

Difficulties in Making Professional Science Teacher in the 21th Century.

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Abstract: *This study aimed at investigating the difficulties in making professional science teacher in the 21st century. To achieve this objective a double response questionnaire combines with five point liker scale and open ended questions was used for the sample of the study which consisted of (77) teachers . Results showed the more acute difficulties facing the process of making professional science teachers, as seen by science teachers are: Administrative and organizational skills, personal and ethical domain, educational skills, specialized scientific literacy, which the least acute ones are Technologic skills, social skills. And the executive procedures needed for making professional science teacher, in the 21st century, are: developing positive attitudes of teachers towards science, taking care of preparation institutions outcomes, giving teachers the freedom to specify his needs in service, setting incentives, promotions, and ranking system connected to performance appraisal, supporting open electronic self-training programs, conducting workshops to exchange theoretical and practical experience of science teachers, and finally, training on instruction design, free inquiry, as well as writing specialized scientific and educational research.*

Keywords: *Difficulties, Professionalism, science teacher, professional science teacher.*

I. Introduction

Expanding global competitiveness from commerce to ideas leading research, Laboratories and industries resulted in the development of educational supporters and basics in the 3rd mellitus from learning to know to learning to do, learning to live together and finally to learning to be (Delors et al., 1996). Therefore the need for science education and science teacher reform, because a national priority for most countries, in order to create new life that is consistent with accelerated changes in science, knowledge, technology, economy and society. A number of international reform movements in science education and science curricula, focusing on unifying themes aiming at achieving quality in science teaching that is consistent with far reaching future vision, appeared. Quality of science teaching includes all educational system, starting from the educational system and educational policy to science programs, assessment and teaching strategies and the teacher as the bridge connecting learners and knowledge, hence science teacher ought to possess both theoretical and applied knowledge, warns abilities and skills in teaching, learning and technology, as well as being equipped with positive morals and beliefs about the profession, as the deepness of his knowledge, understanding and behaviors, will be automatically reflected on his teaching practices (Zaytoon, 2010). So, if we are to improve the quality of our educational system, we should attend and take care of how the learned is educated?, Who educates the learner? Questions confirmed by Unesco report (2014) under the Teaching and learning: achieving the quality for all, heading or themes, which implied that educational system quality is measured by the level of its learners (Unesco, 2014).

Professional teacher in one of the modern subjects that arises in the educational literature with the reform movement, where the bet for the success of reform movements is to raise good and efficient teacher standard (Gulamhussein, 2013). Furthermore, the radical changes in education vision, policy and structure, resulted in a change of teacher's roles from lectures knowledge transmitter and students raiser to knowledge and educational expertly technician and behavioral model (loughran, 2011). Which resulted in making teachers the center of reform process and one of its causes, and being the executer in the field, and the one who sees what happen in classrooms in the changing world. And this what was confirmed by recommendations of several various conference including the second international conference for education and informatics (Mosco's, 1996), the (45) round of Unisco international educational conferences (1996) entitled consolidating the teacher's role in a changing world (Abd-elsalam 2006), and the first universal consortium (Professional teacher in the third millennium) organized byking Abdul-Aziz university, Jeddah.

1. Professionalism concept

Professionalism is of the important basic element of practical efficient life, however in the world of business it corresponds to success and points out to the expected behavior of individuals in particular profession (Tichenor & Tichenor, 2005). Moreover, from social science perspective, it is the change phenomenon in the profession (Hanlon, 1998), also, the professional needs to the expert in knowledge and skill field (Baggini,

2005). Furthermore David (2000) reported professionalism criteria emphasized in the literature including: public service seeker, possessing theoretical and applied experiences, high organization and regulation, high degree of independence of judgment, affective practice, ethical dimension, considers reward system as a symbol for job excellence. Moreover in the actual practice, criteria's and characteristics of professionalism are determined by the state, especially in teaching profession as a beneficiary of or main organizer of education, as a beneficiary of or main organizer of education, as well as a major political issue in many country and an aspect of educational reform (Whitty, 2006), Therefore standardized criteria and performance criteria, and teachers assessment systems which required availability of initiative spirit by part of the teacher (Evans, 2007) and is considered a form of teachers professional control (Ozga, 1995). And of the most prominent properties Professionalism are; (a) Inclusive membership, (b) Public ethical code of practice, (c) Collaborative and collegial, (d) Activist orientation, (e) Flexible and progressive, (f) Responsive to change, (g) Self-regulating, (h) Policy-active, (i) Enquiry-oriented, (j) Knowledge building (Sachs, 2003).

2. Professional teacher

This concept appeared in 1980, when decision makers realized that expected achievement from reform movement was not affirmed (Brandt, 1993), however this concept has not an established definition in that it is changeable and can develop over time, and is socially determined according to its use so as to serve various interests (Hargreaves, 2000; Evetts, 2006), but as a whole it emphasized teachers professional qualifications which realize excellence and highest job performance; professional teacher was defined by Wise (1989) as a teacher who has knowledge related to subjects he teaches, and has the ability to analyze students' needs, knows profession practice standard (Professional knowledge; Professional practice; Leadership in learning communities; ongoing professional learning and Commitment to students and student learning) and The ethical standards for the teaching profession (Care; Respect; Trust and Integrity) .whereas, Tichenor & Tichenor (2005) defined him as the teacher who push the education to the highest level, and make the best practice with highest standards. Professional teacher can be identified through measuring best and highest standards possessed and practiced by him in teaching, as the professional teacher practices and performs multiple roles together and with high efficiency, and the process of his production need time period through which he passes historical stages during his service (Hargreaves, 2000). See figure 1.

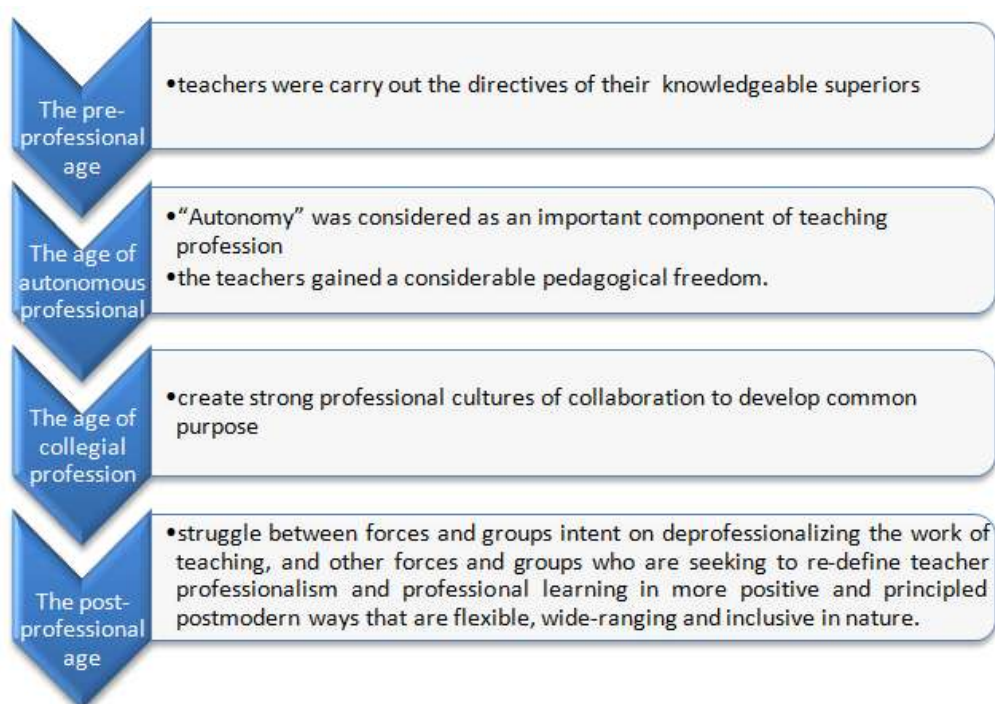


Figure 1: Historical stages during teacher service to become professional (Hargreaves, 2000)

Meanwhile, international directions specified the 21st century teachers' characteristics among which: origami educational (2012) interested in integrating knowledge with technology and communicational based learning which described him as: The risk taker, the collaborator, the model, the leader, the visionary, the learner, the communicator, the adaptor. And Singapore national institute for teachers qualification which specified his skills including teaching art, human (people) management, self-management, administrative and

organization skills, communication skills technological skills, thinking skills, creativity skills and initiative spirited, social skills and affective skills (Jackson, 2010), and Report of the Wheelock College Conference on Mentor Teacher Training in Massachusetts, which put forward a description based on professionalism in the preparation of the 21st century teachers and gives teacher freedom in management with a set of governing standards describing performance (kamii, Micko, Harris – Sharples, Susan. 1988). Thus, making a professional teacher is something possible rather than impossible, however, the process needs both time and joined efforts and no individual effort, it also requires exerting consciouseffort and hardworking by part of the teacher himself, and in various aspects as professional, beginning with his feeling of the need for change development and self-growth for professionalism to initiative and action, and accompanies him until the end of his service, and becoming educational expert.

II. Literature Review

Teacher professionalism and characteristics were addressed, in the research literature, carefully from various points of view, of which, Anbosi and Abu-Osbah (2013) study to find out teachers educators at Al–Quasimiyacademy, perspectives on good teacher's characteristics in terms of agreed upon dimensions in the research literature (traditional vs modern orientations). Results showed that lecturers at this academy give high importance to six elements and considered essential for teacher to be considered a good one, three of which represent traditional orientation towards teacher (knowledge of educational content, knowledge of cognitive content, and general education knowledge), while the other three represent modern orientation (Ability to change and innovate, commitment to individual differences, participation and engagement (involvement) in learning community. Rusu, Soitu and panaite (2011) conducted a study on university students perceptions of good teacher through an article about good teachers characteristics, which showed that main common characteristics among students mere enjoying human communication skills, fair assessments knowledge of cognitive implications, student thought development and being respected. In Turkey, Ac, kgoz(2005). Conducted a study on teachers characteristics and their influence on students attitudes from school students perspectives, which showed undressed, teacher characteristics, by students as: biased treatment, pessimism, using boring techniques, toughness, carelessness about clothes and physical appearance, continues screaming, on students mistakes, loss of classroom control, whoever teachers desired characteristics include equity and fairness, merci, intimacy kindness, joy, calm, friends hip good listening to students, care for finding comfortable, state and collaborative classroom environment, contusing activity and work enjoyment. However, some studies addressed factors influencing teachers characteristics, where Edu and Edu (2013) study revealed that seniority influenced elementary teachers attitude in learning scientific constructs, which Yemisi (2013) and Anbosi and Abu-Osbah (2013) studies revealed that seniority did not influence teachers views to his work conditions.

III. Research Problem and Questions

Result of some studies, in Saudi Arabia in particular, shoed the science teaching did not active its objectives, and this might be due to several factors including teacher (Al–ghamidi, 2003; Ahmad, 2005), where multiplicity of science teacher roles and responsibilities in the age of accelerated advancements voiced by reform movements, in addition to; global orientation toward commitment to total quality of teaching and learning process, and academic dependency in the learning process, have forced educational institution to take care about science teacher quality to make him a professional teacher who is able to achieve science teaching adjectives as the base for teaching and learning process, and the most aware of his needs and demands and main conveyers of teetering, the leader of the learning process, so the current research cane to invested at the "**Difficulties in making professional science teacher in the 21th century from teachers perspective**", bases in future visions of scientific education and since curriculum reform movements, hopping to realize the intended visions and upgrade and coverage of students level with distinguished teaching, by answering the following research question in particular:

1. What difficulties are facing the making of professional science teacher in the twenty first century from teachers' perspectives?
2. What are the procedures needed to make professional science teacher in the 21st century from teachers' perspectives?

IV. Method and Procedures

1. Research population and sample

Research population consisted of science teachers (physics, chemistry and biology teaching at public schools in Najran district for the 2016–2017 school year, totaling for (250) teachers in elementary, middle and secondary schools. Whereas the study sample consisted of (77) teachers consisting (30%) of the population, subjected were randomly selected from various scientific specializations.

2. Research method and instruments

Descriptive analytical approach, based of studying the phenomenon as it is for a large sample of the population, was employed in this study, In addition to quantitative research.Descriptive survey method using a questionnaire, was adopted by the researchers, to find out difficulties in making professional science teacher, developed by the researcher to identify since teachers views about difficulties and procedures for making professional science teacher, which is a double response questionnaire combines with five point liker scale and open ended questions, through (30) items distributed on six domains, with (5) items for each domain, however, domain are special sized knowledge, educational skills, communication, personal and management, technological skills and finally moral. (ethical) dimensions, which were selected after reviewing educational literature and specifying the most important traits and characteristics of professional, distinguished and good teacher, Each dimension was followed with the following open – ended question: "what is the appropriate procedure to overcome difficulties facing youth in this domain, to became professional science teacher?" Content validity was established by submitting the instrument to a group of experts and educators, referees, is science and mathematics and to experts in Measurement and evaluation, and based on their opinions' and comments some items were removed, and others were modified. As for the instrument reliability internal consistency coefficient was computed on an exploratory sample of (43) teacher not participating in the study, where Cronbach alpha was (0.83) which is suitable for this study.

V. Results and disension

1. Results related to the first research question:

What are the difficulties in making professional science teacher in the twenty first century from teachers' perspective? Means and standard deviation of professional teacher making requirements, were used, and results are displayed in table (1).

Table.1: Means and standard deviations of difficulties in making professional science teacher from teachers' perspective in a descending order

Domain	Rank	Mean	Standard Deviation
Social skills	1	2.77	0.358
Technological skill	2	2.65	0.265
Specialized scientific knowledge	3	2.22	0.466
Educational skills	4	2.20	0.420
Personal moral dimension	5	2.11	0.319
Administrative and organizational skills	6	2.09	0.244

Table (1) shows that social skills were ranked first with the highest mean of (2.77), while administrative and organizational skills were ranked lastly with a mean of (2.09).Hence administrative and organizational skills domain is one of the most domains in which science teacher face difficulties including: individual self-control, classroom management, independent decision making reading educational systems on teacher. While practicing his teaching tasks, limiting thereby, his freedom in managing his tasks will be negatively reflected on his classes and students organization. This finding is consistent with AC. Kgoz, (2005) and RUSU, soitu&panaite (2001) studies.Personal moral dimension came second in terms of difficulties faced, with a mean of (2.11), including: lack of self-organization and discipline, leak of initiative in self-professionaldevelopment, change and educational advances resistance, lack of interest in gaining student trust and respect, and non-considering individual differences. This might be attributed to lack of incentives supporting teachers towards teaching profession, and this consistent with results of Ac.kgoz (2005) and Anbosi and Abu-Osbah (2013) study. However, in the third place came the domain of general and specialized educational skills, in which teachers face difficulties, with a mean of (2.20), including analysis, of student's needs, use of laboratories, conducting scientific experiments, in the scientific method, to solve problems, and confining themselves to describing the experiment and presenting its results, use of modern teaching strategies with mastery and expansion, specially free inquiry, preferring dialogue and discussion over other teaching strategies, listening to students and discovering their thoughts. This might be due to the large ament of knowledge in study textbooks, non-sufficient lesson time teachers non mastering of strategies due to the lack of good professional training, teacher non believing in his multiple role in the twenty first century this finding is consistent with findings of Anbosi and Abu-osbah (2013) study, which considered knowledge of educational content and general educational knowledge among the most important components of good teacher.Further, specialized scientific knowledge came forth in terms of difficulties faced, with a mean of (2.22), where science teacher agreed that they, in the beginning of their service, faced curriculum and scientific knowledge understanding, difficulty, and they were studying (reading) the lesson more than once to comprehend, and that

they needed time to command and master the knowledge, and that some scientific disciplines in textbooks was never faced or encountered in their university studies, and they rarely keep up or view scientific advancements or read external sources to enrich and expand their knowledge, and this might be attributed to absence of knowledge training courses offered to teachers with emphasis on educational rather than cognitive aspect and teacher's view of teaching as a career for living without realizing the mission he holds, which hinder his self-learning initiative and developing his academic competencies to confront educational and cultural challenge as well as knowledge explosion. This finding is in line with findings of Edu & Edu (2013) study which showed that seniority influences elementary school teachers position in teaching scientific construct, this finding is not consistent with yemis (2013) findings and Anbosi and Abu-Osbah (2013) study.

Technological skills domain came fifth in terms of difficulties, with a mean of (2.65), especially in designing teaching programs that specks to learners and emphasize individualized instruction and self-teaching, where science teachers displayed their ability in using technological devices and global network and the internet, however they don't activate them in developing and enhancing scientific research skills among their students, and this might be attributed to teachers lack of knowledge regarding software's for developing educational programs, and scarcity of training in then. This finding is in line with findings of Rusu, soit&panaito (2011) study. In the last place came the social skills (communication and relatedness) with a mean of (2.77), since most teachers emphasized their willingness for public service and are considerate for their students and respect whim. Furthermore teachers reported their continuous contact with students' parents and initiate the participation of their students' engagement in curricula and extra curricula activities, but, at the same time, they show no interest in being committed to their appointments with their students. This might be due to socialization processes and principles in mutism's society and commitment to religions principles at the family and social life levels, and the conservative nature of society on habits and traditions, which make teachers take care for their students. This is in line with AC kgoc(2005), Anbosi and Abu-Osbah (2013) and Rusu, soit&panaito (2011) findings.

2. Results related to the second research questions

What procedure are needed to make professional science teacher in the 21st century, from teachers' perspective? In answering this question, subject responses to open ended questions were analyzed it was found that science teachers identified a set of executive procedures to be taken by school teachers in cooperation with specialized educational parties and other educational committees to be professional. Teachers, in the domain of social skills, emphasized the need for training on the art of dealing with others and with tough personalities as well as the use of body language. Furthermore, subjects emphasized the importance of continuous talk with other such as communicating with parent and colleagues, in addition to teach students' how to learn by making them thin loudly, listening to their ideas and provide them with explanatory explanation for their ideas, the positive feedback, building trust channels with them by fair assessment, non-allowing verbal or physical abuse from teachers or students, as well as using social negotiations based teaching strategies as collaborative learning.

Whereas, in the domain of technological skills, teachers focused on the need for teachers to know instruction design software's, training on the mechanism for designing teaching programs and simulation programs in preparing risky experimented based on self-learning and individualized teaching within the classroom environment and electronic search skills. However, in the domain of scientific knowledge, teacher focused on the importance of possessing high level in civic scientific literacy by part of teachers, and the need for sustained self-development and heaping up with scientific advancement, and the need to raise admission average scores in scientific institutes and colleges, taking care of teacher preparing programs, especially during the practicum period practical application, as well as conducting cognitive test for novice teaches to find out their e3xperience pre service , and conducting training course, on scientific material for novice teachers dong with workshops to apply scientific experiments contained in the curricula. As for educational skills domain, teachers focused on the importance of sustained self-development setting controls and conditions on incentives, rewards, and promotions such as submitting teachers to theoretical and practical test in their field of specialization, giving remove training courses without forcing teachers to attend in specified time or place, and the importance of teachers specifying is training needs and raising trainers level of quality, so that training courses because like workshops in which teachers applied their skills under the supervision of educational experts, and finally the importance of training in free inquiry and scientific research. With regard to personal domain, teachers highlighted the importance of possessing Islamic ethics, science and scientists' ethics, and scientific attitudes, as well as the need for enhancing personal and leadership skills during university study by teaching courses specific to teaching procession ethics and human values and Morales along with focusing on their development during the practical practicum period. They also focused on the importance for teachers to develop their self-skills and abilities in order to hum to move among his reds with high professionalism in accordance with scientific situation such as self-confidence, getting rid of shyness and feeling protein themselves and achievements, power of personality and simplicity in dealing, as well as positivity, taking cover

of their personalities and physical appearance, initiatively for learning and self-professional development in order to look for continuous self-enhance for convenience that his knowledge is related to knowledge of his students, and finally to do critical self-assessment to develop himself. Finally, in the domain of administrative and organizational skills, teachers believed that giving teachers freedom in the management of his educational tasks, and authorizing them in managing students tasks and activities in the classroom environment, personally, and engaging him in decision making within the school, which is necessary for making professional science teachers, as well as training teachers in leadership, planning and classroom management skills. Other teachers focused on the importance of teacher commitment to and adoption of organization regulations and instructions, in an ideal form, along with school care for his initiatives and appreciating his achievement in accordance with global directions and research results.

III. Conclusion

1. Professional teachers are not born, but are made.
2. Professional science teacher making process needs time for making and consolidation of efforts, unifying vision among preparing institutions (Colleges and universities), educational parks and committees in charge of teacher development to bridge the gap between teachers theoretical preparation and actual practices in classrooms.
3. More acute difficulties facing the process of making professional science teachers, as seen by science teachers are: Administrative and organizational skills, personal and ethical domain, educational skills, specialized scientific literacy, which the least acute ones are Technologic skills, social (communication and relatedness) skills.
4. Among the executive procedures needed for making professional science teacher, in the 21st century, are: developing positive attitudes of teachers towards science and teaching profession, taking care of preparation institutions outcomes and evaluating them, giving teachers the freedom to specify his needs in service and not imposing training programs on him, setting incentives, promotions, and ranking system connected to performance appraisal as a basic for teacher advancement and remaining in the profession, supporting open electronic self-training programs to remove time constraint and increased loads of teachers, conducting workshops to exchange theoretical and practical experience of science teachers under the supervision of educational experts, and finally, training on instruction design, free inquiry, as well as writing specialized scientific and educational research.
5. In service training and sustained career development according to professionalism standards are basic keys for the making of professional science teacher. Also continuous or long life learning and self-career developments are among the important back points in helping the maturity of science teachers.

IV. Recommendation and suggestions

- Taking care of science teacher preparation program in colleges and institutes by focusing on modern subjects in scientific literacy: contemporary issues in science, reform movements in science education, scientific knowledge, nature of science scientific research, scientific ethics and trends.
- Setting standards for accepting individuals as a science teacher including. Level of scientific literacy, possessing of technological educational skills, and positive attitudes towards science teaching.
- Issuing a career practice license for science teaching, to be acquired before entering the profusion and after thing expense that identity his various skills.
- Making science teaching a profession for science teachers as he is a professional expert with the ability to manage his educational processes.

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