
Mathematics teachers' attitudes towards the professional standards for teachers in the Kingdom of Saudi Arabia

Naif Mastoor Alsulami

Curriculum and Instruction Department, Faculty of Education, University of
Jeddah, Jeddah, Saudi Arabia
nsulami@uj.edu.sa

Abstract

The aim of the current research is to identify the attitudes of mathematics teachers towards the professional standards for teachers in the Kingdom of Saudi Arabia and to identify the significance of the differences between their attitudes according to the variables of gender, years of experience, and academic qualification. To achieve this goal, a questionnaire was prepared including the three main domains, and each domain includes general standards, from which a set of sub-standards emerges, in order to comply with the list of the professional standards. The research sample consisted of (58) male and female mathematics teachers, and the results of the research showed that the attitudes of mathematics teachers towards the professional standards were very high in the three main domains. The results also showed that there were no statistically significant differences between the attitudes of mathematics teachers according to the variables of gender, academic qualification, and years of experience.

Keywords: Attitude Toward Professional Standards, Professional Standards for Teachers, Mathematics Teachers, Saudi Arabia.

1. Introduction

The professional standards for teachers (PST) are an essential component of the process of education reform and the improvement of the quality of teacher performance that is currently taking place in the Kingdom of Saudi Arabia (KSA). They contribute to meeting the needs of students, teachers, schools, and the entire educational system. PST clarify what teachers should know and be able to do in order to get the honor of being recognized as professionals (Education and Training Evaluation Commission (ETEC), 2017). The vision of KSA 2030 came in intending to embed positive moral beliefs in Saudi children's characters from an early age by reshaping Saudi academic and educational system. Schools, working with families, will reinforce the fabric of society by providing students with the compassion, knowledge, and behaviors necessary for resilient and independent characters to emerge. The focus will be on the fundamental values of initiative, persistence, and leadership, as well as social skills, cultural knowledge, and self-awareness (Vision2030, 2017).

From this standpoint, professional standards have been prepared for teachers to contribute to the achievement of the Kingdom's vision, which stressed commitment to developing professional standards for each educational path in order to monitor, evaluate, and improve education outcomes, enhance teachers' role, raise their qualifications, and follow up on the level of progress in this aspect (ETEC, 2017). Making changes in the processes of teaching and learning mathematics starts from the nature of teachers' attitudes towards those professional standards, as it is one of the most significant aspects of their professional preparation and development. So, the current research comes to identify the attitudes of mathematics teachers towards the professional standards for teachers in KSA.

2. Research Problem

Teaching professional standards represent a critical axis in the educational process in order to raise the level of education. They are considered an essential tool for teacher preparation, recruitment, development, and promotion (Teng & Alonzo, 2023). Professionalism, including the standards of the teaching profession, is a distinct feature of the modern era in various fields of life, with the aim of scientifically and professionally selecting effective human cadres (Al-Redisi, 2013). Professional standards are statements of a teacher's professional attributes, professional knowledge and understanding, and professional skills. They define the characteristics of teachers and provide clarity of the expectations at each career stage (Training and Development Agency for Schools, 2007). Professional standards for mathematics teachers clarify the basic steps for teaching mathematics and promote the efficiency of the students. Indeed, professional standards are the basis for making a change in teaching mathematics to reach the goals of teaching it for each learner. Raising the efficiency of the teacher by adopting contemporary professional standards that are in line with the current era's requirements and the needs of learners is what world countries seek (Adoniou & Gallagher, 2016; Australian Institute for Teaching and School Leadership, 2018; Mockler, 2020).

Despite the importance of the professional standards for teachers in general and mathematics teachers in particular, the researcher noticed that teachers have concerns and uneasiness towards these standards, which are presented through their opinions on social media or conversations in schools and public places. These opinions may express negative attitudes towards those standards, which affects their optimal embodiment on the ground. On this basis, the current research came to answer the following main question: what are the attitudes of mathematics teachers towards PST in KSA?

3. Research Objectives

The research aims at identifying the attitudes of mathematics teachers toward PST in KSA, and at identifying the significance of the differences between the attitudes of mathematics teachers towards PST according to the variables of gender, years of experience, and academic qualification.

4. Theoretical Framework

4.1 Professional Standards:

The quality of any educational system cannot be independent of the quality of its teachers (Barber and Mourshed, 2007). Thus, the teacher had to keep pace with the continuous developments of the educational system. The preparation of PST in any country contributes to supporting education reform by raising the quality of teachers' performance and their adequacy. The professional standards provide a common professional language among teachers. They also express the professional requirements that all teachers share. Besides, they provide society and its various institutions with clear national foundations and rules for the teaching profession, which in turn contribute to forming a general social understanding of the status of the teachers and their pioneering role in preparing a future generation that supports and contributes to the development of the nation and its economy. Accordingly, PST in KSA are intended to raise the quality of teachers' performance, improve their capabilities and skills, ensure that they have the required competence to practice the teaching profession, and perform this responsibility as required. This is to ensure the quality of the education provided to students, improve their learning, strengthen the role of teachers, raise their qualifications, monitor their level of progress, provide them with the necessary support and training, and adjust their professional development paths (ETEC, 2017).

PST define the values, responsibilities, knowledge, and practices that the teacher should represent, know, and master. They are the basic starting point for teachers to carry out their professional tasks effectively and efficiently. These standards focus on performance tasks and outputs that graduates who are candidates to join the teaching profession and teachers are expected to master on the job. They also focus on students as the axis of the educational process (ETEC, 2017). One of the most important aspects that PST in KSA focused on is individualizing learning to meet the diversity of learners, focusing on knowledge and skills applications, improving knowledge through assessment, supporting a culture of professional cooperation, establishing new roles for teachers, and a gradual organization in the level of standards (ETEC, 2017).

4.2 The Components of the Educational Professional Standards in Saudi Arabia:

The educational professional standards for teachers in KSA consist of three main interrelated and interdependent domains, each dependent on the other: professional values and responsibilities, professional knowledge, and professional practice (ETEC, 2017). Each domain includes general professional standards from which a set of sub-standards emerges that provide a gradual ascending description of understanding and knowledge, mastery of practice, and the expansion of teachers' responsibilities and circle of influence during their careers.

The first domain, which is professional values and responsibilities, focuses on the professional responsibilities of the teacher in the classroom learning environment and outside of it. It includes the embodiment of moral values and encouragement to adhere to them, and the promotion of national identity, and respect for cultural diversity. It also emphasizes the professional development of the teacher in the light of a deep understanding and analysis of professional standards for teachers, while ensuring the formation of positive relationships with learners and parents and

involving them in the process of planning the educational process, applying educational regulations and policies, and contributing to carrying out the school's educational mission.

The second domain, which is professional knowledge, focuses on the knowledge that teachers need to possess to provide high-quality educational opportunities for students. This includes familiarity with linguistic and quantitative skills, knowledge of learners and how they learn, knowledge of the curriculum and general teaching methods, and mastery of the field of specialization that teacher would teach and its developments and teaching methods.

The third domain, which is professional practice, focuses on the effective teachers' practices and the options that they should make available to facilitate learners' learning through planning and applying study units and creating interactive and supportive learning environments for the learner that are full of confidence and respect and stimulating thinking and mental challenge, in the light of high performance expectations of learners for learning and achievement, in addition to the skill of using different and effective methods in evaluating learners' learning and providing constructive and useful feedback.

5. Methodology

The analytical-descriptive approach was adopted due to its suitability to the nature of the current research and its ability to achieve research objectives.

5.1 Research Population and Sample:

The research population consisted of all mathematics teachers in general education schools affiliated at Al-Safa Office in the Jeddah Education Department in KSA. They were (290) male and (310) female teachers. 58 mathematics teachers were the respondents to the questionnaire.

Table (1): The distribution of the study sample according to the variables

Variable	Category	Frequency	Percentage
Gender	Male	34	58.62%
	Female	24	41.37%
Total		58	100%
Academic Qualification	Non-Academic Bachelor	14	24.1%
	Academic Bachelor	35	60.3%
	Postgraduate	9	15.5%
Total		58	100%
Years of experience	Less than 5 years	1	1.7%
	Between 5 and 10 years	4	6.9%
	More than 10 years	53	91.4%
Total		58	100%

The above table shows how the study sample is identified according to demographic variables. Accordingly, the percentage of males in the study sample was (58.62%), compared to (41.37%) for females. It also shows that most of the study sample, according to the academic qualification variable, have a bachelor's degree in education. As for the years of experience variable, most of the sample members have more than 10 years of experience.

5.2 Research Instrument:

The research instrument was the questionnaire due to its suitability to the nature of the current study and its ability to collect data and information necessary to answer the study's questions and achieve its objectives. The professional standards contained in the Professional Standards and Paths document for teachers in KSA, approved by the decision of the Board of Directors of the Education and Training Evaluation Commission in its fourth meeting in Saudi Arabia on 10/26/2017, were approved as items for the questionnaire. The questionnaire consisted of (39) items distributed according to the three domains of the professional standards; each domain includes several standards. The following table shows the distribution of the questionnaire items on the three domains:

Table (2): The distribution of the questionnaire items according to the domains

#	Questionnaire domains	Number of items
1	The first domain: the professional values and responsibilities	8
2	The second domain: the professional knowledge	16
3	The third domain: the professional practice	15
Total		39

The five-point Likert scale was used to measure participants of responses where strongly disagree=1, disagree=2, neutral=3, agree=4, and strongly agree=5.

5.3 The Validity of the Questionnaire:

The validity of the content of the questionnaire was confirmed, as the content was verified by presenting it in its initial form to a group of arbitrators composed of experienced and competent faculty members, and therefore the structural validity has been confirmed.

Content validity: the questionnaire was presented in its initial form to a group of ten arbitrators who evaluated the tool in order to ensure: (1) the validity of the questionnaire content by measuring the validity of the phrases used, and their suitability for measuring what they were intended to measure. (2) The comprehensiveness of all the questionnaire axes is necessary for the information to be confirmed. (3) The clarity and integrity of the paragraphs and expressions of the questionnaire and ensuring that they are not repeated. Consequently, and based on the professional standards document for teachers in the Kingdom of Saudi Arabia, all items in the document were approved as items for the questionnaire.

Structural Validity: it is measuring the ability of the tool to achieve the objectives for which it was set, then analyzing the correlation coefficients for the paragraphs of the questionnaire axes. To verify the structural validity, a survey sample consisting of fifteen mathematics teachers in the Kingdom of Saudi Arabia was selected, and after calculating the correlation coefficients of the degree of each item

and the domain to which it belongs, the consistency between each of the items and the domain to which they belong was determined. Accordingly, it was noted that:

- The values of the correlation coefficients of the items in the first domain ranged between (0.601** - 0.745**), which indicates that they are high and statistically significant, and this enhances the validity of the internal consistency of the items of the first domain.
- The results of calculating the correlation coefficients for the items of the second domain showed that they ranged between (0.621** - 0.883**), and this shows that the values of the correlation coefficients are high and statistically significant, which enhances the validity of the internal consistency of the items of the second domain.
- By calculating the correlation coefficients of the items of the third domain, which ranged between (0.653** - 0.855**), it is noted that the values of the correlation coefficients were high and statistically significant, and this enhances the validity of the internal consistency of the items of the third domain.

Table (3): Correlation coefficients for the domain of the questionnaire to verify the validity of the internal consistency

First domain				Second domain			
Item number	Sample	Correlation Coefficient	Significance Level	Item number	Sample	Correlation Coefficient	Significance Level
1	15	0.686**	0.00	13	15	0.741**	0.00
2	15	0.601**	0.00	14	15	0.883**	0.00
3	15	0.603**	0.00	15	15	0.621**	0.00
4	15	0.659**	0.00	16	15	0.621**	0.00
5	15	0.745**	0.00	17	15	0.621**	0.00
6	15	0.603**	0.00	18	15	0.688**	0.00
7	15	0.609**	0.00	19	15	0.621**	0.00
8	15	0.645**	0.00	20	15	0.631**	0.00
Second domain				21	15	0.666**	0.00
9	15	0.621**	0.00	22	15	0.771**	0.00
10	15	0.760**	0.00	23	15	0.651**	0.00
11	15	0.753**	0.00	24	15	0.809**	0.00
12	15	0.748**	0.00				

Third domain							
25	15	0.773**	0.00	33	15	**0.729	0.00
26	15	0.721**	0.00	34	15	0.855**	0.00
27	15	0.747**	0.00	35	15	0.728**	0.00
28	15	0.653**	0.00	36	15	0.653**	0.00
29	15	0.775**	0.00	37	15	0.696**	0.00
30	15	0.684**	0.00	38	15	0.721**	0.00
31	15	0.827**	0.00	39	15	0.678**	0.00
32	15	0.855**	0.00				

As for the values of the correlation coefficients between the domain of the questionnaire and the questionnaire as a whole, they are shown in the following table:

Table (4): Correlation coefficients between the domain of the questionnaire and the questionnaire as a whole

Correlations		Domain			
		First	Second	Third	The questionnaire as a whole
First domain	Correlation coefficient	1	0.684**	**0.682	**0.824
	Significance Level		0.005	0.005	0.00
	Sample	15	15	15	15
Second domain	Correlation coefficient	0.684**	1	0.632**	0.904**
	Significance Level	0.005		0.012	0.00
	Sample	15	15	15	15
Third domain	Correlation coefficient	0.682**	0.632**	1	**0.891
	Significance Level	0.005	0.012		0.000
	Sample	15	15	15	15
The questionnaire as a whole	Correlation coefficient	0.824**	0.904**	0.891**	1
	Significance Level	0.00	0.00	0.00	
	Sample	15	15	15	15

It is noted from Table (4) that the values of the correlation coefficients between the domain were high and statistically significant, and this enhances the validity of the internal consistency of the domain of the questionnaire.

5.4 Questionnaire's Reliability:

The reliability of the questionnaire was evaluated using Cronbach's alpha coefficient value for internal consistency.

Table (5): The reliability coefficient of the questionnaire using Cronbach's alpha

Domain	Sample number	Items number	Cronbach's alpha
The first domain	15	8	.0904
The second domain	15	16	.0950
The third domain	15	15	.0942

It is clear from the previous table that all correlation coefficients using Cronbach's alpha for the three domains are acceptable values for the adoption of the questionnaire and its application to the final sample.

6. Results

6.1 The Attitudes of Mathematics Teachers towards the Professional Standards for Teachers in the Kingdom of Saudi Arabia:

The values of the arithmetic mean and standard deviations were calculated for the questionnaire, and the following table shows the answers of the study sample.

Table (6): the value of the arithmetic means for the three domains

#	Item	Arithmetic mean	Standard deviation	Rank	Reflection extent
1	Commitment to tolerant Islamic values	4.91	0.283	1	Very high
2	Promoting national identity and cultural diversity	4.83	0.425	2	Very high
3	Adhere to professional ethics and educational policies and regulations	4.86	0.348	3	Very high
	The grand total of the first standard	4.86	0.352	-	Very high
4	Conduct a plan for developing the professional performance in the light of the professional standards	4.41	0.676	5	Very high
5	Develop the professional performance in the light of the professional standards	4.40	0.724	6	Very high
	The grand total of the second standard	4.40	0.7	-	Very high
6	Interact with professional learning communities	4.50	0.600	4	Very high
7	Interaction with parents	4.28	0.768	7	High
8	Interaction with the local community	4.19	0.783	8	High
	The grand total of the third standard	4.32	0.717	-	Very high
	The grand total of the first domain	4.54	0.355	-	Very high
9	Listening and reading comprehension	4.53	0.599	10	Very high
10	Written expression and proper spelling	4.64	0.552	4	Very high

11	Correct and proper speaking and reading	4.59	0.563	6	Very high
12	Structure of numbers, arithmetic operations, measurement concepts and methods	4.71	0.459	3	Very high
13	Data collection, analysis, and interpretation	4.53	0.599	11	Very high
14	Information technology and digital skills	4.45	0.680	15	Very high
The grand total of the fourth standard		4.575	0.575	-	Very high
15	Developmental characteristics and their impact on learning	4.55	0.535	9	Very high
16	Individual differences and their impact on learning	4.62	0.489	5	Very high
17	How learners learn	4.57	0.534	7	Very high
18	Characteristics of people with special needs	4.29	0.937	16	High
The grand total of the fifth standard		4.50	0.623	-	Very high
19	Specialization content	4.81	0.395	1	Very high
20	Specialization teaching methods	4.74	0.442	2	Very high
The grand total of the sixth standard		4.77	0.418	-	Very high
21	General introduction to teaching	4.48	0.599	13	Very high
22	Curricula and their evaluation	4.57	0.565	8	Very high
23	general teaching methods	4.50	0.600	12	Very high
24	Education resources and technologies	4.45	0.597	14	Very high
The grand total of the seventh standard		4.5	0.590	-	Very high
The grand total of the second domain		4.37	0.330	-	Very high
25	Teaching planning	4.64	0.520	1	Very high
26	Diversity in the use of teaching strategies	4.33	0.632	9	Very high
27	Use of learning resources and teaching technologies	4.52	0.628	4	Very high
28	Develop common dimensions in curricula	4.26	0.664	12	High
29	Develop critical and creative thinking skills	4.29	0.729	11	High
The grand total of the eighth standard		4.40	0.634	-	Very high
30	Establish high performance expectations for learners	4.29	0.795	10	High
31	Effectively lead class activities	4.41	0.563	7	Very high
32	Creating safe and attractive learning environments	4.59	0.531	2	Very high
33	Use teaching time effectively	4.53	0.537	3	Very high
34	Building a culture of communication that promotes learning	4.50	0.600	5	Very high
The grand total of the ninth standard		4.46	0.605	-	Very high
35	Planning the evaluation and preparing its tools	4.48	0.655	6	Very high
36	Evaluation application	4.36	0.718	8	Very high
37	Involve students in the evaluation process	4.05	0.867	15	High
38	Exploitation of the evaluation results	4.22	0.702	13	Very high
39	Preparing evaluation reports	4.19	0.805	14	High
The grand total of the tenth standard		4.26	0.749	-	High
The grand total of the third domain		4.37	0.427	-	Very high

It is noted from the previous table that the arithmetic mean of the first domain (Professional Values and Responsibilities) is equal to (4.54), with a standard deviation equal to (0.355) and a very high reflection at the level of the three standards.

The general arithmetic mean of the first standard, (Adherence to moderate Islamic values and professional ethics and strengthening of national identity), is equal to (4.86) with a standard deviation of (0.352) and a very high reflection on the level of the sub-standards of this standard. The sub-standard, (Commitment to tolerant Islamic values) ranked first with an arithmetic mean of (4.91).

The general arithmetic mean of the second standard, (Continuous professional development), is equal to (4.40) with a standard deviation of (0.7) and a very high reflection at the level of the sub-standards of this standard. The sub-standard, (conducting a plan for developing professional performance in the light of professional standards) ranked first with an arithmetic mean of (4.41).

The general arithmetic mean of the third standard, (Professional engagement with educators and society), is equal to (4.32) with a standard deviation of (0.717) and a very high reflection at the level of the sub-standards of this standard. The sub-standard, (interact with professional learning communities) ranked first with an arithmetic mean of (4.50).

The arithmetic mean of the second domain (Professional Knowledge) is equal to (4.37) with a standard deviation equal to (0.330) and a very high reflection at the level of the four standards. The following is a breakdown of the standards included in the second domain:

- The general arithmetic mean of the fourth standard, (Knowledge in verbal and quantitative skills), is equal to (4.575) with a standard deviation of (0.575) and a very high reflection at the level of sub-standards of this standard. The sub-

standard, (Structure of numbers, arithmetic operations, measurement concepts and methods) ranked first with an arithmetic mean of (4.71).

- The general arithmetic mean of the fifth standard, (Knowledge of students and their learning), is equal to (4.50) with a standard deviation of (0.623) and a very high reflection on the level of sub-standard of this standard. The sub-standard, (Individual differences and their impact on learning) ranked first with an arithmetic mean of (4.62).
- The general arithmetic mean of the sixth standard, (Knowledge of specialized content and methods of teaching) is equal to (4.77) with a standard deviation of (0.418) and a very high reflection at the level of sub-standard of this standard. The sub-standard, (Specialization content) ranked first with an arithmetic mean of (4.81).
- The general arithmetic mean of the seventh standard, (Knowledge of general teaching methods) is equal to (4.5) with a standard deviation of (0.590) and a very high reflection at the level of the sub- standard of this standard. The sub-standard, (Curricula and their evaluation) ranked first with an arithmetic mean of (4.57).

The arithmetic mean of the third domain (Professional Practice) is equal to (4.37) with a standard deviation equal to (0.427) and a very high reflection at the level of the three standards. The following is a breakdown of the standards included in the third domain:

- The general arithmetic mean for the eighth standard, (Planning and implementing teaching) is equal to (4.40) with a standard deviation of (0.634) and a very high reflection at the level of sub-standard of this standard. The sub-standard, (Teaching planning) ranked first with an arithmetic mean of (4.64).
- The general arithmetic mean for the ninth standard, (Creating interactive and supportive learning environments for learners) is equal to (4.46) with a standard

deviation of (0.605) and a very high reflection at the level of the sub-standard of this standard. The sub-standard, (Creating safe and attractive learning environments) ranked first with an arithmetic mean of (4.59).

- The general arithmetic mean of the tenth standard, (Evaluation) is equal to (4.26) with a standard deviation of (0.749), and a high reflection on the level of the sub-standard of this standard. The sub-standard, (Planning the evaluation and preparing its tools) ranked first with an arithmetic mean of (4.48).

6.2 The Significance of the Differences between the Attitudes of Mathematics Teachers towards the Professional Standards for Teachers According to the Variables of Gender, Experience, and Academic Qualification:

The second question was answered based on each variable separately, as follows:

6.2.1 First: gender variable: The values of the arithmetic mean and standard deviations were calculated according to the gender variable to find out the significance of the differences between the attitudes of mathematics teachers towards the professional standards of teachers.

Table (7): The values of the arithmetic means and standard deviations according to the gender variable

The questionnaire domains	Gender	Number	Arithmetic mean	Standard deviation	Freedom degree	T-Value	Significance level	Decision
First domain	Male	34	36.34	2.872	56	0.457	0.649	Insignificant
	Female	24	35.75	2.500				
Second domain	Male	34	72.98	5.451	56	-0.278	0.782	Insignificant
	Female	24	73.75	2.500				
Third domain	Male	34	65.65	6.449	56	-0.105	0.917	Insignificant
	Female	24	66.00	6.831				
The questionnaire as a whole	Male	34	175.06	12.993	56	-0.067	0.947	Insignificant
	Female	24	175.50	10.279				

It appears from Table (7) that the value of (T) in each domain of the questionnaire and in the grand total are non-statistically significant values at the level of

significance (0.05), and therefore there are no statistically significant differences at the level of significance (0.05) in the attitudes of mathematics teachers, depending on the gender variable. This result indicates that the attitudes of mathematics teachers (male and female) are similar and there are no fundamental differences between them. This result can be explained by the fact that the professional standards are unified and specific, and there is general agreement around them, and about the importance of their role in the educational process and in directing the efforts of mathematics teachers to achieve the specific educational goals.

6.2.2 Second: Academic Qualification Variable: The values of the arithmetic mean and standard deviations were calculated according to the academic qualification variable to find out the attitudes of mathematics teachers towards professional standards of teachers.

Table (8): The values of the arithmetic mean and standard deviations according to the academic qualification variable

Qualification variable	Number	domain	Arithmetic mean	Standard deviation	Source of variance	Sum of squares	Freedom degrees	Mean of squares	F-value	Significance value	Decision
Non-Academic Bachelor	14	First domain	36.00	2.77	Between groups	4.366	2	2.183	0.265	0.768	Insignificant
Academic Bachelor	35		36.60	2.99	Within groups	453.289	55	8.242			
Postgraduate	9		36.11	2.47	Overall	457.65	57				
Non-Academic Bachelor	14	Second domain	71.71	3.89	Between groups	93.23	2	46.616	1.706	0.191	Insignificant
Academic Bachelor	35		72.86	5.72	Within groups	1502.69	55	27.322			
Postgraduate	9		75.78	4.91	Overall	1595.93	57				
Non-Academic Bachelor	14	Third domain	65.71	5.07	Between groups	5.176	2	2.588	0.061	0.941	Insignificant
Academic Bachelor	35		65.49	6.49	Within groups	2339.60	55	42.538			
Postgraduate	9		66.33	8.45	Overall	2344.77	57				
Non-Academic Bachelor	14	The questionnaire as a whole	173.43	10.09	Between groups	127.69	2	63.850	0.384	0.683	Insignificant
Academic Bachelor	35		174.94	13.59	Within groups	9136.87	55	166.125			
Postgraduate	9		178.22	13.80	Overall	9264.56	57				

It is clear from Table (8) that the value of (T) in each domain of the questionnaire and in the grand total are non-statistically significant values at the level of significance (0.05), and therefore there are no statistically significant differences at the level of significance (0.05) in the attitudes of mathematics teachers towards the professional standards according to the academic qualification variable. This result indicates that mathematics teachers show similar attitude regardless of their academic qualification and that there are no fundamental differences between them. This result can be explained by the presence and awareness among mathematics teachers of different academic qualifications of the importance of possessing the skills of professional standards and the significant role of these standards in achieving the desired educational goals, in helping teachers to perform their duties and work to achieve integration and balance between all professional standards and enable them to perform their role in the best way.

6.2.3 Third: Variable of Years of Experience: The values of the arithmetic mean and standard deviations were calculated according to the variable of years of experience to find out the attitudes of mathematics teachers towards the professional standards in the Kingdom of Saudi Arabia.

Table (9): The values of the arithmetic mean and standard deviations according to the variable of years of experience

Years of experience variable	Number	domain	Arithmetic mean	Standard deviation	Source of variance	Sum of squares	Freedom degrees	Mean of squares	F-value	Significance value	Decision
Less than 5 years	1	First domain	35.00	—	Between groups	10.410	2	5.205	.640	.531	Insignificant
Between 5 and 10 years	4		35.00	4.163	Within groups	447.245	55	8.132			
More than 10 years	53		36.51	2.75	Overall	457.655	57				
Less than 5 years	1	Second domain	71.00	—	Between groups	32.629	2	16.315	.574	.567	Insignificant
Between 5 and 10 years	4		70.50	3.10	Within groups	1563.302	55	28.424			
More than 10 years	53		73.26	5.43	Overall	1595.931	57				
Less than 5 years	1	Third domain	69.00	—	Between groups	26.215	2	13.107	.311	.734	Insignificant
Between 5 and 10 years	4		63.75	3.77	Within groups	2318.561	55	42.156			
More than 10 years	53		65.75	6.61	Overall	2344.776	57				
Less than 5 years	1	The questionnaire as a whole	175.00	—	Between groups	146.611	2	73.306	.442	.645	Insignificant
Between 5 and 10 years	4		169.25	7.80	Within groups	9117.958	55	165.781			
More than 10 years	53		175.53	13.10	Overall	9264.569	57				

It is clear from Table (9) that the value of (T) in each domain of the questionnaire and in the grand total are non-statistically significant values at the level of significance (0.05), and therefore there are no statistically significant differences at the level of significance (0.05) in the attitudes of mathematics teachers towards the professional standards according to the variable of years of experience. This result indicates that the views and opinions of mathematics teachers of different years of experience are similar and that there are no fundamental differences between them. This result can be explained by the importance of the professional standards for teachers, including mathematics teachers, as these standards determine the course of the educational process accurately and ensure access to good and effective educational outcomes that are subject to continuous

development and improvement. In fact, teachers, regardless of their years of experience, are aware of the necessity of adhering to the professional standards and their role in achieving the effectiveness of the educational process by emphasizing those standards and sub-standards and thus uniting the efforts of teachers in educational institutions with the aim of high-quality education.

7. Conclusion

The findings of this research reveal a highly positive trend in Saudi mathematics teachers' attitudes towards the professional standards for teachers in the Kingdom of Saudi Arabia. Also, the absence of statistically significant differences among mathematics teachers based on variables such as gender, academic qualification, and years of experience highlights the uniformity of this positive reception. The fact that mathematics teachers, regardless of their demographic characteristics, share positive attitudes towards the professional standards is revealing of a strong collective endorsement of these standards.

Acknowledgements

This work was funded by the University of Jeddah, Jeddah, Saudi Arabia, under grant No. (UJ-23-SHR-39). Therefore, the authors thank the University of Jeddah for its technical and financial support.

References

- Abu Narjis, N. (2021). A proposed conception of contemporary professional standards for primary school mathematics teachers in the light of educational reform (a prospective study). *International Journal of Humanities and Social Sciences*, (23 Aug), 204-229. <https://doi.org/10.33193/IJoHSS.23.2021.278>.
- Adoniou, M., & Gallagher, M. (2016). Professional standards for teachers - what are they good for? *Oxford Review of Education*, 43(1), 109-126. <https://doi.org/10.1080/03054985.2016.1243522>.

-
- Al-Redisi, S. (2013). The Professional standards for teaching and their necessity for education in Sudan. *Journal of the College of Education*, 7(5), 11-52.
 - Australian Institute for Teaching and School Leadership (2011). Australian professional standards for teachers, AITSL, Melbourne. Retrieved December 9, 2023, from <https://www.aitsl.edu.au/docs/default-source/national-policy-framework/australian-professional-standards-for-teachers.pdf>.
 - Barber, M., & Mourshed, M. (2007). How the world's best-performing school systems come out on top. London: McKinsey and Company. Retrieved December 9, 2024, from <https://www.mckinsey.com/industries/education/our-insights/how-the-worlds-best-performing-school-systems-come-out-on-top>.
 - Education and Training Evaluation Commission. (2017). Professional standards and paths for teachers in the Kingdom of Saudi Arabia. Retrieved December 9, 2023, from <https://beta.etc.gov.sa:2443/ar/MediaAssets/المعايير%20والمسارات.pdf?csf=1&e=agF5N8>.
 - Mockler, N. (2020). Teacher professional learning under audit: reconfiguring practice in an age of standards. *Professional Development in Education*, 48(1)166-180. <https://doi.org/10.1080/19415257.2020.1720779>
 - Teng, S., & Alonzo, D. (2023). Critical review of the Australian professional standards for teachers: Where are the non-cognitive skills? *International Journal of Instruction*, 16(1), 605-624. <https://doi.org/10.29333/iji.2023.16134a>
 - Training and Development Agency for Schools. (2007). Professional standards for teachers core. Retrieved December 9, 2024, from https://www.rbkc.gov.uk/pdf/standards_core.pdf
 - Vision2023. (2016). Retrieved December 9, 2024, from <https://www.vision2030.gov.sa/media/cofh1nmf/vision-2030-overview.pdf>