Three Waves of HCI[1]

Initiated by Bødker [1], the three waves of HCI captured and presented the challenges faced by HCI in the past three decades. Harrison, Tatar [9] postulated an almost similar idea in categorizing the development of HCI into 3 stages. Bødker [1] referred to it as three waves of HCI while Harrison (2007) referred to it as three paradigms of HCI development based on the phenomenological matrix they created. These prove that Bødker [1] was not alone in this effort and both studies capture an almost similar time‑ frame of the HCI development.

Referring to the history of HCI publications, Bødker [1] conjectured the challenges in HCI research which the HCI community has broadened intellectually from its root in engineering research to cognitive science, sociological studies, emotional design as well as social participatory research. It provides appropriate timeline for the quest of mapping the landscape development of personas in this research.

According to Bødker [2], we are currently 10 years beyond the third wave of HCI when she first introduced it in 2006. She established the three waves timeframe: first wave - from the early years of HCI to 1992, second wave – 1992 to 2006 and third wave – 2006 and beyond. The transition of first wave to second wave was discussed by Liam Bannon [10] in his milestone paper *From Human Factors to Human Actor*. The first wave was geared towards cognitive science and human factors. It was model driven and focused on the human being as a subject of rigid research with formal guidelines and systematic texting, and most of the studies were conducted in a closed scientific lab setting.

Bannon [10] observed there was a significant change in the second wave as there was a transition from *human factor to human actor* in the HCI research. User studies were carried out from the confined scientific labs to the real-life environment as anthropology, ethnographic research approaches were adopted. Concept of context became important. This signified the beginning of UCD. Theories and research approaches from non-computer science disciplines were applied. Proactive methods, such as a variety of participatory design, prototyping and contextual inquiries, started to emerge in this wave [2, 11].

In the third wave, we observed the flourishing of consumer technology, integration of multiple devices such as desktop, laptop, iPad and mobile. Multiple user experience based situations become apparent when the devices were used in different environment. Ubiquitous computing (or "ubicomp") thrived whereby computing is made to appear anytime and everywhere [2]. Research in the third wave challenged the value related to the second wave and embraced experience and meaning-making [12]. User created content,

common artifact and shared artifact coursed the boundary between user and designer becomes fuzzy in the realm of social network service (SNS). Scopes of proac- tive methods such as participatory design as well as the argument of the ability of such method from existing practices to the need of emergent use were broadened.

[1]Goh, C. H., Kulathuramaiyer, N., & Zaman, T. (2017). *Riding Waves of Change: A Review of Personas Research Landscape Based on the Three Waves of HCI.* Paper presented at the International Conference on Social Implications of Computers in Developing Countries (pp. 605-616). Springer International Publishing Switzerland