The use of activity theory as a theoretical framework for accommodating cultural factors in human-computer interaction

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Background and context of research

Objectives:
- Development of WBT modules for culturally heterogeneous, but professionally homogeneous user groups
- Integrate cultural adaptation and adaptability in the design to increase acceptance and higher customer satisfaction and loyalty

Methodology

- Participant observation
- Interviews with management, instructors and clients
- Contextual analysis
- Usability testing (expert reviews, end-user tests and focus group discussions)

The Quest for a Theoretical Framework

Requirements:
- Accommodate cultural and social factors
- Recognise the importance of context, community and interaction in HCI studies and eLearning
- Take into account the environment both real and virtual

Overview

1. HCI approaches and the role of culture
2. Activity Theory as an alternative
3. History and main principles
4. The role of culture
5. HCI studies which have applied AT
6. AT as a tool for analysing empirical data (own research)

Theoretical Concepts and Models (1)

in the HCI realm and the role of cultural factors

- Cognitive ergonomics
- Situated Action
- Distributed Cognition
- Activity Theory
Shortcomings of different approaches (1)

- **Cognitive Ergonomics**: focus on the individual; ignores context, community and culture
- **Situated Action**: lack of reference to motives, objectives and models. Too global and microscopic at the same time
- **Distributed Cognition**: v. similar to AT, but not yet put into practice.

Activity Theory (2)

Set of principles that constitute a general conceptual system

Eclectic, dynamic and systemic approach

People are seen as embedded in a socio-cultural context

Interaction of individuals with environment = activity = fundamental unit of analysis

History and principles (3)

- Foundation laid by psychologists in the Soviet Union in the 1920s (e.g. Vygotsky)
- Became known to HCI researchers in the 1980s (e.g. Kaptelinin, Kuutti, Nardi)
- Supports studies in many fields (e.g. educational technology)

History and principles (3)

Tool mediation (e.g. computer technologies and Internet)

Focus shifts from user-computer dyad to user interacting with wider context

Inclusion of communicative and collaborative aspects

The role of culture (4)

- Culture is considered an integral part of the sociocultural context with which people actively interact
- Cognitive approaches lack “ecological validity” (Kaptelinin)
- Concept of breakdown similar to critical incidents in Cultural Standards approach
HCI studies which have applied Activity Theory (5)
- Identify cultural differences and associated usability problems by means of "breakdowns"
- Design of interactive Web-based information systems and user interfaces
- Intercultural usability engineering
- Drafting system requirements
- Analysis of telelearning scenarios
See also collection of articles in *Context and Consciousness* (Nardi 1996)

Activity Theory as an analytical tool (6)
Activity Checklist for evaluation adapted to research context:
Key areas of contextual space:
- Strategies and goals
- Organisational context
- Learning, cognition and interaction
- Transformation and development

Findings regarding cultural factors
- Culture cannot be equated with ethnic or national identity
- Professional background can have high predictive and explanatory value
- Ethnographic methods most appropriate for in-depth understanding of activity
- Difficult to generalise usability requirements → develop adaptive and personalised systems

Themes with intercultural implications esp. for WBT
- Attitudes towards authority
- Group vs. individual focus
- Intellectual style or discourse
- Task vs. relationship focus
- Netiquette