Intuitive use or Intuitive explorating of unknown technology?

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Abstract: Within a setting of exploration of unknown technology the notion of intuitive use, where an objective to be attained is needed, is not appropriate. We propose a new concept called intuitive exploring instead for the exploration of computer based arrangements and their possibilities.

1 Preface

The term "intuitive use" covers strategies, which are needed in order to attain objectives or sub-objectives. Within this context "intuitive" means those strategies that are not present to consciousness. Until now, especially in context with the HCI, intuition was mainly thought from the kick-off point of interaction. This reflects the users' practical problem which consists in not knowing what to do within a computerized reality. At the same time it shows the hope to compensate the above mentioned lack of knowledge somehow. However we do not believe that the offer of a hammer, a nail, and a picture frame is enough to put suchlike on the wall. Of course we also can think of situations confronting the acting person (player) with a new kind of (unknown) technology. And since there is no chance to surmount his actual status (of ignorance) by the declaration of an own goal within these cases, it is impossible for the player to reactivate the "arsenal" of strategies for the development and solution of the given constellation. For an intuitive "use" these aforementioned situations are inappropriate. However, at the same time, we recognise also that new technology can be handled not just via "instructions" but through "intuity" as a way to open up activity schemes.

To describe the function of intuition within an exploration setting of unknown technology, where the objective is undefined for the player, instead of the concept of "intuitive use" we suggest the development of a concept called "intuitive exploring".

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2 Intuitive use

Intuitive use is an interaction context, where its strategies to attain declared objectives are no matter of conscious modelling. The term "intuition" is used both for a category of the initial state and for the category of the process itself. Therefore we call "intuition in terms of an initial state" the selection process of strategies, leading on an unconscious level to a defined objective. At the same time our notion of intuition has also to be considered with respect to the selection of strategies for the process of reaching an objective. For the notion of "usage" it is crucial that technical systems are defined as instruments helping to reach these objectives. Therefore we claim that activities and certain interactions within these activities are triggered by initial constellations as well as by objectives. The objectives are forcing unknown elements of the initial situation into a solving structure. This means in terms of intuition that a solving structure is not a question of conscious acting.

Given a banana on a tree, a stick becomes the element to reach for it. Therefore the "intuitive" part is the strategy to extend arms and legs using sticks. Basically we consider those strategies as metaphorical because all activities at a human level are reduced by instinct and based on learned activity knowledge. This knowledge is transferred (μετα φερειν, metà phèrein) from one situation in the past to the (present) new one [Pe08]. Each application of a strategy leads to a somatic marker [Da95] that works like an emotional index [Pe05].

If analogue constellations (objectives within a situation) come up, corresponding (indexed) strategies are brought into play - generally in an unconscious manner. We here imply that – besides the initial status - especially the objectives can help coming up with solving strategies (and the instruments) to reach a goal. That is a clear turn against efforts separating the level of goals and instruments (to reach them) for the pragmatics of an interaction (e.g. in [St86]). We do not deny that such a differentiation could or is making sense in a theoretical context. But we also state that both levels are intertwined in a pragmatic sense. Especially the clarification of problems can help a player to overcome the hurdle of understanding the interaction. Offering an interaction tool within a defined "horizon" enhances the willingness to use present tools intuitively in order to reach the objective.

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3 Intuitive Exploring

For the "open" exploration of computer based arrangements and their possibilities, we follow the old differentiation of appetite behaviour and consumetory action [Cr18] as it is base of all concepts dealing with learning and curiosity. The core of all behavioural actions in connection with curiosity [HO97] on an organismic level is the use of a typal stock of ritualised exploration techniques. This stock is used by the organism to test the value of unknown configurations of stimuli. Hereby, it is tested if a stimulus configuration "triggers" special modules in behaviour. We assume that by humans such a repertoire of exploration procedures is implemented, too. Curiosity can help the player to develop and, as a consequence, reach "intuitively" general objectives. Even if there is no suitable "knowledge" inside the player's mind except the well-regulated (ritualized) patterns of behaviour. The behaviour of curiosity is also a previous knowledge, however in another form as meant by [Mo06].

4 Examples

Here we will present two examples (intuitive/non intuitive) for explanation of the theory and to illustrate the design guidelines.

4.1 Intuitive example: Lamp lib. 1.08

The lamp designed for the work space lib. 1.08 (Figure 1, light in motion, Design Matthias Pinkert, 2008, student at Gestural Interaction Group Dresden) uses LED stripes divided into "light zones" by four metal rings.

Fig. 1: Lamp lib. 1.08

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Moving the rings moves the light accordingly which enables the user to create his individual situation of light. The lamp fixed on thin sticks on top of the desktop is playing with the metaphor of a classic neon tube. As a result the object has a clear semantic recognition. The “flow” of the rings alongside the tube puts two metaphors in redundancy referring to the motor activity of human hands. On one hand the opening of a curtain and on the other hand the sliding of balls on an old adding machine (abacus). The area of light is immediately opened up by the hands leading the ring. Every ring can be radially rotated to control the incidence, the colour, the warmth, and the intensity of light.

(Alternatively but not exemplified: Jabberstamp / 2006-07 / MIT Tangible Media Group)

4.2 Non intuitive example: Remote control for lib 1.08

In 2009 engineering students at UAS Dresden designed a wireless remote control for the lamp lib. 1.08 (see Figure 2). Therefore, the rings were replaced by a remote control with just one turning knob.

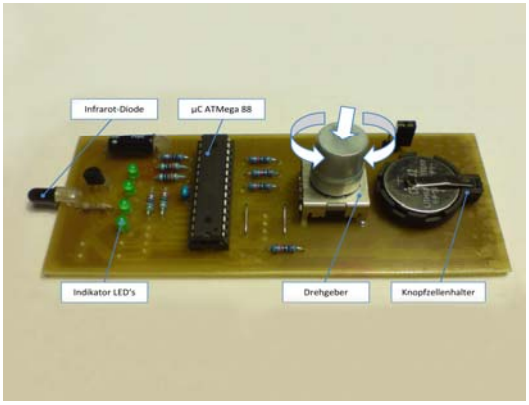

Fig. 2: Remote control for lib. 1.08

Here, the differentiation between the rings is just done via their representation by/through four LED’s that are turned on or off. This version of the lamp has no rings along the tube. Pushing the button you are able to choose one of the four light sections. Each section can be transformed by rotating the button. Thereby, a linear motion is transformed into a circular a metaphor one mainly known for measuring quantities (high/low, bright/dark). The relocation of light in space is unconsidered in this concept. The metaphor of the curtain is also not used for the design of the remote control. There are no evident connections between the motor activity driven demands of the remote and a possible orientation at general electrical navigation sets (turning LED-stripes on /off) on the lamp.

(Alternatively but not exemplified: Music Cube /Bruns Alonso, M., Keyson, D.V. (2005), Music Cube: making digital music tangible, In Proceedings of CHI´05, Portland, USA, S.1176-1179)

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5 Design guidelines for intuitive use (Relevant factors and aspects)

- Buildup of a semantic continuum (a scenario) that supports the integration of the player's objectives. To this end identification, evaluation, and implementation of conventions as well as referring on previous pattern in behaviour.
- Emphasising activity relevant zones in contrast to areas of feedback or monitoring. This supports sequences of activity to design sub-objectives.
- Bypassing rival usage experiences through feedback supported decision making.
- Generation of clear interaction steps - in the sense of an orientation at the objectives.
- Generation of a clear and activity-conform feedback supporting the sequencing whilst allowing the constant comparison to overall objectives.
- Prevention of (probably high) complexity that will lead to negative experiences or sentiment of the user.
- Declared (clear) objectives support an unconscious classification.
- Low complexity is a condition for intuitive use.
- The clearer the design of an interaction the higher the match with the objective.

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