International Journal of Academic Management Science Research (IJAMSR)
ISSN: 2643-900X
Vol. 7 Issue 1, January - 2023, Pages: 273-281

Standards of Professional Performance from the Perspective of International Standards (**NCTM**) and Their Availability for Mathematics Teachers at the Secondary Level

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Abstract: *The current study aims to identify the professional performance standards for mathematics teachers as presented by the National Council of Mathematics Teachers according to the 2007 standards document, and the extent of their availability among mathematics teachers for the secondary stage in the center of Tikrit Governorate through their performance of actual lessons in mathematics, and their answers to a set of questions in the light of the interviews conducted It is carried out by the researcher, and the study population consisted of all mathematics teachers for the secondary stage (male and female teachers) in the center of Tikrit Governorate, and those appointed to the owners of public preparatory and secondary schools affiliated to the Directorate of Tikrit Education, who have (3) years or more experience, and the study sample consisted of (26) teachers and schools. They were chosen randomly from the study population, and the study tools consisted of two tools, the first is an observation card consisting of (11) items that were applied to the study sample after verifying its validity and stability by two observations for each teacher, and the second is a corresponding card consisting of (9) items and each item included a question The researcher applied one or more of them to the sample after verifying their validity, and the two tools were built in the light of the literature, previous studies, and the list of standards that were prepared. The results of the standards showed a list of (20) indicators that included the most important standards of professional performance that should be characterized by a mathematics teacher, including the use of modern teaching methods, giving self-confidence to learners and conducting self-evaluation. Varying percentages ranged between (medium – few) significantly using the observation card with a total percentage of (47%). As for the results of using the interview card, it showed the same varying percentages with a total percentage of (50%). These results are considered weak and these results must be raised Lineages to keep pace with what is happening in the world, whether in preparing teachers and teachers in institutes and universities, or in training them during service by introducing them to the new methods and methods of teaching and evaluation because of its importance and positive return on the educational process.*

Keywords— Standards of professional performance, international standards (NCTM), availability for mathematics teachers, secondary level.

1. INTRODUCTION

The study Problem:

The subject of educational standards is one of the topics that have spread strongly in recent times, so that this decade is almost called the contract of standards because of the interest that was accompanied by the International Education Quality Council in it, as the standards issued by the National Council for the Accreditation of Teacher Preparation Institutions (NCATE, 2002) focused) for the adoption of teacher preparation programs on the idea of performance or achievement in an unprecedented manner in the twentieth century, and demanded the colleges of education to show qualitative distinction in their programs through updating the educational scientific and professional preparation according to theories, knowledge, new ideas, teaching strategies and taking into account the differences between students.

One of the obstacles facing the international standards movement is the lack of teacher preparation, and this is clearly evident through the low level of education and the low achievement of students.

In order to improve the teaching process, teachers need various types of information and skills to be qualified to carry out their new roles according to the specified standards and levels, as the operations required of the student to perform while learning mathematics lead to changes that can be observed in his behavior, and must be matched by teaching operations carried out by the mathematics teacher, which takes place in An interactive framework between him and the student in order for the process of teaching and learning to occur (Ibrahim, 2009).

One of the advantages of the professional performance of mathematics teachers is flexibility, ability to develop, and the absorption of intellectual innovations to improve the educational performance of teaching mathematics, and among the intellectual innovations for teaching mathematics what was presented by the American National Council of Teachers of Mathematics (NCTM) in its latest document (List of Professional Standards for Teaching Mathematics) (NCTM, 2007), which specialized In the future of mathematics education, and given the ideas presented in this document in

general, and in an effort to find out the availability of professional performance standards for teachers of mathematics, the current study attempts to answer the following question:

• What is the availability of professional performance standards from the perspective of (NCTM) for mathematics teachers?

The importance of studying :

The importance of the study is summarized in the following points:

1. Keeping pace with modern global trends in educational reform, and the advancement of education in a way that benefits individuals and society. These trends are represented by standards and their impact on teaching knowledge.
2. Learn about the latest document issued by the National Council of Teachers of Mathematics (NCTM), and what it contains of main criteria and sub-indicators that show what a good professional performance of a mathematics teacher should be.
3. Meeting the objectives of modern mathematics education related to the formation of knowledge societies, the widening need to keep up with societal and cognitive factors of mathematics, and the need to achieve them within the mathematics lesson by the person in charge of the lesson.
4. Contribute to the development of the professional performance of mathematics teachers by clarifying the most important indicators that must be available, which lead to enriching the lesson and creating an integrated classroom environment (somewhat) as a contribution to achieving better learning for students.
5. In response to the recommendations of many previous studies and researches, including a study (Al-Alimat and Swelmin, 2010, 66), which recommends reconsidering teacher preparation and qualification programs before and after service to include introducing them to the characteristics and specifications of textbooks and evaluation criteria, and a study (Hamada, 2009) that recommends The importance of paying attention and directing teachers to the most important international standards for school mathematics, such as mathematical thinking, written communication, and identifying methods for developing student thinking and many other studies that recommend this in light of the results that have emerged regarding realistic teaching processes that occur in schools.
6. Standing on the extent to which mathematics teachers have the standards of professional performance called for by modern trends in teaching, including international standards, and standing on the percentage of appearance of these standards to identify the extent of preparing teachers before and during service and keeping up with educational developments and their interaction in the classroom.
7. The importance of the secondary stage as the highest stage of general education, and the need for special specifications and standards for mathematics teachers in which they study, and the implications of that for students to pass the end of the secondary stage with high achievement that qualifies them to choose different disciplines.

Purpose of the study :

The current study aims to identify the professional performance standards for mathematics teachers as presented by the National Council of Mathematics Teachers according to the 2007 standards document, and the extent of their availability among mathematics teachers for the secondary stage in the center of Tikrit Governorate through their performance of actual lessons in mathematics, and their answers to a set of questions in the light of the interviews conducted carried out by the researcher.

Study questions:

1- What are the international standards for teaching mathematics as provided by the National Council of Teachers of Mathematics (NCTM)?

2- What is the percentage of availability of international standards for teaching mathematics among teachers of mathematics at the secondary level in Tikrit Governorate?

The limits of the study :

The procedures and results of the study are determined by the following determinants:

1. International standards issued by the National Council of Teachers of Mathematics (NCTM) in 2007, for teaching mathematics.
2. Mathematics teachers for the secondary level (male and female teachers) and those appointed to permanent staffing in governmental preparatory and secondary schools in the Tikrit Governorate Center of the Tikrit Education Directorate for the year 2021-2022.
3. Choosing teachers who have experience (3) three years or more.

Define terms:

1- Criteria:

The National Council of Teachers of Mathematics (NCTM) defined them as: "statements that can be used to judge the quality of the mathematics curriculum or assessment methods, and what learners must understand in terms of mathematical information and skills" (NCTM, 2000, 29).

Al-Laqani and Al-Jamal defined it as:

“Opinions gathered from many psychological, social, scientific and educational dimensions, through their application it is possible to identify the true picture of the subject to be evaluated, or to reach judgments about the thing that we do” (Al-Laqani and Al-Jamal, 2003, 279).

(Shehata and Al-Najjar) defined the criterion as: “a phrase that describes or identifies a variable of interest or study, or a specific characteristic that is taken into account when doing a specific action, and it is an external measure for judging things or estimating their validity” (Shehata and Al-Najjar, 285, 2003).

2- Professional performance:

Definition (Ibrahim) "A group of professional behaviors associated with planning for teaching mathematics, teaching activities inside and outside the classroom, and activities for

evaluating mathematics learning, and related to continuous professional growth processes, including teaching and presenting new ideas in the field of teaching mathematics to others" (Ibrahim, 2009, 2).

3- Standards of professional performance:

The researcher defines it procedurally:

The set of phrases or specifications was prepared on the basis of a set of standards emanating from the National Council of Mathematics Teachers, and it appeared in the form of a list in the light of which the two study tools (observation card, interview card) were derived.

Theoretical background:

Recently, there have been multiple calls from some educators to reform public education and raise its level, address its defects, and develop its buildings and human and material capabilities. To a greater degree, the teacher is the most powerful link in the process of education and education, and he is the engine of any efforts to reform or develop education. In the preparation of qualified teachers who are able to face the rapid and successive changes in the field of education (Lily, 2007, 1).

The most important characteristic of the teacher during the field is professional performance, and teacher performance is a term that refers to the behavior of the teacher during teaching situations, whether inside or outside the classroom. Or his contribution to school activities and other works that can contribute to achieving progress in student learning (Wehbe, 2002, 757).

And in response to recent trends about the integration between preparing teachers before service and developing them professionally during it on the one hand, and keeping abreast of the information and knowledge that is developed and using the latest methods to communicate information on the other hand, (Al-Mufarrej, Al-Mutairi and Hamada, 2007, 5) the standards movement appeared to cover all the information and how to develop it. Its development includes indicators for the development of the professional performance of teachers, and what it includes in the processes of observation, supervision and improvement of the teaching process, and indicators centered on the continuous professional development of teachers (NCTM, 2007).

The closest example of professional performance standards for teaching is provided by the American National Council of Teachers of Mathematics (NCTM, 2007), which is a document specific to standards for teaching mathematics. Learning mathematics is a fun, interesting and attractive process, regardless of its abstractness and formality, so that it pushes more students to turn to studying it with love, appreciation and a sincere desire for life (Khidr, 2004, 7).

Mathematics teachers play an essential role in the success of students, and the important roles of the teacher vary, as he is a class manager, a presenter and knowledgeable of the content, an activity coordinator, a project manager, and an educational guide. All are shaped by the learning they receive in school, and therefore students' successful learning of mathematics depends on the skill, knowledge and practices of their teachers (NCTM, 2000,16).

Professional development is the main means for improving teachers' skills, knowledge, and practices in mathematics and its teaching. According to the NCTM, "For teachers to deeply understand the mathematics they teach and to use this knowledge flexibly in their teaching tasks, they must have ample opportunities and resources to enhance and renew their knowledge." (NCTM, 2000, 17).

The professional performance of mathematics teachers appears through the behaviors of its teaching, and these behaviors are concentrated in the processes of transferring mathematical knowledge to students, which have become part of what teachers must follow as a professional performance represented in the processes that facilitate students' sense of work in mathematics.

Mathematics education currently depends on the following two assumptions:

- Teachers are key to improving the ways in which mathematics is taught and taught in schools.
- This development requires long-term support for teachers and providing them with the necessary and appropriate resources for their work.

Therefore, mathematics teachers in different stages of education must master the following professional behaviors:

1. Designing and integrating mathematical experiences that sharpen students' interests and thinking.
2. Reorganizing classrooms in ways that lead to activating discoveries and developing mathematical ideas.
3. Use and help students use technology and other appropriate tools for mathematical verification and analysis.
4. Evaluate students' outputs of mathematical knowledge and provide mental challenges to develop that knowledge.
5. Supporting positive trends about the utilitarian and useful values of mathematics.
6. Reflect the values of work in the classroom and take what is necessary to improve students' performance in mathematics.
7. Supporting professional and collaborative relationships to improve professional performance in teaching mathematics (Ibrahim, 2009 105).

Standards of the National Council of Teachers of Mathematics:

In 1991, the Professional Standards for Teaching Mathematics were issued by (NCTM) for several objectives that complement what was issued by the previous documents for school mathematics standards, and the most prominent of what these standards included is an integrated vision on teaching mathematics from a professional perspective. Its objectives were defined as follows:

- Towards mathematics education classes as qualitative societies for mathematics, rather than gathering students only

• Towards adherence to evidence and logic to verify the accuracy and validity of mathematical relations instead of relying entirely on one main source of information, which is the teacher.
• Towards emphasizing mathematical reasoning as an alternative to remembering processes.
• Towards discovery of information and more employment of mathematical problem-solving instead of relying on homework.
• Towards a more and deeper connection of concepts within the content of mathematics and between mathematics and other academic subjects instead of presenting isolated concepts and steps for solutions that are more isolated from the educational contents (NCTM, 1991).

And with the tremendous development of the applied structure of technology uses in mathematics and with the expansion of the need to keep pace with societal factors and the cognitive structure of mathematics, the professional standards for teaching mathematics were issued in 2007 to provide a more flexible and consistent vision with the objectives of mathematics education for knowledge, technology, industry and investment societies. Those standards were presented descriptively as follows:

First: A set of standards for teaching and teaching mathematics, which included seven standards:
1. Knowledge of mathematics and teaching methods.
2. Knowledge of the student's mathematical learning.
3. Mathematical tasks of cognitive and applied value.
4. Learning environment.
5. Articles, lectures and treatments.
6. Reflections on students' learning.
7. Reflections on teaching practices.

Second: A set of standards for observation, supervision, and improving mathematics teaching, which included six standards:
1. The circle of continuous development.
2. Teachers as participants in the processes of observation, supervision and improvement.
3. Data sources for observation, supervision and improvement.
4. Teachers' knowledge and the important implications of mathematics.
5. Teachers' knowledge and the implications of an effective mathematics learning environment.
6. Evaluate the student's understanding of mathematics.

Third: A set of standards for education and continuing professional development for mathematics teachers:
1. Teachers' experiences in teaching mathematics.
2. Knowledge of mathematics content.
3. Knowledge about students as learners of mathematics.
4. Knowledge of methods of teaching mathematics.
5. Engaging in long-term professional growth (NCTM, 2007).

previous studies :

1) Study (Jad, 2003) conducted in Egypt, aimed at evaluating the teaching performance of mathematics teachers in the preparatory stage. The study showed a noticeable improvement in the performance skills as part of the teachers' self-evaluation in each of (teaching strategies and skills, skills of formulating, directing and receiving questions, and classroom management skills). continuously.

2) A study (Al-Masuri and Al-Kuri, 2003) conducted in Yemen, aimed at investigating the strengths and weaknesses in the performance of mathematical skills among mathematicians working in basic education schools (teachers and mentors) for mathematics, and the study population consisted of all mathematicians working in the basic education stage In (4) Yemeni governorates, as for the study sample, it consisted of (320) teachers and mentors, with (80) teachers and mentors from each governorate, who were chosen in a random, multi-stage manner. As for the study tool, it was a performance skills test consisting of (54) questions. To deal with the main concepts (polygon, orthogonal transformations, groups, solids, concepts of symmetry, congruence and similarity, equations and simple statistical concepts for one-variable data) that make up the content of the mathematics curriculum developed for the basic education stage with a two-dimensional vision, one of which is to deal with performance skills (visual, descriptive, structural, logical) and the second to deal with its operations (perceptual, analytical, synthetic, deductive) that should be known by the teacher of mathematics, in his dealings with the mathematical knowledge provided For the basic education stage.

One of the most important results of the study was the emergence of a generally low rate of performance on the performance skills test, and the performance improves according to the university qualification obtained by the sample members, and the level of performance is close between the category of teachers and mentors, and there are statistically significant differences in the performance of the study sample on the skills test, due to qualification And the job and the interaction between the job and the level of qualification and the variable level of qualification and in favor of those with a university qualification.

3) A study (Shalaby, 2005) conducted in Egypt, aimed at identifying the contemporary professional standards that must be met in the performance of mathematics teachers in the preparatory stage, and the effect of time experience and educational missions on the sample members in the light of the availability of professional standards, and to provide a proposed vision for developing the performance of mathematics teachers In the light of contemporary professional standards, and to achieve the objectives of the study, the researcher built three tools (a questionnaire to determine contemporary professional standards, a note card to determine the availability of standards, a corresponding card to determine the availability of standards), and the questionnaire was applied to (100) teachers and

mentors, the observation card and the interview card On (60) teachers, and using the seven-stage statistical analysis model, then analyzing the raw scores for the research, and this analysis resulted in a set of results, the most important of which was the provision of (52) criteria, which are obligatory for mathematics teachers, and most of the criteria were available in degrees ranging from (few - medium) among mathematics teachers, where the percentage of availability of standards ranged from (0% - 25%) to a large extent, with the exception of the criterion for the ethics of the mathematics teacher, and the standards were available in a large percentage (66, 34% among teachers of educational missions, compared to teachers with long-term experience. Finally, a proposed vision was developed to develop the performance of mathematics teachers in the light of contemporary professional standards.

4) A study (Ibrahim, 2009) conducted in the Sultanate of Oman, aimed at determining the professional performance standards for mathematics teachers from the perspective of professional standards (NCTM, 2007) in the light of which it is possible to develop the performance of mathematics teachers, and to define a future vision for developing the performance of mathematics teachers that includes planning, training and evaluation And the continuous growth of the professional skills of teaching mathematics, and the researcher relied in his study on the descriptive approach of studies and research and what was included in the document of the National Council of Mathematics Teachers in the third axis regarding education standards and continuous professional growth for the mathematics teacher in order to define a realistic and interrelated vision on ways to develop a vision for mechanisms to develop the professional performance of teachers Mathematics and the most important results of the study regarding the list of standards were:

- Forming interest groups in schools to discuss the ways in which technology has an important role in teaching.
- Enroll in summer programs to discover mathematics topics such as algebra and statistics.
- Interviews teachers from neighboring schools to discover how they can collaboratively introduce mathematics to their students through video conferencing.
- Work on the new curricula with mathematics specialists in universities to change the nature and quality of courses.
- Share appropriate strategies for applying the new visions of mathematics programs.
- Linking to local professional associations, attending meetings, presenting topics or showing permanent leadership. As for the proposed scenario, the researcher presented his recommendations in teacher preparation programs in universities (before service) and teacher training programs (in service) through three axes: (development of expertise Mathematics, the development of teaching methods, the use of mathematics education technology).

5) A study (Mohamed, 2011) conducted in Egypt, aimed at providing a list of the teaching operations required of the mathematics teacher in the light of international and local standards for education, as well as providing a training program for the development of teaching operations and a note card to assess the teaching skills of mathematics teachers, which enables those interested in preparing mathematics teachers In the faculties of education as well as those interested in training mathematics teachers during service using and disseminating it, and the study population consisted of mathematics teachers in the preparatory stage in the province of Art for the academic year 2005-2006, and the results showed in the light of the descriptive survey approach to the set of international and local standards a set of teaching processes in the light of those standards Among the most important were:

- Positive interaction of both the teacher and the learner during the teaching and learning processes.
- The participation of the learner to the teacher in the formulation and implementation of the learning strategy.
- The teacher's ability to derive more appropriate teaching strategies in light of the learner's characteristics.
- The teacher provides feedback to the learner about the learning outcome.
- The teacher's use of (technology) multimedia learning.
- The teacher's ability to establish logical links between what the learner knows and what he presents to him of current knowledge.

Discussing previous studies:

1) All previous studies emphasized the importance of professional performance standards for mathematics teachers, especially those that are being developed, and the need to pay attention to teacher preparation programs before serving in universities and training them during service, because of its positive impact on student learning.

2) The studies that focused on preparing a list of standards for professional performance agreed that it includes modern methods and methods of teaching, the necessity of conducting self-evaluation by the teacher himself, making a role for the learner inside and outside the classroom, and the need for the mathematics teacher to have a mathematical ability to employ content standards and standards of mathematical operations Inside the classroom, which includes the mathematical interdependence of mathematical subjects among them on the one hand, and the interdependence of mathematics with the rest of the sciences on the other hand.

3) Professional performance standards were available in varying proportions for mathematics teachers, but overall they were unacceptable and not high, and this matter indicates the need to raise these percentages by paying attention to teachers.

4) A study (Shalaby, 2005) and a study (Ibrahim, 2009) presented suggested scenarios for teacher preparation programs that included developing their mathematical expertise and the use of mathematics education technology.

Study procedures:

1. Study population and sample:

The study population consisted of all secondary school mathematics teachers (male and female teachers) in the center of Tikrit Governorate, who are appointed to the owners of government preparatory and secondary schools affiliated to the Directorate of Tikrit Education, and who have experience (3) years or more, and the study sample consisted of (26) male and female teachers who were randomly selected from study community.

2. Study tools:

To achieve the objective of the study regarding the availability of professional performance standards for mathematics teachers, the researcher built two tools for the study (note card, interview card) that were derived directly from the list of criteria (Appendix (1)). The following is an explanation of the construction of each:

1. The first tool: it is a note card, which consisted in its initial form of (13) paragraphs, the degree of availability included the triple level (high, medium, low) and the gradient (3, 2, 1) was chosen, respectively, to calculate the ratios, it was derived directly From the list of criteria (Appendix (1)) and according to the items that can be measured in the classroom, and to ensure the apparent validity of the tool, it was presented to a group of arbitrators to express their opinions, and I made the following observations:

• Amending the wording of some paragraphs.
• Deleting one paragraph due to the difficulty of measuring it.
• Convert a single paragraph into an interview card.
• There has been no modification to the levels or to the gradual.

In the light of the arbitrators' remarks, the tool appeared in its final form consisting of (11) paragraphs (Appendix (2)), and to calculate the stability of the tool, an exploratory sample was chosen randomly from the study population consisting of (4) teachers, and another researcher was chosen to calculate the (stability) coefficient through people), and it was agreed (the researcher and the other observer) on the data recording mechanism as follows:

The degree of availability is high / if the teacher emphasizes the indicator in the tool frequently and frequently.

The degree of availability is medium if the teacher makes little use of the information in the indicator.

The degree of availability is low / if the teacher does not use any performance to achieve the indicator at all.

The observation of the exploratory sample was conducted by two classes for each teacher, one week apart, by the researcher and the other observer at the same time, and the data was collected according to percentages, and the compatibility coefficient appeared (87%), and this percentage is educationally acceptable.

2. The second tool: it is an interview card, which consisted in its initial form of (10) paragraphs, which were derived directly from the list of standards (Appendix (1)) and according to the paragraphs that are difficult to measure in the classroom, and converted into several questions to be asked to The sample members directly, and the same level and the same grading used in the first tool were adopted in the tool, and to ensure the apparent validity of the tool, it was presented to a group of arbitrators to express their opinions, and I made the following observations:

• Amending the wording of some paragraphs.
• Deleting two paragraphs and merging the questions related to them to other paragraphs.
• Add one paragraph from the previous note card.
• The levels and staging are not modified.

In light of the arbitrators' remarks, the tool appeared in its final form consisting of (9) paragraphs (Appendix (3)), and some paragraphs include more than one question, but they indicate the achievement of the same goal. As for the data recording mechanism, it is as follows:

The degree of availability is high if the teacher answers the question clearly and explicitly.

The degree of availability is medium / if the teacher hesitates and does not answer clearly or does not recognize some of the question information.

The degree of availability is low / if the teacher does not answer or does not recognize the available information at all.

3. Steps to conduct the study:

1) Examine the literature and references related to the subject of professional performance standards for teachers in general and mathematics teachers in particular, and benefit from them in preparing a list of standards and in building study tools.

2) Reviewing previous studies, comparing the procedures and results that have been taken, and benefiting from them in drawing up an action plan to conduct the current study.

3) Preparing a list of professional performance standards in the light of the standards document of the American National Council of Teachers of Mathematics for the year 2007, and making sure of its validity by presenting it to a group of experts and arbitrators to express their opinions and observations.

4) Building the study tools in the light of the previously prepared criteria and conducting the psychometric characteristics of them.

5) Applying the first tool (observation card) to individuals and the study sample, with (2) two classroom sessions between each observation and another, a period of one week, and recording data in light of the previously presented mechanism.

6) Applying the second tool (the interview card) to the study sample, for one time and in the same visits as applying the first tool, and recording the data in the light of the answers given by the teachers.

7) Dumping the data into special tables and calculating the results.

4. Statistical means:

The following simple statistical methods were used for their suitability for the purposes of the study:

1. Weight percentile = }(W1*3+W2*2+W3*1) / (highest weight *n){*100

Where: T1 = the number of signals on the first level of grading.

T2 = the number of signals on the second level of grading.

T3 = the number of signals on the third level of grading.

highest weight = 3 .

n = total number of repetitions.

2. Compatibility coefficient = (the number of items agreed upon / the total number of items) x 100

(Al-Mufti, 1984, 62).

Study results and discussion:

1- Results related to the first question:

What are the international standards for teaching mathematics as provided by the National Council of Teachers of Mathematics (NCTM)?

In order to answer the first question, a list of professional performance standards for teachers of mathematics was prepared in its initial form, consisting of (22) twenty-two indicators in the light of the standards for teaching mathematics emanating from the standards document of the American National Council of Teachers of Mathematics (NCTM) for the year 2007, and to ensure the validity of the standards, the list was presented A group of experts and arbitrators made a number of observations:

• Amending the wording of some paragraphs.

• Merging some paragraphs because they refer to the same field.

• Adding special paragraphs for the performance of the mathematics teacher.

In the light of the observations of experts and arbitrators, a list of criteria was prepared in its final form, consisting of (20) paragraphs, Appendix (1).

The standards of professional performance also presented the progress of what should be characterized by a mathematics teacher inside and outside the classroom, and refer to the use of non-traditional teaching methods and emphasize the adoption of content standards for mathematical interdependence and communication, and motivate students towards learning mathematics and taking into account individual differences between them, and this is confirmed by trends Modern teaching and learning of mathematics.

2- Results related to the second question:

What is the percentage of availability of international standards for teaching mathematics among teachers of mathematics at the secondary level in the province of Najaf?

In order to find the percentage of availability of the criteria, the researcher applied the study tools to the sample members, and the frequencies and results were calculated. Table (1) shows the results of the sample members in the light of the observation card.

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International Journal of Academic Management Science Research (IJAMSR)
ISSN: 2643-900X
Vol. 7 Issue 1, January - 2023, Pages: 273-281

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Schedule (1)

The results of observation of the study sample

Paragraph	levels			Weight percent	total ratio
	high	medium	low		
1	0	30	22	% 53	
2	2	10	40	% 42	% 47
3	4	23	25	% 53	
4	0	6	46	% 37	
5	11	22	19	% 62	
6	3	26	23	% 54	
7	0	9	43	% 39	
8	0	0	52	% 33	
9	1	12	39	% 41	
10	0	3	49	% 35	
11	6	32	14	% 62	

It is noted from Table (1) that varying rates of availability of professional performance standards for mathematics teachers have appeared, as they ranged between (medium - few) to a very large extent. The percentages ranged from 33% as the lowest percentage to (62%) as the highest percentage, and the overall percentage of standards availability is 47 % which is a very small percentage.

As for Table (2), it shows the results of the sample members in the light of the interview card that the researcher conducted with them.

Schedule (2)

The results of the interview with the study sample

Paragraph	levels			Weight percent	total ratio
	high	medium	low		
1	2	11	13	% 53	
2	4	12	10	% 59	
3	3	9	14	% 53	
4	1	10	15	% 49	
5	0	6	20	% 41	% 50
6	0	2	24	% 36	
7	2	9	15	% 50	
8	0	0	26	% 33	
9	8	14	4	% 72	

It is clear from Table (2) the emergence of varying percentages for the availability of standards, as they ranged between (medium - few), which are very similar to the results of the observation card for actual lessons performed by mathematics teachers. The percentages were achieved from (33%) as the lowest percentage to (72%) as the highest. The percentage of availability, and the total percentage of availability of standards is 50%, which is a very small percentage.

The results that appeared are consistent with the results of the studies (Al-Masuri and Currie, 2003) and (Shalaby, 2005), and indicate the emergence of a low level of availability of professional performance standards. The researcher believes that the reason for this lies in teacher preparation programs (before and after) appointment, and if the programs Preparation in institutes and colleges of education adhere to a fixed curriculum and it is difficult to change it. It is better to pay attention to in-service teacher training programs to inform them of developments in mathematics subjects, teaching them, and how to deal with students and their needs.

Recommendations:

• Paying attention to teacher preparation programs in institutes and colleges of education, and the need to

include professional performance standards in these programs to keep pace with what is developing in the world of modern teaching methods and methods, and what is new in the field of evaluation and taking into account the needs and tendencies of learners.

• Taking care of teachers during service through periodic training programs, provided that they include various performance skills that enable them to deal with classroom management and make the classroom environment an effective learning environment.

• Providing technological means (computers and computers) so that the teacher can use them in teaching mathematics.

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