

Research on Situated Cognition Environments Oriented Training Pattern of the Practical Ability of Chinese Information Management College Students

Peng Wu

School of Economics and Management
Nanjing University of Science & Technology

Shaohua Qiang

School of Management Science and Engineering
Nanjing University of Technology

Beibei Zhang

School of Economics and Management
Nanjing University of Science & Technology

No 200, Xiao ling wei Street, Nanjing, Jiangsu Province
China

Dragonwu99@vip.sina.com

Abstract: - The Practice Field and Communities of Practice of Situated Cognition and learning theory can offer simulation cognition for the training pattern of the practical ability. In this paper, we imitated the cognition of the demands of enterprise information management and implementation of information-based project, based on the demands of training pattern of the practical ability of Chinese information management college students. And we also offered the solution of Practice Field and Communities of Practice.

Key-Words: - Education technology Information management Practice field Communities of practice

1 Introduction

Situated cognition and learning is the research hotspot in the field of contemporary western learning theory, is also another important research direction after “stimulation—response” learning theory of activism and “information processing” learning theory of cognitive psychology, and becomes the core vocabulary of educational anthropologists studying discourse system. Currently, “practice field” and “communities of practice” proposed by Sasha A. Barab and Thomas M. Dafei of Indiana University have become the forefront research hotspot and achieved a certain results of research and application.

“Practice field” is a functional learning situation or environment that is set and created to achieve a kind of learning objective. “Communities of practice” is the groups organized based on interests and concerns participate in a common activity system, in which the participants share a common understanding of what they are doing, what this means in their lives and what this means to their communities of practice. Participants share the

mutual sense of connections, consciousness of belongingness, personality, concern, belief, value and other consciousnesses.

This paper will refer to the research results of “practice field” and “communities of practice” in the theory of situated cognition and learning, combining the features of information management specialty, on the basis of existed results of practical teaching experience, simulate imitative enterprise business information-based management demands, problem situation and implementation situation of information-based project, and perform innovative design on creation of “practice field” and construction program of “communities of practice”. As a result, this will solve the practical problems that undergraduate cannot contact enterprise information demands, problem situated scene and participate in the practice of project, and promote the quality of teaching to a higher level.

2 Research Status

2.1 Theoretical research status

In some European and American countries, researches on theories and practices of situated

cognition and learning have permeated every fields of educational research. Research fields concentrated in the combination of computer education and classroom teaching, evaluation of situated learning and case study and development. It is estimated that we can have respectively search results of 6990, 9700, 272 when “Situated cognition”, “Situated learning” and “Situated cognition and learning” are input in the google search engine. This fully shows that researches on situated cognition and learning have reached quite a high level.

Currently, the global research on situated cognition and learning is on the rise, people are concentrating on theories and practices research in the field of educational psychology. At the same time, people perform all kinds of development research on “communities of practice” based on anthropological theory and achieve success, such as NGS children network and remote apprenticeship project started in 1989, establishment and development of “communities of teachers” which is a professional development project of Indiana University and so on. The future development trends of this theory will have the following aspects: first, before the traditional classes do not deconstruct and schools do not perish, in fields of educational psychology, researches on functional situated creation theory and practice based on classes and schools will remain the main content of research; second, research on situated cognition and learning theory and practice based on anthropology field will be the mainstream of research based on situated cognition and learning theory and practice in the future. In the contemporary raging reform of basic education, the education curriculum whose concept is “student-oriented, life-oriented and society-oriented” and teaching reform have become the consensus of education reform of all countries. The successful trial of anthropological theory in the research of western countries’ education practice research and the rapid development of information technology provide tremendous support to the future research on this theory; third, the integration of two research fields. At present, research and development of education ecology provide some school practice to people, and the exploration of successful case has

integrated the research of the two fields. Therefore, digesting dualism in the research on situated cognition and learning and exploring a theoretical and practical way that is integrated will be the future pursuit of research on situated cognition and learning theory.

2.2 Research status of Chinese students’ ability cultivation majored in information management

In China, research on the field of situated cognition and learning is mainly about basic theory of situated cognition and learning, application analysis of practice field, creation model of communities of practice and other theoretical introduction, as well as the application program design in the course of english, mathematics and computers. But it’s almost blank to the research and application of information management specialty which is the most suitable to develop situated cognition and learning practice.

Since 1998 when Chinese “information management and information system specialty” established, there have been more than 179 high schools establishing this specialty now. The main existed problem in the development of this professional is what kind of practical cultivation model should be established to make graduates meet the social demands. This also becomes the common problem of all high schools. The author tries to search the literature resources after 2000 of CNKI database with the subject words of “information management” and “ability cultivation”. After analyzing, the author acquires 18 effective literatures. Researchers focused on five aspects: personnel training, specialty construction, teaching contents, course construction and ability cultivation. (As table 1) There are 6 correlative literatures about situated cognition teaching, mainly including the philosophy and model of situated cognition teaching and applications in physical and English teaching. There are 3 literatures about “practice field” research, the main research contents of which is practice field analysis of educational technology, changes ability of practice field and school and application in the language training. There is 1 literature about communities of practice research, mainly introducing the theory of communities of practice. From those we can see that now Chinese information management specialty has begun to focus on students’ ability cultivation, thinks about

the corresponding personnel cultivation model, teaching contents and course construction, but is lack of combination with advanced concepts.

Table 1 Research Status of Chinese Information

Research Field	Correlative Literature Number	Research Contents
Personnel training	6	Connotation, goals, direction, model, the changes of thought, branch cultivation model, market needs oriented personnel training strategy
Specialty construction	3	Objective, model, ability structure, questionnaire survey and analysis
Teaching contents	3	teaching model research, case teaching based on the ERP platform, practice teaching model, practical teaching system
Course construction	4	The existed problems, system construction, course reform, "knowledge points ? knowledge module ? course system" course design scheme
Ability cultivation	3	System and practical ability cultivation model

Many graduates who have stepped into the society more or less have such feeling: lack of study power during the school time is more because they do not understand the practical role of relevant knowledge. But when they encounter a series of practical problems in the practice, they come to have deep insights to the purpose of study during the school time. So we have reasons to let this insights come earlier to the students' mind. It's no doubt that through creating practical demand, problem situation and situation of process of solving problems for students, in which complete the task of learning knowledge, can stimulate the learning motivation with the goal of solving problems and improve the cognitive ability of practical problems and comprehensive ability of solving problems.

Therefore, according to practical situation, it's necessary to imitatively simulate and construct "situated cognition teaching environment". This can make all graduates feel the problem demand of practical situation through "imitative environment", simulate the whole program process of participating in the design and implementation involved in solution scheme of practical problems, and solve the problems of the difficulty that students contact enterprise practical environment.

3 Ability cultivation system based on situated cognition environment construction

Personnel training of "information management and information system specialty" experienced three types of development way of personnel training: technical-type, engineering-type and compound-type. Core competitiveness of personnel of compound-type is divided into two types: ability of information system development and information analysis.

There are two cultivation abilities (those are information analysis ability and information system development and application ability) of students of information management specialty is the demand proposed to us by society and enterprises and the core contents of specialty construction. With the dramatic increase of pressure on the employment of students, how to enhance quickly adaptive ability that students step into society, thus improving the employment competitiveness, exploring the teaching way of "schools and society softening" and further improving the quality of specialty content construction have become an urgent task. Therefore, we believe that we can use main curriculum system of "two abilities" cultivation as main platform(as figure1), through "T" shaped construction model, and explore the construction program of "two abilities cultivation of information analysis and information system development and application" with situated cognition teaching system construction as a breakthrough.

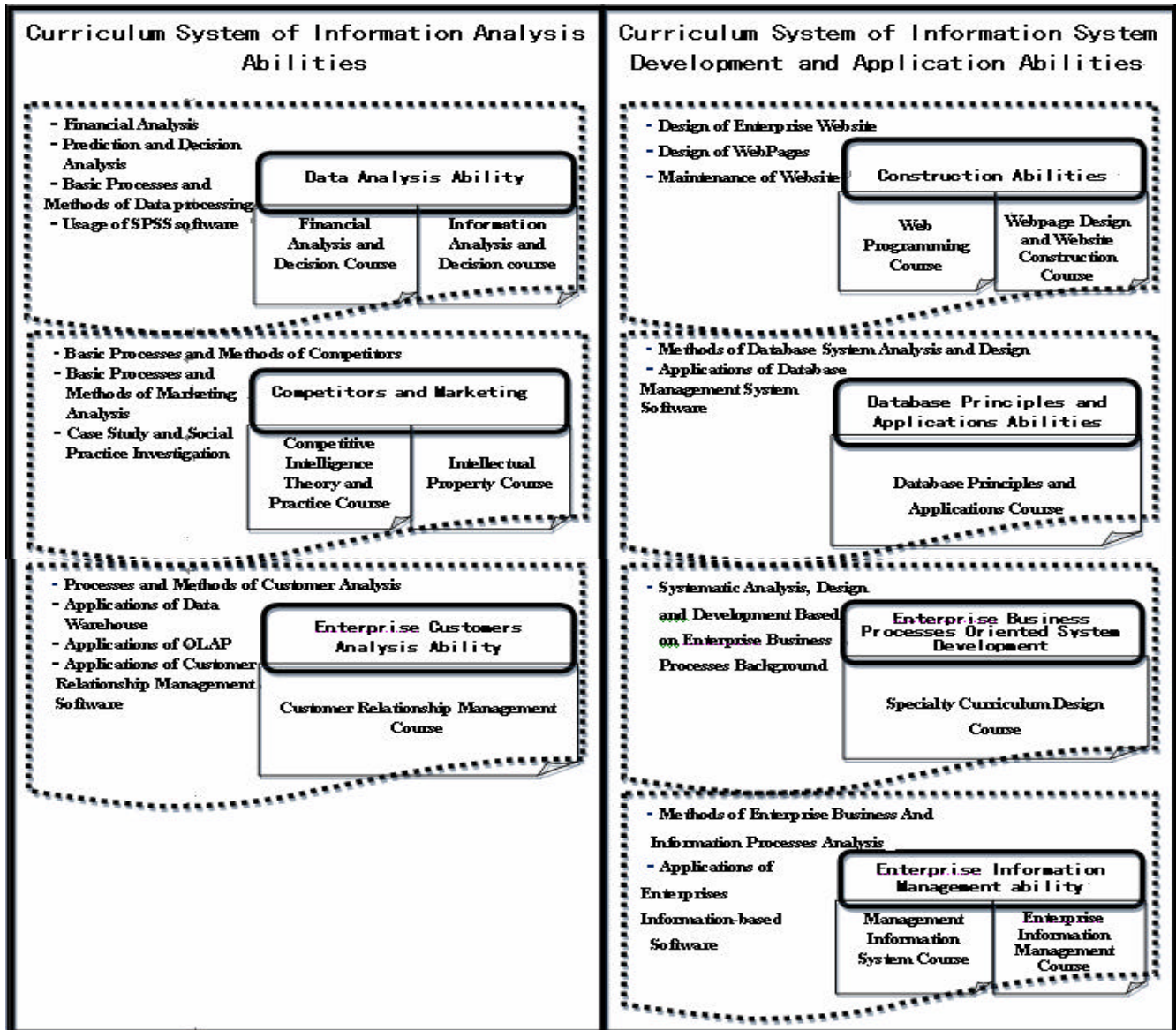


Fig 1 Main curriculum system of “two abilities” cultivation

3.1 Whole research thought (as figure 2)

First, we learn and study the theory and the latest application results of “practice field” and “communities of practice”. Then with the instruction of this theory and “two abilities” main curriculum system oriented, we study to design the construction program of “situated cognition teaching system”, which starts from the following two perspectives:

In our research, each curriculum will choose situated teaching knowledge points according to their own characteristics and set learning functional goal; on this basis, we begin the creation program of “practice field” and construction program design of “communities of practice”, including relevant

information demand, question situation and design of reproduction program and including detailed design of big tasks design, mission requirements, implementation processes, implementation forms, team formation, documentation writing and evaluations of operations to solve these almost real situated problems, the research results of which are in the form of documentation.

The second is to construct the teaching resources products, which through existed enterprise information project resources, through cooperation with enterprises and enterprises demand investigation to construct and search new project resources, and through information-based construction to complete the construction of

teaching resources products provide supports of resources, environment, platform and tools for the creation of “practice field” and construction of “communities of practice”. And the construction of “practice field” and “communities of practice” will put forward new demands and new problems in return to promote the construction of teaching

resources products.

At last, We implement the construction program of “situated cognition teaching system”, through feedback of teachers’ and students’ information in the process of implementation to promote teaching program to be optimized and form a good teaching environment.

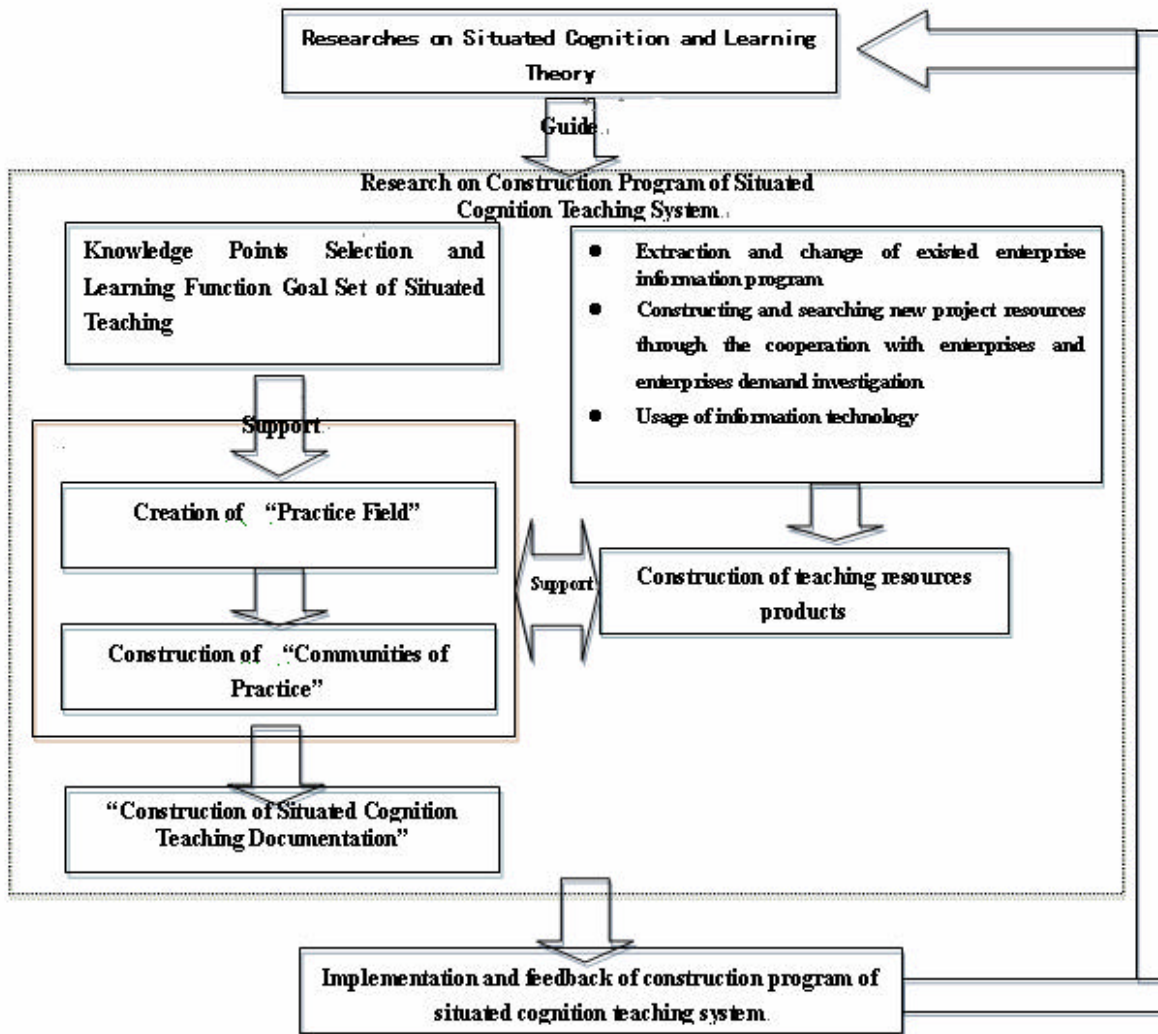


Fig 2 Researches thought of situated cognition teaching system

In the theoretical research and practical exploration of situated cognition and learning, the theoretical contents and practical ways of “practice field” and “communities of practice” should be explored as key points, which specifically contain the following contents:

3.1.1 Creation of “practice field” based on enterprises information demand and problem situated cognition

The key points of which are the creation of enterprises typical business situation and the

extraction of typical information demand and problems. Specifically speaking, there are two questions to solve:

One is enterprise information demand and problem situated design, mainly including the following problems: in the “two abilities” main curriculum (as figure 1) that respectively need to consider to choose which business situation should be introduced into enterprises practice to satisfy students’ function learning of specific goals of

specific curriculum and can well reproduce the enterprise typical business operation environment, in which the corresponding information demands and problems can be extracted.

The other is the reproduction form design of enterprise information demands and problems situation, which specifically needs to consider the problems, such as construction artificial spot through the multimedia, video courseware or in the laboratory

3.1.2 Construction of “communities of practice” based on enterprises information project implementation situation

The key points of which is with “practice field” as background, simulating the real situation of enterprises information project implementation, compositing the project team, designing tasks and processes of project and constructing project processes control and project evaluation mechanisms.

The problems specifically needed to solve are according to the specific learning goals of curriculums and project implementation situation based on the solve of enterprises information problems, how to design the project tasks, processes and operation mechanisms as real as possible, including team formation, role allocation, to enable students to experience as much as possible the real situation of project development and implementation and realize the results that “communities of practice” pursued: making the members of communities have the common understanding and awareness of the practical activities that they are engaged in commonly; in the process of common practice, members participating actively, having mutual trust and inspiring and supporting commonly; in the common activities, members mutually sharing resources, feeling, ideas and styles, forming the basic for joint action and enhancing team spirit.

3.1.3 Construction of situated cognition teaching products based on enterprises information project resources

The key points of which are on the basis of construction of enterprises information project resources, extracting and changing the project resources into reproduction of situated cognition teaching, information-based management system

software of operation practice and construction of collaboration platform used in simulating the practical project development processes. The key point is solving the problems that where the situated teaching materials come, specifically including:

One is how to extract and change the completed enterprises information project into teaching resources products and how to construct and search new project resources through enterprises cooperation, investigation and other ways.

The other is constructing corresponding teaching resources products using the information-based means.

3.2 Construction program of ability cultivation system based on situated cognition environment

Research on whole construction of situated cognition teaching system is performed based on “two abilities” cultivation. With the goal of situated cognition teaching system construction and according to the different characteristics of curriculums, design and research on deepening construction program of different level is performed to “practice field”, “communities of practice” and “situated cognition teaching resources products”. These specifically contain the following contents:

3.2.1 Creation of “practice field”

In the teaching process, knowledge points selection, setting of learning function goals, corresponding enterprise information demand and problem situated design and situation reproduction program design are used in situated teaching. Specifically speaking, “technologies and methods of enterprise information-based project development and application management” is regarded as function learning goals. Enterprises’ “procurement”, “warehouse”, “sales” and other typical business processes are regarded as background situation. With information-based demands and problems that resulted in by all the above as core content, exploring research on creation program of “practice field” is performed, the key point of which is the design exploration that refers to enterprises typical business processes, information-based demands investigation and other scene situations reproduction program.

3.2.2 Construction program of “communities of practice”

Focused on enterprise information demand and problem situation and based on the existed project conversion or enterprise demand investigation and materials search or enterprise cooperation and other forms, practical big tasks are designed with practical projects as background, with the practical problems as direction, and with solving problems as goal. Practical project implementation processes are simulated. Implementation requirements, implementation processes, implementation forms, team formation, documentation writing, tasks evaluation and other contents of big tasks are designed in detail. The effect target that “communities of practice” should reach is set.

Specifically, taking “practice field” as basic practical environment, taking enterprise information-based project implementation as practical background, and taking the information-based project typical processes of “system analysis”, “system design” and “system acceptance and evaluation” as a core, design of construction program of “communities of practice” is explored, which specifically including:

Setting the effect target that “communities of practice” should reach specifically includes requiring team member reach the requirements in mind and activity through the almost real team project activities.

Design of experimental project tasks specifically take the completed information-based management project resources as material, extract almost real practical project task, such as development and design of system module focused on “procurement”, “production”, “warehouse”, “sales” and other main business management contents.

Formation of project team, including design and assignment of different roles, such as a project leader, project analysis person, system project design person, programming writing person, project implementation, customer service person and so on, should make each students have different personalities and advantages look for the role fit for themselves.

Design of management mechanisms in the processes of project implementation, such as simulating the processes of actual project

implementation, establishes enterprise demand visit (teacher can take the enterprise role), expert advice (that is teachers’ guidance), regular problems discussions, communication and other operational links.

Design of project acceptance and assessment specifically includes project documentation writing requirements, project showing actual scenes design (such as simulating situation of enterprise accepting project), project assessment standard design(that is operational assessment standard) and other contents.

3.2.3 construction of situated cognition teaching resources products (as figure 2)

Situated cognition teaching resources products are the resources platform of construction of “practice field” and “communities of practice”, specifically including classroom teaching products based on problems situation reproduction and show, experimental software system based on problems situation reproduction and operation, interactive web platform between teachers and students and communities of practice oriented project practical platform.

(1) Classroom teaching:

This process consisted of multimedia courseware, video courseware and others used in the enterprise project situation reproduction of teaching processes.

(2) Experimental software system:

System project results that are completed and can reflect actual situation of enterprise information-based management are extracted representative contents according to situated cognition teaching demands, and then changed into experimental system(now simple experimental system has completed, details as annex 2) for students to simulate enterprise business information-based management and do sand table operation in the environment of laboratory.

(3) Interactive web platform between teachers and students: Based on office of the dean of studies website and school of information management website, interactive web platform between teachers and students is constructed that have the function of upload and download of situated cognition teaching materials, layout and summit of teaching tasks, problems advisory, interaction between team members and others to support situated cognition

teaching activities.

(4) Communities of practice oriented project development collaboration platform:

Practical platform to simulate project development collaboration activities is integrated and constructed choosing IBM Rational and Microsoft

Project as tools to provide technical supports for demand analysis of information-based project, system design and construction, software configuration management, process and project management and other practical activities. The specific tools intended for use are as the following:

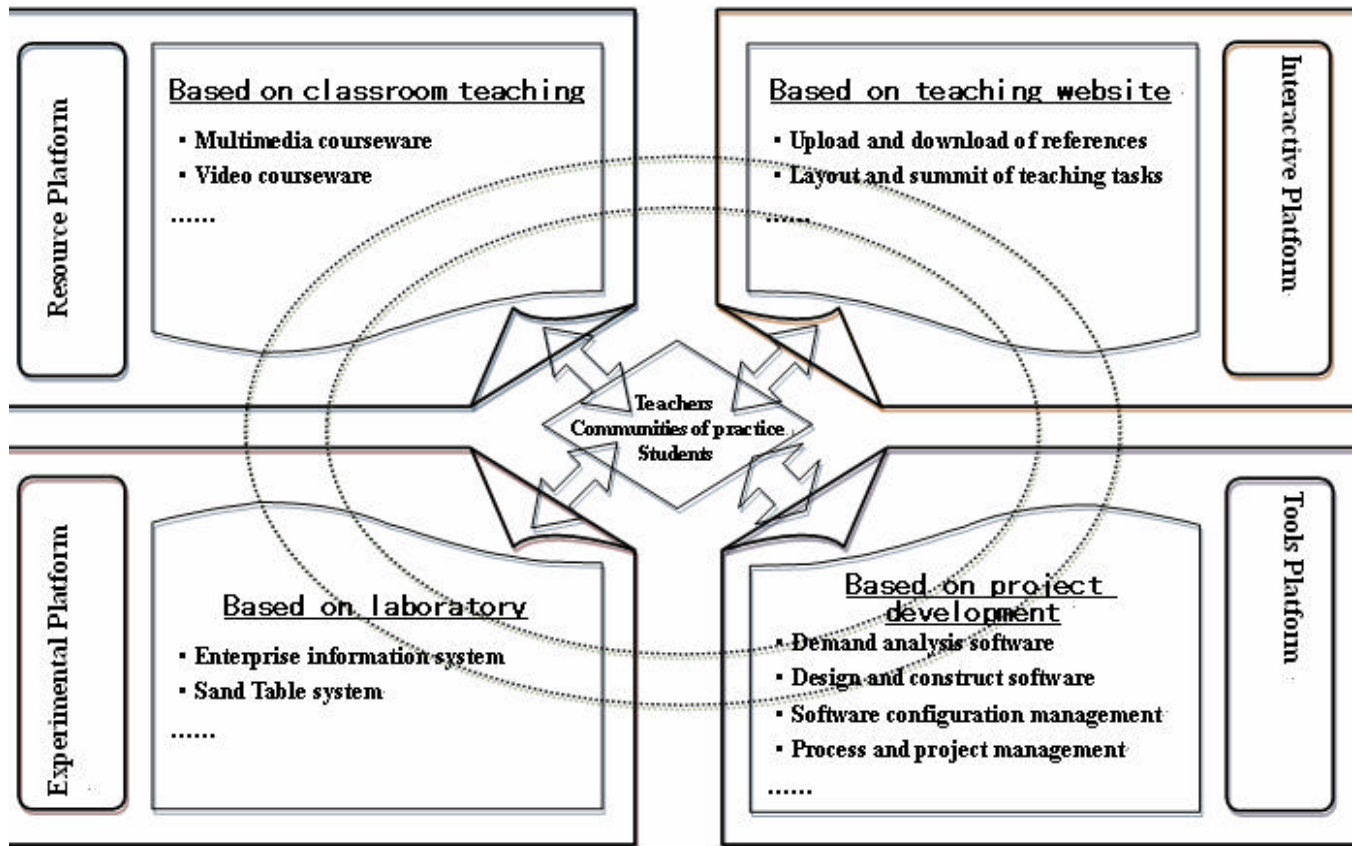


Fig 3 constructions of situated cognition teaching resources products

4 Conclusion

In this thesis, we tried to resolve the actual problem that the college students who majored in information management can't participate in the project practice of enterprise. We did the research based on two things. The first is the macro thinking of construction of "communities of practice" and creation of "practice field". The second is the micro designing of transferring the resources of scientific research project to teaching resources products. We thought it can advance the teaching quality of information management specialty by combining these two things. In the further research, we can import the technology such as virtual reality, information visualization, software engineering in the field of Practice Field, and

combine the research field of knowledge management with Communities of Practice.

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