The Garmin Nuvi 750:

What Don Norman Would Consider Good Design

With the rapid advancement of technology, designers have managed to develop devices limited in size but with a remarkable number of functions. This achievement has enhanced the attractiveness and efficiency of many products but at the same time has created the potential to compromise their ease of use (Norman, p. 31). The Garmin Nuvi 750 is a GPS navigator that perfectly demonstrates how a good design can effectively overcome this "paradox of technology" and provide an optimal interaction with users. Particularly, this accomplishment is the consequence of the fact that the Nuvi 750 successfully meets Don Norman's principles of good design*:* affordances, visibility, constraints, conceptual model, mapping and feedback.

As Don Norman states, "the term affordance refers to the perceived and actual properties of the thing […] that determine just how the thing could possibly be used" (Norman, p. 9). In the Nuvi 750, the effective use of affordances can be perceived just by looking at the device without turning it on (figure 1). In fact, the lack of controls on the case (except for the power switch) signals the user that the device's functioning is controlled entirely through the large touch screen positioned at the center of the case. Receiving this signal, the user automatically understands that touching the screen with a finger operates the device.

As the Nuvi 750 is turned on, the perfect integration of the principles of visibility, affordances, and constraints manages to ensure a successful interaction between user and device.

According to Don Norman, visibility is an important principle that enhances the users' understanding of a device by making the controls visible and, most importantly, their implications clear (Norman, p. 22-23). In the Nuvi 750, the visible relationship between controls

and functions is effectively obtained by the use of large and clearly labeled icons, each one corresponding to a specific function. For example, once powered on, the device welcomes the user with a clean main menu screen consisting of two large icons: “Where To?” and “View Map” (figure 2). Besides their self-explanatory labels, these two main buttons are graphically represented by explicative pictures (a magnifying glass and a geographic map, respectively), so that the user can immediately and clearly identify their implications. This concept of making controls visible and graphically explanatory is consistently repeated throughout all the submenus that follow from those first two main icons. Consequently, operating the Nuvi 750 becomes extremely easy because the users can always predict the outcome of every action and most importantly, they are not required to memorize procedures or refer to instructions.

The interaction between user and the icons appearing on the screen is further facilitated by another clever implementation of affordances. In fact, besides their visibility and clear implications, the icons are graphically enriched with a 3D effect. By doing this, not only the 3D icons clearly stands out from the flat background but they also resemble clickable buttons thus providing the user with a visual clue to how the function associated with that icon can be activated.

Another factor that plays a significant role in the good design of the Nuvi 750 is the careful use of constraints. Norman argues that applying physical constraints to the user provides him or her with clues to how the device works (Norman, p. 12-13). In the Nuvi 750, this is demonstrated by the main menu screen where, excluding the two small setting controls (“Volume” and “Tools”), the user is left with only two options: looking at the map or entering a destination (figure 2). The presence of only two icons is a constraint that considerably limits the number of possible actions. Subsequently, If the user wants to input a destination, he or she is

again asked to choose between a limited number of options such as “address,” “intersections,” “go home,” “favorites,” etc. The outcome of each constrained decision leads to a new screen and ultimately, this step-by-step process will guide the user to successfully enter the desired destination into the Nuvi 750. This might appear a lengthy process, but instead it is a perfect implementation of visible controls, affordances and constraints to assist the user needs while minimizing confusion.

Such a visible structure integrated with affordances and constraints provides the user with a very clear conceptual model of the device, or what Norman describes as the model through which the user understands the method of operation of the device (Norman, p. 12 -13). However, the Nuvi’s 750 clear conceptual model is mainly a consequence of the fact that the device is designed to perfectly fit the existing mental model of the users. This can be understood by analyzing the main menu screen once again. In fact, it is meaningful to consider that although the Nuvi 750 can perform a broad range of functions including playing MP3 files, displaying pictures, and converting currencies, the very first screen that is displayed when the device is turned on constraints the user to choose between only two options. The “Where to?” and “View map” icons represent the device’s ultimate and main purpose and, at the same time, mirror the user’s general perception about the fundamental functions that a GPS device should perform, that is, to accept a destination and guide the user to that destination through a map system. In other words, the main menu screen is the device’s focal point where the designer’s conceptual model and the user’s mental model coincide. As a result, the user can easily understand the Nuvi 750’s method of operation just by looking at its main menu screen

Another design principle that was carefully taken into consideration in the design of the Nuvi 750 is mapping. Specifically, I mean what Norman describes as “natural mapping”, that is,

the relationship between two things by “taking advantage of physical analogies and cultural standards” (Norman, p. 23). This principle is particularly evident in the navigation and mapping system of the Nuvi 750. In fact, the map mode is thoughtfully designed to portray images according to the spatial perception of the user. For example, the streets are oriented in the direction being traveled by the driver and they are also depicted in perspective so that the image portrayed on the display is visually associated with the user’s perception of space related to the position of his car (figure 3). This visual analogy facilitates the user’s correct interpretation of the displayed map.

Feedback is another a principle that contributes to the success of the design of the Nuvi 750. This principle consists in using visual and audible signals to allow the user to make sure that he or she is successfully communicating with the device (Norman, p. 27). For example, in the Nuvi 750, a clicking sound is generated every time an icon is tapped on the screen to notify that the function associated with that icon has been activated. Also, the navigation is promptly assisted by a voice guidance that indicates the turn-by-turn driving directions and also alerts the user when he or she is driving the wrong way.

In conclusion, the Garmin Nuvi 750 is a product that despite its multiple functions manages to provide a very easy and understandable conceptual model as a consequence of a cleverly designed main menu screen and a careful use of visible controls, affordances, and constraints. In addition, feedback and mapping optimize the interaction and engagement between the device and the user. The final result is a device that is not only extremely easy to use but also successfully communicates with the user.

Works Cited:

Norman, Don. Excerpt from Don Norman's The Design of Everyday Things.

Figure 1

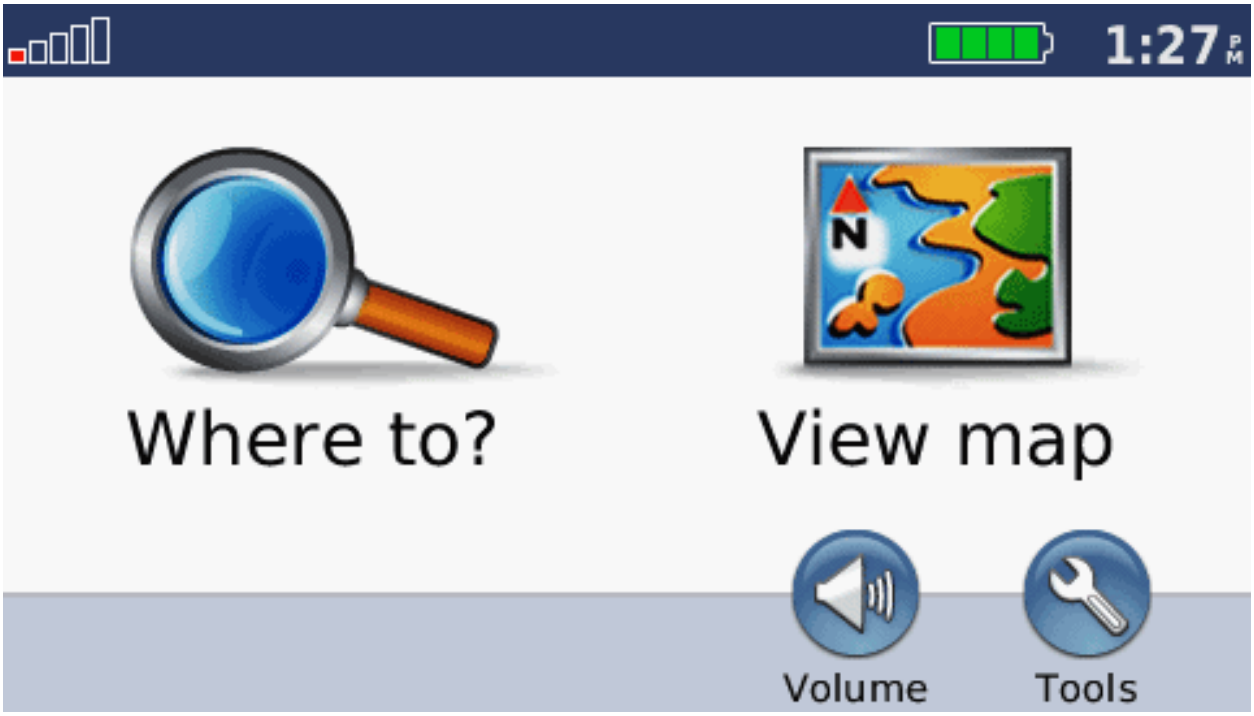

Figure 2

Figure 3

Pictures:
http://www.gpsmagazine.com/2008/02/garmin_nuvi_750_review.php?