

JOURNAL ANALYSIS ASSIGNMENT

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INTRODUCTION

After quick revising over the list in <http://www.hcibib.org/>, majority of the subjects of articles in the below journal list has taken my attention to learn and search for. Considering their impact factors and latest hot topics in HCI field stated in the site, which is correlated with the presence in the top list in Microsoft Academic Search^[8] according to field ratings, I decided to pick HCI, UMUAI and TOCHI.




Journal Name	Publisher	Volume	# of Issues	# of Articles
Human-Computer Interaction ^[4]	 Taylor & Francis Taylor & Francis Group	28	6	16
User Modeling and User-Adapted Interaction ^[10]	 Springer	23	4	12
Transactions on Computer-Human Interaction ^[7]		20	4	26

TABLE 1- LIST OF JOURNALS USED IN ANALYSIS

1

RESEARCH TOPICS

According to the distribution of the research topics of the articles we can say that social web, including personalization of social data, social tagging, recommender systems and user & community modeling sub topics, is the hit topic among these 3 journals. Embodied interaction, including embodied cognition and movement-based interaction sub-topics takes second place.

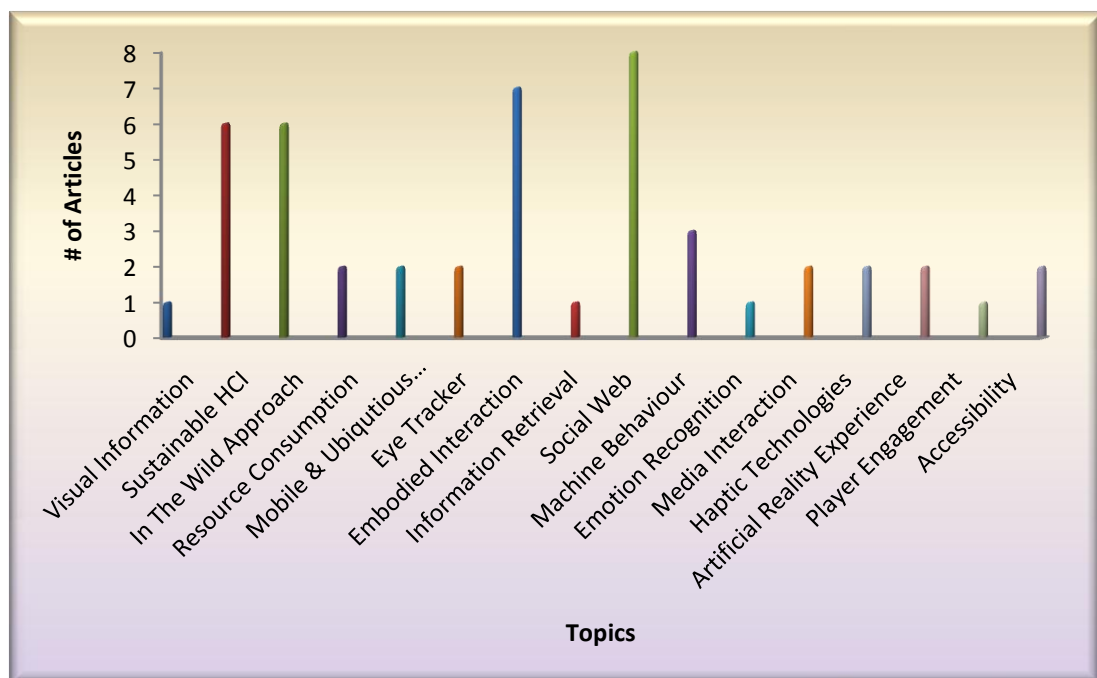


TABLE 2- RESEARCH TOPIC DISTRIBUTION AMONG ARTICLES IN 3 JOURNALS

METHODOLOGIES

For the implementation, data gathering of evaluation stages in the articles, different methodologies are used. The prominent method among the articles in 3 journals is experimental. In most of these articles the cognitive and embodiment features in HCI processes are studied, the experiments constructed by laboratory equipment or software frameworks are conducted on users. Especially in social web studies, quantitative and qualitative approaches are used for data gathering, analyzing and evaluating.

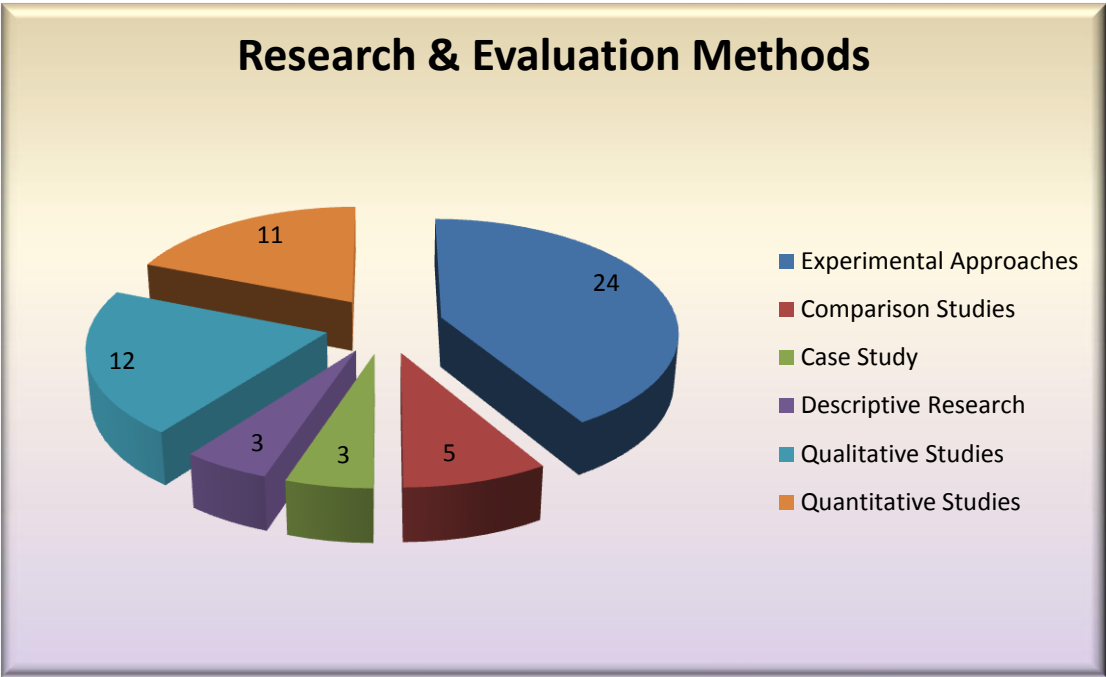


TABLE 3- RESEARCH METHOD DISTRIBUTION AMONG ARTICLES IN 3 JOURNALS

FUTURE STUDIES

For the most studies topics, the possible concerns and future works are listed below.

Social Web

- *Privacy of Personalized Data:* Collection and processing of personalized data can be more user controlled.
- *Social Adaptive System:* User generated content and user's social networking activities can lead more accurate user models which are result in more efficient recommendation systems.
- *Utilization of Tagging System:* Improved semantic analysis can lead more efficient knowledge tracing which is result in more efficient recommendation systems.
- *Cross-system and cross-domain personalization:* In the implementation of data crawling some privacy concerns can be arisen. On the other hand, automatic data extraction can be extended and associated with location and time information to model groups or communities.
- *Individual recommendation to community recommendation:* In the transaction (or incorporation) of traditional collaborative filtering based algorithms to social tagging method,

the stability in the information state change of the community system can be investigated. Graph-based methods can be reliable on the future studies.

- *Multilingual Web*: In the personalization and recommendation process, multilingual support should be introduced to gain cultural background and interest information related to user.

Embodied Interaction

- *Tangible computing era*: In the process of interacting with tangible objects, embodied cognition leads users to perform actions better.
- *Haptic systems*: So called “haptic chair” which is designed to get music sound vibrations as an input to improve the musical experience of hair-impaired users. However one drawback of this system is that it does not enable to experience lyrics of the music. It is suggested that to enable this Amplitude Modulated ultrasound can be used. So the differentiate between music and speech can be a challenge for transferring to haptic systems.
- *Embodied Interaction Environment*: The environmental factors are as important as embodiment on the body for improving commitment and engagement in multimodal communication especially for remote users.
- *Body Movement-Player Engagement Relation*: Besides of sensory setup, body movements-command perception failure feedbacks, the personality, age, culture of the players should be considered evaluating engagement.

3

SIMILARITIES & DIFFERENCES BETWEEN JOURNALS

The similarity between UMUI and TOCHI: In terms of topics studied, both UMUI and TOCHI have compact and unique stands among their issues.

The differences between UMUI and TOCHI: The articles in UMUI mainly about social web and data mining, on the other hand the articles in TOCHI focus on embodied interaction and “in the wild” approach studies. Similarly, their methodologies are different in accordance with their research topics. While UMUI articles use broadly qualitative and quantitative studies, TOCHI articles use much more experimental and case study approaches in their studies. Lastly while UMUI researchers use lab environment, TOCHI researches use project based experiments out of the lab, “in the wild”, which is more practice-oriented.

All aside, the cover of HCI journal topics and the methodologies used are variable. Some reason can be that the number of articles in each issue is lower than the others. So the focus on the subjects is changing quickly. Therefore, there is no obvious comparison criterion for this journal with the others. The good thing about this journal is that because it switches topic to topic quickly among less number of issues, more broaden knowledge about the HCI issues can be covered.

GAINED INSIGHTS

Knowledge Tracing: “The knowledge required to master a domain, and, from traces of online user behavior, diagnosing user knowledge states as a profile over those elements.”(Pirolli, 2013, p. 139). [\[6\]](#)

Latent Dirichlet Allocation & Topic Models: Documents exhibit multiple topics. [\[9\]](#)

Collaborative Filtering: “Collaborative filtering is a method of making automatic predictions (filtering) about the interests of a user by collecting preferences or taste information from many users (collaborating). The underlying assumption of the collaborative filtering approach is that if a person A has the same opinion as a person B on an issue, A is more likely to have B's opinion on a different issue

x than to have the opinion on x of a person chosen randomly. These predictions are specific to the user, but use information gleaned from many users”.^[2]

Cross System & Cross Domain (recommendation): Cross system recommendation means aggregating profile information on different platforms (by using Google Social Graph Api – which no longer exists) to enhance the change of successful recommendation. Cross Domain recommendation means giving recommendation according to the multi domain information of one single profile (i.e., could we use information about music favorites for receiving movie recommendation, etc.) (Brusilovsky and Chin, 2013, p. 86).^[1]

Anonymous Personalization: User’s personal data should not be logged in server side with other retrieved data (Ghorab *et al.*, 2013, p. 389).^[3]

Multimodal Interaction: Interaction with a system that support multiple modalities like visual modality (keyboard, mouse) and speech modality (speech recognition) at the same time.^[5]

REFERENCES

^[1] Brusilovsky, P., Chin, D.N. *Preface to the Special Issue on Personalization in Social Web systems*. User Model User-Adap Inter (2013) 23:83–87.

^[2] [Collaborative Filtering](#)

^[3] Ghorab, M. R., Zhou, D., O’Connor, A. and Wade, V. *Personalized Information Retrieval: survey and classification*. User Model User-Adap Inter (2013) 23:381–443.

^[4] Human–Computer Interaction, 2013, 28:1-6

^[5] [Multimodal Communication](#)

^[6] Pirolli, P. *A Knowledge Tracing model of Learning from a Social Tagging System*. User Model User-Adap Inter (2013) 23:139–168.

^[7] Transactions on Computer-Human Interaction, 2013, 20:1-4

^[8] [Top Journals In Human-Computer Interaction by Microsoft Academic Search](#)

^[9] [Topic Models, Machine Learning Summer School, Cambridge](#)

^[10] User Modeling and User-Adapted Interaction, 2013, 23:1-4