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# Interaction Design for Graphic Designers

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## I am...

- David M. Hogue, Ph.D.
  - Please call me Dave
- Applied Psychologist
  - And adjunct professor (SFSU Multimedia Studies)
- Vice President of Interaction Design
  - Fluid in San Francisco ([www.Fluid.com](http://www.Fluid.com))
- Designer
  - Information and interaction design
  - Not a visual or graphic designer



A list of the web sites shown here today as examples is available at:

<http://www.idux.com/>

Due to the dynamic and ever-changing nature of the web, the versions of the sites and pages shown here today can and will change (probably by the time you leave this room and start surfing...), and because we are interested in interactivity, a static screenshot is of little value when demonstrating how a web site behaves.

Learn these principles, and you will always be able to find examples (good or bad.)

# What is Interaction Design?

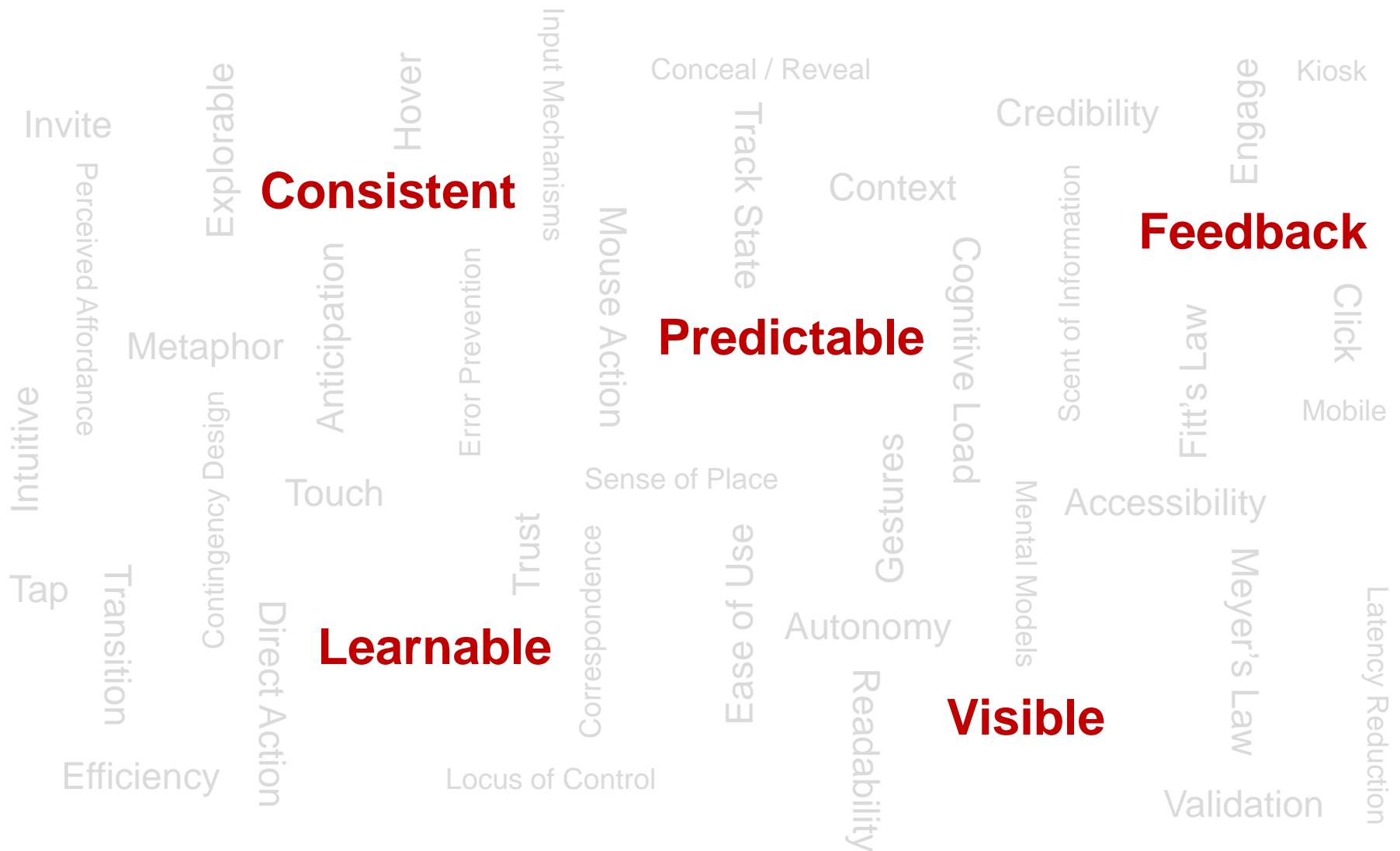


- The Interaction Design Association IXDA says:
  - Interaction Design defines the structure and behavior of interactive systems.
  - Interaction Design strives to create meaningful relationships between people and the products and services that they use, from computers to mobile devices to appliances and beyond.
  - Interaction design is grounded in an understanding of real users (goals, tasks, experiences, needs, and wants) and balances these needs with business goals and technological capabilities.
  - Good interaction design:
    - effectively communicates a system's interactivity and functionality,
    - defines behaviors that communicate a system's responses to user interactions,
    - reveals both simple and complex workflows,
    - informs users about system state changes, and
    - prevents user error.

# What is Interaction Design?



# What is Interaction Design?





## Consistent

*“Do not be different just to be different. Be different when it is better.”*

- People are sensitive to change – differences can be used to draw attention when you want people to shift their focus, but they can also cause distraction.
- When visitors start asking why something is the way it is or why it is different, they are focused on the interface and not on the content or the experience.
  - Components with similar behavior should have a similar appearance.
  - Components with different behavior should have a different appearance.



## Consistent

- Changes in appearance can attract attention. Be detailed oriented with your design, because sloppy design can be distracting (and inattention to detail reduces credibility and trust.)
  - Color and pattern (e.g., file optimization and color shifts)
  - Size, proportion, and rotation (e.g., scaling and skewing)
  - Shape (e.g., rounded corners, glows, and shadows)
  - Alignment (e.g., design with grid and guides)
  - Typography (e.g., font face, size, leading, kerning / tracking)
  - Visibility (e.g., avoid appearing and disappearing elements)





## Consistent

- Behavior
  - Transitions, rollovers, tooltips, and hop-ups should behave consistently.
  - Leverage the visitor's prior experience to make the site or application easier to use.
- Voice
  - Labels and nomenclature should be the same throughout. Different labels lead people to expect different information or outcomes.
  - Content should have a stable and consistent style.
  - Imagery including photos, illustrations, and iconography should have a stable and consistent style.



## Consistent

- Design Patterns (<http://patterntap.com/>)
  - A reusable solution to a recurring problem.
  - The content may change, but the interaction and process remains the same.
  - Interactions and outcomes become consistent (and predictable.)
- Anti-Patterns
  - Commonly used but ineffective or counterproductive (kludge, bloat, cobble, and workaround.)
- Dark Patterns (<http://wiki.darkpatterns.org/>)
  - Intentionally mislead a visitor to perform an action they would not otherwise perform or to make a choice they would not otherwise choose.



## Visible

- You cannot invite interaction and engage visitors with your design if visitors are not aware that the opportunity to interact exists.
  - Hidden interactions decrease usability and efficiency.
  - Do not make your visitors and customers search for interactions when they need to complete a task.
- Discoverability should not involve luck or chance – people should be able to presume, deduce, or infer that an opportunity to interact is available.
- Use content hinting and avoid “false bottoms” when more content and interactivity exists below the fold or beyond the visible space.



## Visible

- Click and Tap
  - People are click-happy - they will attempt interaction with anything that could possibly be clickable or touchable.
  - Standard interface components such as hyperlinks, buttons, thumbnails, and scrollbars are understood to be interactive.
  - Different text color and decoration, 3D and depth, and icons invite interaction.
- Touch and Gestures
  - There is no hover for touch screens.
  - Consider the lefties of the world by making interfaces “reversible.”
  - Do not make people reach over the interface and obstruct their view.



## Visible

- Drag and Drop
  - Indicate what can be dragged.
  - Use ghosting during movement.
  - Indicate where objects can and can not be dropped.
- Open / Close (or Hide / Show)
  - Indicate when more content is available.
  - Use adaptive layouts:
    - Pages and columns change height (or width) in a liquid way.
    - Layers appear above the main page content.



## Visible

- Games and “Easter Eggs” are special situations
  - If visitors know that searching for interactions is part of the experience, then the primary interaction *IS* the search for opportunities to interact.
  - Most games are fun because you do *NOT* know what to do, when to do it, or what will happen next.
  - “Easter Eggs” (hidden features or messages) should not interfere when people are trying to complete a task.
    - <http://www.physics.byu.edu/>
    - The Konami Code (up, up, down, down, left, right, left, right, b, a)



## Learnable

- Interactions should be easy to learn AND easy to remember
  - **Ideally:** use it once, learn it rapidly, and remember it forever.
  - **Practically:** use it a few times, learn it, and hope they remember it for next time.
- “Intuitive” really means “single trial learning.”
- Learning Theory
  - Operant Conditioning (getting a reward/feedback OR punishment/error.)
  - Observational Learning (see someone else model the behavior or see a demo and then imitate it.)



## Learnable

- Learnability is often equated with “ease of use”, but even interfaces that are easy to use may require learning, and the more we use an interface (and the more we learn), the easier it seems.
  - Practice, habits, and automaticity
- People learn behaviors from experiences across the web and devices, and even from real-world places and objects:
  - Transfer of learning - we take our experiences with us.
  - Perceived affordances - when the affordance of real objects are represented metaphorically or analogously in digital form (e.g., buttons with depth look pushable.)
- Take advantage of what people already know.





## Learnable

- Gestures for touch interfaces pose new (old?) challenges:
  - Gestures are “invisible” and leave no trace - it is possible to do something and get a desired result yet not be able to understand or remember what you did (or accidentally interact with unintended touches.)
  - Gestures can be arbitrary:
    - Tap and release, tap and hold, tap and hold long, double-tap, multi-finger tap, tap/hold and drag, single finger drag, multi-finger drag, pinch, stretch, etc.
    - Gestures can be altered or deactivated in defined screen regions, such as swipe moving an image in a window but not moving the page containing the window
    - It can be difficult to demonstrate gestures on-screen
  - People are still learning new forms of gestural interaction - consistency and design patterns are very important.
  - Consult the Human Interface Guidelines for standards to ensure transfer of learning and consistency.



## Learnable





## Predictable

“If you can accurately predict what's going to happen next in an interaction, it's because the action you're taking is understandable, clear, logical, and makes you feel confident.”

- Robert Hoekman, Jr.

- The design should set accurate expectations about what will happen *before* the interaction has occurred.



## Predictable

- If you can drop a person into the depths of a site or application, ask these four questions, and get correct answers to all four, then you have provided a strong sense of place, set the correct expectations, and made it possible for people to accurately predict the outcomes of interactions:
  - Where are you?
  - How might you have arrived here?
  - What can you do here?
  - Where can you go from here?



## Predictable

- People are still click-happy.
  - When they do not *know* what to do or what they *can* do, they will attempt interaction with anything that could possibly be clickable or touchable.
  - When they know what they can do *and* what will happen, they will interact with only what is necessary to complete their task and accomplish their goal.



## Predictable

- Use previews to set expectations and define constraints for new or complex interactions:
  - Show what can be done while the interface loads.
  - Show a high-level view of the structure to provide context (a “map”)
- Labels, instructions, icons, and images can all be used to set expectations about:
  - What to do (touch here!)
  - What will happen (open/close this, drag this over there)
  - Where the visitor will go (foster a sense of place)
  - How the interface will respond (do X and Y will happen)



## Feedback

- Feedback can provide information about:
  - Location (where am I?)
  - Status (what is happening? is it still happening?)
  - Future (via previews) (what will happen?)
  - Closure (outcomes and results) (it has happened.)

## Feedback

- Every action should produce a visible and understandable reaction
  - Acknowledge interactions - let people know they have been heard (or felt or seen.)
  - Failing to acknowledge an interaction can lead to unnecessary repetition of actions and possibly errors or mistakes (e.g., clicking on the **BUY NOW** button multiple times submits multiple orders, and I needed only one pair of these...)







## Feedback

- Do not interrupt the visitor's experience.
  - Feedback should complement the experience, not complicate it.
- Allow undo to reverse choices (and to correct mistakes.)
  - Mistakes are incorrect choices, but they do not always result in errors (e.g., I can accidentally transfer \$1000 instead of \$100 from my bank account, but it's not an error unless I do not have \$1000 to transfer.)
  - Undo can also be used to revert to prior states to recover from a mistake or from an error that may not be understood (just go back and let me try again!)



## Feedback

- Error prevention is the best error handling.
- Error messages should:
  - Describe what happened,
  - Explain why it happened,
  - Suggest how to resolve the error, and
  - Never blame the person.

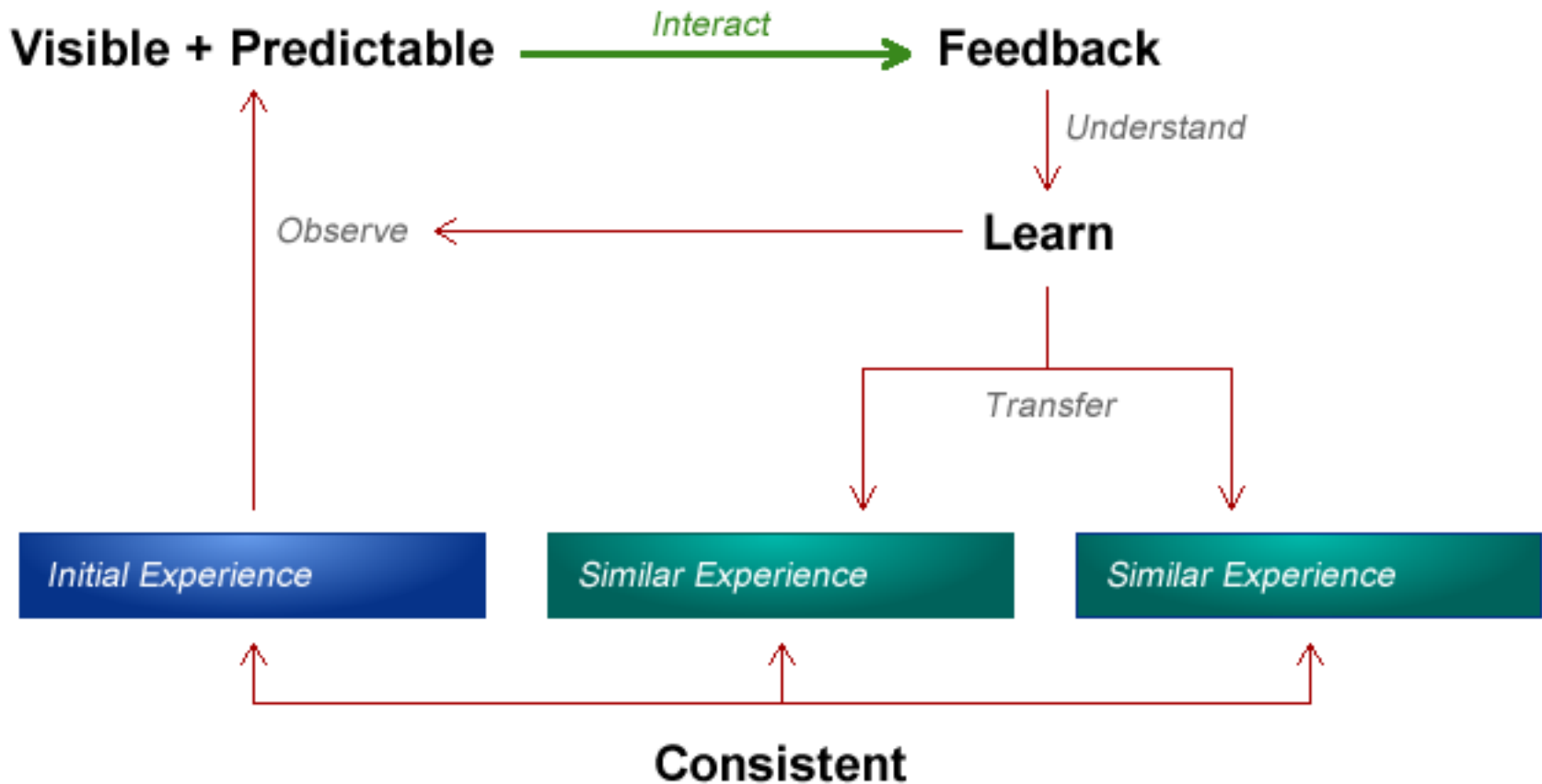


## These Five Factors are Interrelated

1. Visibility of opportunity can invite interaction.
2. When predictions (or expectations) are accurate, the interaction is easier to learn.
3. Feedback facilitates learning.
4. Consistency of design allows application of learned behaviors across similar situations.



## These Five Factors are Interrelated





## The Responsibilities of an Interaction Designer

- You are not designing for yourself.
- Understand the goals and needs for which you are designing.
- Think analytically and critically about the design and the experience.
- Never hinder, obstruct, or interfere with the experience.
- Advocate for the visitor yet strive to achieve to the business goals.
- Break everything you design by being your own worst visitor.
  
- And again: You are not designing for yourself.



## Questions?

This has been a very brief introduction. What else would you like to discuss?



## Thank You!

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CONNECT. DISCOVER. INSPIRE.

