



Employee Resource and Training Manual

Report I

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Executive Summary

K.E. Austin Corporation, GoGas has been experiencing a high number of station manager and cashier computer related errors since implementing a new computer-based point of sale system, in all nineteen locations within southeastern North Carolina, during the past year. The employees who work at each of these stations are consistently unable to troubleshoot and fix basic computer hardware and software problems without assistance. Consequently, this increases the time that the technology support personnel must spend either on the phone or driving to the stations in order to fix simple problems. A Needs Assessment was conducted by the management team who determined this to be a training related issue. The solution that was decided upon was to implement a print-based self-instructional training program, which could be utilized within each of the nineteen stations by all of the station managers and cashiers. Each station will receive one instructional package with enough supplies for each employee to undergo the self-instructional training program.

The client specified that this program must include instructional materials pertaining to the identification of basic computer hardware and software components, which will aid in troubleshooting problems that may arise during everyday work. The self-instructional module consists of two sections, one for basic computer hardware and one for windows desktop components. The goals of this module are for the cashiers and managers to learn how to identify and describe hardware including the case, mouse, keyboard, monitor, printer and modem; and software components including the desktop, icons, control box, taskbar and pointer. The module will be given to all current and future cashiers and managers either in their stations or at the GoGas training facility located in Wilmington, North Carolina.

Section 1: Summary of Theoretical Assumptions

Part 1: Mayer's "Designing Instruction for Constructivist Learning" model of instructional design is valuable to me because it focuses on knowledge construction in the learner's working memory and uses incoming material and prior knowledge to foster a deep understanding, as well as retention and transfer of the information. Mayer gives a very detailed description of how to present information that serves as a structured guideline for designing instructional materials. I really like this structure as a burgeoning instructional designer because it makes a very clear case, based on empirical research, for using these methods to facilitate the learner's cognitive processes of selecting, organizing and integrating important information. I also like this model because it really helps me to build upon my already existing skills, and because of the obvious applicability of the methods. I can see a very clear process of how to integrate the prescribed methods of this model into the instructional module that I am creating for my project.

The instructional design model that I think is the best match for my instructional module is Mayer's "Designing Instruction for Constructivist Learning." The major assumptions underlying this model include facilitation of learning through direct instruction, which enables the learners to achieve a deep level of understanding of the process of learning, as well as the material itself. This model also focuses on learning how to learn, learning to recognize what needs to be learned, and retaining and applying that knowledge. Within this model there are three prerequisites for problem solving that include skills, metaskills and will; three views of learning and instruction including response strengthening, knowledge acquisition and knowledge construction; three kinds of learning outcomes including constructivist learning, rote

learning and no learning; and two kinds of tests including retention tests and transfer tests.

The major theoretical foundations of this model (SOI) are based on a theory of memory and cognitive processes of selecting, organizing and integrating information to foster a deep understanding of the material. Selecting relevant information, Organizing the incoming information, and Integrating the information into existing knowledge is the process by which a learner constructs knowledge in working memory and integrates that knowledge with previously learned information that is stored in long-term memory.

I believe that this model is appropriate for the GoGas training module because the goal of this instruction is to facilitate identification of those components that can be used in the context of the gas stations. The learner's in this situation are station managers and cashiers who have some prior knowledge of this equipment, but are not able to identify and use it consistently. This model promotes retention and transfer of knowledge which is important in this situation, as well as focusing on the cognitive learning processes within the learners.

The components and subcomponents of Mayer's design model include:

I. Instructional material that is concisely selected and emphasized in conjunction with instructional objectives and summaries of the material.

a. I plan on applying this component in the design of my module in the following ways:

i. I will help learner's select relevant information by providing instructional objectives pertaining to each major step in the process of identifying and describing each computer component. These objectives will also be used as a means of assessing whether the material was successful at facilitating learning.

1. Example: You should be able to plug and unplug the monitor, keyboard and mouse into the case.

2. Example: You should be able to identify all components of a computer including the monitor, keyboard, mouse, printer and case.

ii. I will provide clear and concise summaries in the margins to direct the learner's attention to relevant material.

1. Example: A summary of the key steps involved in turning the computer and all its components on.

a. Step 1: Make sure monitor, keyboard and mouse are plugged into the case correctly.

b. Step 2: Press the power button on the monitor and case.

iii. I will not use any material that is irrelevant, even if it is interesting. This serves to encourage the learner to focus on relevant material and to motivate the learner by demonstrating that it is related to their job performance.

1. Example: I will refrain from putting any unnecessary graphics such as a dancing cartoon monitor or funny computer jokes into the module.

iv. I will use headings and graphical representations with captions to facilitate the retention of the information in working memory. By presenting material in this way I also hope to motivate the learners by gaining their attention and sustaining it throughout the module.

1. Example: I will use clear and accurate pictures of the keyboard, mouse and Windows NT desktop.

II. Instructional material that is organized for the learner using various text structuring (compare/contrast, enumeration and cause-effect), outlines, headings, signal words, and graphic representations.

a. I plan on applying this component in the design of my module in the following ways:

i. I will clearly order the events in the illustrations and captions in such a way that the learner can infer cause and effect relationships between steps.

1. Example: Provide numbered illustrations of a Windows NT desktop with captions describing how to start a program using the taskbar.

ii. I will organize the text using outlines, headings, pointer words and graphic representations in conjunction with signaling to aid in the construction of mental representations of the material.

1. Example: Provide an outline at the beginning of the lesson naming the steps to shutting down the machine, headings based on the steps, reordering the sentences so that all steps are described in succession, and a flow diagram summarizing the relations among the steps.

2. Example using pointer words: As a result of clicking the mouse pointer on another screen, the screen you click on will appear.

iii. I will organize the text using compare/contrast structures and enumeration.

1. Example: Compare and contrast the functionality of these keyboards and mice. (show pictures or provide actual components of different types of mice and keyboards...have the learners compare the mice to each other as well as the keyboards and then compare the functionality of a mouse versus keyboard)

2. Example: List the parts of a computer.

III. Instructional material that should be integrated with advance organizers, multiframe illustrations with captions and elaborative questions. Another tool that can be used to facilitate integration and reflection are assessments of learning outcomes.

a. I plan on applying this component in the design of my module in the following ways:

i. I will use elaborative questions in the text to encourage and motivate readers to connect the new information with their existing knowledge.

1. Example: Describe the function of the Windows NT desktop and its components in your own words, such as a person completing a maze from the start to where they find the prize.

ii. I will use multiframe illustrations with corresponding captions to promote knowledge integration.

1. Example: Using example 1a above I would include all illustrations and captions on the same page.

iii. I will use advance organizers to prime appropriate prior knowledge in learners.

1. Example: Provide a passage in the advance organizer comparing a computer monitor to a TV and a computer mouse to a real live mouse.

iv. I will use retention and transfer tests as an assessment of how well they perform on these measures. The

learner's performance on these tests determines the learning outcome for that aspect of the material.

1. Example of retention tests: Explain how to boot up a computer. Match the screen graphic to the name of that screen.
2. Example of a transfer test: What could be a cause of a computer monitor that is turned on but the screen is black?

Part 2: The station managers and cashiers at GoGas need to be able to retain the knowledge of what the computer component is, as well as being able to identify the component, if they are confronted with a problem and need to call tech support while they are working alone in a station. Based on the learner analysis the employees do possess the prerequisite skills for the instructional module, which are to be able to read and comprehend at a 5th grade level. The client has specified that this module be print based, self-instructional and should incorporate illustrations of the actual components with descriptions to help the learners select, organize and integrate the information, which are included in the design methods and theory described within this model. The learners will be completing the instructional modules within the training facility that is equipped with everything that the actual working environment possesses excluding the actual products. It is an excellent instructional environment because it accurately mimics the actual performance environment without the customers or products, so the learner can focus on learning the instructional material.

Section 2: Instructional Goals

Instructional Goal Statements

Each of the following goals is within the **Knowledge** category of the **Cognitive** learning domain.

- 1) All GOGAS station managers and cashiers will identify and describe computer hardware components including monitor, keyboard, mouse, case, modem and printer. (CC)
- 2) All GOGAS station managers and cashiers will identify and describe basic components of the Microsoft Windows NT desktop components which include taskbar, icons, pointer and control box. (CC)

Section 3: Task Analyses ([Click here to view the task analysis diagram](#))

Section 4: Analysis of Learners & Learning Context

Part 1: Learner Analysis (Click here to view learner knowledge and satisfaction [survey](#) and [results](#))

Information Categories	Data Sources	Learner Characteristics
1. Entry behaviors	Survey: A paper-based survey was faxed to all 19 stations. Interviews: Semi-structured interviews were conducted with three cashiers and one tech support person. Observations: Cashiers and tech support personnel were observed within the performance environment.	Learners have some prior experience with computers and computer software within the performance/learning setting and also have the ability to read, write and comprehend instruction at or above the 5 th grade level.
2. Prior knowledge of topic area	Survey, observations: Same as above	The majority of learners have some knowledge of basic computer hardware and software components. 33.3% of learners have previously taken a computer related course.

3. Attitudes toward content	Survey, interviews: Same as above	The majority of learners (91.2%) believe that a better knowledge of computers would help them with their job performance.
4. Attitudes toward potential delivery system	Survey, interviews: Same as above	Learners have experience with individual, group and print-based training through prior instruction and have a preference toward print-based and group training.
5. Motivation for instruction (ARCS)	Survey, interviews: Same as above	Learners have a positive attitude toward receiving computer related training. They believe that this training is very relevant to their job performance and they are confident that they can learn enough about computers within the work stations to become better equipped to troubleshoot computer related issues. Learners also believe that further training will lead to a more satisfying work experience due to a decrease in frustration with computer related issues.
6. Educational and ability levels	Survey: Same as above	Learners vary in their education levels with the majority (51.8%) having achieved a high school education and 39.3% completed some college courses. Learners' ability to use print-based self-instructional material is of some concern due to varying levels of eye-sight.
7. General learning preferences	Survey: Same as above	Learners are experienced with group and individual training, but most would prefer to have print-based instruction prior to additional training.
8. Attitudes toward training organization	Survey, observations, interviews: Same as above	Learners have positive feelings toward the organization developing print-based instruction that will help them to understand computers, in order to better equip them to handle troubleshooting computer related issues.
9. General group characteristics	Survey, observations: Same as above	The learners range in age from 18-69, with the majority being between the ages of 40-69. There will be a total of 59 station managers and cashiers who will be receiving the self-instructional module. In general, the instruction will need to contain large color graphics with easy to read descriptions for the individuals with poor eye-sight and for general usability.

Part 2: Analysis of Learning and Performance Context

Information Categories	Data Sources	Learning/Performance Site Characteristics
1. Number/nature of sites	Interviews: SME Site Visits: stations and training facility Observations: stations and training facility	Number: There are 19 stations and one training facility. Facilities: The print-based instruction will occur within the training facility and possibly the stations, if the training room is not available. The self-instructional module will be given to the cashiers and station managers in the training facility, which is located at the headquarters in Wilmington, NC. This facility is a large room that can accommodate up to 100 people. Headquarters is open Monday through Friday 8:00am to 5:00pm with at least five office employees who are available for material distribution. The room is usually available throughout the week and on weekends. The room is also equipped with a mock-setup of the gas station. The set-up

		<p>includes both the hardware and software components that are available within each station.</p> <p>If it is not possible to use the training room then the materials can be distributed in the gas stations. Each station has a desk and chairs and any materials which may be needed to complete the module including pencils and pens.</p> <p>Equipment: The training room contains 20 eight-foot tables and 100 chairs; writing utensils (pencils and pens), and paper. The stations also are equipped with the necessary equipment to complete the module and it is also the actual performance environment.</p> <p>Resources: All of the supplies and printing materials that are needed to produce the training module will be paid for by K.E. Austin Inc., GoGas, as well as the training facility, which is owned by the company.</p> <p>Constraints:</p> <p>1) The training facility may be reserved for another function, but scheduling should not be an issue if it is done well in advance of the training day.</p> <p>2) If the training facility is reserved for another function then the module may be given to the individual within a station, which should not be a problem since all stations are equipped with the necessary materials to complete the module.</p>
2. Site compatibility with instructional needs	<p>Interviews: SME</p> <p>Site Visits: stations and training facility</p> <p>Observations: stations and training facility</p>	<p>Instructional Strategies: A variety of instructional strategies will be employed based on Mayer's "Designing Instruction for Constructivist Learning" model. The self-instructional module will be print-based and will include full color pages bound in a 3-ring binder. The module will also serve as a quick resource guide that will be kept in each station.</p> <p>Delivery approaches: The module will be given to each cashier and station manager at the training facility or in the station. Since the module is self-instructional, minimal support will be given, but someone will be present to help answer general questions not pertaining to the instructional content.</p> <p>Time: Instructional time is limited to 2 hours within the training facility due to the constraints set by the company, because of the limited time set for training and use of the facility. But that constraint is not applied to the stations. The employees are allowed to stay and work on the module as long as they need if they are in their station.</p> <p>Personnel: The training facility does have office staff working during business hours that are available to</p>

3. Site compatibility with learner needs	<p>Interviews: SME, learners</p> <p>Site Visits: stations and training facility</p> <p>Observations: stations and training facility</p>	<p>give the instructional materials and answer questions.</p> <p>Location (distance): The training facility is located within reasonable driving distance (~ 1 hour) from each station, which makes transportation for individuals or groups manageable. If the module is given within the station then the driving time is greatly reduced for each employee since most live within 20 miles of their station.</p> <p>Conveniences: There are restaurants located around the training facility as well as the stations. When groups are assembled for training at headquarters, the company usually supplies breakfast and lunch.</p> <p>Space: There is plenty of space to accommodate all cashiers and managers within the training facility. If the module is given within the station, there is enough room for one or two people to complete the materials, but only one or two people ever work a shift together so the likelihood of more than one person receiving the module at any time in one station is very low.</p> <p>Equipment: If needed, the training groups can be broken up into two days if the training facility cannot accommodate everyone or, if given within the stations, they can take the module home with them or go to another station that is close by.</p>
Feasibility for simulating workplace	<p>Interviews: SME</p> <p>Site Visits: stations and training facility</p> <p>Observations: stations and training facility</p>	<p>Supervisory characteristics: This can be simulated because the material is all print-based and self-instructional and supervision is not necessary for successful completion. If there are general questions regarding the materials, contact information is provided so that the learner can call someone to answer the questions if someone is not physically available for them where they are receiving the training.</p> <p>Physical characteristics: This can be easily simulated since the material is self-instructional and contains all of the necessary components needed to complete the module. All of the materials within the module are accurate representations of the hardware and software components located in each station.</p> <p>Social characteristics: The skills that are going to be applied based on the knowledge acquired in the training module will be demonstrated while the person is alone in their stations. The module is self-instructional and requires that they work individually.</p>