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Extenics-Based Study on Evaluation of Urban Community Home-care Service for the Elderly

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Abstract

This paper tries to introduce extenics theory into the evaluation of the urban community home-care service for the elderly. The paper analyzes the feasibility of using extenics to evaluate the service, uses analytic hierarchy process to decide the weight of index and constructs a comprehensive evaluation model for the service on the basis of extenics. Based on the case study of communities in Ningbo, the paper has completed the evaluation of home-care service in operation and put forward countermeasures to the existing problems.

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Home-care is a favorite choice for most senior citizens. With the development of home-care service, it becomes an important research subject to evaluate the service in the expectation of perfecting it. This paper introduces the extenics evaluation method into the evaluation of the home-care service in the hope that it can provide some reference for the community development and bettering the home-care service.

I. Extenics and the Feasibility of Using it to Evaluate Urban Community Home-care Service

1.1. Theoretical Foundation of Extenics and its Development

Extenics is a new discipline proposed by the famous scholar Cai Wen. It studies incompatible and contradictory problems and tries to innovate or find innovative ways to solve problems. It boasts of three

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fundamental theories, namely, base-element theory, extension set theory and extension logic. It is the first to use formalized language to describe the internal relations and solve problems. To be specific, it uses base-element to describe the subjects, extension set theory to quantify the distance in real variable function with correlation function and produces a quantitative result in the end.

1.1.1. Base-element Theory

According to the Extenics, everything in the world can be extended and the basic extension unit is base-element. The world can be categorized into three types, that is, matter, affair and relation. In order to formalize the description of them, the concepts of “matter-element” (Physical existence), “affair-element” (events and actions) and “relation-element” are put forward and they are generally called base-elements, which is modeled as an ordered triad composed of the element name, the characteristics and its measures.

1.1.2. Extension Set Theory

Extension set describes the changability of the things in the world, that is, the description of the degree of a certain attribute in the way of a certain area in an infinite interval and using the change domain to complete the transformation between “right” and “wrong”. Therefore, extension set theory can describe the transformation between right and wrong, the certain attribute of objects in certain degree, the quantitative transformation process and the qualitative change. Its emergence provides a new alternative for problem solving. It can quantify, formalize and logicalize the problem-solving process.

1.2. The Feasibility of Applying Extenics to Evaluate Urban Community Home-care Service

1.2.1 Problem-solving in Extenics can help solve the problems in evaluating community home-care service

There exist many problems in community home-care service, such as the contradiction between the subjective wishes of the elderly and the insufficiency of home-care conditions and that between the multi-polar and refined needs and careless and unsatisfactory services.

1.2.2 Construct the Service Evaluation Model with the Extenic Matter-Element Theory

Quality and quantity are two independent descriptive attributes and the extenic matter-element theory combines the two well and integrate objects, attributes and their quantity into the triad of $R=(\text{object, attribute and eigenvalue})$. The evaluation model for the community home-care service is based on the extenic matter-element theory, among which object refers to the home-care service, any indicator in the service quality can be regarded as the attribute and the quantity of the indicator is the eigenvalue.

1.2.3 Apply the Extenic Appraisal of Advantageous Degree to Evaluate the Home-care Service

Appraisal of Advantageous Degree is a common way to evaluate objects, strategies and methods in extenics. Its pivotal concept is to obtain a wealth of information by divergent thinking of matter-element and according to the objective limitations and different needs to solve problems, build upon the feasibility, advantages and compatibility to evaluate the matter elements got in the process of divergent thinking and finally secure those matter elements that can meet the requirements.

II. Construction of the Extenics-based Evaluation Model for the Community Home-care Service and its Empirical Study

2.1 Determine the evaluation conditions, value range and weight

The evaluation conditions for the home-care service should be determined, marked as $SI = \{SI_1, SI_2, \dots, SI_n\}$, among which $SI_i = (C_i, V_i)$ is the feature unit, C_i the evaluation feature and V_i the quantified value range of C_i , indicated as $i = (1, 2, \dots, n)$.

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