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Japan Advanced Institute of Science and Technology

Abstract

  Services are required to meet diverse needs in rapidly changing market conditions. The same issue occurs on peer support services for diabetic patients. The peer support services among diabetic patients have functions of improving their psychological aspects. Psychological concerns, burdens and the other psychological problems often prevent the diabetic patients from carrying out their diabetic self-management for keeping their blood sugar level. One of the problems of the existing peer support services is that the services don't suit enough to patients' various lifestyles, individual values, social needs and the others which change by time. The focus of discussion is how to tailor services to such various conditions and environments. The standardized psychological functions are already proposed in order to adaptively design the contents of the services. On the other hand, it is also important to understand the different types of psychological functions which can be applied to diverse types of patients and various contexts.

  The question is how to reveal the various psychological functions. One of the approaches is an incremental approach by improving psychological functions with practice through collaborations with patients and medical professionals. The steps of the incremental approach are assuming the typical psychological functions, designing services of the peer support services, observing the services and revising the assumed psychological functions. The issue of the approach is that the psychological functions are too abstract to share and represent the psychological functions. This ambiguity of the psychological functions results in the inconsistency of the incremental processes. Same understanding of such invisible functions is not able to be built among designers. Accordingly, it failed to discuss and revise the idea of psychological functions without even notice. Since the concepts of the psychological functions depend on the person, the written psychological functions are not always understood in a same way. A method of the representation is required for a clearer representation of the psychological functions. One of the reasons why the psychological functions have remained unclear is that the concepts of the psychological supports are not well defined. Therefore, the conceptual definition of the psychological functions is necessary to represent the psychological functions.

  The purpose of this research is to define the concepts of the psychological functions and verify how the definition contributes to the incremental design process of revising the psychological functions with practice. Ontology is adapted to define the concepts of the psychological functions. An issue of defining concepts is that there is almost neither a single model of the concepts everyone agrees with, nor obvious criteria to define the concepts of the psychological functions. The theory and the method of conceptual definitions are discussed in ontology engineering. The concepts of the service functions are proposed based on the theory. The design process is divided into four steps; modeling psychological functions based on previous research, designing the services, offering the services, and evaluating and accumulating the opinions. In this research, online peer support services are designed, and the defined psychological functions are adapted to the four steps.

  As the result, the contributions of the definition of the psychological function to the process of revising psychological functions are confirmed. (1) The contribution on modeling psychological functions is that the conceptual definitions show the viewpoints to see psychological functions and that the viewpoints clarify what the each previous finding mentions. The clarification enables unified comprehension of the psychological functions based on various findings concerning psychological functions. (2) The contributions on designing services are 3: expressing implicit purposes of the online systems of the peer support services, representing reasons why the systems are changed, and keeping the consistency of the design of the functions. (3) The contributions on offering the services are 2: The first contribution is improving accuracy of sharing psychological functions with users. The definitions of the psychological functions play the role of checking items of consistency between the psychological functions and explanations of the psychological functions. The second contribution is making sure whether the psychological functions have correctly been understood by patients or not. (4) The contributions on evaluating and accumulating the opinions are 5: discriminating adequate opinions from opinions which are inconsistent with the constructed functions, differentiating between discussions on psychological effect and discussions on actions to cause the psychological effects, representing and recording the detail of targeting patients that psychological functions are supposed to be adapted to, evaluating and expressing intended communication among patients, and distinguishing the opinions on the psychological supports themselves from opinions on the way to promote the support. In conclusion, these results suggest that the conceptual definition contributes to the process of revising psychological functions of the peer support services for diabetic patients.

Keywords: Service design, Psychological support, Peer support, Diabetic self-management, Ontology.