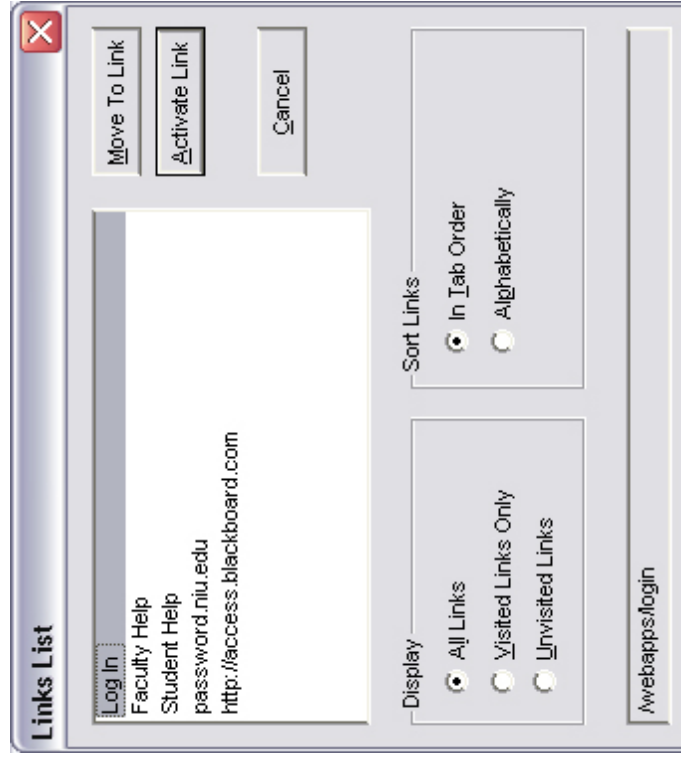
Our Mission

To develop, manufacture and market innovative technology-based products and services that those with vision impairment change their world.

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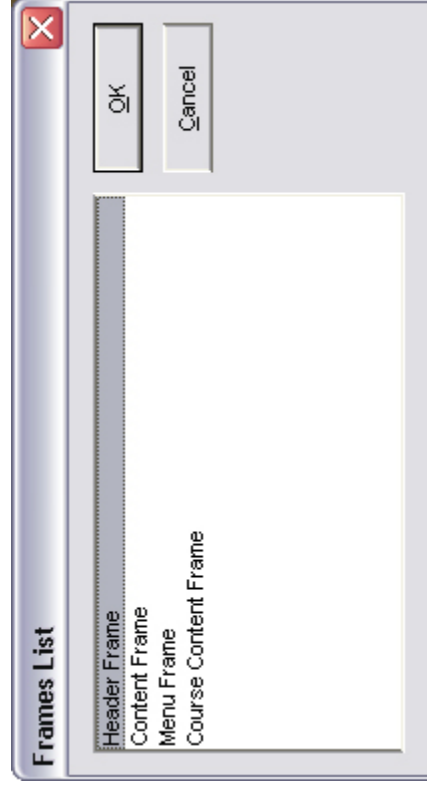
The Links List Dialog

- ❑ Web pages can have lots of links. Tabbing through all of these links can be time-consuming and confusing.
- ❑ Within JAWS there is the Links List dialog that will help you get to the link you want quickly. The Links List Dialog is a dialog in the same way that the typical Open or Save windows are dialogs. Just like these other dialogs, the tab key will take you to the different elements of the dialog.
- ❑ Use INSERT+F7 to open the Links List dialog. After pressing these keys, a box will open with a list of links. Use the ARROW KEYS to move up and down the list. An even quicker method is to press the first letter of the link you are looking for until you hear that link. If there is more than one link beginning with that letter, you will have to press the letter multiple times. When you find the link you are searching for, press ENTER. The dialog will be closed and you will be taken to the destination for that link, just as if you had selected it on the web page.



The Frames List Dialog

- ❑ There is another dialog very similar to the Links List that allows you to quickly move to a specific frame. This is called the Frames List Dialog.
- ❑ Press INSERT+F9 to open the Frames List dialog. Use the ARROW KEYS or type the first letter of the frame you are interested in until you hear JAWS speak it. If there is more than one frame beginning with that letter, you will have to press the letter multiple times. When you hear the frame name, press ENTER.
- ❑ Keep in mind that navigating to a different frame simply takes you to a different location on the same page.
- ❑ To listen to the contents of a frame, press INSERT+DOWN ARROW. To stop reading press the CONTROL key.



About Blackboard

- ❑ Blackboard is a web-based tool that provides one location for students to access documents, manage assignments, and communicate with their teachers and peers. Many professors at NIU post information on the NIU Blackboard website and require student interaction with this site in a variety of ways, making Blackboard a key component of some courses. You will likely need to be able to read information, access links to other websites, download files, and participate in discussion groups, all of which is presented within the Blackboard environment. The resources you will be required to access will vary with the course.

The screenshot displays the Blackboard interface for Northern Illinois University. The top navigation bar includes the NIU logo, "Northern Illinois University", and links for "Home", "Help", and "Logout". Below this, a secondary navigation bar contains "NIU", "Courses", "Community", and "Services". The main content area features a sidebar with a vertical menu of links: "Announcements", "Discussion Board", "Course Materials", "Weekly Content", "Instructor", "Communication", "Auxiliary Web Sites", "Tools", and "Stack List". The main content area shows a course banner for "ETT 510 FALL SEMESTER 2005" with a background of autumn leaves. Below the banner, there are filters for "VIEW TODAY", "VIEW LAST 7 DAYS", "VIEW LAST 30 DAYS", and "VIEW ALL". The course title "October 01, 2005 - October 08, 2005" is displayed. A post from "Tue, Oct 04, 2005" titled "New discussion forum" is shown, with the text: "A new discussion forum has been posted to Blackboard. Please submit your initial responses by Thursday, October 6 and respond to one peer posting beginning Friday, October 7." The post is attributed to "Mon, Oct 03, 2005 -- Digital Photography" and "Posted by Janet OIESEN". A "Course Map" link is visible in the bottom right corner.



Training Application: Introduction

- This phase of the training will focus on using your web-browsing skills to access Blackboard. The program will walk you through efficient ways to log into Blackboard, find your course page, find the file you are interested in downloading, and download the file to the My Documents folder. How long you spend with the training is up to you. You can jump to a different part of the training, but it is recommended that you follow the training in the order it is presented. You can exit the training at any time.

Training Application: Modules

- ❑ **Logging Into Blackboard:** This module will walk you through the steps to log into Blackboard.
- ❑ **Finding a Course:** Once you have logged in, you will need to get to the page that contains information for your course.
- ❑ **Finding a File:** There are several places where the file could be located in the course area of Blackboard. This lesson will walk you through finding the correct page, folder and file.
- ❑ **Downloading a File:** The last step in the process is downloading a file. Here we will go through the steps to put the file on your computer.
- ❑ **Concluding Screen:** You have successfully completed the training. You used the correct commands XX% of the time. If you would like to practice any part of the training again please press ALT+R.
- ❑ **Posttest:** See Pretest/Posttest page

Logging In

Finding a Course

Finding a File

Downloading a File

Exit

Training Application: Sample Screen

Step 1:
Login to Blackboard

Next:
• Press INS+F7 to
access a list of links.

Blackboard Learning and Community Portal System™ (Release 6)

To log in, please click on the Login icon on the left.

All Participants

 **Your USERNAME** is your Novell Login ID
(for example: z5555555 or a01abc1)

Your PASSWORD is your Novell Password
For help go to blackboard.niu.edu
Or call 815-752-7738 (815-752-RSET)

NIU
Northern Illinois University



Blackboard Learning System™ (Release 6), Blackboard Learning and Community Portal System™ (Release 6) - 6.2.3.23
Copyright © 1997-2003 Blackboard Inc. All rights reserved.
Accessibility information can be found at <http://help.blackboard.com>

What's JAWS saying?
"Login button"



Press these keys:

esc	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	psc	slk	brk
.	1	2	3	4	5	6	7	8	9	0	-	=	bksp	ins	hm
tab	q	w	e	r	t	y	u	i	o	p	[	]	\	del	end
lock	a	s	d	f	g	h	j	k	l	;	'	ent		4	5
shift	z	x	c	v	b	n	m	.	/	shift	↑	↓	←	→	ent
ctrl	alt	alt													

Phase III

Pilot Test

Introduction

A pilot test of training materials designed to instruct a visually impaired student to access the Northern Illinois University Blackboard site with JAWS and download a file was undertaken on 9/29/2005 with one subject. The subject was a university student who had a visual impairment and had used JAWS for a number of years, but had no previous experience with Blackboard.

Method

Data from the pilot test was collected informally through observation. The instruction was entirely hands on; the student had access to a list of steps in Braille and was encouraged to follow this list to download a file. The instructor was present to answer any questions and to provide background information when necessary. During the evaluations, the subject accessed Blackboard on a computer running Windows 98, using a standard keyboard and JAWS version 5.1 or higher.

Time:	2 hours
Main Objective	Yes - subject was able to
Achieved:	download a file at the
	completion of the lesson.

Student Feedback

1. How well did the student meet the objectives of this lesson?
 - The student was able to download a file from Blackboard.
2. Did you find any inconsistencies, errors, or lack of information?
 - The student did not report any errors related to the instruction.

3. Did the technology work appropriately?

- The student had tried to access blackboard several times before and had difficulty due to technical problems. The student had concerns about the way his computer equipment was working and the difficulty of accessing the Blackboard website. For example, the student's computer stopped responding at one point during the instruction and had to be rebooted. These problems emphasize the need to verify that the technology is working properly before beginning instruction.

4. What changes, if any, should the instructor make to improve this lesson?

- When reading the instructions in Braille, the student indicated that it took a while to read through the extra wording included in each step before getting to the command itself. This slowed him down.

Pilot Testing Results and Revisions

The pilot test utilized a one-on-one structure where the student was asked to follow specific steps. The instructor noted that the learner had difficulty remembering the steps he needed to take because he did not have any background in why particular commands are used or any practice using them in a simpler context before the lesson. Because of this, more background information was added to the lesson. Information regarding hyperlinks, forms and frames was added. In addition, information about Blackboard and how it is structured was added to the lesson. This additional information is to be discussed before the student performs any steps with the actual NIU Blackboard site. With these changes, students should have a more complete conceptual framework in which to place the commands they need to memorize. It is hoped that this will make it easier for students to understand the reason why certain steps are necessary. The task list was also modified by removing extra wording. This should make the commands that

need to be executed more apparent so that they can be read quickly. With these modifications, students should have to spend less time referring to the handouts.

A second change that resulted from the testing was the addition of an audio CD. This was provided in addition to the Braille and large print materials that were already supplied. Braille can be an inefficient medium to use as a computer reference for several reasons. First, some people read Braille faster and more accurately than others. If learners are slow Braille readers and have to focus too intently on reading Braille, they may lose perspective on the lesson as a whole. Secondly, in order to read the Braille, the learners have to take their hands off the keyboard, which tends to slow them down; at times, they experience difficulty re-orienting themselves to the keyboard. Also, when learners place the Braille in their bags to take to and from the computer area, the Braille tends to get crushed and become less readable. Additionally, Braille is very space consumptive, while a CD is lighter and takes far less space.

A third change that resulted from the testing was the addition of an online learning application to manage the instruction. An interface is being created that simulates accessing Blackboard and downloading a file, yet limits the input to only that which will allow the learner to achieve his or her goal. The restrictive interface was created to allow users to understand the proper sequence of events without the great potential for confusion that comes from using the actual website. When teaching the user to log onto Blackboard using Jaws, a mistake or error in the page can take the user into a context where the instructions do not apply, making it difficult to reorient him or herself. This application also allows the user to practice repeatedly and in private. By allowing the user to practice away from the instructor, students may practice more and be more

willing to risk making mistakes. The user is prompted by the software when they have made a mistake and then provided a second opportunity. If the user makes a mistake twice, the software will perform the action for the user and move to the next step. The goal here is to prevent frustration, while allowing the user to experience the entire process. If the user has made several mistakes, they can return and practice the process again after the lesson is complete.

Finally, a short pretest and posttest were added to assess the value of the instruction in improving learners' skill levels. The learners will take these tests immediately before and after the instruction.

The modifications undertaken as a result of the pilot test are aimed at increasing the speed and independence with which a learner can complete instruction. The instruction will likely be among the user's first exposure to Blackboard and, as such, should be a positive, encouraging experience, which allows the user to proceed with their actual schoolwork as quickly as possible.

Phase IV

Implementation

Introduction

The implementation phase is where instruction is delivered. An implementation of the lesson designed to instruct a visually impaired student to access the Northern Illinois University Blackboard site with JAWS and download a file was undertaken on 11/24/2005. The subject of the lesson had no prior experience using JAWS and only limited experience using Blackboard. This subject was not visually impaired, but was instead prevented from viewing the screen while completing the training.

Time:	2.5 hours
Main Objective Achieved:	Yes - subject was able to download a file at the completion of the lesson.

Method

The subject was provided with a pretest and a posttest that utilized the same 10 questions in the same order. The pretest was given before any instruction was provided and the posttest was given at the conclusion of instruction (see Chart 1 and Appendix 1). During instruction, the subject was provided with a list of common commands in JAWS that are used to access the Internet as well as a list of steps to download a file from Blackboard (see Appendix 2). The subject was encouraged to provide critical feedback at any point in the lesson when she had input she felt would improve the lesson. During the evaluation, the subject accessed Blackboard on a computer running Windows 98, using a standard keyboard and JAWS version 5.1 or higher.

**Chart 1:
Pretest/Posttest Results**

Question	Pretest	Posttest
1	X	C
2	X	C
3	X	C
4	X	C
5	X	C
6	X	C
7	C	C
8	C	X
9	C	C
10	X	X
Overall Total	30%	80%

Reactions and suggestions from the student during the lesson:

- The student indicated that the materials were not intimidating and that she felt she could complete the task after seeing the materials.
- Provide a more detailed overview in the beginning of the lesson that indicates information about hyperlinks, form fields, frames and Blackboard will be covered. Provide an example of what will be covered as well.
- Describe a form field as a component of a form. Use the example of a text field, which can have information entered into it.
- Describe sample web pages before having the student listen to them; therefore, they will have a better idea of what to listen for. Indicate that the student should listen for:
 - The overview information that JAWS speaks when the page opens;
 - Indication of hyperlinks;
 - Form fields are denoted by the word “Edit”;
 - Frame names and where frames begin and end.
- Leave out the information about frames consisting of separate pages that appear as one page.
- Don’t discuss how links, when taken out of context in the Links List dialog, are not useful when they are labeled as “Click Me”.

Reactions from the instructor during the lesson

- Indicate in the instructor’s material that the learner will need to have a login to Blackboard.
- Because JAWS provides important details about a web page when it opens, a new web page should be created containing hyperlinks to the sample web pages. This new web page could be used instead of having the sample web pages open and ready for the student.

- Additional shortcuts should be added to the student material:
 - o SHIFT + TAB to move backward through hyperlinks
 - o ALT+LEFT ARROW to go back to a previous web page
 - o INSERT + DOWN ARROW to read entire web page using JAWS
 - o M to move between frames
 - o SHIFT + F10 to open a context sensitive menu
- Initially, the student held down the keys for too long causing unpredictable results. To help with this, indicate that keys should be pressed quickly.
- Indicate that moving to a specific frame helps the student get to specific information. They can then listen to this information with INSERT + DOWN ARROW.
- The lesson may be too long. Look into ways to shorten the lesson.
- After locating the hyperlink for the file to download, press the NUMPAD ASTERISK (where the Save Target As command is located).
- Indicate more clearly that in the Links List and Frames List dialogs, the student can press the first letter of the item they are looking for to get to that item. If there are multiple entries that begin with the same letter as the item they are looking for, the student may have to press the first letter of that item more than once.

Phase V

Evaluation

The Evaluation phase is where the effectiveness of the lesson is measured. The implementation of this lesson yielded valuable input into the strengths of the lesson and the ways this lesson could be improved. The questionnaire completed by the student and instructor at the conclusion of the lesson validated the input provided during the lesson. In the questionnaire, the student gave the strongest ratings to the Assessments and Outcomes categories; which received 80 and 90 percent respectively. The strong scores in the Outcomes and Assessments categories are consistent with the student's achieving the objective of being able to download a file successfully at the end of the lesson. The high rating in the Assessment category are consistent with the pretest/posttest results. The student scored 30% correct on the pretest and 80% correct on the posttest. This is a good indication that the lesson was largely effective. The two weakest areas were Content and Materials, which received 55 and 56 percent respectively (see Chart 1 and Appendix 2). The weak scores on the Content and Materials sections are echoed in the student's comments. The student suggested removing some overly technical and irrelevant material from the lesson. In addition, the student suggested providing more background information at the beginning of the lesson and better descriptions of the sample web pages before having students examine them. As the student indicated, another way to improve the materials would be to include the objectives of the lesson in the student materials.

NIU Blackboard/JAWS Training Evaluation Summary
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Chart 1: Summary of Training Questionnaire

Chart 1	Actual	Possible	%	Average (out of 5)
Presentation	29	40	73%	3.6
Content	11	20	55%	2.8
Materials	14	25	56%	2.8
Assessments	12	15	80%	4.0
Outcomes	9	10	90%	4.5
Overall Total	75	110	68%	3.5

Chart 2: Summary of Instructor Questionnaire

Chart 2	Actual	Possible	%	Average (out of 5)
Learner Needs	7	10	70%	3.5
Outcomes	15	20	75%	3.8
Assessments	10	15	67%	3.3
Activities/Strategies	35	50	70%	3.5
Overall Total	67	95	70%	3.5

The instructor's questionnaire also provided valuable feedback. In the questionnaire, the instructor gave the strongest rating to Outcomes, which is reflected in the fact that the student was able to successfully download a file at the conclusion of the lesson and had an increased knowledge of JAWS and Blackboard as indicated in the pretest and posttest scores. The instructor gave the weakest ratings overall to the Assessments category. This is due to the inclusion of test item eight in the pretest/posttest, which, as the learner indicated, should be eliminated because the information was not covered in the lesson (see Chart 2 and Appendix 3). The instructor's comments focused on clarifying and adding additional details about using JAWS on the Internet and modifying the student materials to reflect this additional content. The instructor also noted that the lesson was too long to hold the students interest. While the

extended length of the lesson is likely due to the additional time devoted to student comments, the lesson time should be monitored in the future in case it needs to be reduced. The instructor also recommended that the sample web pages be reduced in size. This should reduce the time it takes to complete the lesson and make the web pages more motivating to the students. The sample web pages should also be referenced via hyperlink from a single web page. By accessing the sample web page in this way, the student will hear the page description that is provided by JAWS when the sample page opens.

Revisions to Materials:

The changes that were requested by both the student and the instructor, as indicated above, have been made as indicated here:

Modifications to instructional materials

1. A more detailed overview of the lesson initially
2. Changed/added to the description of a form field
3. Sample web pages are described before they are demonstrated
4. Overly technical information about frames and links was eliminated
5. Indicated near the beginning of the lesson that the learner will need a username and password to gain access to Blackboard
6. Added a note in the instructional materials that keys should be pressed quickly
7. Added information regarding the efficiency gained by using frames when reading with JAWS
8. Provided additional information about using the first letter of a word in the Links List and Frames List dialogs
9. Modified the questions at the conclusion of lessons to include more information and examples
10. Included information about reading with JAWS, especially the Read All command

Modifications to student materials

11. Creation of a web page that links to sample web pages
12. Additional keyboard shortcuts added to student and instructional materials
13. Change in the technique described to access the context sensitive menu when downloading a file (in both the student and instructor materials)
14. Objectives were added to student materials
15. Question eight on pretest/posttest was eliminated
16. Sample web pages were shortened

Appendix 1:
Pretest/Posttest with Scores

Pretest/Posttest
(the same test was used for both)

1. To move from one link to another on a webpage using the keyboard, use the following key:
 - a. CTRL
 - b. INSERT
 - c. TAB
 - d. ALT
 - e. ENTER
2. To activate a hyperlink using JAWS, use the following key:
 - a. CTRL
 - b. INSERT
 - c. TAB
 - d. ALT
 - e. ENTER
3. To get a list of links in JAWS, use the following keys:
 - a. INSERT + F1
 - b. INSERT + F5
 - c. INSERT + F7
 - d. INSERT + F9
 - e. INSERT + F11
4. To get a list of frames in JAWS, use the following keys:
 - a. INSERT + F1
 - b. INSERT + F5
 - c. INSERT + F7
 - d. INSERT + F9
 - e. INSERT + F11
5. To access Forms Mode in JAWS when a form field has focus, use the following key:
 - a. CTRL
 - b. INSERT
 - c. TAB
 - d. ALT
 - e. ENTER
6. The proper sequence of events to download a file from Blackboard is:
 - a. Open webcourses.niu.edu; find your course; download your file; find your file, and login
 - b. Login; find your course; download your file; find your file; and open webcourses.niu.edu
 - c. Open webcourses.niu.edu; login; find your course; find your file; and download your file
 - d. Download your file; login; open webcourses.niu.edu; find your course; and find your file

7. If your instructor has placed a file on Blackboard, a likely location for the file is:
 - a. Assignments
 - b. Course Documents
 - c. Staff Information
 - d. External Links
8. The Courses page in Blackboard contains all the courses available in your major:
 - a. True
 - b. False
9. Blackboard uses frames to help organize content:
 - a. True
 - b. False
10. To download a file from Blackboard, the only place you have to use forms mode is on the login page.
 - a. True
 - b. False

Pretest Results: Score = 30%

1. Incorrect
2. Incorrect
3. Incorrect
4. Incorrect
5. Incorrect
6. Incorrect
7. Correct
8. Correct
9. Correct
10. Incorrect

Posttest Results: Score = 80%

1. Correct
2. Correct
3. Correct
4. Correct
5. Correct
6. Correct
7. Correct
8. Incorrect
9. Correct
10. Incorrect

Appendix 2:
Student Materials
(Used in addition to computer based demonstration web pages)

Downloading a File from Blackboard Using JAWS

Introduction

We will be discussing how to use JAWS to access Northern Illinois University's Blackboard system. Specifically, we will be discussing how to download a file from Blackboard. In order to access Blackboard, you will need to have an NIU ZID and a password. By the end of the lesson, you should be able to download a file from Blackboard without any assistance.

Before we discuss using JAWS and Blackboard, we will review some basic web concepts. Hyperlinks, form fields and frames will be discussed and you will have an opportunity to practice using each of these on some simple web pages. In addition, we will be discussing how to access hyperlinks quickly using the Links List dialog and how to use the Frames List dialog to efficiently move to a specific area of a web page. By the end of the lesson you should be able to verbally explain and demonstrate the function of hyperlinks, form fields and frames both with and without the Links List and Frames List dialogs.

Keyboard Shortcuts

JAWS is a screen reader that is designed to assist the user in accessing Windows solely from the keyboard. Because of this, it utilizes a large number of keyboard shortcuts. Keys must be pressed quickly in order for the shortcuts to work correctly. Keep the following keyboard shortcuts in mind.

- TAB: moves from hyperlink to hyperlink in Internet Explorer
- SHIFT+TAB: move backward through hyperlinks
- ALT+LEFT ARROW: moves to a previous page
- INSERT+DOWN ARROW: read an entire web page in JAWS
- F: moves from form field to form field
- M: moves between frames
- INSERT + F7: opens the links list dialog (use the keypad INSERT)
- INSERT + F9: opens the frames list dialog (use the keypad INSERT)
- NUMPAD ASTERISK: opens a context sensitive menu; similar to a right-click
- ENTER (when an editable form field has focus): starts Forms Mode
- ENTER: activates a hyperlink or button

Steps to Download a File from Blackboard Using JAWS

1. Start the computer and Internet Explorer

1. Turn on computer
2. Login if necessary
3. Open Internet Explorer.

2. Log into Blackboard

1. Press CTRL+O to open a web page.
2. Type: webcourses.niu.edu and press Enter
3. The page will load. Press INS+F7 to access a list of links. Choose Login and press Enter.
4. Choose Yes if a dialog box pops up prompting you to accept the certificate.
5. Press CTRL+HOME to get to the top of the page. Press the letter F to get to the first form field.
6. Press Enter to go into Forms Mode so that you can enter information in the form.
7. Enter your Z ID.
8. Press the TAB key.
9. Enter your password. Press Enter. You will be taken into the Blackboard site where you can access your courses.
10. If a dialog box appears, choose Yes.

3. Find the course page in Blackboard

1. Press INS+F7 to get a list of links. Press C for Courses, when you hear Courses, press Enter.
2. Press INS+F9 to get a list of frames. Press C for Content. When you hear Content, press Enter.
3. Press Tab. When you hear Skip Course Search Module, press Enter.
4. Press the TAB key until you hear the course you would like to access. When you have found it, press Enter.

4. Find the file to download

1. Press INS+F9 for a list of frames. Press the M key until you hear Menu Frame. Then press Enter.
2. Press the TAB key until you hear Course Documents or Course Materials. Then press Enter.
3. On the next page, press INS+F9 to get a list of frames. Press C until you hear the Course Content Frame. Then press Enter.
4. Press Tab until you hear Skip Navigation Links; then press Enter.
5. Press Tab until you hear the folder you want; then press Enter.
6. Press TAB until you hear the file you want

5. Download the file to the My Documents folder

1. After locating the hyperlink for the file to download, press the NUMPAD ASTERISK
2. In the menu that appears, press the down arrow to "Save Target As". The Save As dialog will open.
3. Press ALT+I to get to the Save In combo box.
4. Press the Down Arrow to open the combo box.
5. Press M until you hear "My Documents"; then hit enter
6. Press ENTER to save the file in the My Documents folder.

Appendix 3:
Student Questionnaire

NIU Blackboard/JAWS Training - Evaluation Questionnaire

To be completed by the student after the entire training

Name: Student

(Scale: 1 is Low and 5 is High)

Presentation		1	2	3	4	5	Comments
1	The information was presented in a clear and straightforward manner.			✓			
2	Directions were clearly communicated to me.			✓			
3	I was able to complete the tasks assigned to me with a minimum extra assistance.				✓		
4	The order of the presentation made sense.		✓				
5	I had a chance to practice each step.					✓	
6	The instruction was appropriately paced. (pauses were sufficient to allow you to complete the task)					✓	
7	The length of the lessons was about right.				✓		
8	I received useful feedback from the instructor on my performance.			✓			

Content		1	2	3	4	5	Comments
9	The instruction was neither too simple nor too complex.		✓				Some areas need more clarification
10	The level of detail was right for the task I was assigned to do.		✓				Some areas included unneeded information
11	Background information was complete and up to date.				✓		
12	The examples were helpful.			✓			More examples needed. Current examples helpful

Materials		1	2	3	4	5	Comments
13	The student materials clearly stated the goals and expectations of the lesson.	✓					Has only tasks
14	The student materials helped me to achieve the goals and expectations of the lesson.		✓				
15	The student materials allowed me to work independently	✓					Not opportunity given to work independently
16	The student materials will be an effective reference for school.					✓	
17	The student materials fit my learning style.				✓		

Assessments		1	2	3	4	5	Comments
18	I was tested on only what was covered in the lesson.		✓				
19	The test was clear and understandable.					✓	
20	The instructor made clear in advance how I would be tested.					✓	

Outcomes		1	2	3	4	5	Comments
21	After this lesson, I feel that I will be able to independently access Blackboard using JAWS.				✓		
22	I can now download a file from Blackboard independently.					✓	

Comments							
23	Where do you think the lesson could be improved? (indicate ideas for additional materials, errors in content, etc.)						
24	What part of the lesson was most useful in helping you access Blackboard and download a file?						
25	What are the strengths of this lesson?						

Appendix 4:
Instructor Questionnaire

NIU Blackboard/JAWS Training - Evaluation Questionnaire

To be completed by the instructor after the entire training

Name: Jeffrey Williams

(Scale: 1 is Low and 5 is High)

Learner Needs		1	2	3	4	5	Comments
1	Learners finds the material readable and easy to work with.				✓		
2	The materials help the learners achieve proficiency at downloading a file from Blackboard using JAWS?			✓			

Outcomes		1	2	3	4	5	Comments
3	The learners achieved the intended outcomes.					✓	
4	No critical skills were overlooked.				✓		Brief instruction in reading with JAWS had to be added. This needs to be added to the instructor's materials
5	None of the material was too simple for the learners.			✓			Some of the questions used at the conclusion of the lessons were too simple
6	No critical prerequisites were overlooked.			✓			Learner did not have Bb login

Assessments		1	2	3	4	5	Comments
7	The test items were clear and understandable.				✓		
8	They test the content.			✓			Test item 8 was not discussed in the training and should be eliminated
9	They measure the intended outcomes.			✓			

Activities/Strategy:		1	2	3	4	5	Comments
10	The lesson useful as an instruction tool.				✓		
11	The lesson is logical.				✓		
12	The learners understand it.			✓			
13	The elements of the instruction are well integrated.				✓		
14	It is motivating.	✓					More work needs to be done to make this lesson motivating, beyond the students need to download files from Bb.
15	Are there adequate opportunities to practice the skills and receive feedback?				✓		
16	Is it organized?				✓		
17	Is there adequate learning guidance?				✓		
18	Are there enough examples?			✓			Example web pages should be shorter.
19	Do learners recognize how they can apply the skills?				✓		
Comments							
20	Where do you think the lesson could be improved? (indicate ideas for additional materials, errors in content, etc.)	The lesson may require more extensive student materials, especially the addition of several JAWS keyboard shortcuts.					