Case study: an example of observation research, watching users of digital cameras.

This case study is derived from a research project investigating just how intuitive are the controls on typical digital cameras. The study showed that intuitive use is actually based on previous experience – whether with similar products or with products with similar features and functions. Therefore knowledge of how to use products is transferred by users from one product to another. However, such knowledge transfer is not always appropriate – for, example, remember the differences between operating gas and electric controls.

Figure 12: Front and back views of the digital camera used in the study of intuitive use

The term *intuitive use* has been widely used with respect to various products and systems but has not yet been adequately defined. Through an extensive literature review, it was concluded that intuition is a type of cognitive processing that is often unconscious and utilises stored experiential knowledge (knowledge gained through prior experience). Intuitive use of products involves utilising knowledge gained through other products or experiences.

The test camera (Figure 12) was chosen as it has a mix of features, some of which are unique to this model and others of which should be familiar to some users as they have been employed in other cameras, other digital cameras, and other products. Levels of user expertise were classified as expert, intermediate, novice and naïve with digital cameras, and five people were chosen for each level of expertise. None of the participants had encountered the camera used in the tests before the experiment began.

The participants were asked to complete two operations, each of which consisted of a number of tasks, and that between them involved use of most of the functions and features of the camera.

Operation 1: Use the camera to take a photograph in auto focus mode using the zoom

function.

Operation 2: Find the picture you took. Erase your picture. Search through the other images stored in the camera to find a specified image. Zoom in on the image so that the details become larger.

The participants were asked to try to work out the operations for themselves, as using the manual would mask the use of their past experience. As well as video recording the participants' use of the camera, the experimenter asked participants to think aloud as they performed the tasks.

The time taken by each participant to complete all operations, and the component tasks, was recorded, as well as aspects such as correct, inappropriate and incorrect use of camera features, and the number of uses of each feature that were intuitive. In the coding of the video data, intuitive use was regarded as immediate use of a feature without conscious reasoning, with minimal or no verbalisation.

Immediately after the completion of the operations, a technology familiarity questionnaire was completed by the participant and a structured interview conducted. The technology familiarity questionnaire and the interview were designed to establish whether or not relevant past experience is transferable between contexts. For example, the participants were asked about whether and how often they used common consumer electronic products, and how much of the functionality of those products they used.

The results showed that features that were more familiar were intuitively used more often. For example, the power button showed a high level of familiarity and a high percentage of intuitive uses. The navigate function of the menu also showed a high percentage of intuitive uses and a high level of familiarity. The DISP function, which controls the displays on the LCD screen, showed a very low level of familiarity and a correspondingly low percentage of intuitive uses. Only experts who had used similar digital cameras picked up this function easily.

It was found that prior knowledge of features or functions of the camera allowed participants to use those features intuitively, whereas unfamiliar features or functions had to be figured out, which was more time consuming and effortful. From the results, it can be suggested that prior exposure to products employing similar features helped participants to complete the operations more quickly and intuitively. The camera transfers features from other digital products, so even expert users of digital cameras who had limited experience with other digital products completed the tasks more slowly and effort fully than novices with digital cameras who did have experience with the features employed in the camera from using other products.

These findings suggest that relevant past experience is transferable between products, and probably also between contexts. The participants with relevant past experience with the different features show faster and more intuitive use of those features, so it should be possible to conclude that relevant past experience has contributed to that. Therefore, including familiar features and controls in a product, in a way that is easy to follow and is consistent with the user's expectations according to her/his past experience, should support intuitive use of the product.

(Source: Blackler et al, 2003)