Original Article

Viewpoints of Farhangian University Students on the Correspondence Rate of Science Education Curriculum with Their Needs

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ABSTRACT

The aim of this study was to determine the attitudes of Farhangianuniversity students on the correspondence rate of the current curriculum of science education with their scientific, professional and emotional needs. In this cross-sectional study, a sample of 307 university students from the three Iranian universities (Tehran, Isfahan, and Kerman) was randomly selected through stratified random sampling method. Data were collected by using a research–made questionnaire, with96 components categorized in three areas of main dimensions in curriculum standards.Thevalidity of the questionnaire was determined by curriculum studies scholars, and the reliability was confirmed as the Cronbachs' alpha calculated, and by using of factor analysis with Amos Software (8/8), too. Data wereanalyzed using descriptive and inferential statistics according to the variables.Most of the students believed that the correspondence rate of the current curriculum in science education with scientific,professional,and emotional needs is less than average level.Thus the overall result of this study showed that revision is needed in curriculum planning.In other words,the correspondence rate among the university student needs and current curriculum is not optimal.

Key words: Curriculum,Farhangian University students viewpoints, Science education.

INTRODUCTION

Colleges in many countries are attempting to develop and progress their curricula. Curriculum is one of the core elements of higher education that has a crucial and undeniable role toward universities' goals and missions. Teachers who have proper training are better able to use teaching strategies that respond to students' needs (lew, 2013). Up to know different studies have dealt with the correspondence rate of the curriculum with university students' needs (Carter. et al, 2015; Probjandee,2014; Chesnut & Cullen, 2014; Amrolah, 2014; Messo&Panhwar,2013; Lew, 2013; Scheicher,2012).

A modern education for and through science, centered on competences, implies the promotion of an integrated curriculum that gathers science fundamental scientific contents and abilities, practical skills, attitudes and values (Luminita et.al, 2013). Educators continue to emphasis the importance of the development of a wide range of subject–specific and transferable skills during university courses (Costa, et.al 2000). Researchers believe that the teachers, in additions to their expertise in the subject and learning–teaching knowledge, need emotional intelligence and if they neglect EI (emotional intelligence) in their teaching, the value of their knowledge in the subject and learning-teaching decreases considerably and consequently, this results in learners' failure (Mortiboys,2005).

Many studies show a close correlation between student achievement in science and teacher preparation in science. The more science courses teachers had taken in college, the better their students performed (Monk,1994). Development of emprically verified professional development programs for science teachers can improve the performance of the present generation of teachers and increase their students'

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interest and achievements in science (Ingersoll, 2003). Too many science classes are taught by teachers who have inadequate preparation in the subject (Spektor- Levy et.al.,2008). A science teacher with research skills through the use of scientific method can encourage the students to learn and discover through research (Tessier, 2010). Of the many steps needed to improve science education, none is more important than improving teacher training (Feldon et.al,2011).Despite the enormous growth of scienceeducation research during recent decades, its impact on the practice of science education has remained relatively low (Kempa,2002).

A growing number of studies have suggested that teachers'professional development and personal competencies are particulary important for teacher effectiveness (Wenglinsky, 2000). Teacher professional development is not an event, It is a process (Joyce &Schowers, 2002). Professional competence is a combination of knowledge, skills, experience and behaviors, training in a specific context (Gurey, 2007). Training and professional development include imparting knowledge about content and skills in instruction, classroom management, assessment, and developing teacher knowledge and skills (Birman et.al, 2000). To be effective, professional development should be based on curricular and instructional strategies (Joyce and Showers, 2002). Professional development should be designed around research documented practices that enable educators to develop the skill necessary to implement what they are learning (Gurey,2007). According to Gibbs (2002)," Teachers need to be able to survive the demands, threats and challenges within the diverse circumastances of teaching". (Gibbs, 2002). Professional teachers are distinguished by their dedication to the students and to the job of teaching, and feel responsible for the achievement and success of the students and one professional development (Muijs and Reynolds, 2005). Effective teachers need to have good professional and personal skills. They should be trained with a spirit of Inquiry (Feldon and et.al, 2011).Teacher quality and professional development is the most important factor in an education system (Davidson, 2008).

David Caruso (2003) made a list with respect to which professions are highlighted by higher importance of emotional intelligence, on this list, teachers and trainers involved in the field of education are highlighted (curuso,2003).Teaching with EI (emotional intelligence) refers to the teacher' s attention paid toward the emotional dimension of teaching- learning inorder to increase student' s learning (Armour, 2012). The program of Emotional Intelligence Teaching (EIT) provides teacher to increase their awareness of the importance of EI skills and enhance their ability toemployteachers' EI skills in their professional and personal relationships (keser and et.al,2010). Recently

there has also been a growing recognition of the importance of social- emotional competencies to students' learning and academic achievement. However there has been a neglect of emotions in the field of teaching, and little is known about the impact of training aimed at developing teachers'EI on their EI levels and their practice (Freedman & Jensen, 2005; Durlak, Weissbery&Pachan, 2010). A growing number of scholars have also suggested that teachers EI competencies are particulary important for teacher effectiveness (Hassan et.al,2015).

The National Science Education Standards (NSES(,which is an important study on science education, remarked that teaching strategies that aim for the children to grow up as science literate individuals should be used in schools by well- trained teachers (Mc Cain,2005). We should produce a system that is more effective in doing three things: getting more talented people to become teachers, developing these teachers into better instructors, and in ensuing that these instructors deliver consistently for every child in the system (Davidson. 2008).

However, Little data has been available to conduct colleges in the key role of curriculum development that is the heart of the educational enterprise, and the correspondence rate the curriculum of science education with the students' needs.

Therefore, With regard to the importance of using scientific, professional,and emotional skills in teaching- training program, this study was designed to determine the attitudes of Farhangian university students on the correspondence rate of the current curriculum of science education with their scientific, professional and emotional needs.

MATERIALSAND METHODS

This study was a cross-sectional research that was conducted in 2015. The study population was Farhangian university students in science education courses. Research environment was included three cities (Tehran, Isfahan, and Kerman) in six Farhangianpardiss centers in Iran.

Using a stratified random sampling with proportional allocation and by using Grjsy and Morgan table, 307 people were selected. Engagements in studying in science education courses and willing to participate in this study were considered as the inlusion criteria.

Data were collected using a research –made questionnaire. The questionnaire was developed in four stages:

The First Stage
All texts taken from books, articles, and documents in curriculum development, more related to the teacher training

centers and Farhangianuniversities were deeply studied. English literature texts were translated. Furthermore, key information interview was done with curriculum experts. Interviews were recorded, typed, and analyzed completely. Experts were chosen because they were completely aware of the stages of curriculum development, and busy doing it. Components, important goals of main documents in Farhangian university curriculum and student needs took place in meaningful sentences, coding, typing, and classification codes, 398 codes were extracted from this stage.

The Second Stage

Faculty members were selected with purposeful sampling with administration, educational experiences in science education courses. The individuals who were willing to cooperate were selected. Semi-structured interviews with content analyses approach were conducted.

Faculty member sampling continued until data saturation achieved. Then all semi-structured interviews were recorded, typed, and analyzed completely. In this process according to the research objective, data collection was done in order to detect needs, curriculum and correspondence between them, and to determine the dimentions and their components. 297 codes were extracted from this stage and the sum of the two parts was extracted 695 codes.

The Third Stage

According to the categorized dimentions from viewpoints of faculty members, experts, and review of the literatures, questionnaire dimensions and components were shaped. The collected data were investigated during several meetings with experts. some components and items were merged or deleted, and some were changed. Thus the primary tool was developed with 96 components related to three areas of main dimensions in students needs (standards) included: "scientific needs" (components: 1-36), "professional needs" (components: 37-66), and "emotional needs" (components: 67-96). Responses were ranked based on a Liker scale with five scores for current status (very little is implemented=1 to very much is implemented =5). The questions were allocated to individual demographic characteristics included: sex, university field of study, city, educational year (term).

The Forth Stage

The validity of the questionnaire was determined by curriculum studies scholars and the reliability was calculated by using the alpha Cronbach internal consistency, and confirmed by using of factor analysis with Amossoftware(8/8).For internal consistency 38 of Farhangianuniversity students answered the questionnaires.

The questionnaires were self –administered and completed individually. In order to comply ethical research principles, all subjects completed an informed consent.Data were analyzed by using descriptive and inferential with Spss(statistical package for social sciences).To determine the current status, items' frequency percentages and mean scores were calculated.

RESULTS

Three hundred and seven out of 311 Farhangian university students (98/11) filled the questionnaires. The majority of (53/4) university students were male. A total of 94/5% of university students were in the fifth and sixth terms. Considering the majors, 38/4% of Participants were phyiics students, 36.2% chemistry students, and 25.4% Biology students.

The descriptive indices of the variables examined in the study can be found in Table 1. As Table 1 shows among the scientific, Professional and emotional needs, emotional need has the highest score (2.54) while the scientific need has the lowest score (2.36).

Based on the Table1, the observed t is significant (p%5). Thus most of the students believed that the correspondence rate of the current curriculum of science education with scientific, professional, and emotional needs is dissatisfaction. As it can be seen, the correspondence rate of the curriculum with the students' needs is less than average level.

As Table2 shows among the components of scientific standards, science conceptualization has the highest score (2/67) while the English proficiency has the lowest score (1/76),in the professional standards, the highest score belongs to dominating basic skills using internship (2/62). while the ability of science production related to real social needs has the lowest score (2/05), and among the component's of emotional needs, teaching self-controlling skills has the highest score (2/67) whereas creating optimal relationship has the lowest score (2/10).

As it can be seen in Table 3, observed F is significant (p0/05). Therefore there is difference between the correspondence rate of the current curriculum of science education with the students needs.

Comparison of viewpoints showed that it needed a revision to gain optimal curriculum. University students of science education in three majors (physics, chemistry, and biology) believed that the current curriculum isn't optimal and needs revision.

DISCUSSION

This study aimed to examine Farhangian university student's Perspectives on the correspondence rate ofthe current curriculum of science education with scientific, professional, and emotional needs. The results showed that there was a significant difference between the current curriculum and the student's need. In other words, the correspondence rate among their needs and current curriculum is less than average level. Therefore it can be inferenced that revision is needed in curriculum planning. In curriculum reform, it should be considered all the factors that can bring about teacher's knowledge, professional competencies, and a more positive emotional environment.

The result of several other studies have also confirmed these findings (Carter et.al, 2015; Probjandee, 2014;Chesnut& Cullen, 2014;Amrolah, 2014; Messo&Panwar, 2013; Lew, 2013, Luminita, 2013; Schleicher, 2012).

Components of science needs are science conceptualization, unifying the details, updating science education socialization science education, information proficiency and English proficiency.Of the many steps needed to improve science education, none is more important than improving teacher training(Feldon, 2011). The result of this study are in line with the results of the study conducted by Luminita et.al, who were proposed the teacher's training program, which aims to the development of science teacher competencies (Chemistry, Physics and Biology) in strong relation to scientific investigation, valorization of pupils' individual experiences. A modern education for and through science, centered on competencies, implies the promotion of an integrated curriculum that gathers science fundamental scientific contents and abilities, practical skills, attitudes and values.

Components of professional needs are studied in this research are the ability of planning curriculum objectives, selecting the content, dominating modern approaches, the ability of science production and scientific development, putting effort into technology based professional development & growth, and dominating basic skills using internship.

Researches showed that well-formulated and sustained professional development programs for teachers can significantly improve student achievement in science (McLaughin et.al 2011).

Teachers need to be critically informed with professional values, knowledge, and actions in order to address changing demands (Hassan et. al,2015). Teacher professional development is not an event, it is a process (Joyce&Schowers, 2002) professional development cannot succeed without strong content and it should be based on curricular and instructional strategies (Luminita, 2013). Professional competence is a combination of knowledge, skills, experiences and behaviors, training in a specific content (Gurey, 2007). Teachers should be trained with a spirit of inquiry (Feldon and et.al, 2011).

Most of the studied students were dissatisfied with the current curriculum of the science education and there was no significant difference between males and females.

A growing number of studies investigated suggested a need of revision in curriculum developing about emotional intelligence(Yamani, 2014; Zeidner, 2013;Armour, 2012; McLaughlin, 2011; Burden, 2010; Norman, 2002). Researchers believe that the teachers, in addition to their expertise in the subject and learning-teaching knowledge need emotional intelligence and if they

Table 1: Mean, standard deviation of the subjects in research variables from the viewpoint of university students

Variable	Mean±SD	t	Significant
Scientific need	2/36±0/525	−11/64	0/001
Professional need	2/38±0/591	−12/45	0/001
Emotional need	2/54±0/707	−6/73	0/001

Table 2: The highest and lowest mean score and standard deviation of the main standards, from the viewpoint of university students

Main standard	Components	Sub components	Mean±SD
Scientific			
Max	Science conceptualization	Unified the details	2/67±0/813
Min	English proficiency	English Communicating in science	1/76±0/905
Profession			
Max	Professional development	Professionalperformance improvement using internship	2/62±1/02
Min	Science production	Scientific progressrelated to real Social needs	2/05±0/914
Emotional max	Teaching self-controlling skills	Fostering self-discipline	2/68±1/00
Min	Creatingoptimalrelationship	Self-assertive in knowledge presenting	2/10±1/02

Table 3: The comparison of Farhangian university student's viewpoints on the correspondence rate of the current curriculum of science education with needs

Subjects	Component	F	P
Physics students	Needs (standards)	6/608	0/002
Chemistry students	Needs(standards)	15/611	0/001
Biology students	Needs(standards)	2/986	0/246

As it can be seen in Table 3, observed F is significant (p≤0/05). Therefore there is difference between the correspondence rate of the current curriculum of science education with the students needs

neglect EI in their teaching, the value of their knowledge considerably and consequently, this results in learners' failure (Mortiboys,2005). The results of this study are in line with the results of the research conductedbyMcGregor, he stated that some professions in which individuals either have high interaction or heavy team work need a significant level of Emotional intelligence (McGregor, 2011).

It should be noted that teaching ranks at the top among such professions (Cherry, 2012), as it needs direct human interactions; therefore, it has an emotional dimension(Armour,2012).

Components of emotional need in this study are creating an atmosphere for positive teaching & learning, making optimal relationship, the ability of feeling comprehension, attending the learners' expectations, teaching self- controlling skills, increasing self-confidence. Considerable research indicates that emotional intelligence play a central role in teaching training programs and it is a powerful tool offered in the training of teachers(Mayer et.al,2004).

As it was noted, among the main standards studied in this research, emotional skill had the highest mean and it is in line with the results of many studies which stated that Emotion related skills play an integral role in teaching training programs (Mayer et.al,2004; Sutton,2003).

The European union, focousing on high quality teaching as key prerequisite for high quality education and training (European commission,2010). The impact of any educational system can only be as powerful and effective as teachers who actually perform this profession (David son,2008), and it isnot a simple task to design an optimal curriculum; however, the orientation should be on desigining a curriculum that is relevant, standards- based, and meaningful for students.

In this study, asignificant difference between demographic factors such as gender, major field of study, and the city of research was not found. Another interesting result of this study was the fact that The university students' were

satisfied with enternship. Perhaps one of the reason of this satisfaction can be due to greater focus of Farhangian current curriculum on this subject.

The strength points of this study is first, the tool was designed based on curriculum expertise and faculty perspectives that have experience, ability and expertise in matters of curriculum,and curriculum revision. Second, the tool is designed in such away that to be given" many standards for having an optimal curriculum. Also considering the current status and predictability of optimal statuse, and the questionnaire filled by university students who are relevant population.

The limitations of this study can be stated as follows, we did not find a similar comprehensive study about emotional domain in Iran. Also, we had to design many standards so as to adjust them to the respondents' time and patience. Moreover, many of university students werenot familiar to standards of the curriculum, and finally, the field of our study was limited to three filed of studies in three cities.

Researchers have suggested that education can only be setup if teacher training has a firm position within a given higher education institution. The orientation should be on desigining a curriculum that is relevant, standards- based and meaningful for students by an integrated curriculum that gathers science fundamental scientific contents and abilities, practical skills, and attitudes and values.

CONCLUSION

The overall result of this study showed that the university students believed revision is needed in curriculum planning. In other words, the correspondence rate among,their needs and current curriculum is not optimal, and it is less than average level. Among the components, scientific, professional, and emotional, results showed that emotional skill is needed to be mentioned more. Since emotional intelligence can be taught and acquired, it can be expected to improve the two other skills, scientific and professional. Therefore, it is recommended that long- term training courses be designed and scheduled based on the concepts of emotional intelligence for Farhangian university students during their studies in university.Science education curriculum in the studied universities needs to be upgraded and improved in all aspects.

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