

## Grasped Action: A Dialectic View of Human-Computer Interaction

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**Abstract:** Human-Computer Interaction (HCI) is a discipline concerned with the design, evaluation and implementation of interactive computing systems for human use. Additionally, HCI investigates contextual factors such as the user's social or work environment. Therefore, research focuses on areas such as human information processing, communication and interaction, ergonomics as well as software implementation and evaluation techniques. Current HCI research addresses a broad range of topics such as ambient intelligence, computer mediated communication or accessibility. The ambient intelligence paradigm, for example, envisions a future where "intelligent" computing systems are embedded in objects, surfaces, rooms and places of our environment. The aim is to grant easy and ubiquitous access to interactive services, enabling new modes of embodied and intuitive interaction, including gestures, speech, movement and haptics. The socio-technological complexity and the impacts on individual users as well as on the society require transdisciplinary research. Therefore, work on ambient intelligence as well as generally in HCI is conducted by researchers, engineers and designers with backgrounds in computer science, psychology, sociology or communication science. Even though HCI has both adopted and newly created theories and methods to deal with such problems, some issues remain unsolved and require a broader approach than the above mentioned. One such issue in HCI, which dates back to Lucy Suchman's publication "Plans and Situated Actions", is the conflict whether the user's action in a given situation is derived from a predefined plan or arises spontaneously in a situation. This becomes especially relevant when the user is not confined to a stationary computer anymore but is able to interact in an intelligent environment and/or using mobile devices. Both theories, the planned action as well as the situated action, are the basis for valuable insights in HCI but one theory negates the other one. Our approach is to apply Foundations of Information Science to HCI. According to Wolfgang Hofkirchner's "Unified Theory of Information" we propose a dialectic view of planned and situated action called "grasped action". Grasped action means that action neither solely arises from situation nor plan alone but from both of them. Users infinitely (and unconsciously) develop plans and redevelop and advance them, after they grasp a given situation. This infinite oscillation between plan and situation leads to a progress from the developed to the grasped. The theory of grasped action provides a basis for a unification of the conflicting views of planned and situated action. This new perspective enables us to propose a new building block for a fundamental theory of HCI, alleviating the problems caused by the lack of such a theory until now.