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Yemenis Primary School Teacher Competency

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Abstract: The professional competences of primary schools mathematics teachers has been identified also the significance extent of such competences for Yemenis mathematics teachers has been studied. The researcher used descriptive research approach. The study data collected from specialist educators and teachers experts to determine the mathematics teaching competences. To know how the mathematics teachers apply those competences, the researcher distributed a questionnaire to 62 Yemenis teachers in primary schools after testing the validity and computing its reliability through Pearson Correlation Coefficient which was 92.32%. The study created a list of necessary competences for mathematics teachers and distinguished teachers point of view on the competencies significance.

Key words: Computing, reliability, person correlation, distributed validity, determine, teacher, competency

INTRODUCTION

As technology changes rapidly recently and during the coming years, the need for educational training in basic skills will increase dramatically because the entire society is more dependent on science and technology than ever before. In order to meet the challenge of providing adequate training to the younger generation and to meet the minimum requirements of basic skills needed to satisfy today's complex society.

Educational change requires the introduction of new ideas, artifacts, procedures or processes. Innovation demands both initiative and originality. Its aim is to develop and promote change aimed at improving curricula, teaching and learning and the institutional framework in which the change occurs (Smith, 2003). The task of improving the teaching and learning of the priorities of many states whether developing or not developing states, we belief that these process will contribute to the achievement of real targets of these states and their hopes for the future.

The teacher preparation is the most important factors that will help to achieve the desired education renaissance of the commuting in all aspects and efficient teacher is the teacher who is capable of achieving the objectives of the education effectiveness and proficiency.

States that are trying to achieve a comprehensive in all aspects of life require teachers to posses many skills, including planning and evaluation and teaching methods effectives modern and successful management of classes (Mutahar, 2008).

Teaching is more than picking up a bag of instructional tricks at the Schoolroom door or learning to mimic the actions of another educator even a very good one. Good teachers are thinkers and problem solvers, they know when children are not learning and can adjust instruction appropriately, they know how to design and use a variety of assessment technique not just paper and pencil tests, they know how to work with parents to bring out the best in a child, they know that teams of professional educators can transform school and expect to go about doing it (Roth and Swail, 2000).

Teachers of mathematics at any level should know and understand mathematics substantially beyond and below that which they are expected to teach, they should be able to relate mathematics to the world of their students and to the natural science/social science. Often the student faced a problem and difficulties in the study of mathematics this requires looking for the best ways and means to solve these problems and we can reach only by the appropriate evaluation means. Therefore, it is necessary to identify the teaching competency which applied by teachers during teaching.

Many definitions of competence are available; many researcher follow Chomsky's approach by distinguishing between competences and performances (Cohen, 1983; Evans *et al*., 1993; Langford and Hunting, 1994). According to Chomsky, the concept of linguistic competence represents the cognitive structure and rules that are necessary to produce speech; in contrast, linguistic performance represents the way speech actually functions in practical when it is contaminated by external factors.

For instance, a limited capacity of the working memory may cause a long sentence to end ungrammatically because the speaker has forgotten the

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sentence's initial set-up. Here, linguistic competence may be perfect while linguistic performance is much less than perfect Chomsky, adopting a functionalist perspective, assumes linguistic competence to be general and invariant while in contrast-linguistic performance is strictly individual and variable.

Evans *et al.* (1993) extended Chomsky's approach to the domain of human reasoning; they define competence as the ability of subjects to reason logically under ideal conditions, i.e., the reasoning competence is not disguised by performance factors, they go on to describe the difficulties of eliminating such performance factors in order to uncover competences.

MATERIALS AND METHODS

Study design and sampling: The study community is mathematics teachers in the primary schools in Yemen Sana'a city. Table 1 shows the study sample. To identify the necessary competences which must mathematics teacher be available the researcher made the following:

- Informing the researches and studies which relate to mathematics competences teaching
- Making interview with experience teachers and education scientists and offer questionnaire to them to know the important competency of teaching mathematics at primary Schools the questionnaire consisted from the following questions
- How do you usually prepare your lesson before the beginning of the class
- At what level do you think that, the students are in need to study mathematics
- The mathematics teaching goals can be divided into many kinds according to your own point of view, what are these kinds
- How do you deal with the relationship between math and life experience of students
- How do you plan to form the math thought pattern of the students
- What functions does the interaction between teachers and students play in the math teaching
- How do you lead the students to learn actively
- What are the basic skills do you think that a competent math teacher should have
- What should you do to help weak student to achieve math
- What are some ways would you try to motivate students to learn mathematics

Table 1: Study sample

Male	Female	Total
27 (43%)	35 (56%)	62 (100%)

- Analysis responds of questionnaire
- Construct questionnaire including important competency of primary schools teacher

Questionnaire validity: According to the standards for educational psychological testing, validity may be broadly defined as the appropriateness, meaningfulness and usefulness of the specific inferences made from these scores. To meet reasonable validity requirements, practitioners should follow several logical principles when developing and implementing a competency-based program (Kerlinger, 1986).

Content, validity of the survey instrument was established through validity checks by both panel of experts and pre-testing the instrument. These methods provided a venue for determining the competency statements and the framework for the survey instrument.

A logic truthfulness of the questionnaire: The researcher will realize the methodology or the logic truthfulness (validity) through analyzing the competency or the skill which he tackles or the scholastic course which is intended for measuring (Van Dalen, 1972).

That could be accomplished by making the questionnaire represent the field and the topic requested for measuring and to ensure doing that the researcher referred to the sources of deriving such competencies:

> Apparent truthfulness by submitting such questionnaire to a group consist of 15 experts in addition to those who work in the education sector, to gathertheir opinions regarding the extent of the suitability of each competency for the research topic and to classify each competency in the major field that is belong to. The assessors expressed in general the questionnaire validity and they considered it trustworthy, therefore they maintained the majority of the competency items where all the assessors unanimously agreed on its soundness. Then some items were amended and others were deleted according to their point of view

The reliability of questionnaire: Reliability in qualitative research centers on the extent to which other researchers would arrive at similar results if they studied the same case using exactly the same procedures as (Gall *et al.*, 1996) states, reliability addresses how accurate your research methods and techniques produce data. Reliability is defined as the extent to which an items or scale will yield the same score when administered in different times, location or population when relevant variables.

Reliability of a measurement refers to the extent to which the measurement yields consistent results with repeated measures or to the precision of measurement. Four basic methods for assessing the reliability of a measurement have been developed: the test-retest method, the alternative form method, the split-half method and the internal consistency method (Crocker and Algina, 1986). Each method has strengths and weaknesses so a researcher must choose the most appropriate methods for the purposes and characteristics of the measurement in a specific study.

The test-retest method is used when the major goal is to see how stable the measurement is over time. It investigates the relationship between the scores from the first test and a second test with the same format. That relationship is described using the Pearson Product-Moment (PPM) correlation coefficient between the scores from the first and second test.

To know the reliability of questionnaire the researcher offer the questionnaire to sample consist of 25 teachers and he offer again to same teachers after 2 weeks then computing the consistency coefficient was calculated using Pearson correlation coefficient between the first and the second application which was 92.32%. The questionnaire is consisted of four categories where competencies items were distributed on them. Table 2 shows questionnaire categories.

Data collection methods: After verifying the validity and reliability of the questionnaire and defining the study sample, the researcher carried out applying the questionnaire aiming at collecting the data of the study, questionnaire papers were distributed directly to sample members after explaining the goal of the study and the way to answer the questionnaire items, the period of questionnaire distributed was in February 2010.

After construction the questionnaire including mathematics teachers competences that had answered the first study question and to answer the second question the researcher offer the questionnaire to the mathematics teachers to know teachers point of view on the competencies significance.

The researcher offered a letter with questionnaire to some teachers as samples to explain how to mange the questionnaire and were requested to make mark on front of the phrase to shows the importance level of competency. After the process of gathering the survey data, the researcher carried out interpreting the significance degree levels into arithmetic degree where he allotted 5 degrees for the principal significance, 4 degrees for the great significance, 3 degree for medium significance, 2 degree for non-significance, one degree for non-existence of significance.

Table 2: Questionnaire categoris

Questionnaire category	No.	Percentage
Knowledge	14	20.58
Teaching skills	26	38.24
Assessment and evaluation	14	20.58
Professional values and behavior	14	20.58

Also, the following criterion was adopted for interpreting the significance degree according to the assessment of the research samples:

(4.5-0.5) Principal significance
(4-4.4) Great significance
(3-3.9) Medium significance
(2-2.9) Non-significant

RESULTS AND DISCUSSION

The study aimed to identify the necessary competences for mathematics teachers in the middle schools and try to know teachers point of view on the competencies significance. In the following, the results of study according to the study questions:

- What are the necessary teaching competencies of primary school teacher?
- What is the significance extent of TC for the Yemenis and Chinese teacher in the primary school?

After construction, the questionnaire including mathematics teachers competences which had answered the first study question, the competencies was as a following.

Knowledge: Knowledge refers to the content knowledge, professional knowledge, emerging and contemporary knowledge and the practical understanding that a teacher needs in order to perform his or her duties.

- Has a thorough knowledge and understanding of the curriculum and applies this effectively in teaching, making connections across subject matters where applicable
- Believe that all their students have the capacity to learn and should be treated justly and equitably
- Understand the responsibilities and obligations of belonging to the profession of teaching
- Have an understanding of how students develop and how they learn
- Has a sound command of the subject content taught
- Has knowledge of the sociology, philosophy and management of education

- Has basic knowledge of child development/ psychology including psychosocial issues and applies these in teaching
- Knows and applies the rules and policies of the Ministry of Education
- Has knowledge and appreciation of approaches to teaching and learning and related methodologies and applies these in the classroom appropriately
- Has a sound knowledge of the instructional language in spoken and written forms and is able to transfer that knowledge to learners
- Has knowledge of the heritage, values, customs and traditions of society and how these affect individual learners
- Is aware of the legal requirements (statutory framework) relating to teachers' responsibilities and children's rights and works within them
- Has knowledge of a wide range of strategies to enhance access and retention of learners in school, particularly vulnerable children and girls
- Understands the importance of inclusive education and is able to assist learners with special needs

Teaching skills: Teaching skills refers to the instructional processes, strategies and classroom management techniques that a teacher uses to enhance learning:

- Interprets syllabus content and prepares both schemes of work and daily lesson plans with clear achievable objectives
- Matches content, teaching approaches and student development and learning in planning
- Demonstrated high quality classroom teaching skills which enable all students to achieve their full potential
- Using gesture and body movement effectively
- Uses information technology to enhance children's learning
- Selects from a variety of teaching methods according to the purpose making maximum use of a variety of learner-centred methodologies appropriate to the age and developmental level of the child
- Listen carefully to children's answers
- Give everyone a chance to answer at some times
- Giving alternative explanations/descriptions of difficulty concepts/ideas/issues
- Using voice effectively through speaking to (not at) the student
- Prepares appropriate learning materials for pupils
- Develops relevant and appropriate teaching/learning materials using locally available materials as applicable
- Is able to adapt the curriculum and make learning relevant to all learners including those who are special or disadvantaged
- Uses available modern technology to enhance learning
- Takes account of pupils diversity of talents
- Is conscious of the differences in learners and teaches each individual learner in the class, taking into account differences in learning styles, abilities, gender, ages, needs, skills, activities, prior knowledge, psychosocial needs and behavior
- Is able to make a smooth transition between learning activities or lessons
- Possesses good communication skills, both verbal and non-verbal and presents new material clearly, gives clear instructions and checks for understanding and output
- Creates a positive atmosphere in the classroom conducive to learning and motivates learners through appropriate supportive actions
- Modifies his or her language according to the level of the learners taking into consideration their stage of development and mental age and uses both verbal and non-verbal means to aid understanding and enhance learning
- Is able to manage large, mixed ability and multi-level classes, effectively
- Monitors student progress and provides feedback on progress
- Makes sure that maximum time is spent on learning by getting and keeping learners' attention and by establishing routines to manage activities
- Promotes accelerated learning through group work and team teaching
- Is able to use a range of behavior management strategies to minimize disruptions and enhance learning

Assessment and evaluation: Assessment and evaluation refers to the process of collecting, analyzing, interpreting and communicating information about learners' performance using a range of tools to indicate levels of achievement and give feedback of effectiveness of instruction. The teacher:

- Designs appropriate, valid and reliable assessment tools
- Monitoring and assessing student progress and learning outcomes
- Evaluates teaching and learning programs
- Uses feedback from assessment tools to plan and organize for remedial work

- Provides learners with informative feedback so that they are clear on what has been achieved and what they can do to improve or develop
- Keeps accurate progress records that help in guidance and counseling and decision-making in terms of planning, promotion
- Maintains records of student progress
- Keeps accurate records on learners' health
- Uses appropriate assessment criteria to make formative and summative judgments about attainment
- Reflects on his/her own teaching in order to continue improving the quality of the learning experience of students
- Monitors learners' progress during and after the lesson through quizzes, assignments, class participation and tests (written or oral)
- Uses assessment tools to identify learners' challenges, potentials or talents
- Ability to assess and monitor student achievement and to provide reports to parents which keep them regularly and fully informed of their children's progress
- Applies ethical assessment practices and ensures confidentiality of information

Professional value and behaviour: Professional values refers to the teachers' mode of conduct, ethics, high standards of commitment towards their professional role and promotion of good citizenship. The teacher:

- Is a role model within the school and in society, both through behavior and appearance
- Develops positive relationships with students
- Is a good citizen and develops a positive attitude of citizenship, patriotism, nationalism and international awareness in the learner and self
- Is a good citizen and develops a positive attitude of citizenship, patriotism, nationalism and international awareness in the learner and self
- Establishes and maintains effective collaboration between and among fellow teachers, learners, parents and all other stakeholders in education
- Provides helpful reports to parents on their children's progress
- Articulates and generates enthusiasm for learning, modeling the skills of a life-long learner and works towards personal educational development
- Works in partnership with stakeholders showing awareness of their rights and interests
- Values respect, discipline and esteem for self, learners and others and values and responds positively to diversity and promotes equity
- Values time management in terms of punctuality, instruction and attendance to duty
- Creates a safe, healthy, supportive and stimulating learning environment
- Uses the outcomes of assessment as appropriate in order to evaluate teaching and plan for the future
- Communicates effectively where appropriate with representatives of the community of which the school is part
- Relates effectively with parents

To answer the second question, the researcher offer the questionnaire to the mathematics teachers to know teachers point of view on the competencies significance. Table 2 shows teachers point of view on the competencies significance, descending order and the standard mean and the standard deviation of each competency.

Table 3 shows Yemenis male teachers point of view on the competencies significance by the mean, standard deviation and percentage of each competency; from Table 3, it is evident that the majority of the competencies have got medium significant assessment where the highest competency no. 57 has scored -3.93 degree, 78.2% and the least assessment of the competency no. 31 has scored 3.09 degree, 61.8%.

The no. of competencies that have got non-significance is 7 competencies. Table 3 shows the Yemenis female teachers point of view on the competencies significance and the standard mean and the standard deviation and the percentage of each competency.

Table 4 shows the Yemenis female teachers point of view on the competencies significance by the mean, standard deviation and percentage of each competency. Table 4 shows the female Yemenis teachers point of view on the competencies significance.

From Table 4, it is evident that one competency which have got a principal significance has scored 4.57 degree and the competencies which have got great significance are 9 competencies. The competencies which have got medium significance are 46 competencies. While 4 competencies have got low significance from the point of view of the sample members.

Table 5 shows the difference in the axis competencies significance among Yemenis teachers according to the sex variable (male-female). The sample is consisted of 22

Table 3: Yemmin male teacher point of view on the competency significance

Competency no.	Mean	S.D	%	Competency no.	Mean	S.D	%
1	4.28	0.839	86.400	51	3.64	1.049	72.800
7	4.27	o.894	86.400	10	3.64	0.902	72.800
5	4.25	0.869	84.600	41	3.64	1.136	72.800
60	4.17	0.664	83.600	18	3.59	1.008	71.800
52	4.13	0.774	82.800	68	3.57	1.070	71.400
56	3.55	0.858	71.000	21	3.55	0.912	71.000
57	3.93	1.065	78.200	4	3.55	1.057	71.000
40	3.91	0.811	78.200	67	3.55	0.980	71.100
66	3.90	0.821	78.000	6	3.55	0.912	71.000
14	3.86	0.889	77.200	42	3.50	1.102	70.000
8	3.86	1.037	77.200	49	3.45	1.011	69.000
59	3.77	0.813	75.400	53	3.45	0.858	69.000
13	3.68	0.839	73.600	50	3.27	1.032	65.400
36	3.45	1.101	69.000	47	3.27	0.985	65.400
9	3.45	0.963	69.000	15	3.27	0.703	65.400
48	3.41	1.008	68.200	2	3.27	1.162	65.400
54	3.41	1.054	68.200	45	3.27	0.985	65.400
55	3.36	0.727	67.200	24	3.23	0.752	64.600
11	3.36	1.093	67.200	23	3.23	0.685	64.600
3	3.36	0.848	67.200	39	3.18	1.006	63.600
20	3.32	0.995	66.400	65	3.17	0.015	0.634
64	3.31	0.981	00.660	33	3.18	0.958	63.600
34	3.77	0.869	75.400	25	3.14	0.774	62.800
19	3.77	0.869	75.400	44	3.09	0.750	61.800
16	3.77	1.020	75.400	31	3.09	1.109	61.800
17	3.73	0.827	74.600	30	2.95	0.844	59.000
12	3.73	0.827	74.600	26	2.91	0.921	58.200
58	3.68	0.839	73.600	38	2.73	1.077	54.600
43	3.68	1.041	73.600	46	2.64	1.064	1.049
37	3.68	0.780	73.600	26	2.45	1.143	49.000
28	3.68	0.894	73.600	32	2.36	1.002	47.200
22	3.68	0.716	73.600	27	2.36	1.002	47.200
35	3.32	0.945	66.400	63	2.35	1.010	47.210
62	3.31	0.921	66.200	-	-	-	-

Table 4: Yemmin female teacher point of view on the competency significance

Competency no.	Mean	S.D	%	Competency no.	Mean	S.D	%
5	4.57	0.728	91.40	40	4.09	0.668	81.80
1	4.35	0.714	87.00	59	4.04	0.825	80.80
52	4.30	0.635	86.00	8	4.04	0.638	80.80
34	4.26	0.541	85.20	41	4.00	0.739	80.00
51	4.17	0.778	83.40	37	3.96	0.928	79.20
7	4.17	0.650	83.40	36	3.96	0.928	79.20
53	3.96	0.878	79.20	58	3.78	0.850	75.60
22	3.96	0.878	79.20	33	3.78	0.850	75.60
60	3.91	0.996	78.20	10	3.78	0.736	75.60
35	3.91	0.996	78.20	45	3.74	1.054	74.80
17	3.91	0.848	78.20	14	3.74	0.915	74.80
28	3.61	1.234	72.20	11	3.70	0.974	74.00
15	3.61	0.988	72.20	42	3.65	1.071	73.00
47	3.57	0.945	71.40	44	3.65	0.935	73.00
57	3.57	1.037	71.40	9	3.65	0.775	73.00
21	3.57	1.037	71.40	4	3.65	0.775	73.00
54	3.52	1.201	70.40	56	3.61	0.839	72.20
18	3.52	0.846	70.40	19	3.39	0.941	67.80
2	3.52	0.846	70.40	55	3.35	1.071	67.00
20	3.52	0.947	70.40	24	3.26	1.096	65.20
39	3.48	1.039	69.60	30	3.26	1.251	65.20
23	3.48	0.994	69.60	25	3.26	0.810	65.20
3	3.43	1.037	68.60	46	3.22	1.126	64.40
49	3.39	0.988	68.60	50	3.13	1.100	62.60
13	3.91	0.793	78.20	31	3.13	1.290	62.60
6	3.87	0.626	77.40	38	3.09	1.240	61.80
48	3.83	0.937	76.60	26	2.70	0.974	54.00
43	3.83	0.984	76.60	27	2.65	1.229	53.00
12	3.83	0.717	76.60	32	2.48	1.123	49.60
16	3.78	0.850	75.60	29	2.09	0.996	41.80

Table 5: The difference in the axis competencies significance among Yemenis teachers according to the sex

	t-test for equality of means			
Axis com	t	df	Sig.(2-tailed)	Mean difference
Knowledge	-0.979	43	0.333	-0.974
Teaching skills	-0.610	43	0.545	-2.144
Assessment and evaluation	-2.609	43	0.012	-2.460
Professional values and behavior	-1.736	43	0.90	-3.395

males and 23 females. Table 5 shows that non-existence of statistic indicator on the 0.05 level in the degree of the competencies significance in all axis competencies except for the competencies of educational means and tools and the difference is showed that it is in favor of females which reflects the belief of female teachers of this competencies significance.

CONCLUSION

In this study, the non-difference shows the coincidences of opinion among the sample members on the competencies significance in others axis competencies.

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