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## Final Project Write Up

**Miller's Law** states that the average person keeps around 7 (plus or minus 2) items in their **working memory**. Working memory is the temporary amount of information we hold in our brains that is ready for use. We took advantage of this law in our project by including only 6 steps for our instructions. This number of instructions fits within what said law states.

**Chunking** is dividing large pieces of information into smaller groups, which makes it easier for our **Intrinsic Cognitive Load** to process. Intrinsic Cognitive Load is the mental effort used in the working memory to deal with essential information. We took Intrinsic Cognitive Load into consideration by chunking our directions into steps that are easy to digest. This decision will lessen the amount of cognitive effort users will need to use.

**The Von Restorff Effect** is that when multiple similar items are present, the one that is visually different is remembered more. We took this effect into consideration by highlighting the important words in our steps. By making them visually different from the normal body text, the user is more likely to remember it.

The **Zeigarnik Effect** states that unfinished or interrupted tasks are remembered more than finished tasks. We considered this effect in our project by including a progress indicator on each page of our steps. Progress bars or indicators can help motivate users to continue doing a task by making them aware of how far away they are from their goal.

The **Serial Position Effect** states that users tend to remember items at the beginning and at the end of a list. We took advantage of this effect by having a complete list of our steps before the tutorial and after the tutorial. Placing the steps at the beginning and at the end makes the information more likely to be transferred over to the long-term memory, where the information is more likely to be recalled.

The **Law of Proximity** states that items that are closer together are often considered to be a group. We took advantage of this law by placing our progress indicator circles close to each other and letting them be perceived as a group.

**Tesler's Law** states that for any system there is an inherent amount of complexity that cannot be reduced and will need to be dealt with, either by the developer or the user. To take Tesler's Law into consideration, we applied chunking to break down our information into smaller steps that are easier for the user to understand.

**Fitts's Law** states that the time we take to reach a target is related to the distance to and the size of the target. We took this law into consideration by making the two tutorial buttons on our home page big, so users have more clickable area and don't need to be precise.

**Hick's Law** states that when more complex and plentiful options are available to a user, the decision-making process lengthens. We applied this law by giving users only two buttons on the home page, and a navigation bar that has the same options as the two buttons. This will shorten the decision-making process time for users.

**Jakob's Law** states that users prefer each website to work and look the same way as all the other sites they know. We applied Jakob's Law by making our tutorial follow the current website conventions. The horizontal navigation bar is at the top of the screen, we have arrows to indicate paging on the side of the tutorial, and the body is filled with the tutorial information. By modeling our tutorial after current website conventions, we have allowed users to recall this prior knowledge from their long-term memory. **Long-term memory** takes in information from the short-term memory, and proceeds to store that information in the subconscious, where there is no limited capacity, creating lasting memories.

The **Coherence Principle** states that people learn best when distracting, extraneous materials are removed. We applied the coherence principle by including only necessary words and graphics for learning the tutorial. In doing so, we removed unnecessary information that helped reduce **Extraneous Cognitive Load**. Extraneous Cognitive Load refers to the mental effort that occurs when trying to process information while other unrelated factors are included or occurring. We considered extraneous cognitive load by not including unnecessary or distracting elements to our interface or steps.

The **Signaling Principle** states that users learn/understand best when there are cues informing the user on how the site's information is organized. Our table of contents and our header provide cues on how our site is organized, which will make the content easier for users to understand.

The **Multimedia Principle** states that people learn better when words and pictures accompany each other, rather than just words alone. We followed this principle by having an explanative graphic on each step, where the graphic conveys the same information as the text. Having graphics and words together aids users' **Germane Cognitive Load**. Germane Cognitive Load refers to the mental effort used in the working memory to process non-essential but helpful information. By having both graphics and text, and not just text itself, the user can understand and process the information better.

The **Spatial Contiguity Principle** states that people learn better when related words and pictures are shown closer together instead of farther from each other on a screen. We followed this principle by formatting our visual cues, such as "Click" onto the graphics, making it easier for users to process.