# Crafting the Total Learner Experience

*Preventing Data Corruption in Instructional Messaging*

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# Introduction

Think back to a recent learning intervention you have been involved with. As you think about the project, ask yourself these questions:

- did the program promote the idea of good?
- was it a responsible and necessary production?
- did it evoke a sense of fun?
- was it useful?
- did you streamline when you had the chance?

Although at first glance, you may think those are silly questions, I am being completely serious. When I think back over some of the projects I have worked on, I can't honestly answer yes to every question. In many circumstances when the harsh light of work-day reality shines down on us, the simple fact is we have budgets, schedules, and multiple projects to produce. So sure, although we'd like to put our heart and soul into everything we do, sometimes we have to compromise. Make it work, get it done.

As you read this article, I'd like you to think about the learner. Put the brakes on just a bit, slow down, and ponder what you're doing *to* them. You may be causing more harm than good. Recently I had a moment of epiphany. You know what I mean, I'm sure you've had them as well. For me it led to what you're reading now. I was in line at Starbucks, closing in on being late to a meeting, trying to beat the clock and get a jolt of caffeine before having to commence with my standard dog and pony show to try and convince someone to hire me, when it hit me: Too often during my busy day, while I grind out deliverables, get content uploaded, check off to-dos, somewhere along the busy road of work life that I travel every day, I lose my purpose. What purpose is that, you ask?

As I left Starbucks with my venti, non-fat, triple shot, it became so clear to me: where was the learner? Did he or she even matter anymore? I had lost the sole purpose of what I was doing: making sure I create the type of learning intervention that would not only transfer knowledge to improve performance, but also engage and motivate to action. It really should be all about the learner!

## The Total Learner Experience

Recent advances in technology have enabled instructional designers to build more interactive training quicker, and with smaller budgets. Software tools allow more flexibility in creating custom technology-based training specific to the needs of the organization; however, we can't rely on information technology alone to transform learning. Without organizational alignment between business executives, training, and IT departments, organizations will continue to suffer from inflexibility, rigidity, and slow responsiveness to critical business needs – hindering the capability for rapid knowledge transfer to affect strategic functions.

The bottom line is: until organizations synchronize their business goals with practical, usable employee training focused on engaging and motivating learners, business will continue to suffer compromised performance.

After my insightful Starbucks moment, I began to ponder what a learning experience should mean *for* the learner. Many instructional designers are focused only on the course content, and not on what I now refer to as the Total Learner Experience, or TLE. The learner's experience with a course begins the moment that student starts to access the course. I formulated this definition for the TLE:

A successful Total Learner Experience should promote the cohesive integration of informational resources into the overall structure of a *course delivery system*. A course delivery system contains *every* component designed to facilitate a learning intervention, including the interface access point for the course, which could be a learning management system, corporate intranet, or a simple web page.

Successful consideration and application of the Total Learner Experience enables the learner to:

- easily find, access, and consume the appropriate learning intervention.
- be engaged, motivated, and enthusiastic throughout the learning intervention.
- transfer understanding into action after the learning intervention is completed.

For the rest of this article, I will offer tips and tricks on how you can design for the TLE, and, at the same time, build courseware that engages and motivates your audience to

action. The critical aspect in implementing a successful TLE involves crafting a non-corrupt, pure instructional message that meets the objectives for both the organization and the learner.

## *Design for Your Learners*

Many conventional courses are built around a logical hierarchy of modules and topics that may also include a menu with navigation options. This places the content in a structure that makes sense to an instructional designer. When constructing a course around a navigation menu containing links to content, the instructional designer may be thinking in terms of: where will the learner want to go, where will I let them go, how should I name the modules and topics, and does this all support the instructional goal? Basically, the thrust is to push the learner off the navigation menu into the content. This model places the focus on structure instead of content.

More than likely, learners are not interested in the structure of the course. They may be more interested in the content that will enable them to achieve their learning goals. What are their goals? If I am taking a course on how to set up an e-mail account in Outlook, do I care about an “Overview of Outlook” module, when what I really want to know are the steps I must perform to set up an e-mail account? If I’m on the navigation menu, I will probably look for a topic titled “How to set up an e-mail account in Outlook,” and I hope to find it by scanning the menu structure and clicking the link. If the navigation menu consists of a list of modules with clever names, such as “Overview” or “Getting Started,” it makes it more difficult to scan for the trigger words of "set up an e-mail account." The learner has no interest at this point in anything other than achieving the goal of setting up an e-mail account, which is based on content, not structure.

Designing content should come first, with the module names, topics, navigation menu hierarchy, etc., coming last. In many courses, subject matter experts and instructional designers have told me what the module and topic names are before any content is written. If content rules, then you start with content, and determine the most important trigger words. Place the trigger words in the appropriate spots so learners will identify them when they scan the page. Instead of creating your own structure based on your own agenda, think of the learner and ask these questions:

- why is the learner here?
- what areas will be most important to the learner?
- how will learners get to the important areas?
- what are the associated trigger words for these areas?

By focusing on the content first, the structure of the course will come next, and will more than likely reflect the actual needs of your learner. Attend to the content, then let the structure take care of itself.

## *Create Course Confidence*

When learners can't find something they want to know, they will often turn to the navigation options to help hunt down the missing content. The ability for learners to achieve their learning goals within the structure of your content instills them with a sense of confidence in the course. The critical times of course confidence are right before and right after the learner clicks. Is the link name understandable as to where it will lead them? Did the link lead them to the right content? Confidence and trigger words go hand in hand.

Lure your learners to the content they need:

- Communicate effective content through module/topic/link names. Don't worry about keeping these names short and concise. Name them appropriately to be informative. If the module name needs to wrap to multiple lines, let it wrap.
- Remember the trigger words that the learners will associate with the course, the module/topic/link names, and their expectations and assumptions of what content will be underneath the link.
- Learners do not mind clicking through pages as long as they feel confident that the content is "evolving" with the link. If they are seeing the trigger words associated with the content, they will feel like the linking is getting them closer to the desired information.
- Learners don't mind scrolling. They only fail when they encounter "scroll killers." Common scroll killers include horizontal rules and large margins. A

horizontal rule acts as a barrier to continue scrolling. It is visualized as a border. Large margins or large areas of white space suggest there is nothing else to see (see Tufte).

- Learners expect text links to be blue and underlined.
- A link should accurately describe what will appear on the linked page.

## *Apply the Six Rules of Design Simplicity*

Your instructional messages should show comparison, contrasts, and/or differences in a meaningful, structured context. Be prepared for the fact that learners with prior knowledge may ask the fundamental question, "compared to what?" when evaluating your message.

The first application of effective instructional messaging appears at the course's ecological level: the foundational environment where learning occurs. In this environment, the learner must be able to optimally pursue the goals and objectives of the course while engaged and happy. Instructional components required to keep learners happy include, but are not limited to:

- good design
- evidence
- credibility
- encouragement
- ability to relate the information to their real world selves

Sharp content or content that remains focused on the learning objectives should pass the Six Rules of Design Simplicity:

| Six Rules of Design Simplicity | |
|---|---|
| **Show meaningful context** | Is the information relatable to the learner's real-world or on-the-job experience? |
| **Present evidence and credibility** | Are you able to demonstrate subject matter expertise and relevance to the learner? Will they trust your message |
| **Remove invasive user interface clutter** | Is navigation intuitive? Is the company branding and course information closing in on your content? |
| **Remove irrelevant visuals** | Do the visual media support the instruction? |
| **Strip out jargon and corporate-speak** | Do acronyms, marketing language, and industry buzzwords run rampant in your content? |
| **Remove barriers to content** | Can the learner easily access the content without unnecessary log-ins, bad LMS design, intrusive pop-ups, and uninstalled plug-ins? |

## Preventing Data Corruption

A common barrier to successful implementation of the TLE is often caused by data corruption. Data corruption is a flaw in the design process that cognitively diminishes the transfer of information that specifically promotes learning.

Data corruption can be caused by:

- **Ambiguous instruction**

  Imprecise language such as, "Click the items that are usually included in the box." Note that with sketchy words like "only," "usually," "never," and "nothing," you risk having learners misinterpret the intent of the learning objective. Help them to succeed by being as clear as possible.

- **False or unnecessary information**

  Make sure the content displays the information relevant to the objective. Be careful of including too much information, or of including information that you cannot verify is accurate. Learners are more than willing to question the credibility of your content.

- **Jargon**

  Refrain from buzzwords, especially industry specific ones. “Return-on-investment,” “constraints,” “accountability,” “resources,” “targeting” are examples of jargon. Consider this sentence from a training course I recently reviewed: “Comprehensive, community-oriented involvement naturally leads to a substantial return-on-investment rationale that can be modeled, based on existing practices from specific groups.” Does this sentence really say anything?

- **Irrelevant visuals**

  Ask yourself if the visual you are about to design or place near your content will add anything to the instructional objective? Is it just a pretty, decorative graphic, or a sharp-looking photo of a young model? Do not clutter the screen if it adds nothing to the instructional message. Your learners will thank you.

- **Forced action**

  Some course material may warrant forcing the learner to travel a prescribed path, but if your course is overly long and tedious, you will frustrate your learner if on top of requiring them to view 400 screens of content, you force them to view it in the order you dictate.

- **Limited choice**

  Try to refrain from limiting the learner's choice when it comes to the ability to explore your content, unless exploration can diminish the instruction.

- **Invasive user interface objects**

  Display only the elements you really need. If your "Help" content is simply a regurgitation of generic information, and is not context sensitive, question whether or not you need the element on the user interface. Do not consume the screen real estate with non-essential decoration such as large course title banners or company logos. Reserve as much of the screen for substantive content as possible.

- **Non-intuitive navigation**

  The first rule of a good user interface is to not make your user have to think about the user interface. Don't try to re-invent what many of the largest companies in the world have already figured out: how to build good navigation. Conventions exist, so use them. Do not think you should change or break conventions, especially for a design aesthetic.

Clear, concise, and informative messaging can substantially reduce the risk of data corruption. To aid in preventing data corruption, an effective instructional message should:

- contain credible and verifiable data
- display constructive visual evidence
- show meaningful context and causality

## *Evidence and Credibility*

As the sender of the instructional message, you are the agent of information, and must build trust and confidence to successfully influence the learner to action. In an instructional message, the link between the sender and receiver is prejudiced based on variables such as distance and time. Electronic messaging by its very definition is based on one-directional influence. The receiver of the message must be willing to accept the credibility of the message before she can be influenced to action. You should craft an instructional message that shows causality at all times -- speculation and selective use of data is no substitute for evidence.

You should constantly strive for simplicity and clarity – the very idea of causality is simplicity (Tufte, p. 67). You foster the ability to deduce intent without relying on assumption or too little evidence for the learner by stripping away unnecessary information, jargon, mismatched meaning, and marketing-speak. Learning improves when the instructional message is verifiable and easily able to be placed in context to the learner's sense of reality. Your instructional message should contain whatever is necessary to show evidence, and to assist in reasoning.

## *Display Visual Evidence*

Integrating text and visuals are common in eLearning courses. The visuals may easily overwhelm the learner if they are irrelevant, segregated from the learning objectives, or do not assist reasoning. Credibility and evidence should be the primary motivating factors behind the integration of a visual into an instructional message. The learner quickly judges the visuals based on quality, the explanatory ability of the visual, and its association with the content. For explanatory visuals, show evidence by annotating, labeling, or highlighting where appropriate. Show credibility by referencing sources as a part of the visual (Tufte, p. 45).

The learner's ability to decode the visuals correctly is determined by a variety of factors including:

- Sex – men usually perform slightly better than women when decoding the meaning of visuals.

- Age – Older adults tend to perform worse than younger adults.
- Computer skills – Certain learners will perform information retrieval and storage more efficiently than others. A host of factors, including the ability to manipulate computer interfaces, affects this performance.

## *Integrating Visuals*

Although there is usually a budgetary impact to the design of static versus animated visuals, the pay-off from a learning standpoint is not easily measured. The main goal of the visual should be to convey evidence of a relevant learning message. If the visual strays from the learning objective, relevance is diminished, and mental clutter and confusion could occur. eLearning courses are often laden with non-relevant visuals meant to heighten emotion, or decorate the user interface. Too many decorative visuals corrupt the ability for the learner to process data, and may diminish the instructional value of the entire message.

To properly show evidence, strive to reveal full details in your visuals. The ability to display complex information in a visual is not a data malfunction, but instead a design challenge. Before you decide to manipulate the visual "to fit" or to reduce perceived complexity, consider the relationship between the visual, the data surrounding the visual (or included as a part of the visual), and the learner.

Visuals may contain some form of interaction. Sometimes the best way to communicate information is with a visual. Add interactivity to the visual and you may increase the chance the learner will want to interact with the visual. Using visuals (even visuals that contain text) for navigation or interaction is problematic from the standpoint that they don't necessarily look clickable. Interactive visuals work best when the learner can easily identify what is actually clickable.

Decorative visuals, such as company or department logos, backgrounds, or large course banners, are usually more hurtful than not, especially when they consume a large percentage of the interface. They may contribute design flair or a sense of professionalism, but, honestly, do you really need to have a large percentage of your interface devoted to the company logo – especially if the course is built only for company employees to view? Do they need to be constantly reminded of who they work for?

It is possible for decorative visuals to backfire. Using cartoonish visuals or clip art may frustrate the learner when these images crowd the trigger words, or content. By conducting a thorough audience analysis before your design begins, you can focus on the elements of design that will matter most to your learners, and refrain from losing precious interface real estate to non-relevant decorative visuals.

## *Screen Layouts and Templates*

When designing the screen layout, too often templates dictate the placement of data. Improper use of white space can affect the learner's cognitive ability, and negatively impact learning. Without the ability to modify the placement of the data elements – basically manipulating the white space – visual noise and clutter may result. Rigid templates can diminish the instructional value and cause learner fatigue and frustration.

To improve clarity, consider these guidelines for displaying data elements:

- Reduce visual noise.
- Prevent insufficient range of color between similar elements.
- Carefully consider font weights and differences. Consider sturdy, readable fonts. Arial or Helvetica, often the default font, is rarely strong enough to prevent eye fatigue. [Perhaps you can suggest an appropriate font here.]
- Use color to enhance spatial dimension.
- Be careful about shading and color usage (never place shading behind text).
- Remove all unnecessary data.
- Design for harmony between the data and the user interface.
- Focus on the relationship between the visual and the text on the screen, and make sure there is a relationship.
- Avoid thick rules and boxes surrounding pictures or text (especially Microsoft clip art objects. Actually, avoid clip art completely).
- Layer and separate elements to prevent clutter (reduce or eliminate decorative visuals).
- Enhance the resolution when possible (Don't just scale screen shots and allow the data to become distorted).

### *Displaying Complex Data*

Presenting large amounts of data on a computer increases the risk of data clutter and confusion, what I sometimes refer to as "data fog." We assume that learners will not "read" too much text on computer displays. How much is too much text? And should we continue to assume learners will not "read" text on a computer display?

Cognitive load theory is based on information processing that describes the amount of information a learner can keep in memory. Small segments of "chunked" information enable the learner to focus attention and facilitate knowledge transfer. Consider video game players and how information is processed during game play. Large amounts of data is displayed, stored, and later recalled during moments of heightened emotion. Ace game players learn quickly by doing, recalling key combinations, player moves, shortcuts, goals, and challenges during repetitive play, when the game requires action. With this thought in mind, it may behoove the instructional designer to re-consider how he or she presents large amounts of information. Compelling content with strong, relevant visuals chunked appropriately may be able to counteract the possible contamination brought on by memory overload that often occurs with dry, macro-chunked content devoid of a bold visual narrative.

High-resolution displays combined with good instructional design, compelling visual evidence, and readable text can lead the learner to action. Data clutter is more a failure of design than the display of too much information. By presenting credible and verifiable data, you offer full evidence, which may be paramount in helping to achieve the learning objective, and help to prevent data corruption.

## Conclusion

Of the many tasks an instructional designer performs, the most important is to ensure the credibility of the instructional message. By involving yourself in the detailed process of analysis, content gathering, evaluation, and construction of the message (including the visual elements), you can guarantee that every step in the process of creating and delivering the Total Learner Experience will be free of data corruption, and will display a relevant, cohesive, and accurate message to your learner. Preventing data

corruption in instructional messaging is a key component in the larger goal of closing the productivity gap and improving workplace performance.

Bibliography

**Read** *The Way Things Work*, by David Macauley. Instructional design requires some knowledge of systems and how they work. This book explains basic technologies that are important in our day and age.

**Read** any article or book written by Marc Prensky (www.prensky.com) or Thiagi (www.thiagi.com) Thiagi was and is my personal mentor. His models form the foundation for how I approach training in general.

**Read** *Engaging Learning: Designing Learning Simulation Games*, by Clark Quinn. A fast, informative read, jam-packed with great information.

**Read** *Homo Ludens* by Johan Huizinga. A definitive work on Play.

**Read** all of Edward Tufte's books, but start with *Envisioning Information*. You will not want to put it down, so take a long weekend – preferably on a deck with a good view. He also has a compelling critique of how he thinks PowerPoint software played a major role in the space shuttle Challenger tragedy. You can order it on his site at www.tufte.com

**Read** comic books and graphic novels for ideas on drama, graphics, and storyline. You can argue to your boss that "Yes, you should get paid for reading comic books!"

**Read** *The Design of Everyday Things* by Donald Norman. This book will open your eyes to how badly most things are designed.

**Read** Chris Crawford's *On Game Design* and *The Art of Interactivity Design*

**Watch** Chaplin and Brando movies. Make sure you have a large tub of buttered popcorn (with extra butter drizzled on).

Get some alone time, dim the lights, put on a good pair of headphones and **listen** to "Shooting Star" by Bob Dylan (on the "Wonder Boys" soundtrack CD). If this doesn't spur creativity in your brain, you're in the wrong business. Consider accounting.