



INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI
SHORT ABSTRACT OF THESIS

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SHORT ABSTRACT

With the rise of Rural- Business Process Outsourcing (Rural-BPOs) in India, employment opportunities as data entry operators have increased greatly for the rural / village youth. However, it is a challenging task for rural-BPOs working in a developing country like India to maintain expected high quality during data entry. One of the reason of extra effort is lower usability factor of software employed for data entry. There is also lack of expertise in designing user interfaces for such data entry software, especially failing to address localized field constraints that can, if incorporated, ensure high quality of transcription with low rate of errors. There may be cultural issues / challenges like differences between local spoken language and input language (English) by data entry operators working at rural-BPOs. Therefore, to address the above challenges we have conceived, prototyped and developed *ELIIDE* - tool after studying existing literature, data collection and considering usability aspects of rural-BPOs. *ELIIDE*- tool is supported with intelligent features like- (i) display of autocomplete suggestion for text field by ranking strategy based on likelihood, (ii) predictive text entry widget, (iii) radio button with most likely options and (iv) dynamic drop-down split-menu. The interface uses local *Marathi* language to communicate with user / operator. The communication happens in terms of error and feedback messages. The experiments were conducted to compare two user interfaces, one of them newly designed interface (*ELIIDE*- tool) and second - the existing user interface used currently by the rural operators. The participants included 224 professionals (rural-BPO operators and polytechnic students training to become BPO operators) who volunteered for the study. Results highlight there is significant difference between intelligent user interface and existing user interface in terms of errors, speed and time. It has also been observed that *ELIIDE* tool can positively affect operators subjective experience. Therefore, we conclude that, intelligent user interface design features do affect the operator's performance in terms of improved accuracy and speed with decrease in operators' cognitive load which increases system usability and enhances user satisfaction. This is attributable to the intelligent features incorporated in *ELIIDE* interface such as dynamic, predictive, and adaptive. It is also attributable to the incorporation of user specific features related to local language and error prompting capabilities specific to errors made by rural operators. Further it is inferred by feedback that users are willing to continue using this *ELIIDE* interface for data entry. The thesis argues for incorporating user specific prompting local features that intelligently cater to the group's error patterns over general prompts that user software normally provides. It posits that local language prompts with voice over are more acceptable to rural operators as compared to screen based visual prompts alone.