**1. Introduction**

In Chapter 1 and 2, there are 7 main concepts proposed and discussed. The criteria for me to assess the first 6 concepts as main concepts is based on their occurrences: all these concepts are being analyzed individually and being used to elicit other opinions in both chapters. Concepts 7 is the main concept because it is the guidelines and factual basis of design principles, which is connected to concepts 1-6. For each main concept, I will explain the definition, discuss its application, and analyze the importance. The order of concepts is by order of their appearances.

**2. Concepts**

1. Discoverability

(a) The definition of discoverability is the possibility of figuring out what actions can be performed on a product, as well as where and how(Norman, 2013, p. 3, p. 72). It is the first characteristic that appears in the book that defines good design in chapter one, and it is also the result of applying concepts 2-6 properly. (b) If designers are working on a website design, they can perform an discoverability evaluation process to apply this concept to the website. For example, let some testers write down all elements they can find, interact and their interaction methods. Then compare to the original design and see if they are the same as design intention and if there are any missing components or unexpected behaviors. (c) This concept is important because it determines how users will use the product. For example, if a glass door with nothing on it, users may push, pull or move it. Any wrong movements may not open the door, or even cause damage, which is unacceptable.

1. Affordances

(a) Affordances describe a relationship between a physical object’s properties and user’s cognition that how that object could be used(Norman, 2013, p. 11, p. 72), what actions are possible(Norman, 2013, p. 14). (b) For example, when designing a website, create a single button for the login feature instead of placing two buttons separately: one for submit username, one for submit password. The unique button clearly indicates its function and behavior. (c) If there are two or even more buttons for the login feature, it will cause confusion for users and increase the probabilities of wrong operations, questions like “In what order should I press the button?”, “What If I press this button first?”... The lack of affordance will increase operational complexity and easily cause misunderstanding, that's why affordance is important.

1. Signifiers

(a) Signifiers have a close relationship with affordance, when affordance or anti-affordance cannot be perceived, signifiers are required. Signifiers use mark, sound or other perceivable indicator to communicate and tell where actions should happen(Norman, 2013, p. 14, p. 72). (b) To apply signifiers concept in website design situations, designers can initiate an evaluation process on all components that are designed to interact with users, to see if any of them lack instructions that may result in unexpected user behavior. For example, to check if there are proper instructions of a list of <select> tags in an html page. (c) Similarly, a list of <select> tags may cause confusion about single choice or multiple choice. In this case, proper signifiers are important to guide users to make the right moves.

1. Mappings

(a) Mapping refers to the relationship between two sets of things, how control behaviors on one set affect the other set(Norman, 2013, p. 21, p. 72). (b) In website design situations, designers can apply mappings concept by creating a mapping list. For example, there is a requirement for the dark mode feature: designers can create a mapping list to show which button controls which component’s color. (c) The mappings concept is important because it represents logics and relationships between components in this website design. For example, if a button controls both background color and volume, users will not be able to change volume without changing background color. Therefore, unreasonable or wrong mapping is unacceptable for a good design.

1. Feedback

(a) The feedback is some way that lets users know the system is working because of their behavior, it must be immediate and planned(Norman, 2013, p. 23, p. 72). (b) In technology design, one way to apply feedback concept is to make sure all processes have corresponding status or progress indicators. For example, during the installation of an application, the progress bar should appear after clicking the start button and it should keep updating until installation has finished. (c) The electric kettles often have no change for a period of time after turning on, if there is no feedback mechanism, users have to touch it in order to tell if it is still working or if water is boiled. Neither of these two methods are acceptable due to safety reasons unless feedback is provided. Therefore, it is an important concept in the design field.

1. Conceptual model

(a) The conceptual model is an explanation of all design information of the system and shows how something works in a simplified way(Norman, 2013, p. 25, p. 72). (b) The application of the conceptual model in website or technology fields can be documentation. It tells users how to use the product in a simplified way, such as API documentation. (c) The API is a good example to illustrate the importance of conceptual models: it is complicated so users are not expected to fully understand how it works, and it has numerous interfaces that are hard for users to remember them all. Therefore, documentation, which is an application of conceptual models, is important because it not only provides a simplified way such as instances to help users use API, but also can be accessed easily so they don’t have to memorize everything.

1. Seven Stages of Action

(a) The seven stages of action break down a human's action to seven stages: goal, then plan, specify and perform as execution sequence, and then perceive, interpret and compare as evaluation sequence(Norman, 2013, p. 41). The seven stages of action is the reason and basis of seven fundamental design principles: concepts 1-6 and constraints. (b) This concept help designers understand their design in an organized way, by predicting user’s behavior and make evaluation step by step: “Is this design align with user’s goal”, “Are there enough affordances”, “Are signifiers, mappings, feedback and conceptual models exists and effective”... the concept can be used by linking stages to corresponding concepts and let designers evaluate their design. (c) Without the seven stages of action, designers may focus on concepts randomly. For example, during website design, designers may create many alerts and progress bars to fit feedback concept, but forget to leave space for button movement: it is a failure for discoverability and affordances. Therefore, the seven stages of action is an important and practical guideline for designers to create good design step by step.

**3. Conclusion**

In conclusion, the 7 main concepts in Chapter 1 and 2 are closely related to each other. The discoverability is the result of applying affordances, signifiers, Mappings, feedback, and conceptual model properly. While the seven stages of action are the basis of establishing the seven fundamental design principles, which are the concepts 1-6.

**4. References**

Norman, D. (2013). *The Design of Everyday Things*. [Revised & expanded edition]. Basic Books.