Development of a Know-how Information Sharing System for Care Planning Processes

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Abstract

The purpose of this study is the establishment of a method and the development of a support system for educating personnel involved in care management by computer. We propose a system in which know-how information can be shared. We consider that visualizing and showing care plans drawn up by experts in various forms allows a beginner to see the differences between a novice plan and an expert plan. Sharing know-how information is possible by recording, accumulating, and giving titles to what has been noticed by comparing documents. This system can visualize the similarities among documents that interpreted the results of an assessment and can flexibly change viewpoints. Additionally, it can map a user’s and another beginner’s new document into a two-dimensional document space. Through evaluations by experts in nursing and caring, we confirmed that this system could be educational.

1. Introduction

The know-how information for determining which care needs are most important for improvement in the quality of health care is an important factor. We propose using a know-how information sharing system as the method of care manager training and aim to develop a know-how information sharing system. We define know-how information as information that shows the strength of that relevance among assessment items. A document is mixed with general knowledge and specific knowledge. We consider specific knowledge to be know-how information.

In this paper, we describe the method of know-how information sharing and the result of having this system evaluated by experts. We confirmed that this system could have an educational support effect.

2. The method of know-how information sharing

The method for separating general knowledge and specific knowledge involves creating differences between a beginner’s and an expert’s documents using repetitions that involve things such as operations, classifying the document for every viewpoint change using a concept-base, and visualizing and presenting the results. Furthermore, our method uses a KOMI (Kanai Original Modern Instrument) chart, a “graphical recording sheet,” that represents the origins of a document. That is, both qualitative data (the document) and quantitative data (the KOMI chart) are shown, and differences are highlighted by fusing both data sets. We believe that these differences create a trigger for separation. Sharing know-how information is possible by recording, accumulating, and giving titles to difference has been noticed by comparing documents [1].

3. Scene of actual system use

The upper left of Fig. 1 shows the results of having added the new case to the two-dimensional space based on the similarities among all documents for 78 cases. It’s possible to display the chart of a case that is near a new case, as in the upper right of Fig. 1. Using this function, by looking at the original chart, a user can understand why the new document has been mapped into that particular position. When a user compares an expert’s chart with his/her own chart, the similarities and differences are clearly visible. If the user’s chart is similar, it is appropriate, and if it differs, the user will try to determine why and not only the chart but also the general information about a client’s life is seen and judged. And the user can make the necessary adjustment in order to improve his/her document through such work. Finally, the user records, accumulates, and gives a title to what has been noticed.
4. Evaluation

We conducted an evaluation by experts in nursing and caring to ensure that this system has an educational support effect before using it in a hospital. Eight nurses and two care-givers evaluated the system. Three of them are teachers at a university and school of nursing. The following comments were obtained in interviews with these experts.

(1) The extraction of know-how information
   If what the beginner has noticed is written in dutifully, know-how information can be extracted.

(2) Sharing of know-how information
   Sharing of know-how information creates new awareness in a user.

(3) Educational support
   Usually, although the document is drawn up from the result of an assessment, in this system, improving the result of an assessment has an educational effect from the classification result of the document.

   It is useful for initial education.

   From these experts’ comments, we concluded that this system could provide educational support in initial education.

5. Conclusion and future works

We have developed a know-how information sharing system for the care planning process. As a method, we decided to assist a beginner in noticing weaknesses in their care plans by visualizing and showing care plans drawn up by experts in various forms. As functions, the similarities between documents, which interpreted the assessment results, are visualized as are the results that compare similarities using a flexible changing viewpoint. In order to promote user awareness, this system can map a user’s new document and another beginner’s document into a two-dimensional document space.

From evaluation by experts, we confirmed that this system could provide educational support. As future works, we will experiment to evaluate the effectiveness of the system in hospitals and nursing colleges. Improvement in individual ability and the activation of the organization will be evaluated through this experiment.

6. References


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