Designing Competency –Based Curriculum Model for Teacher Training Curriculum

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Abstract In recent years, the idea of competency- based curriculum has been supported in teacher training, to indicate the nature of changing society, training and the world of job. The purpose of this paper included investigation of competency- based curriculum, necessity and advantage of using it in teacher training program, and providing an educational model based on competency in teacher training program. The method of this study was systematic review and the author has analyzed the subject based on library resources and reliable data base. The findings showed that competency- based training should be considered as a principle in designing teacher training curriculum, also as a context for developing professional skill and as a strategy-based principle as a sustainable policy.

Keywords: Competency; Competency –based Curriculum; Teacher's Competences; Teacher Training Curriculum

Introduction

Education system is an important social institution and there is no doubt that today achievement to sustainable and knowledge based development requires a fundamental change in education system. Education system in each country requires the contribution of many people, system and groups to provide the best kind of training in every level for the learners (sadruddin, 2013). With no doubt, it can be said that the teacher stands at the top place of education system, because he is considered the main factor of education and training and the highest target of education are achieved with him. In other words, the importance of education is extendable to its agent among them the teacher considered as the most important one (Rezaie, 2011). In the past, a teacher was considered as a vital source of knowledge, but today this view is somehow varied, and teacher is one expected to always be diligent in development of society. Teachers, if not the most important part of the educational system of each country, they are one of the most important part (Messo and Panhwar, 2013). Teachers affect students' learning and educational outcomes by their method of teaching. Good and qualified teaching has always been one of the main concerns of the educational system. However, teaching is not of vital importance only for teachers and education system, but it is a public problem which involves in some organization and people include parents, educators and policy marker (Roth and Scott swail, 2002).

Today, educational systems play a prominent role in increasing and improving teachers professional development. The term of professional development covers different type of opportunities and experience which are systematically planned to encourage the development

and evolution of the teacher. Moreover, teacher education provides an imperative link between an institution of higher education and the public one they are going to arrive. Explicitly, the advantages and benefits of higher education, are transmitted to the society by the skilled and proficient teachers' graduated from this higher education, centers (Aazam & Khattak, 2010). Therefore, creating a change in the system of teacher training must be considered as a prerequisite for any change in educational system, because teacher training, as a manifestation of higher education, requires a certain type of education students learning also requires a certain type of learning to achieve the expected goals. Teachers should improve their professional skills through a variety of both formal and informal teacher training programs (Ahmed et al, 2012). Teacher training is the professional training of the teachers to a achieve attitudes, skills and desired knowledge to make them effective and efficient in their occupational failed together with enabling them to meet the needs of society in any time (Osuji, 2009). Sadrudin believes that despite of some comparative studies which deny the effects of teacher training system, most of them have indicated their positive effects, specifically that it improves methodology and training methods (Memon, Joubish & Khurram , 2011).

On the other hand, one of the most important elements of educational system is its curriculum that should be proportionate to the related goals, tasks and change to play their effective role (Gaff& Ratcliff, 1996).

Sudsomboon (2007) believes that effectiveness and efficiencies of any educational program is largely depended on the philosophy of the curriculum design followed. Curriculum is at the center of the relationship between higher education and employers (Geiger, 1980). Therefore, it should be regarded that in any society, the ultimate goal is to provide appropriate opportunities to acquire knowledge, skills, abilities, attitudes, beliefs and values in the form of competency for the students, in the way that help them to be effective for themselves and their society. This achievement should be reflected in the form of universities' curriculum in this course and its coordination with society requirements, needs and special attention (Abuelma'atti, 2002).

Teacher training curriculum can be considered as the most sensitive and important component of education system, because success or failure of creating changes in educational systems, depends on capabilities of professional abilities of the teachers who are the main executor of curriculum in real environment (Amrollah and Hakim Zadeh, 2014).

In other words, knowledge, competence and attitude of the teachers are largely depended on abilities achieved in teacher training centers as the curriculum. In recent years, the idea of competency- based curriculum has been supported to indicate the nature of changing society, training and the world of work. So Balakrishnan (2005) states that existing educational systems have some limitation to meet the requirements that are largely text book based, and they need seriously to be revised. This requirement will be covered by competency-based educational systems. One of the advantages of this system is that the students gain insurance and self-confidence, they mastered the specific areas, learn about with and depth of the competence required, have opportunities to earn certain level of competence and are employed easily in corresponding industries.

Dacheiver and Tardif (2002) define learning as training information into knowledge and competence, so they suggested the development of curriculum as these two primary frameworks:1- learning framework about how students learn and 2- conceptual framework that explain training activities pattern (quoted form Ahmadi, 2012).

Therefore, if the philosophy of a curriculum does not focus on specific competencies, then its

products will not be ready for working and technologies, so they will not be accepted by the market. Therefore it is necessary that particular professional competency be considered in curriculum designing (Mohammadi & Dehdari Rad, 2010). Higher education organization faces growing pressure for satisfying stakeholders about the factors increase the value of knowledge, skills and characteristics of students (Banta, 2001, Vaatstra & De Vries, 2007). Stakeholders' requests in this setting emphasize on competency-based training. Van der kilnk and Boon (2002), claim that the process of designing common curriculum to adapt with market requirements are slow, but competency based training attract the attention due to practical orientation, and consistency with the needs of employers.

Educating teacher training students in higher education institutes to enter the education system should be performed in the way that necessary competencies are created among them in general semi professional fields (Koster et al,2005). Divides the teachers competencies into five main groups of professional knowledge, relationship, organization, pedagogical and behavioral competence and this will not be achieved unless programs are designed in such a way that they create and improve competencies in graduates.

Therefore, reviewing and designing competency- based curriculum can be considered as a step to improve and revival of graduates' competencies proportional to society requirement and results in their success in different situations (Momeni Mahmouei et al, 2011).

Considering the importance of teacher training curriculum in this study, basic reforms in educational methods, approaches and curriculum should be taken into account to lead to a change in attitude, knowledge and professional skills of the teachers, thus improve professional competencies required by teacher students, so along with investigation of concept and components of competency presenting a suitable framework for competency-based curriculum is provided in teacher training course and designing a competency-based curriculum id considered regarding competency components and dimensions. In this way, the basic question is that what is the competency-based curriculum of teacher training course and what are its elements? What are the characteristics of a competent teacher in a competency-based educational system?

Methodology

This study is a systematic review one about competency- based curriculum especially in teacher training program. In order to gather data in this study, database, searching and also valid electronic ports and published and digital resources of university libraries were used. For this purpose, and considering appropriate key words such as competency, competency based curriculum, competency- based education, essential competence, competency models, … and offering them separately or combined, and using appropriate action with search engine such as Google, Google scholar, … and also searching in computer ports such as SID, Iran Doc, Magiran, Srlst, ISC and databases such as Springer link, ERIC, Sciencedirest, Pubmed and Exctie without time limitation, appropriate articles and texts related to competency based curriculum were achieved and they were studied and investigated carefully.

Results

Competency Concept

According to the literature of competency concept and review the definitions of competency, the first point to be cleared is the lack of single definition and distinctive concept about competency. Armstrong (2005) also stated that, while competency is a person related concept,

competence is a concept related work. Kouwenhoven (2003) states a comprehensive definition of competency, according to which, competency is the capability to choose and use (apply) an integrated combination of knowledge, skills and attitudes with the intention to realize a task in a certain context, while personal characteristics such as motivation, self confidence and determination are parts of that context, and competence is the capacity to accomplish up to standards as the key occupational tasks that characterize a profession. Therefore, competency may be defined as the necessary knowledge, skills, experience and attributes to carry out defined function effectively, while competence means those things that the whole organization must be good at to outperform its competitors (Mackay, 2003). Common competence means the ability of an organization to explain main differences with its competitors. According to the definition of competency, a comprehensive definition can be better understood by following model (Kouwenhoven, 2009).
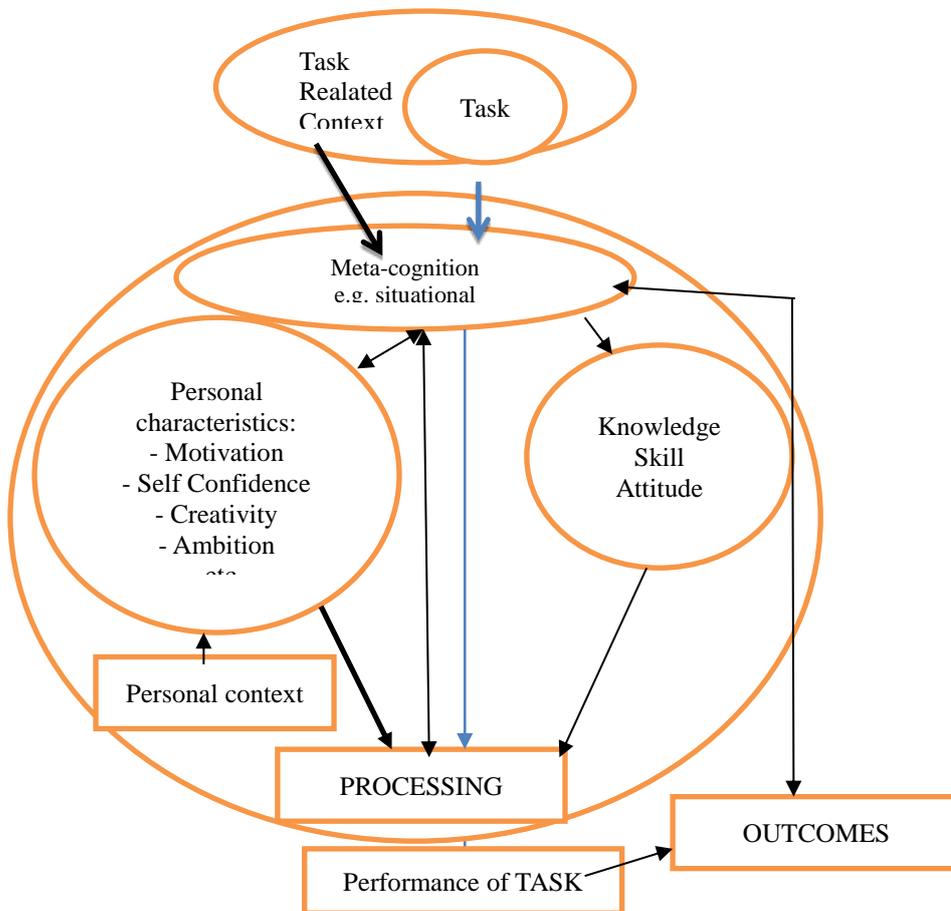

Fig.1.A model of the cognitive aspects of task performance

Kouwenhoven (2009), in a paper titled competency-based curriculum development in higher education: a globalized concept? as presenting various definitions of competence, divides them into five following groups:1- competence as the ability to perform at a desired level or according to a certain standard, 2- competence as the ability to choose and use the knowledge, skills and attitudes, 3- competence as input, 4- competence as output, 5- More complete definitions of competence containing elements of the four mentioned group. In the following, he presents a model to state a comprehensive definitions and that he demonstrate

various competency model. He presents the model of Iceberg by Spencer and Spencer (1993), explains that a competency model is like a iceberg that skills and knowledge creates its visible part and self- concept, attitudes and values and personal characteristic in underlying layers are the parts not visible clearly, but they guide professional behavior. He continued with explanation about competency based program in Africa and emphasizes on international contribution regarding competency-based education and solving existing problems. According to him, students and teachers also should participate in competency-based curriculum design and long- term process of changing curriculum.

Competency model

According to Byham& Moyer (2002), the process of designing competency- based curriculum includes three main stages: To recognize educational requirements, to identify and to perform the program. The most important element in designing the curriculum based on this approach is the determination of competency model. In fact, it can be said this stage is as fundamental process of competency- based curriculum (Shasti, 2010). Competency model is a collection of elements and components of competence that were required for completing and performing a role or occupational duty (Hua & Hua, 2009). General model of competency means to explain and describe the competency clearly in the form of its competence, since a competency is a mixture of some independent components(Dorri et al, 2006).

Stage of developing competency- based curriculum

According to the case study performed by Larenstein and Nanjing universities in 2000, following stage were applied experimentally to develop competency- based curriculum:

1- Definition of professional requirements in terms of Knowledge, skills and attitude (competencies).

2- Determination of professional requirements, learning objectives and achievable targets.

3- Translation of learning objectives and achievable targets into a learning plan describing topics to be taught, teaching approaches and assessment targets.

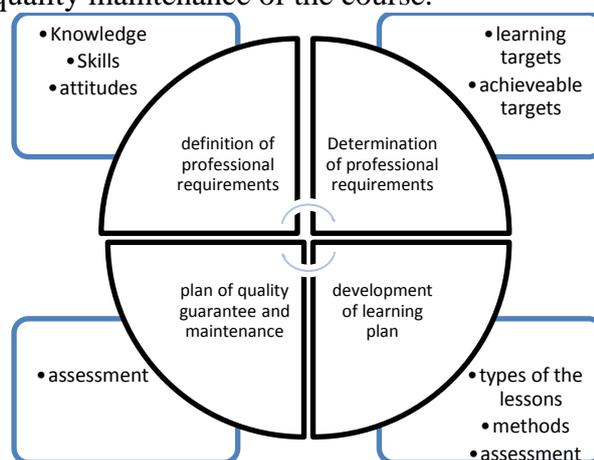4- Construction of a plan for quality maintenance of the course.

Fig.2. Competency- based curriculum development by Kupper and palthe (quoted by Fathivajargahet al, 2014, pp 140-150).

A systemic-interaction model to design a competency-based curriculum

According to the studies and competency- based training literature, Andronache, Bocos and Neculau (2015), believe that formation of competencies is achieved through the progressive, coherent and dynamic integration of knowledge, skills and attitudes. In this regard,

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development of these didactics must be fully in line with this paradigm. In this way, the following theoretical model that illustrates the role of interaction of knowledge, skills and attitudes to the formation of competencies and to design a competency based curriculum is suggested.

According to the model given, it is necessary to define and clarify its conceptual structural elements. Thus the knowledge is defined as the results of integrating the learning and information. They are a structural component of a competent and sub- competence, which represent information, facts, concepts and theories, being the results of an abstraction process. The skills also are a structural component of a competence and of a sub- competence, and it refers to the ability to apply and use in practice acquired knowledge, and on the basis to solve problem and achieve various tasks. The attitude is defined in specialized literature, especially in the works of social psychology, based on the theories of Gordon Allport. Thus, the definitions must consider attitude as an individual pre- disposition to evaluate a social element (fact, event, and person) considering it favorable or unfavorable, and therefore showing a certain behavior to it (Katz, 1960, Eagly & chaiken, 1993).

Regarding the described sub competence, they represent the qualities' description of each structural competence of sub competence (knowledge, skills, and attitudes). The whole described sub-competence represents overall description of the quality of competence according to the systematic approach. Thus, they indicate the results of expected operational behavior for each stage of training competence, being at the same time, the main reference point for sequential and summative evaluation of competence training. Thus, developing the competences, formulation the derived sub competence, establishing their structural components and related description is considered as the stage setting for educational outcomes. Therefore, determining educational outcomes is a systematic, complex and dynamic process, not a static stage and simplistic approach.

In a complex stage of identification and developing the competence, the stage of establishing curriculum content was followed. In curriculum design, contents shall be determined by reference to the competence and sub competence identified in the previous stage of curriculum design and by relation to their structural components (knowledge, skills and attitudes).The contents related to the knowledge and its formation and development are cognitive contents. Thus we define cognitive contents as a system of knowledge (declarative, procedural and conditional and meta-knowledge). This facilitates the learning, understanding, explanation, interpretation and conceptualization of various fact, concepts and theories. On the other hand, action contents complete cognitive contents in dialectical relationship with them playing key role in the formation and development of competences. Thus, following the axis of action contents- skills, we define action contents as knowledge systems that integrate cognitive contents and designed to facilitate students application and transfer in specific situation(theoretical or practical applicative) while facilitating problem solving and critical and constructive reflection defining the facts, concept and theories. Interacting with other two types of contents and contributing to the formation of attitudes and to the competence; we define attitudinal contents as a system of knowledge that is designed to guide moral and motivational values and to develop the students in the context of exercising a profession (Andronache, Bocos & Neculau, 2015).
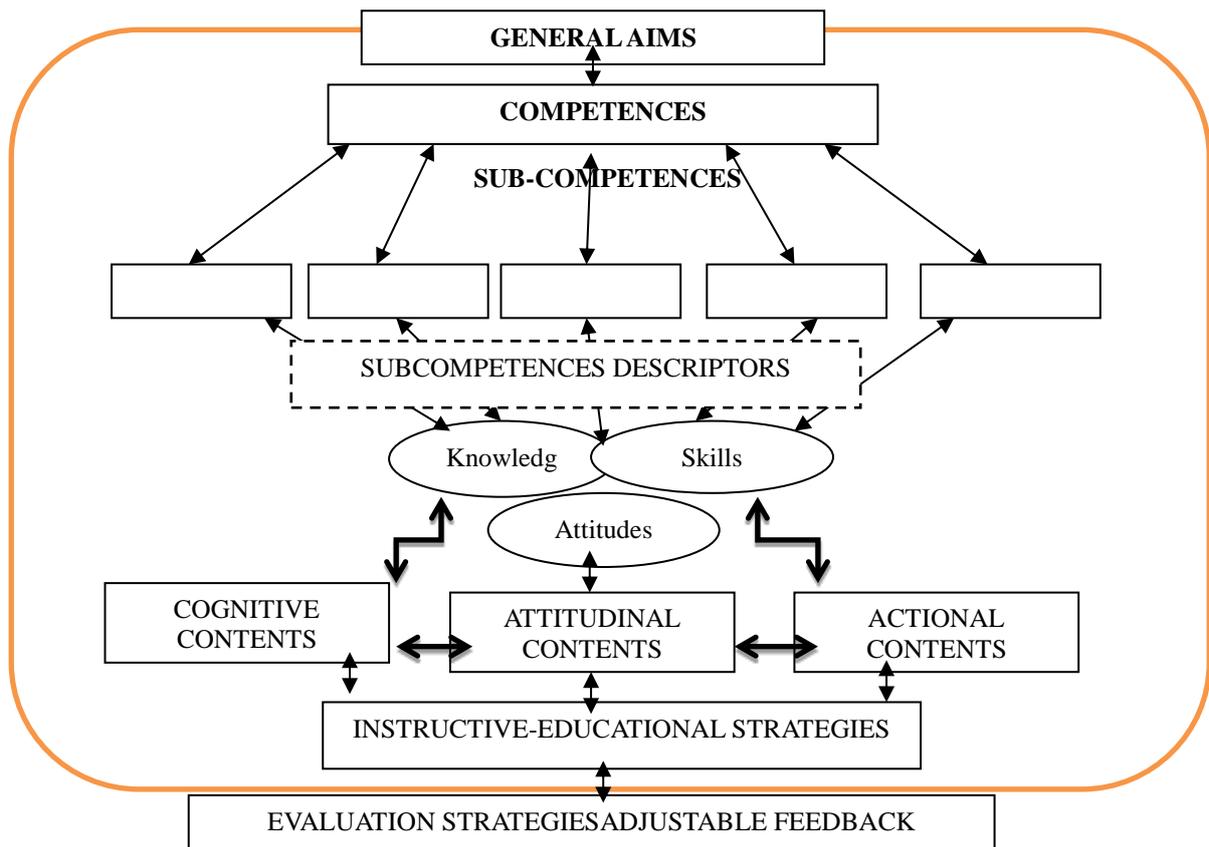
Fig.3. The systemic-interactions model to design a competency-based curriculum

Competency- based development model for teachers (Cator, Schneider& Vander Ark, 2014)
 The center for American progress indicates of a new starting point for creating a teachers' development system. In this system for designing a competency-based approach, you don't begin by identifying content and readings, instead, you begin by identifying competencies and then contents, reading, assignments are determined to support student attainment of those competencies. In a similar way, shifting to a Competency- based approach for teachers can be considered through following steps.
- Compile a competency map of what teachers and teachers' leaders need to know and be able to do, with customized elements for specific needs (teacher leader, blended, rural, at risk etc).
- Update the map for new roles, paying particular attention to implications based on the advancement of digital learning as well as new strategies that evolve based on research.
- Tag existing (open and proprietary) instructional content and resources to the competency mal and identify gaps.
- Design, develop or identify technology based system.
- Facilitate assessment/ observation of knowledge, skills and dispositions of aspiring leaders.
- Support development of individual learning plans.
- Deliver playlists of content
- Track content consumption (and learning to the extent possible) for initial as well as ongoing development.
- Provide cohort collaboration features and professional learning communities.
- Provide publishing opportunities for a professional portfolio and reference.
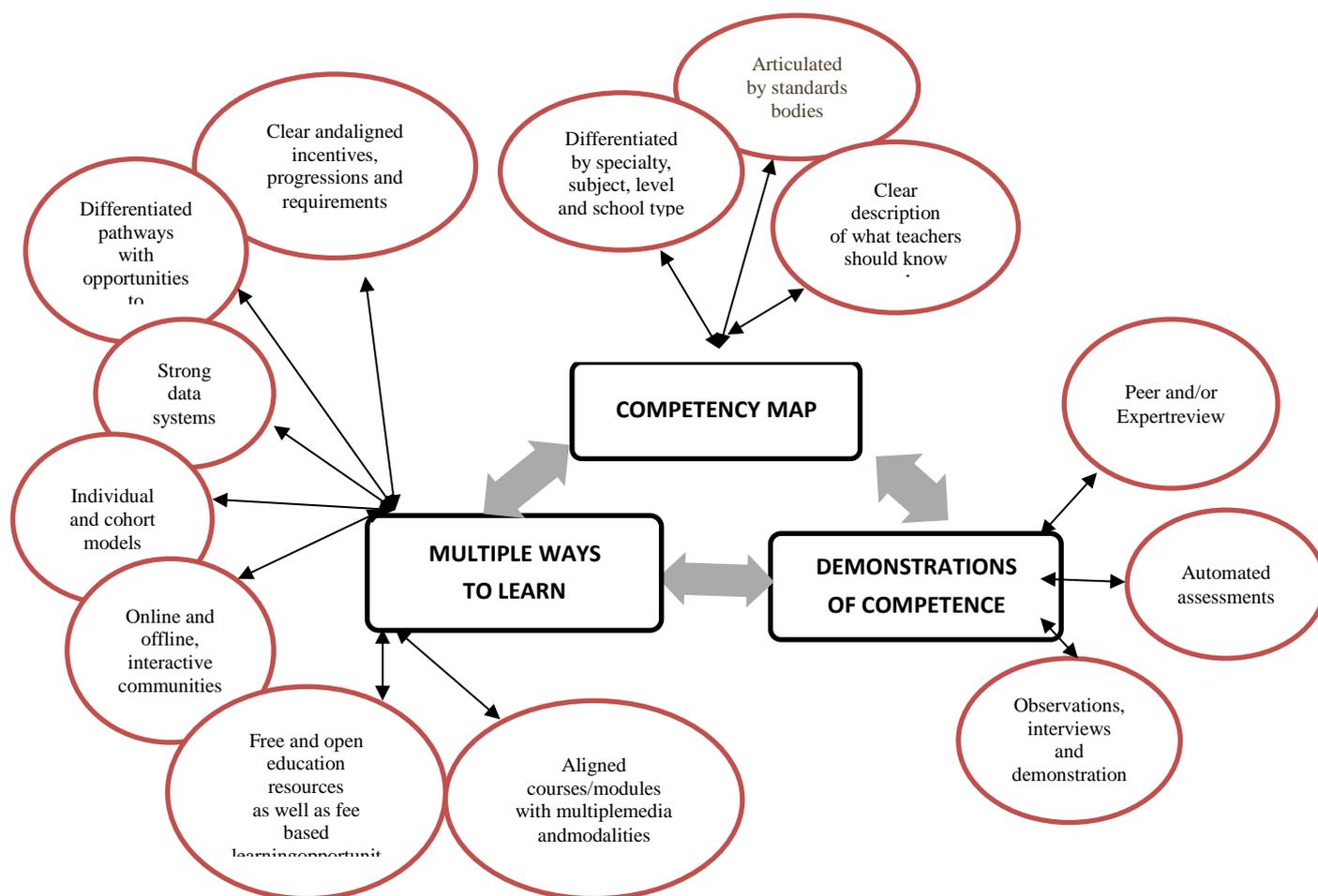- Support pilot and demonstration projects.

Fig.4. competency-based development system

Features of competence teacher Asia in three levels (Based on the survey conducted by SEAMEO[1]INNOTECH).

Ministers of education of regional center of innovation and technology of southeast Asia (2010), compare the features of competence teacher after investigating and detailed study in 11 countries of Southeast Asia(Brunei Darussalam, Cambodia, Indonesia, Lao Pdr, Myanmar, Philippines, Singapore, Thailand, Timor- Leste and Vietnam). These features are as follows:
Table 1 presents the summary of pedagogical competencies in the eleven countries of Southeast Asia based on the survey conducted by SEAMEO INNOTECH in the first quarter of 2009.

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[1] .southeast Asian ministers of   education organization

http://toucans.info

Pedagogical skills

Table 1. Pedagogical Skills of a Competent Southeast Asian Teacher (Sirep[2], 2010)

Competence	BR	CA	IN	LA	MA	MY	PH	SI	TH	TL	VI
Selects/states long-term goals and short-term measurable objectives based on a prescribed national and/or school curriculum	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓
Uses creative and innovative instructional strategies that are appropriate to a lesson's objectives and students' abilities, interests, and learning styles	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Selects and uses appropriate resources and available technologies when teaching to suit students' abilities, interests, and learning styles	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
States the objectives of lessons and skills that the students need to master in relation to past and future lessons	✓	✓	✓	-	-	✓	✓	✓	✓	✓	✓
Gives concise but clear directions for students to follow	✓	✓	✓	-	✓	✓	✓	✓	✓	✓	✓
Explains concepts, terms, vocabulary, and principles related to lessons clearly and provides examples when necessary	✓	✓	✓	-	✓	✓	✓	✓	✓	✓	✓

Student performance assessment skills

Table 2. Student Performance Assessment Skills those Southeast Asian Teachers Should Possess (Sirep, 2010)

Competence	BR	CA	IN	LA	MA	MY	PH	SI	TH	TL	VI
Checks students 'understanding, processes, and products by asking comprehension questions and requiring practical application of skills	✓	✓	✓	-	✓	✓	✓	✓	✓	✓	✓
Measures students 'progress systematically using a variety of appropriate assessment methods and instruments	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Provides feedback about students 'performance and making specific recommendations for improvement	✓	✓	✓	-	-	✓	✓	✓	✓	✓	✓
Uses assessment results to determine if objectives were met and/or if re-teaching is necessary	✓	✓	✓	-	✓	-	✓	✓	✓	✓	✓

Classroom management skills

Table 3. Classroom Management Skills Competent Southeast Asian Teachers Should Possess (Sirep, 2010)

Competence	BR	CA	IN	LA	MA	MY	PH	SI	TH	TL	VI
Promptly begins instruction and completes no instructional duties with minimal loss of instruction time	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Efficiently manages student behavior by ensuring that students cooperatively obey classroom rules and procedures	✓	✓	✓	✓	✓	-	✓	✓	✓	✓	✓
Encourages active and ensures equitable	✓	✓	✓	-	✓	-	✓	✓	✓	✓	✓

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[2]. Seameo Innotech Regional Education Project Series

	BR	CA	IN	LA	MA	MY	PH	SI	TH	TL	VI
student participation by varying roles in the instructional process											
Establishes and maintains timelines for task completion	✓	✓	✓	-	✓	-	✓	✓	-	✓	✓
Demonstrates respect and consideration for all students	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Maintains a physical environment conducive to learning	✓	✓	✓	-	✓	✓	✓	✓	✓	✓	✓
Communicates clearly, correctly, and coherently	✓	✓	✓	✓	✓	-	✓	✓	✓	✓	✓

Professional development skills

Table 4. Professional Development Skills Competent Southeast Asian Teachers Should Possess (Sirep, 2010)

Competence	BR	CA	IN	LA	MA	MY	PH	SI	TH	TL	VI
Participates in professional organizations to improve knowledge and skills	✓	✓	✓	✓	✓	-	✓	✓	✓	-	✓
Provides leadership in identifying and resolving issues and problems facing education (local, national, and regional)	✓	✓	✓	-	-	-	✓	✓	✓	-	✓
Completes assigned tasks on time and adheres to local personnel policies and procedures	✓	-	✓	✓	✓	-	✓	✓	-	-	✓
Adheres to written local and national policies and laws and regulations	✓	-	✓	✓	✓	-	✓	✓	✓	✓	✓
Exhibits professionalism with peers, administrators, and parents/guardians by demonstrating respect and consideration for an interest in those whom he/she interacts with	✓	-	✓	✓	✓	-	✓	✓	✓	✓	✓
Promotes cooperation between parents/guardians and the school and the community	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Other teaching competency in this competency.

1- Ethics and professional morals 2- social and personal competency

The survey also asked the respondents what processes they used to implement teaching competency standards (see Table 5).

Table 5. Processes Used to Implement Teaching Competency Standards (Sirep, 2010)

Competence	BR	CA	IN	LA	MA	MY	PH	SI	TH	TL	VI
Policy directives from the education ministry	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Consultations with key experts/education officials	✓	✓	-	✓	-	-	✓	✓	✓	✓	✓
Laws/Issuances from the national government	✓	✓	✓	-	-	✓	✓	-	✓	-	✓

Apart from the dissemination methods identified in the table 6, the respondents also added the following:
• Formal meetings at the central and local government levels
• Government websites

• Education journals

As shown, no common means to disseminate information on implementing teaching competency standards is currently being used by all the Southeast Asian countries.

Table 6. Teaching Competency Standards Information Dissemination Methods (Sirep, 2010)

Competence	BR	CA	IN	LA	MA	MY	PH	SI	TH	TL	VI
Training/Workshops		✓	✓	✓		✓	✓	✓	✓	✓	✓
Mentoring/Coaching		✓	✓			✓	✓	✓	✓		
Policy directives	✓	✓	✓				✓		✓		✓
Information, education, and communication materials (letters, brochures, information kits, and handbooks/ guidebooks)		✓			✓	✓		✓	✓		✓

Regional Domains/Strands of Teaching Competency Standards

The research resulted in the identification of common domains of teaching standards for Southeast Asia, namely:

• Professional knowledge – refers to the mastery of content and methodology for teaching
• Professional skills – refers to pedagogies, classroom management, and learner assessment
• Professional characteristics – refers to personal traits such as being responsible, punctual, etc.
• Professional/ personal ethical standards and values – refers to moral, good role model, etc.
• Professional development and lifelong learning – refers to participation in professional teacher organizations and activities, demonstrates a desire to enhance the teaching profession, etc.

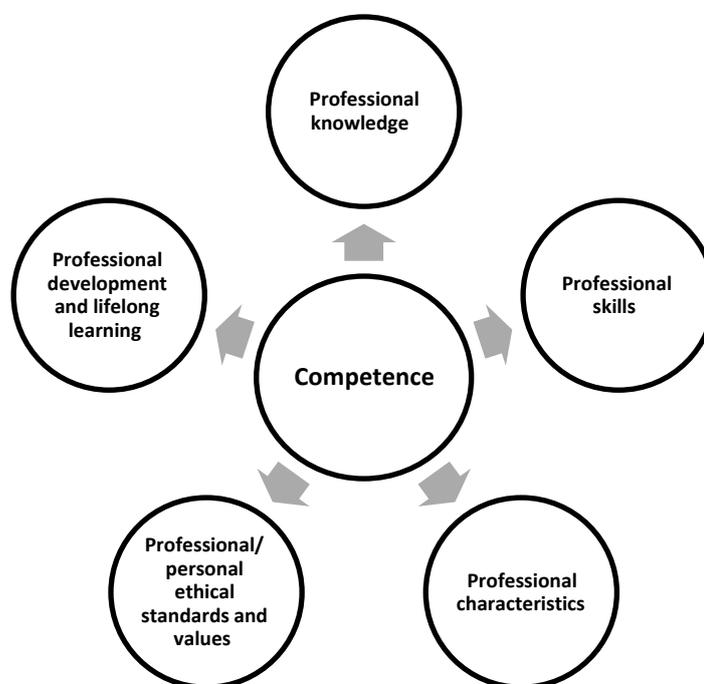See Figure 2 for the regional strands/domains of teaching competency standards.

Figure 5. Major Strands of Teaching Competency Standards in Southeast Asia

The Southeast Asian teachers are expected to possess:

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• Professional knowledge (refers to teachers' pedagogical knowledge)
•content knowledge
•technological knowledge
•lesson planning skills
•curriculum design skills
•awareness of school policies
•knowledge of principles of learning
•awareness of laws and legislations on education
•knowledge of their schools' vision and mission
•knowledge of child psychology, and awareness of required standards (Sirep, 2010).

Discussion and Conclusion

Teaching profession must be built on a proactive behavior, on the basis of an increased sensitivity to the training needs determined by the mutations in the socio-economic sphere associated to the mission of maximizing the human resource potential, in the context of openness to lifelong learning. The transdisciplinary vision on training is linked to the need of building integrative learning experiences that allows the transfer of learning outcomes to specific and nonspecific contexts, raising the individual chances for the social integration and for the professional success.

The results obtained from the study showed that different countries have shown considerable importance to the education and training of teachers according to their national mission and statement. This importance has been shown as their curriculum for teacher training. We should consider competency- based education as a principle for designing curriculum like a sustainable policy. In teacher training process, competency- based education should be considered as a basic to develop professional skills and also a systematic coherent principle to explain and expand, planning, perform, and evaluate related experiences for potential stakeholders. According to existing literature, the features of a teacher in the competency- based education system were provided.

Competency-based education (CBE) focuses on developing key competencies necessary for the successful participation in social life (Serdenciuc, 2013).

Thus A possible teacher's profile viewed in competency- based education perspectives:

- ability to design learning experiences taking in account the compatibility between the student needs and the educational offer, related to efficient task performing in real situations; having a critical approach to reality (Yogev & Michaeli, 2011);

- helping students to transfer outcomes of learning outside the classroom (Hill & Houghton, 2001);

- using the technology in alternative ways and having an extended *cultural competence* (Loewenberg Ball & Forzani, 2009);

- opened to change (Yogev & Michaeli, 2011);

- stimulating active forms of learning (Hill & Houghton, 2001);

- sustaining the collaborative work of students (Loewenberg Ball & Forzani, 2009);

- Involved as a partner in the process of emotion regulation; able to perform action research (Volk, 2009);

- Effective classroom management skills (Stronge et al, 2011);

- designer of effective learning opportunities; having effective communication skills; using the maximum potential of learning opportunities; thinking in alternatives; acting in a proactive way; building learning community; shifting emphasis from *knowing* to *doing* inside

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or outside the classroom; learning facilitator; having a skill-oriented approach to learning; fair and respectful in relationship with students (Stronge et al, 2011);

- considering assessment as an integrated part of the learning process.

Therefore we suggest some directions of action in the process of teachers training programs improvement, related to the meanings of the competency-based education:

- rethinking teaching competencies from the perspective of desired learning outcomes in compatibility with the demands of knowledge society reflected in CBE;

- building training programs in a perspective of the *integrated learning experiences*;

- linking theory and practice in a genuine way, inside and outside the classroom;

- developing a curriculum based on the cognitive view of learning;

- bounding the theoretical psycho-pedagogical and scientific specialized training with the in-service training process, for a coherent pathway of professional development in the teaching career;

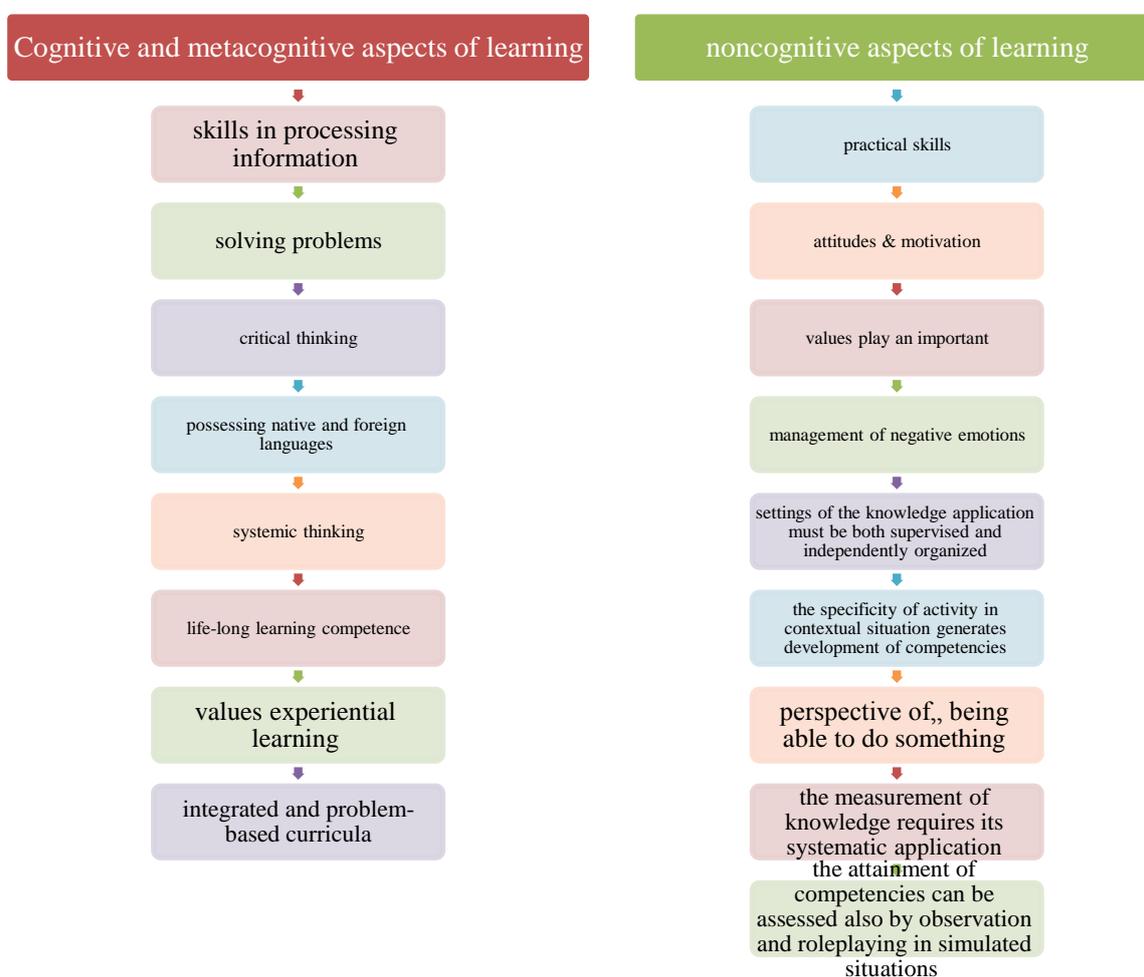- broadening the approach on theoretical and practical training in a transdiciplinary view (Serdenciuc, 2013).

Figure 5.Key competencies in Competency-based education (CBE) for the successful participation in social life (Serdenciuc, 2013)

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