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Overcoming Tensions in Collaborative Development Activities within Immersive Environments

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Overcoming Tensions in Collaborative Development Activities within Immersive Environments

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Abstract

Evolving from their hedonic roots as systems of play, open cultural virtual worlds (e.g. Second Life) are increasingly recognized for their utilitarian and economic value. Virtual worlds provide a shared, immersive and persistent online environment in which individuals, organizations and communities may collaborate to develop rich, interactive virtual goods. Virtual goods hold both instrumental and symbolic value, acting as mechanisms for enabling self-expression, increasing capability and utility, generating income, fostering relationships amongst users, and enabling the creation of virtual "places", thus facilitating further user activity. While the technologically enabled collaborative development of digital artifacts within both virtual communities (e.g. open source software) and virtual teams (e.g. distributed software development) have emerged as significant research topics in the IS discipline, collaborative development activities in immersive environments such as virtual worlds are underresearched to date. Specifically, we lack an understanding of how individuals and groups overcome the context specific tensions that arise from collaboration in such environments. To address this gap in our knowledge, the objective of our study is to identify the key tensions that emerge in such activities, and to explore how these tensions are resolved.

Keywords: Virtual Worlds, Collaborative Development, Activity Theory

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OVERCOMING TENSIONS IN COLLABORATIVE DEVELOPMENT ACTIVITIES WITHIN IMMERSIVE ENVIRONMENTS

Abstract

Evolving from their hedonic roots as systems of play, open cultural virtual worlds (e.g. Second Life) are increasingly recognized for their utilitarian and economic value. Virtual worlds provide a shared, immersive and persistent online environment in which individuals, organizations and communities may collaborate to develop rich, interactive virtual goods. Virtual goods hold both instrumental and symbolic value, acting as mechanisms for enabling self-expression, increasing capability and utility, generating income, fostering relationships amongst users, and enabling the creation of virtual 'places', thus facilitating further user activity. While the technologically enabled collaborative development of digital artifacts within both virtual communities (e.g. open source software) and virtual teams (e.g. distributed software development) have emerged as significant research topics in the IS discipline, collaborative development activities in immersive environments such as virtual worlds are under-researched to date. Specifically, we lack an understanding of how individuals and groups overcome the context specific tensions that arise from collaboration in such environments. To address this gap in our knowledge, the objective of our study is to identify the key tensions that emerge in such activities, and to explore how these tensions are resolved.

Our study utilizes a two phase, mixed method approach, applying Activity Theory as our primary theoretical lens. Activity Theory conceptualizes activity as an ensemble of multiple systematically interacting components, and is effective for highlighting associated tensions and developments, thus avoiding simple, static descriptions of phenomena. Recognized for its ethnographic-like emphasis, the theory lends itself to the investigation of socially contextualized units of analysis such as communities of practice, allowing researchers to account for the social and collaborative nature of activities. Phase one of the study uses Activity Theory to analyze data gathered through virtual ethnographic methods, to study the collaborative development of virtual goods in one immersive virtual world - Second Life. This phase focuses on diverse communities of practice within Second Life in order to help understand various approaches to collaborative development activities. Phase two builds on the understanding gained from the initial phase by studying discourse and group interaction within a controlled field setting.

The findings of the study reveal (I) the complimentary and diverging practices utilized by collaborating developers, (II) the mediating function of various tools, rules, and work roles in collaborative development activities, (iii) underlying tensions such as facilitating shared cognitive designs and overcoming exchange and production issues, as well as (iv) the manner in which users overcome such tensions. The analysis reveals that by extending and enhancing the technological environment in which their activities take place, users create and implement virtual development tools as well as supplementing (and indeed integrating) in-world contexts and tools with external information and communication technologies such as traditional websites and collaborative tools. Furthermore, managing the distribution of roles and responsibilities (labor division) amongst users in addition to coordinating

and safeguarding exchanges between users via socio-cultural rules are key to facilitating collaboration and development activities. We conclude that these user strategies both facilitate and potentially complicate collaborative development activities in immersive environments.

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