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THE CONCEPTION OF DEVELOPMENT OF THE INTELLECTUAL TRAINING SYSTEMS BASED ON THE FAST PROTOTYPING TECHNOLOGY

For the qualitatively solve of the task of building of the expert training systems it is necessary the acquiring and combining into a single whole the knowledge (the structured data) as least the three types: about the studied subject area (the problem environment), about the pedagogical techniques and strategies of training (the area of pedagogics), about the psychophysiological and cognitive features of personality, the characteristics of cogitative and cognitive activity (the sphere of psychology). The imitated (set by the teacher and reproduced to the trainee) structure of dialogue is considered as a related set of conditions, achievable at the communicating of the user with the intelligent dialogue system. The condition of the dialogue includes inside three main components: the used form of dialogue; the achieved situation in the system, which determines a set of functions, presented to the user; the prehistory of dialogue – the sequence of dialogue exchanges, bringing (the program) to the certain condition (intermediate and final), the content of data in the context of subject areas (problem spheres). The expert training system realizes the any given pedagogical purpose based on the expert knowledge by the certain subject area, taking into account the methodology in the structure of knowledge (data) base, allows to automate the process of transferring of the knowledge (data) between the teacher (proficit unit) and the trainee (deficit unit). The development of the “usual” software product (program) (it is possible the program realization “in one approach”) and the intellectual system has the differences in force of the specifics of the structure (it is necessary to take into account both the technologies of programming, and the conceptions of the engineering of knowledge for the formation of knowledge bases, otherwise,- the developed expert system will be the deliberately incompetent in the solving of the set tasks (analysis and synthesis)).

Under the collective of developers of the expert system means the group of (qualified) specialists, responsible for its creation: an expert – the level of preparation determines the competence of the knowledge base; an engineer on knowledge (an analyst and a cognitologist) – deals with the all forms of knowledge, provides the extraction of knowledge of the expert and the formation of knowledge base; a programmer – carries out the program realization of the project and a examinee (trainee) – the specialist of low qualification in the studied subject area (problem sphere).

The prototype is the deliberately functionally and technologically depleted version (adaptation and localization) of the expert system, designed for the checking of the correctness of coding facts, links, strategies and the reasons of expert (the objective form of existence).

The scientific-research work on the creation of the knowledge-based systems has revealed the common conception (sequence) of their building, ensuring the parallel formation of knowledge bases by the subject areas and the program means in the process of development (designing), providing the possibility of returning to the previous stages in the cycle.

The fast prototyping technology contains the iterative sequence of the interconnected stages: the identification of problem – requires the carrying out of the analysis of resources, the sources of knowledge, analogues, purposes (the accumulation and transferring of knowledge), the classes of solved tasks and problems (diagnostics and training); the obtaining of knowledge of the expert and their conceptualization – the analysis of theoretical aspects (psychological, linguistic and gnoseological by the layers), the strategy of the obtaining of knowledge (in dependence from the fact of presence / absence of ECM), on the basis of the features of which it is selected the any given set of the practical methods of the extracting (obtaining) of knowledge; structuring – determines the composition of the extracted knowledge in dependence from the specifics of the problem environment (the subject area), architecture, the needs of users, the languages of communication, considers the organization of knowledge in the working memory and the knowledge base; formalization – based on the obtained conceptual structures it is selected the model of the representation of knowledge (the structured data); realization – it is being developed the program product in the environment of programming; trial operation – it is carried out the procedure of integration of the knowledge (data) base with the developed program (the expert system); testing – the analysis of the indicators of quality of the expert system taking into account the vector of requirements, the return to the previous stages or the completion of the project (the support of the program product in the market of services in the country).

In dependence from the degree of readiness of the system (taking into account the vector of requirements) and the volume of functional capabilities (in the context of the class of solved tasks), it is technologically envisaged the existence of the objective forms of the expert system – the prototypes (the computer programs): demonstration (shows the viability of the approach), research (it is unstable in work (in the process of functioning)), acting (it is not optimal by the temporary factor), industrial (it is rewritten (it is realized) on the language of high level) and commercial (the well documentary and reliable system).

The commercial and industrial prototypes are present the commercial interest for the certain developer.