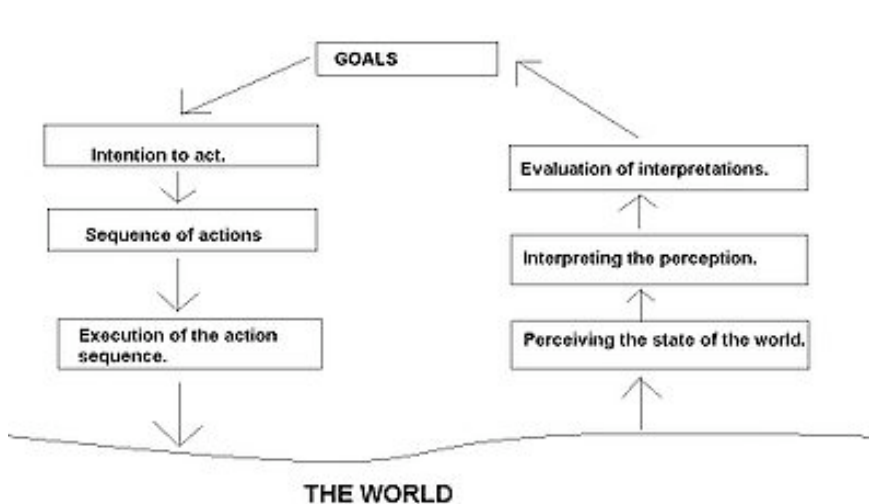# The Human Action Cycle

The human action cycle is a psychological model that was proposed by Donald Norman in his highly-accessible book "The Psychology of Everyday Things" (sometimes abbreviated as "POET"; the book has since been renamed to "The Design of Everyday Things").

This model has become highly influential in the community of developers and researchers concerned with Human-Computer Interaction.

The model sets out to describe the steps humans take when they interact with computer systems. In this sense, it is a descriptive model (i.e., it describes phenomena that have been observed). The model is also often used in analyses that aim to evaluate the efficiency of a user interface (UI). In this sense, the model is used as a predictive model (to predict future outcomes).

The model consists of a cyclical process whereby a human user undergoes successive iterations of goal formation, formulation and execution of actions, and evaluation of outcomes. The model indentifies the human user as having goals and expectations, among other cognitive states. As such, the model can be situated among other models of cognition and action (for example, the "BDI" model that has been used in Artificial Intelligence).

"The human action cycle describes how humans may form goals and then develop a series of steps required to achieve that goal, using the computer system. The user then executes the steps, thus the model includes both cognitive activities and physical activities." [wikipedia description]

The Seven Stages of Action that Form the Human Action Cycle

1. Forming the goal

2. Forming the intention

3. Specifying an action

4. Executing the action

5. Perceiving the state of the world

6. Interpreting the state of the world

7. Evaluating the outcome

The gulf of execution refers to the difference between a user's intentions and the actions that are allowed or permitted by the system. Norman uses the example of a movie projector (the kind that takes a reel of film). A person may wish to set up the projector, but to actually do so requires a long, complex sequence of actions to thread the reel of film, where it is not at all clear what needs to be done without prior training.

The gulf of evaluation refers to the difference between a person's understanding of the state of the system and the actual state of the system (e.g., the difference between the person thinking they have threaded the movie projector correctly and whether the movie projector is actually threaded correctly.

The Seven Stages of Action form the basis of a set of questions that can be posed in analyzing a user interface.

The Seven Stages of Action also form the basis for a set of 4 main principles of good design:-

- **Provide Visibility.** Is the user able to understand the state of the device and the alternatives for action?
- **Provide a Good Conceptual Model.** Does the model of the system have consistency in the presentation of operations and results? Is the view of the system always coherent and consistent?
- **Provide Good mappings.** It is possible to determine the relationships between actions and results, between the controls and their effects, and between the system state and what is visible?
- **Provide Feedback.** Does the user receive full and continuous feedback about the results of the actions?

Norman, D. A. (1988). *The Design of Everyday Things.* New York, Doubleday/Currency Ed. ISBN 0-465-06709-3