

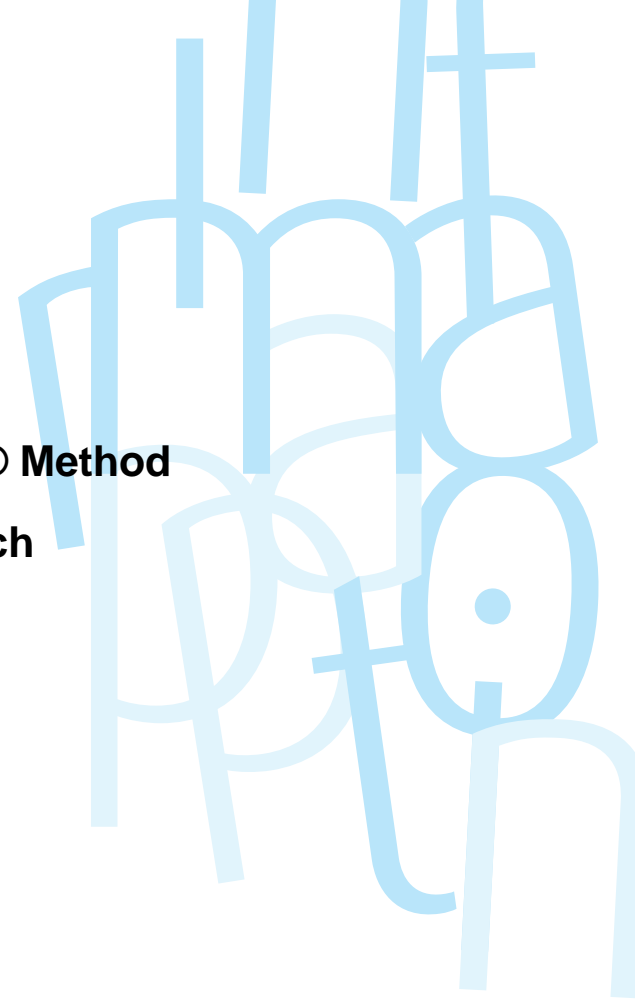
The Information Mapping® Method

30 Years of Research

Research Paper

&

Notes



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Overview

Introduction

The Information Mapping® method was initially described by Robert Horn in 1966 (Horn, 1966) and thoroughly documented in 1969 in *Information Mapping for Learning & Reference* (Horn, Nicol, Klienman & Grace, 1969). Since then:

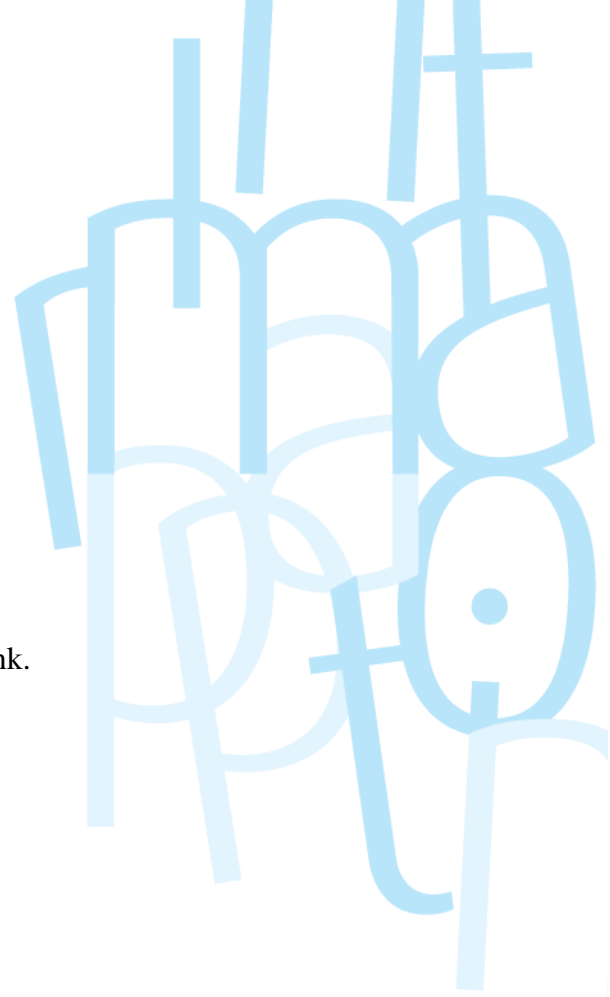
- over 60 studies of the effectiveness of the method have been published
- numerous articles have been written describing applications of the method, and
- millions of pages of documentation and training materials have been developed using the method.

This document reviews the research and highlights selected articles important for understanding the Information Mapping® method.

Topics

In this article you will find:

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Early Work on the Information Mapping® Method

Introduction

Robert Horn initiated the research into and design of the Information Mapping method in 1965; providing an initial description of components of the method, the Information Types, in Horn, 1966. An early description of the method written in 1967 explains that it is both a way of visually presenting information and a method for analyzing information to make it easier to communicate (Horn, 1967a).

Early definition

“Information Maps are ways of arranging printed information so that the arrangement of the words (and illustrations) on the page reveals something about the form, structure, and relationships inherent in the information. The different arrangements of the maps provide spatial analogues to the interconnections and relationships of the information.

When combined with a system of content analysis and with feedback and practice questions, the Information Mapped materials provide a powerful new tool for the analysis of complex problems, communication of complex ideas and learning of complex subject matters.” (Horn, 1967a)

First published description

The first detailed, published description of the Information Mapping method occurs in *Information Mapping for Learning & Reference*. In this document, Horn provides a clear definition of the Information Mapping method as “a system of principles for identifying, categorizing, and interrelating the information required for learning-reference purposes.” and “presenting them in formats that communicate quickly to the user.” (Horn, et. al., 1969b).

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Early Work on the Information Mapping® Method, Continued

Recent description

Since the Information Mapping method is research-based and research is always evolving, Horn continually evaluated and refined the description of the method. Over time, this resulted in a clearer, more ‘compact’ description. Horn’s most recently published description of the Information Mapping method occurs in Horn, 1991. In this document Horn describes the method in detail and provides discussion of each of the method’s three parts:

- Content analysis
 - Life-cycle integration & synthesis
 - Sequencing and formatting
-

Training on the method

Although short units of instruction existed from 1973, the first full training course on the Information Mapping method was a Programmed Instruction text titled: *How to Write Information Mapping*, (Horn, 1976). This text was subsequently replaced by *Developing Instructional Materials and Procedures, an Information Mapping Course*, (Horn, 1979 & 1980).

Over several years, many courses were developed to address the specific needs of selected audiences. And, the original courses were updated as newer research was incorporated into the method. Currently, there are over twelve Information Mapping method courses available. All are designed to meet the training needs of specific audiences.

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Early Work on the Information Mapping® Method, Continued

List of publications

The following table contains a brief list of the early descriptive and research works on the method.

Note: 'important works' are in bold.

Publication Title	Authors
A Terminal Behavior Locator System	Horn - 1966
Information Maps & Computer-Based Learning & Reference Work - a research proposal to HQ Electronic Systems Division, US Air Force Systems Command	Horn et al - 1967a - unpublished proposal
Manuscript for 1967 Course at Harvard	Horn - 1967b - unpublished draft
Information Mapping and Computer-Based Learning-Reference Systems - a research proposal to HQ, Electronic Systems Division, US Air Force Systems Command	Horn, et. al. - 1969 - unpublished proposal
Information Mapping for Learning & Reference™	Horn, Nicol, Kleinman & Grace - 1969
Implementing Information Mapping on an Interactive Computer - a research proposal to HQ, Electronic Systems Division, US Air Force Systems Command	Horn, et. al. - 1970 - unpublished proposal
Information Mapping for Computer-Based Learning and Reference	Horn, et. al. - 1971a
A Reference Collection of Rules and Guidelines for Information Map Writing	Horn, et. al. - 1971b
Writing Information Mapping: A Self-Study Instructional Unit	Horn - 1973

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Early Work on the Information Mapping® Method, Continued

List of publications (continued)

Publication Title	Authors
How to Write Information Mapping™	Horn - 1976
Writing Reports™	Horn - 1977, 1978
Developing Instructional Materials and Procedures, an Information Mapping Course™	Horn - 1979, 1980 - Replaces Horn - 1976
Effective Reports, Proposals and Memos™	Horn - 1980 - Replaces Horn 77/78
Developing Procedures, Policies and Documentation™	Horn - 1981 - Replaces Horn 79/80

Previous Reviews of Research

Introduction

Numerous studies of the Information Mapping® method were performed over the last 30 years. Summaries of the findings and reviews of the research were published starting in 1980. Following is a description of those review articles and other articles related to commentary on the reviewer's findings.

First review of research

The first summary of the research into the Information Mapping method was written by Robert Horn in 1980 (Horn, 1980). In that article, he cites seven dissertations and research projects associated with the method.

Reported results

Within that initial review, Horn reported the following results:

- better comprehension than with conventional paragraphs
 - more efficient learning of facts and concepts
 - better retrieval of information than Programmed Instruction
 - improved initial learning by 50% and reduced training time over conventional learning and Programmed Instruction
 - adults and children learn more in less time compared to Programmed Instruction
 - higher initial learning when compared to Programmed Instruction
 - greater overall achievement
-

Fields, 1981

Alan Fields (Fields, 1981a) expands on his own research using the Information Mapping method and describes the use of the method as both a “teaching device” and an “alternative method for communicating information.” He discusses the results reported by Horn, 1980 and cites his own work applying the Information Mapping method to programmed instruction texts.

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Previous Reviews of Research, Continued

Hartley, 1982

James Hartley (Hartley, 1982) discusses the Information Mapping method research and proposes future areas for investigation. Topics discussed include:

- advantage - “allows busy readers to retrieve information rapidly”
 - disadvantage hindering acceptance - users must “learn a new technique”
 - disadvantage hindering acceptance - people are “suspicious of once-for-all solutions”
 - research issues - little research on text design in general
 - research issues - researchers are skeptical of suggestions about uniform guidelines and are hesitant to accept them.
 - research issues - quality and design of the research cited in Horn, 80.
-

Fields, 1983

In *Information Mapping: An Overall Appraisal*, (Fields, 1983) Alan Fields expanded on his description of the Information Mapping method to include both a “programmed instruction system” and an “alternative to conventional business documentation in communicating, classifying and retrieving information.”

Horn 1992

Horn (Horn, 92a) provides commentary to both Fields (83) and Hartley (82). He responds to several specific points and describes research in related fields that supports the method.

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Previous Reviews of Research, Continued

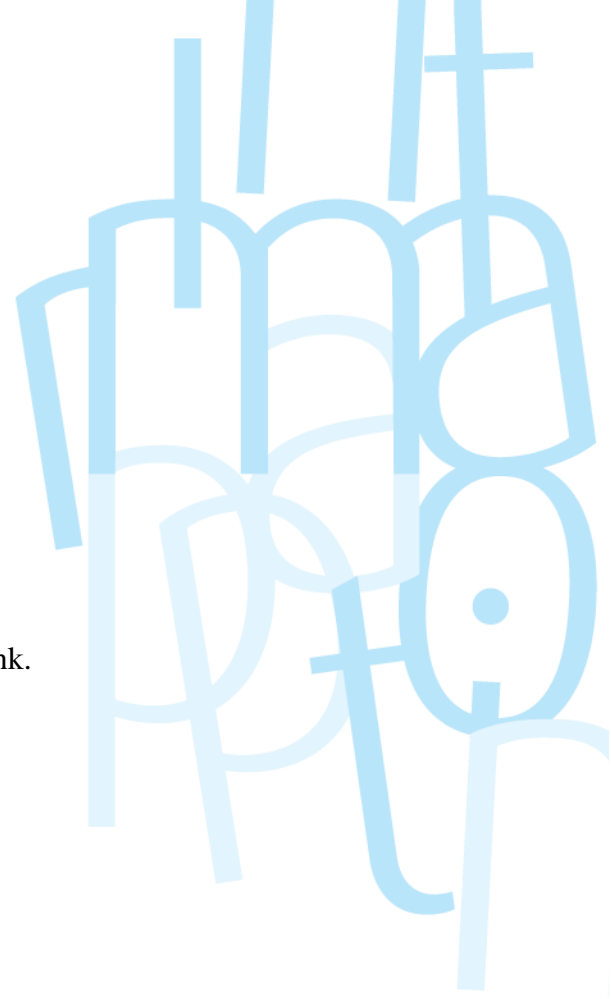
How High Can it Fly?

In 1992, Horn produced an interesting article, *How High Can it Fly?* (Horn, 1992b), using an Airplane analogy to summarize the research into the Information Mapping method. In addition to citing the original research discussed in Horn, 1980, Horn provides ten additional references for research on the Information Mapping method completed between 1982 and 1988.

Articles

Following is a table of the review articles published to date:

Article	Author
Research Evidence about Information Mapping Writing Service's Method of Documentation	Horn - 1980
Information Mapping Ten Years on: A Survey	Fields - 1981a
Information Mapping: A Critique	Hartley - 1982
Information Mapping: An overall Appraisal	Fields - 1983
Opinion: Clarifying Two Controversies About Information Mapping's Method	Horn - 1992a
How High Can it Fly?	Horn - 1992b



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Effectiveness of the Information Mapping® Method

Introduction

Many studies investigated the effectiveness of the method in general or attempted to identify components of the method that contributed to higher levels of effectiveness. These studies focused on the method as the single, major feature of the study or compared it to other training and information presentation methods.

Early studies

The Information Mapping method originated from a goal to improve the use of Programmed Instruction (PI) (the instructional method where a student reads information and then answers questions about it before being routed to additional topics based on his or her answers) and reference materials. Thus, much of the early research evaluating the Information Mapping method used Programmed Instruction manuals as the documents in the study or contrasted Mapped Programmed Instruction documents with standard Programmed Instruction texts or with standard prose texts.

Measurement

Results of research support the following:

- Improvements in reading speed
 - Improvements in learning, comprehension, or mastery of topics
 - Reduction in learning time
 - Improved accuracy
 - Reduction in time to retrieve information
 - Improvements in performance for writing tasks
 - Improvements in time-on-task
-

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Effectiveness of the Information Mapping® Method, Continued

Improvements in reading speed

One of the features of the Information Mapping method is that writers can focus on communicating key information and eliminate other writing that is not critical to understanding. This reduces the amount of information a user reads and thus, reduces the time it takes for a reader to complete a document.

In a study of business managers who were reading reports and memos written using the Information Mapping method, Holding reported a decrease of 32% in the time needed to read a Mapped document when compared to non-Mapped communication (Holding, 85). Baker reported a 12%-21% improvement in reading speed for Army Officers in Training when reading Mapped materials and standard text materials. (Baker, 88). In a user survey of members of the Air Force Reserve, when asked if Mapping helped to speed up reading, 85% of the respondents said “yes”, (US Air Force Reserve study, 95).

Improve learning

Over a dozen studies have been done evaluating Mapped training materials. Results have varied between 6% improvement in achievement for children (Romiszowski, 77) to over 50% improvement in achievement for nursing students using Information Mapped materials, (Burrell, 79). Generally, the reported results fall into two groups, the 25% to 35% range of improvement (Jones, 86, Webber, 79, Stelnicki, 80, and Fields, 82) or the 10% to 15% range of improvement (Romiszowski, 77, Tanenbaum, 88, and Soyster, 80).

No significant difference was report in two studies (Geisert, 70 and Petrusa, et. al., 85). The researchers discuss this finding in the reports and suggest that the research design or actual behavior of the subjects may have created a condition where the various samples were similar and therefore, that a significant finding would not have been expected.

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Effectiveness of the Information Mapping® Method, Continued

Reduce training time

While several studies show improvements in achievement using Mapped materials, other studies demonstrate that the time needed to learn information from Mapped documents is shorter. While Romiszowski reports 10% less time spent on learning with higher achievement for mathematics students in Brazil (Romiszowski, 82), others show that the reduction in training time is between 25% to 50%, (Webber, 79, Ethicon Study, 97, and County of San Diego Study, 95).

Improved accuracy

Improvements in accuracy have been shown in two different types of studies:

- improved recall from previously presented information
- improved retrieval of information from Mapped reference materials.

A recent study reported a 20% improvements in recall of procedure steps, details, and main tasks when learning using Mapped materials (Ethicon, 97). Several studies have evaluated improvements in accuracy for finding information from Mapped reference materials and have shown between 32% to 60% reduction in errors (Schaffer, 82, Jonassen & Falk, 80, and County of San Diego, 95).

Improved retrieval time

In addition to improved accuracy, the time to retrieve information is less for Mapped materials. A study of plant operators in a process manufacturing company showed an 81% decrease in the time needed to find target information (Ethicon, 97). Streit, et. al. report that using Mapped materials in a manufacturing company improves a user's ability to scan and locate information in a sales training course (Streit, Stern & Collins, 86).

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Effectiveness of the Information Mapping® Method, Continued

Impact on writing

Writing Mapped documents generally requires less time. Holding reported reduced time for writing management training materials (Holding, 85). Fein & Patton showed a 20% reduction in revision and editing time for a six volume set of technical hardware documentation (Fein & Patton, 89). Similar reductions in editing times were seen by Streit et al. for sales training materials (Streit, Stern & Collins, 86).

Writing can take less time due to the reduction in the number of words written using the Information Mapping method. In a study of two separate Army training and maintenance manuals, the word count was reduced between 39% and 53% for Mapped documents when compared to standard text documents on the same topic. A result of a reduction in word count is a reduction in the complexity of the material. The same study reported that the reading levels for the Mapped documents were 2 to 3.5 grade levels lower than for the standard text documents (US Army TRADOC study, 97).

Time-on-task

Many factors make Information Mapped documents easier or less stressful to read. Several studies report that students or users who read Information Mapped documents spend more time-on-task than when reading standard texts. Webb, 79 and Petrusa, et. al., 85, observed an increase study time using Mapped materials and Tanenbaum, 88, reports twice as much time spent on learning modules that were Mapped when compared to standard materials.

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Effectiveness of the Information Mapping® Method, Continued

Results

The following table summarizes the results described above with the associated research citation.

Finding	Reference
<p>Users read documents faster:</p> <ul style="list-style-type: none"> • Time to read a document decreased an average 32% • 12%-21% improvement in reading speed • Decrease in reading time perceived by 85% of survey respondents 	<p>Holding - 85</p> <p>Baker - 88</p> <p>US Air Force Reserve Study - 95</p>

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Effectiveness of the Information Mapping® Method, Continued

Results (continued)

Finding	Reference
<p>Mapped materials improve initial learning:</p> <ul style="list-style-type: none"> • users scored 38% better on criterion tests • users scored 22% higher on competency tests • students scored 53%-59% higher • students scored 32%-41% higher • students performed 13% better on achievement than PI • significant gain in the average student's knowledge (26% right on pretest to 79% right on post-test) • Adults had 11% higher scores and children 6% higher scores than PI • Improved learning effectiveness • 12% increase in mean recall scores • Equal learning between Mapped and conventional text • Equal learning between Mapped and traditional materials 	<p>Webber - 79</p> <p>Jones - 86</p> <p>Burrell - 79</p> <p>Stelnicki - 80</p> <p>Soyster - 80</p> <p>Fields - 82b & 83</p> <p>Romiszowski - 77 & 82</p> <p>Streit, Stern & Collins - 86</p> <p>Tanenbaum - 88</p> <p>Petrusa, Horvatich, & Guckian - 85</p> <p>Geisert - 70</p>

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Effectiveness of the Information Mapping® Method, Continued

Results (continued)

Finding	Reference
<p>Information Mapping method reduces training time:</p> <ul style="list-style-type: none"> • 50% reduction in learning time • 10% less time spent on learning with higher achievement • Less time to achieve higher level of mastery • Training time reduced 25%-50% • 35% less time to read and remember tasks 	<p>Webber - 79 Romiszowski - 77 & 82 Jones - 86 County of San Diego Study - 95 Ethicon Study - 97</p>
<p>Improved accuracy:</p> <ul style="list-style-type: none"> • 54% reduction in errors on tasks using Mapped materials • 32% more accurate in retrieval of information • Errors reduced 55%-60% • Recalled 22% more Main Tasks, 4% more Procedure Steps, and 23% more Details than standard text 	<p>Schaffer - 82 Jonassen & Falk - 80 County of San Diego Study - 95 Ethicon Study - 97</p>

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Effectiveness of the Information Mapping® Method, Continued

Results (continued)

Findings	Reference
<p>Improved retrieval time:</p> <ul style="list-style-type: none"> • 81% decrease in time to find target information • Improves user's ability to scan information and locate material quickly 	<p>Ethicon Study - 97</p> <p>Streit, Stern & Collins - 86</p>
<p>Impact on writing:</p> <ul style="list-style-type: none"> • Reduced writing time • Reduced editing and 20% reduction in revision time • Easier to revise & edit materials • Reduced number of words 39% to 57% • Reduced reading level 2-3.5 grade levels 	<p>Holding - 85</p> <p>Fein & Patton - 89</p> <p>Streit, Stein & Collins - 86</p> <p>US Army TRADOC Study - 92</p> <p>US Army TRADOC Study - 92</p>
<p>Increase in time-on-task:</p> <ul style="list-style-type: none"> • Increase in study time • Twice as much time on learning modules • More time studying 	<p>Webber - 79</p> <p>Tanenbaum - 88</p> <p>Petrusa, Horvatich, & Guckian - 85</p>

Effectiveness When Combined with Other Factors

Introduction

Some investigators evaluated the effectiveness of the Information Mapping method when combined with another technique. The Information Mapping method was a part of all samples and the other component was the measured variable.

Post questions and feedback

Tanenbaum investigated the effect of providing nursing students with post-questions and feedback during training using materials developed with the Information Mapping method. Information Mapped texts with either post-questions or post-questions and feedback yielded higher recall scores (77% to 81% correct) than Information Mapped texts alone (69% correct).

There were no significant differences across reading ability. All ability levels showed gains and performed equally. The Information Mapping method may have contributed to this as it provided the cues needed for recall of information.

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Effectiveness When Combined with Other Factors, Continued

Flowcharting procedures

Oliveras developed a training manual using Information Mapping and flowcharting that taught a procedure for evaluating teacher education programs. The use of the Information Mapping method allowed for rapid review and revision and provided a standard structure for each of the procedure Maps. Flowcharts were used to present the procedure steps and were viewed as very useful for the users.

There was no statistical analysis of the materials. However, the resulting manual received excellent comments from the reviewers.

Results

Following are selected studies of the method when combined with other factors:

Area	References
Information Mapping method with pre and post questioning	Tanenbaum - 88
Information Mapping method with flowcharting for procedures	Oliveras - 85

Effectiveness in Electronic Applications

Introduction

The Information Mapping method had its origin in computer-based learning and programmed instruction. Studies of effectiveness of the method for computer-based training and learning go back as far as 1967. Recently the method has been the subject of research in Multimedia applications and Web-based training.

Computer-based training

An early description of Information Maps identified their characteristics as: (Horn, 1967a)

- self-instructional
- made for both learning and reference, and
- designed for CRT tube display teaching and reference.

Extensive research was conducted from 1967 through 1971 using Information Mapping as a method for designing and developing Computer-based training for computer programmers, (Horn, 1967a, Horn, 1967b, Horn et. al., 1969, Horn, et. al., 1971).

In the most detailed publication, Horn describes a system for organizing information, defining paths through the information and evaluating users needs to identify optimal paths using a computer-based environment with Mapped blocks of information. (Horn, et. al., 1971)

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Effectiveness in Electronic Applications, Continued

Broad applicability

In the early research into Information Mapping for computer-based training (Horn, 1971), Horn suggests applying the Information Mapping method to generate blocks of other media such as:

- slide and film
 - audio/tape recordings
 - video tapes
 - sketch pads, and
 - real objects or physical models
-

Interactive multimedia

The application of the Information Mapping method to interactive multimedia was investigated by Dr. Mai Cramer (Cramer, 1995). Her research examined selected multimedia programs to identify how the Information Mapping method principles were applied and how key blocks were used for various Information Types.

She concluded that the basic structures of Information Mapping, the Map and Block, can be applied to multimedia and that the Research-based Principles apply but may need to be interpreted slightly differently for the 'time-based media' of video or audio used in interactive multimedia programs.

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Effectiveness in Electronic Applications, Continued

Internet-Based instruction

Information Mapping was a component of a study of interactivity and structure in Internet-based instruction (Bills, 1997). Mapping was a part of the ‘interactivity’ variable in conjunction with Designer’s Edge™ as a component of the ‘structure’ variable for the study. The results of the study show that ‘structure’ had a significant positive impact on learning while interactivity showed equal gain when compared with control group performance.

In the discussion, the researcher describes behavior of the participants that may account for the results for the interactivity variable. He proposes that due to time constraints, students in the interactive group may not have exercised the various interactive options presented in the lesson and thus had similar learning behavior as the control group. Thus, accounting for the similar results of the groups.

Internet information retrieval

In a continuing study of information retrieval from the internet, researchers at Information Mapping, Inc., ask users to find a specific item of information on a Web page of standard text. The time needed to identify that item is recorded. Subsequently, the user is asked to find an additional piece of information on a Web page prepared using the Information Mapping method. The time is recorded. The ‘before and after’ times are compared. At this writing, users find the information on a Mapped web page in about one-third the time needed on a page of standard text. Refer to the ‘timed test’ at www.infomap.com to participate in this study.

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Effectiveness in Electronic Applications, Continued

Research topics The following articles discuss the electronic applications of the method:

Title	Author
Information Maps & Computer-based learning & reference work - a research proposal to HQ Electronic Systems Division, US Air Force Systems Command	Horn et. al. - 67 - unpublished proposal
Information Mapping and Computer-Based Learning-Reference Subsystems - a research proposal to HQ, Electronic Systems Division, US Air Force Systems Command	Horn et. al. - 69 - unpublished proposal
Implementing Information Mapping on an Interactive Computer - a research proposal to HQ, Electronic Systems Division, US Air Force Systems Command	Horn et. al. - 70 - unpublished proposal
Information Mapping Computer Based Training & Reference	Horn, Nicol, Roman & Razar - 71
Applying Information Mapping Principles to the Design of Interactive Multimedia	Cramer - 95
Effects of Structure and Interactivity on Internet-based Instruction	Bills - 97

Acceptance of the Method

Introduction The Information Mapping method has unique presentation formats and structures. Because this is less familiar to users, several researchers investigated acceptance of this format.

Research topics Generally, researchers wanted to know:

- Do users like it?
 - Do people use it in their work?
-

User surveys Although there are unique methodologies for evaluating user preference such as “will students walk a mile to get a Mapped book?”, (see Horn - 92 comment page 12), the most common evaluation vehicle was a user survey.

Do users like it? In many studies, users of Mapped documents expressed that they ‘liked’ the Information Mapping method. For example, Petrusa, et. al. investigated student preference between Mapped learning materials and conventional text materials for a course in clinical medicine. Results were significant for all six items evaluated, (Petrusa, et.al., 1985). Users found the Mapped materials:

- easier to read
- better organized
- presented a better sequence of information
- easier to locate information
- easier to study
- more interesting

Also, in a survey of over 480 people who received both a traditional and a Mapped document, over 81% preferred the Mapped document because it was simpler, easier to identify the main points and more concise, (County of San Diego, 1994).

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Acceptance of the Method, Continued

Do people use it?

One measure of acceptance is if people actually apply the method to their documents. In a survey of students who participated in an Information Mapping method seminar, over 75% replied that they were using the method, (Weyerhauser, 1996) and in a similar survey over 90% responded that they were applying Mapping to their documents, (Ethicon, 1997). Similar results are reported by others.

See other anecdotal references in Horn, 92.

Reports

The following studies asked users or students about their preference for Mapped materials:

Area	References
High user satisfaction	Associates Financial - 85 (reported in Horn, 92), USDA - 91 (reported in Horn, 92), Webber - 79, Schaffer - 82, Jones - 86,
Students prefer Information Mapping method over conventional text.	Geisert - 70
Positive student perceptions.	County of San Diego - 96
Over 80% positive student results on eight preference criteria	US Air Force Reserve study - 96
Over 75% using Mapping after training	Weyerhaeuser - 96
Over 90% using Mapping after training	Ethicon Survey - 97
Easier to use	Ethicon Study - 97
Rated higher than traditional text on six different variables	Petrusa, Horvatich & Guckian - 85
Layout effective & 'preferred'	Reid - 84
Positive evaluation of Mapped text features and users would highly recommend this material to others	Tanenbaum - 88

Examples of Information Mapping® Method Documents

Introduction

Several publications were written with the Information Mapping method. They fall into two areas:

- Documents created using the Information Mapping method as part of a dissertation or research project.
 - Commercially available documents or those published by Information Mapping, Inc.
-

Documents

Following is a list of Mapped documents prepared as part of a research project:

Area/Topic	References
Church Planning Guide	McClung - 85
Launching New Educational Concepts	Mowen - 77
Information Mapped Chemistry	Olympia - 79
College Services User Manual	Perkins - 92
A Manual on Instructional Systems Development.	Reid - 84
A Manual for the Evaluation of the Teacher Education Programs in Chile	Oliveras - 85

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Examples of Information Mapping® Method Documents, Continued

Mapped books Several commercially available books use the Information Mapping method. Following is a list of currently available publications that are “Mapped”:

Title	Author
Student Survival Guide	Denise Henderson
Demystifying ISO 9000	Paradis & Small
Demystifying GMP's (Guide to the 1997 Quality System Regulation for Medical Devices)	Ingals
Mapping Hypertext	Horn
Mapper's Morsels: Favorite Recipes from Information Mapping, Inc.	Information Mapping, Inc.
Companion Handbook for Mapping Business Communications	Information Mapping, Inc.
KeyNotes (various titles)	Keystone Learning Systems Corp., (UK).

Summary

Introduction

Over the last 30 years, numerous studies focused on specific audiences and detailed variables. However, when taken as a whole, the research supports the application and effectiveness of the method over a wide range of:

- content areas
 - audiences, and
 - businesses
-

Content areas

One of the findings that is revealed when all of the research is reviewed is that the Information Mapping method is highly effective in communicating both technical and non-technical content for training and reference. Studies found significant results in such diverse topics as:

- Nurses training
 - Management report writing
 - Teacher education programs
 - Computer programming language training
 - Sales training
 - Pharmaceutical Testing Submissions
 - Manufacturing Process Operating Procedures
-

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Summary, Continued

Audiences

Also, a wide variety of audiences are impacted by learning from Information Mapped materials or using reference materials that are Mapped. For example, studies showed significant positive results for:

- adults and children
 - managers and administrators
 - college and university students
 - teachers and instructional designers
-

Business Impact

Many studies were done in a business or industrial setting. Most of these measured improvements in productivity. The improvements could occur from:

- finding information more rapidly
- having information better organized as improved job aids
- reducing questions to supervisors or peers
- writing faster (reduced time for development)

Horn provides several models for calculating the business benefits derived from applying the Information Mapping method (Horn, 80). And, provides case studies of cost savings that occur in a large order entry system and a customer service organization.

Descriptions of Information Mapping method

Some articles that are listed in the bibliography but not mentioned above, contain descriptive references to the Information Mapping method as a component of another major topic. For example, Balan, refers to the Information Mapping method as an effective approach when designing text (Balan, 89). And Hylinka mentions Mapping as one of four ways to streamline single page documents (Hylinka, 79). Horn has several articles that describe the Information Mapping method or various components of the method. Refer to the bibliography for additional references.

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Summary, Continued

**Information
Mapping
method is
effective**

As can be seen from over 30 years of research, the Information Mapping method is a highly effective way of analyzing, organizing and presenting information. Writers can communicate a wide variety of complex information in a simple and effective way.
