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ABSTRACT

The Rockford Cable Project is an experimental program using two-way cable television to train firefighters in prefire planning. The instructional design calls for firefighters across the city to view videotapes simultaneously and respond to computerized questions via a specially-designed pushbutton terminal. The project provides for centralized recordkeeping and standardized instruction among all fire stations. This report contains the script of a slide show presenting the nature of the instructional problem and the technology employed. It also includes a chart of the coursework developmental cycle, and illustrates this with a segment on "Emergency Elevator Operation." (WBC)

MSU-NSF-ROCKFORD CABLE PROJEC

WORKSHOP

INSTRUCTION: CABLE AND SLOW-SCAN

Presented at:

The Convention of the
National Association of
Educational Broadcasters

Conrad Hilton Hotel

October 26, 1976

By:

Jack Pachuta

Department of Telecommunication

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VITA

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NAEB CONVENTION PRECIS FOR:

THE ROCKFORD CABLE PROJECT

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BACKGROUND:

The Rockford Cable Project is one of three National Science Foundation funded projects experimenting with the use of two-way cable television in urban administration and the deliver of social services. Under a 430-thousand dollar grant, Michigan State University is working with the city of Rockford, Illinois, Rockford Cablevision and Coaxial Scientific Corporation to develop an inexpensive system for two-way communication via cable. The initial application of the technology will train Rockford firefighters in the techniques of prefire planning.

Prefire planning is the organized process of surveying and diagramming important buildings to find problems that could significantly affect firefighting. Formal diagrams and reaction plans are made and studied so that the Department's responses to fire alarms become almost automatic. In a 1974 survey of Illinois fire chiefs, prefire planning ranked number one as an area that needs more emphasis.

The instructional design calls for firefighters across the city to view the video tapes simultaneiously and respond to computerized questions via a specially-designed push-button terminal. A computer located at the headend of Rockford Cablevision will keep track of the responses from individual fire stations and feed back responses in the form of character-generated information. Several of the tapes will be games in which the firefighters will be able to make decisions at simulated fire scenes.

In effect, the Rockford Cable Project gives a city-wide classroom atmosphere to the firefighters who will be able to train in their individual stations during their duty hours. Presently, fire companies must be out-of-service to train at the Rockford Fire Academy or view a rotating series of fire department films and slide shows. The experimental project allows for centralized record-keeping and standardized instruction among all stations.

Although firefirefighters and prefire planning are used in the experiment, the techniques being developed can be applied at a wide range of services. The project began in July of 1975 and will end in December of 1977.

PROPOSED PRESENTATION:

The two Rockford Cable Project Field Staff members will present an overall look at the experiment using a slide show intersperesed with excerpts from the video tape series. The presentation would follow this outline: (1) nature of the instructional problem, (2) technology employed, (3) hypothesized values of "interaction" to the learning process, (4) significance in training administration, (5) instructional development procedures, (6) sample programs, (7) experimental design.

******* AUDIO TRACK AND SLIDES OF OPENING SEQUENCE - FIREFIGHTERS ARE SITTING IN STATION AS ALARM SOUNDS. THEY RUSH TO FIRE. SFX OF RADIO TRANSMISSION WHILE FIRE IS BEING FOUGHT*****

1. CU of firefighter's face.	Who is this man? To those of us working on the Rockford Cable Project, learning who this man i presented us with a challenging and unique experience.
2. CU of second firefighter's face.	This man, the firefighter, will be the learner and the audience for a series of video tapes that will be presented via two-way cable television.
3. Firefighters at fire.	The first step in our developmental process was an understanding of this man. Then, a concerted attempt was made to gear a program of instruction to his background and his needs
4. "?"	Who is this man? These few facts should help you understand him better.
5. Graphic: 85% are volunteers	Most firefighters in the United States are not professionals. 85% of the men who respond to fire alarms in this country are volunteers. Only the larger cities of this nation can afford the luxury of specially-trained professional departments.
6. Graphic: 86 deaths per 100,000	Firefighters work in the nation's most hazardous field. In the last decade, firefighter deaths averaged 86 per 100,000 men on the job. This rate peaked in 1970 when 115 men per 100,000 died of fire-related causes. By comparison, the death rate for coal miners, the second most dangerous line of work, is only 60% of this.

8. Graphic: 47.3% injured every year.

Annually, almost half, 47.3% to be exact, of all firefighters incur some fire-related injury.

9. RCP LOGO

Let's go back for a moment and tell you about the project and how our instructional design and this audience was picked.

10. NSF LOGO

In 1974, the National Science Foundation asked research organizations to examine the use of two-way cable communications in urban administration and social service delivery.

11. Sunburst NSF LOGO

48 proposals were submitted, all of them dealing with ways to serve the local community using this two-way capability of cable television.

Two-way cable has been discussed for years as the thing of the future in communications.

12. Cartoon of downstream operation.

It involves sending a signal downstream from the headend of the cable system to the receiver

13. Cartoon of two-way operation

and being able to send a signal from the receiver back to the headend.

14. Three funded projects.

In May of 1975, three of the proposals were funded with enough money to carry out their experimental designs.

15. RCP LOGO

One of these three is the Rockford Cable project

The project itself actually involves three different organizations.

16. MSU LOGO

Michigan State University, as the recipient of the National Science Foundation grant, is the research organization that is conducting the project.

17. Cablevision LOGO

Rockford Cablevision, the first system certified

	by the FCC as completely two-way, is providing the delivery system.
18. RFD LOGO	And the Rockford, Illinois Fire Department is the local governmental organization that provided the skills used by MSU in developing a series of instructional video tapes.
19. Computer	The two-wayness involves this computer. When the tapes are run, there will be points at which the programs will ask questions of the fire-fighter audience.
20. Firefighters viewing tapes.	The men, in their individual stations, will be able to respond to the questions
21. CU of terminal.	using this terminal, a modified 36-channel cable TV converter. The computer will then record the response
22. CG printout of scores from TV tube	and give feedback to the learner by telling him how well he is doing and comparing his scores to those of the other fire stations.
23. Cartoon: city-wide classroom.	In this way, the whole city of Rockford will, in effect, become a classroom for the computer-ized instruction.
24. CG printout of totals from TV tube.	The computer can also maintain all of the records associated with the video taped series and track an individual learning experience.
25. Copy of "America Burning"	The topic for the coursework is a nationally-recognized need. The National Commission on Fire Prevention and Control in its report,
26. Quote from "America Burning."	"America Burning," said: "Federal research agencies, such as the National Science Foundation should sponsor research within the areas of

productivity of fire departments, causes of firefighter injuries, effectiveness of fire prevention efforts and the skills required to perform various fire department functions."

27. Copy of "Fire Fighter Mortality Report."

The International Association of Firefighters, in their recently published "Fire Fighter Mortality Report," suggested that firefighter deaths could be minimized if men were better prepared at the fire scene.

28. Graphic: US world leader in fire deaths

The United States is the world leader in per capita deaths and property loss by fire. The 57.1 annual deaths is nearly twice as high as second-ranking Canada.

29. Graphic: 12 billion dollars annual loss

Each year over 12 billion dollars worth of goods and material is destroyed by fire.

30. Graphic: Rockford Fire loss

In the city of Rockford alone, property loss doubled in 1975 to a total of one and a half million dollars.

31. Graphic: Fire chiefs' poll results

In October of 1974, a poll of 638 Illinois fire chiefs revealed that emergency planning ranked number one as a topic in the fire service that requires more expertise. MSU identified a need in the fire service and proposed

2. Graphic: PREFIRE PLANNING

to develop a series of video tapes dealing with prefire planning. Prefire planning, is, essentially, preparing for a fire before it occurs.

3. Firefighters on survey

When this project is completed, the firefighters of Rockford will preplan all of the important buildings in the city by going through them

34. Another shot of firefighters on survey.

35. Firefighter with clipboard - PREFIRE PLANNING in black letters in sky.

36. Video tape production at WKAR

37. Graphic: PREFIRE PLANNING

38. Graphic: KODALITH gelled CONTENT
AUDIENCE

39. Graphic: KODALITH gelled CONTENT
- NO EXISTING COURSEWORK

40. Firefighter with clipboard having diagram

ahead of time and finding out information about the buildings.

This information will be made into formal plans which will give the firefighters an added edge in responding to fires in buildings that have been preplanned.

Prefire planning is not a new concept. It has been going on for years. The problem has always been the standardization of the best method to formulate the plans and a storage and retrieval system which would work to the firefighters best advantage. Our problem as the field office for the project was to formalize the informal process and

to produce a series of video tapes which would take the firefighters form initial contact with building owners to final plans which would be filed in the individual station houses. Now, we'll go through the process which was used to develop the prefire planning coursework. Our concentration will be in two areas,

Content and Audience. The content of prefire planning presented some unique problems.

As we mentioned, there is no existing standard course on prefire planning with national recognition. Each fire department has its own method and techniques geared to its abilities and desires.

For example, part of the preplanning process is to draw diagrams of the building which are

41. Graphic: Various symbols for fire pump.

42. Graphic: KODALITH gelled CONTENT
- NO EXISTING COURSEWORK
- WIDE SPECTRUM OF SKILLS

43. Firefighter on survey

44. Another shot of firefighter on survey.

45. Same as slide #42

46. Graphic: KODALITH gelled AUDIENCE

47. Graphic: KODALITH gelled AUDIENCE
- ENTRANCE LEVEL

available to firefighters at the scene. Symbols are used to mark important structures and areas.. Currently, there is no set of symbols that is accepted nationwide. Depending on the set of symbols you choose, any one of these symbols can be used to represent a fire pump. So, aside from having no specific coursework, we also had no national standards in the way diagrams are drawn and structures represented.

Another aspect of the content is its wide spectrum of skills. In prefire planning a building, a firefighter must look at everything that could be important to his response to a fire. Some of this knowledge is learned in the basic firefighter courses. A lot of things are learned through experience. This wide spectrum of knowledge and skills had to be narrowed down to a learning situation that is six hours in length and yet applicable to cases that aren't mentioned in the video tapes.

So, on the content side, our problems were, no existing coursework and a wide spectrum of skills.

On the audience side, we encountered other problems. Because of the many skills involved, it was necessary to find the entrance level of the learner. We did not want to teach the firefighters things they already knew from their

48. Firefighters fighting fire.

49. Graphic: KODALITH gelled AUDIENCE
- ENTRANCE LEVEL
- LANGUAGE OF FIREFIGHTERS

50. Graphic: ALTHOUGH THE FUSIBLE LINK MELTED AND THE POST INDICATOR VALVE WAS OPEN, THE RISER ABOVE THE CLAPPER OF THE CONTROL VALVE CONTAINED NO WATER BECAUSE THE OUTSIDE SCREW AND YOKE HAD BEEN ACCIDENTLY SHUT OFF.

51. Firefighters at fire scene.

52. Graphic: KODALITH gelled AUDIENCE
- ENTRANCE LEVEL
- LANGUAGE OF FIREFIGHTERS
- PERCEPTION OF TRAINING

53. Firefighters at training academy.

past experience. We needed to develop a system which would find out how much the average Rockford firefighter knew and start at that point to build his skills into a prefire planning application.

It was necessary to speak to the men in the language of fireefighters. Every professional skill has its own terms unique to job performanc The specialized equipment of the fire service presented a language which we had to learn if we are to speak authoritatively in the video tapes. For instance, the average firefighter knows what this means. Do you?

Although the fusible link melted and the post indicator valve was open, the riser above the clapper of the control valve contained no water because the outside screw and yoke had been accidently shutoff. A firefighter could tell you that we are explaining why an automatic sprinkler system failed to work properly.

In gearing a course of study to any group, credability is extremely important. We had to speak in the language of the firefighters.

Our final concern about the audience was its perception of training. Professional fire departments are para-military organizations They have rank structures and duties which parallel much of the armed forces regimentation. Training programs in the fire service are created around this framework.

54. Currier and Ives print of old firefighters

55. Graphic: KODALITH gelled CREDIBLE

56. Halverson in studio with Mike.

57. Firefighters watching Halverson on TV

58. TV set with picture of Halverson.

Firefighters also have a legacy from the smoke-eaters of the 17th, 18th and 19th centuries. In those days, the firefighters had a prestige which is no longer present today. Our main goal in creating the video tapes was to be credible. We needed to find a presenter and a means of presenting the content which could draw upon the accepted level of training in the fire service, but yet attach it to a new medium. Many decisions had to be made. Here are examples of two.

Our presenter-talent needed to be accepted by the firefighting audience. To assure this, we had an audition of sorts. We procured a video tape of a talent who we thought would be credible to firefighters.

We circulated the video tapes among a sample group of firefighters, then handed out questionnaires to check the audience's perception of the talent. Our sample felt that he was acceptable as a presenter, but we also discovere several other things.

There was almost a 50-50 split as to whether or not the presenter should be in the uniform of a firefighter. Traditionally, training films in the fire service are given by men who assume the roles of real firefighters. Although the men liked the style of presentation, they said that the talent did not look like a firefighter, so half of them preferred that he not be in uniform.

59. TV set with LS picture of Halverson.

60. Another shot of Halverson on TV.

61. Godfrey waving

62. Godfrey slide from one of his episodes.

63. - 66. Slides from Godfrey sequence.

67. Graphic: KODALITH gelled CONTENT

AUDIENCE

(9)

We reached a compromise to this problem by dressing the presenter in a blue shirt and black tie, the style of dress that the firefighters wear in the city of Rockford. However, we did not give him the patches, badges or other insignia of a firefighter. As you will see later when you show you a segment from a video tape, the image is in the eye of the beholder.

Our concern was to present him as a credible authority figure and let the rest of it be individual perception. Our talent might be a firefighter, but, then again, he might not be. To help with pacing and to help tie the firefighters with some of the romanticism of their past, we created a character named Godfrey. In reality, Godfrey was an Englishman who held the first patent on an automatic sprinkler system, but we extended his role to cover all sorts of firefighting history. Here's an example.

******* TAKE GODFREY SOUNDTRACK **********

(HISTORY OF FIRE PLUGS SEQUENCE)

Now, we'll take a look at some of the actual work that was done with these problems in content and audience. We'll take you from the beginning of the coursework organization to a final piece of video tape thta was produced after working with the content and the audience.

LIVE PAPERWORK PRESENTATION

ROCKFORD CABLE PROJECT

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CONTENT	AUDIENCE	VIDEO TAPE COURSEWORK DEVELOPMENTAL CYCLE	FIELD OFF.	MSU ADVISORS	CONTENT CONSUL.	FIRE DEPT.
X		I. Task Analysis	X			X
X		II. Formulation of Survey Form	X			X
X		III. Breakdown of Video Taped Series	X			X
X		IV. Preliminary Outlines	X		X	X
X		V. Preliminary Behavioral Objectives	X		X	X
X		VI. Pretest Written	X			
X		VII. Pretest Reviewed		X		
X		VIII. 1st Revision - Behavioral Objectives		X		
X		IX. 2nd Revision - Behavioral Objectives	X			
X		X. Pretest Revision	X			
X	X	XI. Pretest Administered	X			X
X	X	XII. Pretest Interpretted	X			
X	X	XIII. Third Revision - Behavioral Objectives	X			
X	X	XIV. Pretest Results Reviewed		X		
X	X	XV. First Draft of Script Written	X		X	
X	X	XVI. Script Review		X	X	X

CONCERNS

RESEARCH TEAM MEMBERS

Michigan State University: T. Baldwin, B. Greenberg, T. Muth, M. Block, J. Eulenberg, K. Gustafson.
MSU Rockford Field Office: J. Pachuta, Field Director, M. Sheridan, Executive Producer.
Rockford Fire Department: J. Cragan, Chief, P. Patton, D. Bressler, R. Quist, Deputy Chiefs.
City of Rockford: Hon. R. McGaw, Mayor. Cable Commission: Aldermen J. Gustitus, Ch., M. O'Neal, L. Shervey.
Rockford Cablevision, Inc.: J. Thomas, Mgr. of Operations, J. Wright, Electronic Systems Mgr. D. Deyo, Program Dir.

CONTENT	AUDIENCE	DEVELOPMENTAL CYCLE (CONTINUED)	FIELD OFF.	MSU ADVISORS	CONTENT CONSUL.	FIRE DEPT.
X	X	XVII. Final Revision - Behavioral Objectives	X			
X	X	XVIII. Script Finalized	X			
X	X	XIX. Final Script Review	X	X	X	X
	X	XX. Audition Talent	X			X
	X	XXI. Production	X			
	X	XXII. Formative Evaluation	X	X	X	X
	X	XXIII. Revisions	X			
	X	XXIV. Final Review	X	X	X	X

CONCERNS RESEARCH TEAM MEMBERS

DEVELOPMENTAL CYCLE OF ROCKFORD CABLE PROJECT VIDEO TAPE SEGMENT #28 DEALING WITH "EMERGENCY ELEVATOR OPERATION"

I. Task Analysis

Check elevator for F.D. service key.

Call elevator with F.D. service key.

Ride elevator to top floor of building.

Unlock elevator and check elevator controls. Note how elevator can be operated from the penthouse.

II. Formulation of Survey Form

ELEVATOR #1

LOCATION_____ F.D. SERVICE?_____

TYPE_____ FLOORS SERVICED_____

SHUTOFFS_____

III. Breakdown of Video Taped Series

VIDEO TAPE #6 - "Vertical Structures"

Deals with stairways, elevators and other vertical structures which affect firefighting operations.

IV. Preliminary Outline

Brief Outline of Content:

Elevators
- A.) Characteristics
- B.) Fire department service
- C.) Prefire Planning symbols

Stairtowers
- A.) Important characteristics
- B.) Prefire Planning symbols

Other Vertical Shafts

V. Preliminary Behavioral Objectives

14.) The learner will correctly identify any elevator apparatus and switches that function during "emergency elevator operation."
- A) Emergency shutoffs
- B) Fireman's Service Apparatus
- C) Emergency Power

VI. Pretest Written

List three places where you might find a control switch or panel which would shut off power to the cab of an elevator.

14.	42.) _____
14.	43.) _____
14.	44.) _____
14.	45.) TRUE FALSE "Fireman's Service" and "Emergency Service" in elevators will deactivate the photo-electric cells attached to the hoistway doors.
14.	48.) TRUE FALSE The "bypass" position on a "Fireman's Service" panel will allow elevator operation with the hallway doors open.
14.	50.) TRUE FALSE When an elevator is operating under "Emergency Service", the "Door Open" button must be used to activate the cab doors at the desired floor.

VII. Pretest Reviewed

"Suggest this more synthesizing format for behavioral objectives."

"Suggest minimum of 3-4 items on pretest per behavioral objective."

VIII. First Revision - Behavioral Objectives

Identify and differentiate elevators and elevator components
- A) Identify construction parts of elevators
- B) Differentiate among elevators
  1. Cable traction vs. electro-hydraulic elevator
  2. Overridable vs. non-overridable elevator
  3. Freight vs. passenger elevator
- C) Identify emergency elevator apparatus

IX. Second Revision - Behavioral Objectives

No revision of behavioral objectives occurred at this point for Segment #28, "Emergency Elevator Operation."

X. Pretest Revision

Item #44 was dropped from the pretest. In the revised pretest, the learner was only asked to identify two places in which a control switch or panel could be found which would shut off power to the cab of an elevator

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XI. Pretest Administered

The revised pretest for video tape #6 was given at Rockford Fire Station #7 on the 10th thru 12th of February. A total of 13 men from three shifts took the test.

Below is a list of the scores. The test contained 50 questions and each counted as two points in the tabulation.

66%	52%	48%	42%		Average Score -	50.3%
60%	52%	46%	42%	-	Median -	52
60%	52%	44%	36%		Mode -	52
54%						

Question (base-13)		Score
42.-43.	-	9/26
45.	-	8
48.	-	4
50.	-	10

XII. Pretest Interpretted

Objective	Score
14. (#42.-43., 45., 48., 50.)	31/65 = 48%

Pretest objectives #1, #2, #3 and #14, all of which dealt with elevator construction and operation, scored below 70%. Because pretest objective #4 scored above 70%, it was eliminated as a separate topic under "elevators." It will be referred to in the video tape, but not stressed as a separate point.

XIII. Third Revision - Behavioral Objectives

The learner will identify and differentiate elevators and elevator components:

A.) Construction parts of elevators
B.) Emergency elevator apparatus
C.) Cable traction vs. electro-hydraulic elevators
D.) Overridable vs. non-overridable elevators

XIV. Pretest Results Reviewed

There were no comments which changed any of the conclusions drawn about the material pretested in connection with pretest obj. #14.

XV. First Draft of Script Written

The following interactive point/question appears in the first script draft.

QUES. VOICE:

How does independent operation differ from fireman's service or emergency service?

A.) Independent service does not deactivate the photo-electric cells in the cab doors.

B.) Independent operation will override both fireman's service and emergency service.

C.) The cab will answer other calls after a floor has been reached on independent service.

D.) Both A. and C. are true.

TALENT:

The correct answer is letter D. Statements A. and C. were both true.

XVI. Script Review

"If this question remains in the scripting, change either foil A. or foil C. to differentiate the two responses. Do not permit 2 or 3 choices to be the correct answer."

XVII. Final Revision - Behavioral Objectives

The learner will identify and differentiate elevators and elevator components.

A) Construction Parts of Elevators
B) Emergency Elevator Apparatus
C) Cable Traction vs. Electro-Hydraulic Elevators

XVIII. Script Finalized

The following interactive point/question was in this version of the script:

QUES. VOICE:

This elevator has a panel marked "Independent Service".

Does this elevator have emergency service operation?

A.) Yes or

B.) No

TALENT:

This elevator does not have emergency service operation.

The correct answer was choice B., no.

XIX. Final Script Review

The following interactive point/question appears in the final version of the script.

QUES. VOICE:

This elevator does not have an outside panel labeled "emergency service" or "fireman's service." However, on the panel in the cab there is a key slot labeled "independent service". Which of the following statements is true?

A.) this elevator has fireman's service.

B.) this elevator was not designed for fire department operations.

C.) this elevator has a photo cell to detect fires, or

D.) the fireman's service key will operate this elevator.

TALENT:

This elevator was not designed for fire department operations. Choice B. was correct.

XX. Audition Talent

The following are sample tabulations from a "Television Instructor Evaluation" form used to draw opinions about the TV talent.

1. Do you think the man on television knows his stuff?

19	very well
9	fairly well
0	not too well
0	not at all

5. Do you think this man is a good instructor?

15	very good
11	fairly good
1	fairly poor
1	very poor

7. Could you understand what the man was trying to get across?

23	very well
4	fairly well
1	not too well
0	not at all

XXI. Production

Production for the prefire planning series of video tapes occurs at WKAR-TV, the Michigan State University PBS affiliate in East Lansing, Michigan.

XXII. Formative Evaluation

SOURCE	COMMENT	DISPOSITION
Field Office	In seg. 28, mike cable visible	stet
Station #7	Talent talks a bit fast	stet

XXIII. Revisions

Segment #28 required no revision.

XXIV. Final Review

Video Tape #6 was reviewed by all of the research team members and was found to meet the overall criteria of instructional usage for the Rockford Cable Project.
