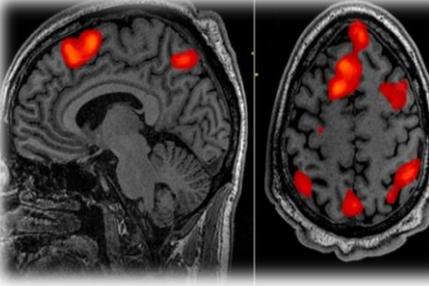
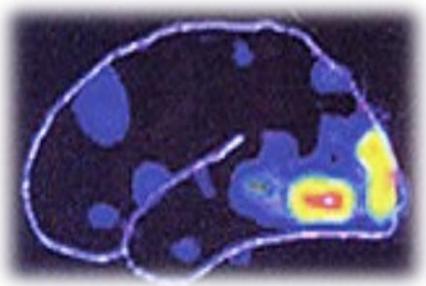


# Introduction to CID



**Cognitive-based Information Design**

**Lou Tetlan, PhD**

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## Introduction

You are about to explore a topic that affects your work and private life every day but is rarely discussed by the population at large: Communication Literacy – specifically, how information’s *presentation* affects the way you interpret content & remember it.

Mentally scroll through your day, noting all the print & electronic messages you read:

- emails
- reports
- instructions
- manuals
- training, product & service materials.

Then you arrive home and read

- bills & flyers
- DIY directions
- websites
- health pamphlets
- notices from school, civic & non-profit affiliations.

We are inundated daily by information yet the majority of adults are NOT proficient in reading literacy (the ability to read words and *correctly apply* what they read). You’ll learn more about these findings in Chapter 1.

This eBook introduces you to this pervasive problem and then provides a solution based on scientific research. These scientific findings, or constructs, that guide CID – Cognitive-based Information Design - are identified in Chapter 2.

Chapter 3 translates these scientific findings into actions you can immediately take to improve your visual communications. The Appendix includes convenient action checklists for you to use with your projects.

The CID Group, LLC is on a continuing journey researching how to produce more effective communication based on the way humans actually process information, opening a new field of study we call cognitive-based information.

We hope the information in this eBook helps you become more effective in your communication - to produce higher quality services & products, to improve work environments & increase workplace safety, to effectively train recruits, and to help engage students ...

Wishing you effective communications,

*Lou Tetlan*

## Chapter 1

# What Is CID - Why It's Important

### What is CID?

CID stands for Cognitive-based Information Design [CID<sup>®</sup>]. CID offers a new way to present information. It is based on findings from scientific research that are pertinent to formatting visual information. The purpose for developing & sharing CID is to help you produce visual communication that more closely parallels how the brain actually processes information.

CID does this by focusing on constructs that

- Encourage **engagement**
- Build accurate **knowledge** &
- Facilitate **recall**.

These 3 cognitive functions are needed to provide effective visual communication.

Any information you want to share with others needs to:

- 1) Engage the person in the content
- 2) Aid the reader in understanding the content  
as it was intended to be understood &
- 3) Crafted so it's easier to retain for later recall or retrieval.

### What are 'Constructs'?

Constructs are findings or 'truths' discovered through scientific research & accepted as valid within their fields. CID incorporates constructs from, but not limited to:

Psychology	Educational Psychology
Cognitive Sciences	NeuroEducation
Learning Sciences	Ophthalmology

CID constructs are found in fields using scientific methodologies to research how humans process visual information. Constructs that are deemed pertinent to presenting information are used as guides to create CID formats. Just as we have guidelines for best practices we now have guidelines for presenting information that is in sync with how we actually process that information.

## How We Process Information

### Sense-making



One purpose of the brain is to make sense of its world. In order to do that the brain will organize information based on what makes sense to it... leaving construction of meaning open to individual interpretation.

In other words, our brain will process & organize information in ways that makes sense to IT, not necessarily the way the information was meant to be interpreted.

### Stable Information

To avoid or minimize individual interpretation, we need to present information in ways that are less flexible, leaving less room for individual interpretation. We call this creating 'Stable Information'. Chapter 3 identifies how to create Stable Information.

How do we create understanding from information? An important construct called schema acquisition, helps us understand how we create or build knowledge.

### Schema Acquisition

The schema acquisition construct states that our brains organize information according to meaning. These individual meanings form units. Other units of information can be attached to the original unit thereby building information. The way those units are assembled determines what knowledge is constructed.



For instance, let's say a unit of information is akin to a brick. How we assemble those bricks will determine what we build with them. Will we build a wall or a house?



If you want your reader to assemble a wall with the information supplied you need to assure that information is presented with hierarchal clarity that guides the reader toward building what you want & not what s/he *thinks* you want.



The brain will assemble info in ways that make sense to IT... not necessarily accurately or effectively.



Presenting information in ways that can be flexibly interpreted can lead to building faulty knowledge...



which can be destructive to learning & potentially dangerous in application.

In essence, misinterpretations can lead to anything from MINOR misunderstandings to MAJOR catastrophes.

CID was developed for visual communication – print or electronic. This includes but is not limited to: manuals, handouts, pamphlets, letters, presentations, billboards, emails, websites, product information, stakeholder materials, textbooks.



CID was developed for formats that show **procedural knowledge**, provide **subject knowledge** or share **general information**.

CID was not intended for all visual formats. CID was not created with emotive or creative writing in mind e.g., advertising, novels, poetry - although they too may benefit from its techniques.



Let's take a moment & think about your documents.  
Identify a document that is essential for people to understand?  
(For example: A pamphlet on macular degeneration or a training document.)

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What are the 3 most important elements in that document that readers need to understand correctly?

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(For a pamphlet on macular degeneration the 3 main elements might be: identify the symptoms; what can be done about it; and who to contact.)

Going forward in this eBook, it may help you to keep a document in mind as we discuss topics.

What does the construct *schema acquisition* tells us about building information?

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## Answer for Schema Acquisition Question

- We organize information into meaningful units
- We connect these units of information, or schemas, to build information.

To ensure accurate building of information we need to present these units of information in ways that are stable – disabling the reader from assembling units the way s/he wants – enabling the reader to correctly understand your intended message.

## Results of Unstable Information

What can happen when information is unstable?



May 11, 1996 Valu Jet Flight 592 took off from Miami, FL & 10 minutes later crashed into the Everglades. All 110 lives were lost.

Why? An employee thought he was loading the cargo correctly. But the way he interpreted the instructions was wrong, resulting in the subsequent fire & fatal crash.



In New Mexico on Valentine's Day, 2014 a storage drum leaked releasing radioactive particles into the ventilation system exposing 21 workers to hazardous material.

Why? An employee misunderstood proper storage procedures.



The owner of this historic Chateau outside Paris provided written instructions to a construction crew to renovate the chateau & raze a small outbuilding.

They misunderstood the instructions & razed the entire chateau instead.

## One Reason for Misinterpretations

If you're thinking these examples are rare, that most people wouldn't make these kinds of mistakes, you're not alone. I began to wonder 'What percentage of adults in the US are actually proficient in reading literacy?' 'Reading literacy' is the ability to understand & correctly apply what has been read.

Studies at the National Center for Education Statistics indicate that only 13% of adults in the U.S. were found to be proficient in reading literacy. That means 87% of U.S. adults were found to be below proficient - incapable of accurately understanding & correctly applying what they read.

Data from the U.S. Department of Education, National Center for Education Statistics on adult reading literacy:

- Literacy was defined as the knowledge & skills needed by adults, in life & at work, to use information from various texts (e.g., news stories, editorials, manuals, brochures) in various formats (e.g., texts, maps, tables, charts, forms, time tables).
- The test questions were developed to assess the respondent's ability to: retrieve, compare, integrate & synthesize information from texts & to make inferences, among other skills.
- The population included adults ages 16-65 from varied socio-economic status, across gender & educational levels.
- The 87% below Proficient were divided into the following subsections: Intermediate, Basic, Below Basic.

The unstated problem inherent in the number of 'below proficient' readers is that most people believe themselves to be literate readers... that they *have* correctly interpreted the material they've read.

### **Why does this happen?**

Remember the earlier reference to bricks and that how we assemble those bricks determine what we build? Perhaps the adults in these studies found other ways to assemble the information from what they'd read because the presentation of the information allowed for flexible interpretation.

Prior to reading the specifics of those studies I had insight - based on both my research & work in the field - that the number of proficient readers would be low.

### **Motivation Behind Developing CID**

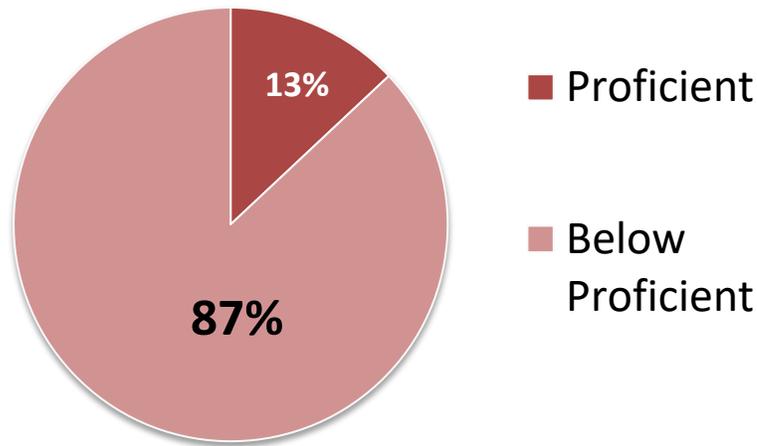
A short back-story here might be useful. In 2007 I began a study with post-secondary proficient & remedial readers. That study produced a number of statistically significant findings including that not only remedial but also proficient readers found CID-like formats to be most engaging, easiest to understand & easiest to remember out of multiple format options.

The most important finding in that study surfaced during the one-on-one interviews with the remedial readers. They told me they knew how to read the words. What they struggled with was knowing how they were supposed to put the information together - "What's the right way?" "What's important?" They wanted stable information & recognizable hierarchy.

Observing how visual information was being presented & its effect on both student learning and their self-perceptions set me on this path of researching how formats affect successful transfer of information. The more involved I became, the more I saw that unstable & ineffective formats permeated not only education but every field in our society.

Unstable & ineffective formats may be why we have this silent yet pervasive problem today.

## US Adult Reading Literacy



### Emergence of The CID Group, LLC

Observing how simply changing the format improved the accuracy of understanding content, I decided to share this information with the people who could immediately benefit from learning about and applying Cognitive-based Information Design [CID] to their visual communication. Therefore, I have created this eBook for you.

In summary, CID is a goal-oriented process that uses scientific constructs to guide the design of visual communication. CID achieves this goal by creating formats that parallel what we know about how people actually process information.

CID accomplishes this by incorporating constructs that

- encourage engagement with our formats
- build units of stable information and
- facilitate recall or retrieval of content.

## **Welcome to the Growing Family of CID**

You've now been introduced to Cognitive-based Information Design -  
What it is & why it's important.

If it's important that your materials be understood correctly then  
it would be beneficial to learn how to create your own CID formats.  
The next 2 chapters will help you achieve this. CID's 3-step process with  
project checklists enables you to teach yourself how to create CID formats.