

## Parents' Messages to Teachers to Improve Science Instruction: An Analytical Study

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### Abstract

The purpose of this study is to identify the content of parents' messages to develop science instruction and enhance communication between the home and the school. The sample of the study consisted of 784 parents selected through random cluster sampling and 496 Science teachers selected through random sampling. To achieve the aims of the study, interview and content analysis were used. The findings showed that there are 33 aspects of content that parents want teachers to focus on. They were grouped in eight domains compatible with the national standards of teachers' professional development: motivation and incentives, teacher personal behavior, dealing with student behavior, teaching methods, laboratory work skills, students initiatives in science, homework and follow up, and evaluation. The researcher put forth a number of relevant recommendations.

**Keywords:** Basic Stage, Learning Science, Messages, Parents, Science Teachers

### الرسائل الموجهة لمعلمي العلوم من قبل أولياء أمور طلبة المرحلة الأساسية لتحسين تعلم العلوم: دراسة تحليلية استقصائية

#### ملخص

هدفت الدراسة إلى الكشف عن مضامين رسائل أولياء الأمور الموجهة لمعلمي العلوم من أجل تحسين تعلم العلوم، وزيادة فاعلية الاتصال بين المدرسة والبيت، والكشف عن كيفية استجابة معلمي العلوم وتصرفاتهم حيال مضامين تلك الرسائل. تكونت عينة الدراسة من (784) ولي أمر، تم اختيارها بالطريقة الطبقيّة العنقودية العشوائية، ومن (496) معلماً ومعلمة، تم اختيارهم بالطريقة العشوائية. ولتحقيق أهداف الدراسة، أُستخدمت أداتان، هما: تحليل المحتوى والمقابلة، واستخدم المنهج تكميم النوع في معالجة البيانات. أظهرت النتائج أن هناك (33) مضموناً تعليمياً يود أولياء الأمور التركيز عليها من قبل معلم العلوم، وتمحورت في ثمانية مجالات تتفق والمعايير الوطنية لتنمية المعلم مهنيّاً، وهي: أساليب التعزيز والدافعية، وسلوكيات المعلم الشخصية، ومعالجة سلوكيات الطلبة، وأساليب التدريس، ومهارات العمل المخبري، ومبادرات الطلبة في العلوم، والواجبات المنزلية، والمتابعة والتقويم. وبناءً على النتائج التي توصلت إليها الدراسة؛ قُدمت عدة توصيات اشتملت على الاستجابة إلى مطالب أولياء الأمور من قبل المعلمين، وفتح جميع قنوات الاتصال وتفعيلها مع أولياء الأمور، وتفعيل أدوار كل من أولياء الأمور والمعلمين كمنظومة تعليمية متكاملة في بيئة اجتماعية ثقافية موحدة لها أهدافها المشتركة.

**الكلمات المفتاحية:** الرسائل، معلمو العلوم، أولياء الأمور، المرحلة الأساسية، تعلم العلوم.

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**Introduction:**

The improvement of science learning and teaching has always been the concern of educators, specialists, and researchers alike, and a priority of societal institutions as an effective tool for progress and reform. However, in spite of the importance of science learning and teaching, reality is often lacking in terms of the quality of the outputs of science education. Stakeholders' involvement, especially that of parents, has been hailed as necessary in educational reform (Barbach, 2012). In fact, it is a widely held belief that for the school to be able to make any changes in student's behavior, the family should be privy to that change, its objectives and orientation (Albert, 1987; Marion, 1980; Tanko, 2001), which renders the school an effective tool for guiding children and teaching them (Al-Juweir, 2013).

Given the prominent role played by parents in their children's education, Rock (2000) suggested that parents be recognized as legitimate teachers for their children and teachers as counselors to these parents. Calvert (1974) points out that parents shoulder the responsibility at the societal level, but reality shows reveals a weakness in the relationship between the school and the home, resulting in problems such as absenteeism, low achievement, cheating on tests and behavioral problems (Nasr, 1992).

However, the relationship between the school and the home remains a solid, reciprocal one (Rashwan, 2005), hence the contemporary outlook of education which sees the school and the home as open system, representing two intersecting circles which affect and are affected by the student life (Gallagher, Rhodes, & Darling, 2004), one another (Moral, 2002; Hassan, 2000), and making decisions for the improvement of the teaching/learning process (Hassan, 2000 & 2002; Al-Jalal, 2006). Thus, the issue of cooperation and interaction between the family and the school is considered an educational priority (Afifi, 1990), and communication between them an urgent need for (Albohi, 2001), for better involvement in making policies which affect their children's education and common grounds for understanding these children's areas of strength and weakness (Abu Rumman, 2000; Uchida and Marvin Florita, 2004).

Similarly, the educational literature (Salem, 2010; Ayasrah & Fadil 2006; Musa, 2005; Dorman, 1998; Bouffard, 2008; Zaitoon, 2006; Al-Shiyab, 2005; Haider and Ahmad, 2006; Everett, Luera & Otto, 2007) indicates multiple forms of communication between the school and the home which positively affect learning Science and in the formation of sound outlooks on the certain educational and learning situations, such as personal interviews, audio-visual media, newspapers and school magazines, reports and school newsletters, radio, television, telephone, and the Internet. Allen (2007) claims that it is generally difficult to establish positive relationship between the school and the home, a feat which is often rife with slowness and a lot of obstacles.

As for the realities of the relationship between the home and the school, results Sheldan, Saymeh and Barhoum (2011) have shown that the degree of school principals' and teachers' perceptions of the realities of the cooperation between the school and the community is moderate and needs to be strengthened. Furthermore, Al-Massaroh (2012) has reported that parents' reluctance to participate in parents' and teachers' councils has had a direct effect on increasing physical violence in the first place, followed by verbal and psychological violence. Wright and Rogers (2006) also revealed that the use of modern technology plays an important role in maximizing communication and reducing the gap between the school

and the family, as it helps parents to keep abreast with their children's education.

In this context, the realities of the relationship between the home and the school in Arab countries are similar situations: they have historical roots but lack effectiveness. Al-Ahmed (1985) has shown that the majority of Kuwaiti schools use a wide range of communicating styles but in varying degrees. Farrag (1988) reported that the weakness of cooperation between the Saudi Arabian school and parents has caused the development of school programs and activities to lag behind, not to mention negative effect of the parents' low level of education which has a negative effect on this development and, thus, students learning.

Similarly, Al-Sadeh (1990) emphasizes that Bahraini school initiatives to keep in touch with parents are sparse and far in between, possibly in urgent cases. Al-Khshini (1992) suggests that the positive relationship between the Jordanian school and parents has an effective role in improving students' academic achievement, in addition to helping solve problems related to students' behaviors. Nasr (1992) revealed some aspects of low cooperation between school and parents Egypt, but he emphasized the necessity of allowing parents the opportunity to benefit from their abilities and experiences in improving the teaching and learning process.

As for the activation of the relationship between the home and the school, Al-Khatib and Al-Khatib (2006) reported shared awareness of and interest in the communication and interaction between the school and the community by school administrations, teachers and parents. Al-Kaabi (2007) further pointed out that the most evident aspect of this interaction between the school and the community areas was in student care and behavioral and academic follow-up, followed by parents and teachers councils, whereas communication and interaction in cultural programs has been the least evident. However, Al-Sinani (2008) concluded that, in the Sultanate of Oman, a moderate level of involvement exists between the family and the school, in favor of males. In Africa, Bojuwoye (2009) reported some vagueness in the concept of partnership among parents, and the teacher's need for training programs to better encourage parents to participate in educational programs.

Regarding the effect of the partnership programs in improving students' learning and achievement, Hung (2007) reported that both the good social status of the family and its active participation in its children's education play a key role in improving Taiwanese students' academic achievement. Similarly, Sanchez (2010) found that creating a partnership between the school and the families of Latino students has a marked positive effect on these students' achievement, and that partnerships between the school and the family of the most important factors in increasing the achievement of students. This was further corroborated by Wei (2009) who reported that positive kindergarten teachers' attitudes towards cooperation programs between the family and the school, and positive effects on improving student achievement.

To summarize, institution of learning must build effective relationships with parents and encourage them to express their feelings, needs and priorities to empower teaching/learning and ensure progress (Bruder, 2000). The school position and attitudes determine the nature and the quality of the relationship between the school and parents (Hill & Tyson, 2009; Khaleel, 2006). Thus, if parents are made an effective element in the teaching/learning process, a positive reciprocal relationship will benefit all concerned and, thus, learning will be enhanced. If not, parents should not be blamed when complain about the worthlessness of communicating with the school.

The review of related literature suggests that relationship between the family and the school is intact even though it fluctuates in continuity and depth. The communication with the school is not always dedicated to a specific discipline (e.g., science) but is more often than not about the student general achievement. Therefore, this study, which is quite distinct from previous studies, takes a different approach from what is common in the educational context. Customarily, teachers write messages to parents, either to help them in some aspects of their children's learning, or to complain about these children's behavior or violations of the teacher or school code. This study, however, reversed the directions of these messages (viz., parents to teachers) in an attempt to reform and improves learning science among students.

### **Problem, Purpose and Questions of the study:**

The problem of this research stems from the researcher's observation of the lack of coordination between the school and home towards maximizing learning and improving outcomes in teaching and learning science. Through the elicitation of parents' aspirations for and feedback about their children's science instruction, the researcher is casting an analytic look at the realities of this relationship and a springboard for future research to promote cooperation among the various stakeholders in the educational process in Jordan.

The problem of the study also stems from a history of hostility and a lot of blame between the two most significance educational institutions, the school and the family. An academic analysis, such as the effort in this research, would shed light on the parents' perceived problems and the teachers' response to them in a manner which supersedes the existing disjointed and hesitant exchanges between parents and teachers.

As society put the responsibility of students' success or failure on the parents, it is only fair that they be asked to share in designing educational objectives and content to be covered, which would go a long way in improving the realities and outcomes of science education (Liu and Meng, 2010).

More specifically, the study aims to answer the following questions:

1. What do parents want from science teachers to improve science instruction?
2. What is the percentage of parents who are willing to get involved in their children's science education through directing messages to the teacher?
3. How do science teachers respond to parents' messages to improve science instruction?
4. What is the potential effect and applicability of these messages, as perceived by the science teachers themselves?

### **Significance of the Study:**

The theoretical significance of the study lies in highlighting the need for the collaboration of the various stakeholders in the educational process, here the school and the home, to enhance learning outcomes, per the following:

1. Parents would help the school direct the teaching/ learning process in general and science teaching in particular.
2. Parents' abilities would make required changing in school curricula and activities, even the teaching methods.
3. Parents would help in designing educational policies.
4. Parents would help in strategic planning for teaching/learning process.

5. Parents would help in progress of learning science through grounding a shared vision between education and the society.

On the other hand, the practical significance of this study lies in the following aspects:

1. Parents will be encouraged to provide ideas, visions and thoughts to school principals, which will help increase students' learning of science in particular, and the teaching/learning process in general.
2. The relationship between the school and parents will be strengthened, which will be reflected on the school's heightened awareness of what parents want for their children.
3. Parents' comments and suggestions give a clear picture about parents' satisfaction regarding students' progress.
4. Parents' comments and suggestions would help teachers assess their performance, which will, in turn, improve school provision and help parents better help their children based on teacher feedback.
5. Parents will better understand the school system and regulations, which would enhance their roles in the cooperative model started in this research.

Research has shown that not only are students, such as these targeted in the research, are poor achievers in mathematics and science, but that they sport high rates of absenteeism, serious behavioral problems inside the school and the classroom, disregard for participation in extra-curricular activities, and often publicized weak parental involvement in their children's education (Al-Qadhi, 2004).

This, coupled with the dearth of rigorous local and regional research on the issue, make the current study especially significant. To the best of this researcher's knowledge, this is the first study of its kind in Jordan to address parents' aspirations and teachers' responses and potential effect of both on improving science instruction in the Jordanian basic stage school system.

#### **Limitations of the Study:**

Albeit sound in design and execution, the study is limited in generalizability to first-through eighth-grade students from the schools of the Directorates of Education in Mafraq Governorate and to their parents.

#### **Operational Definitions of Terms:**

**Messages to science teachers:** the information written through messages in the responses to the researcher's open-ended question by the parents of the students from the first-through eighth-grade in the primary schools in the Governorate of Mafraq.

**Science teachers:** basic-stage teachers of science in the Jordanian public schools in Mafraq Governorate for the academic year 2012/2013.

**Parents:** parents of students in the primary schools of the Directorates of Education in Mafraq Governorate.

**Basic Stage:** the first of two stages of education in Jordan which spans ten years, starting in the first grade and ending with the tenth grade.

#### **Method and procedures:**

##### **Design of the Study:**

To answer the first question related to what parents want from science teachers to improve science instruction, a quantitative research approach was used in terms of

frequency and percentage. On the other hand, the second question was answered through counting the numbers of the retrieved parents response compared with the number of distributed forms. Similarly, to answer the third and the fourth questions, a qualitative research approach was used for data acquired through interviews with science teachers. Thus, the study uses both quantitative and qualitative analyses of the data acquired through the content analysis of the messages from the parents and structured interviews with science teachers.

### Population and Sample of the Study:

The population of the study consisted of all 760 basic-stage science teachers and the parents of all 58,915 students in the public schools of Mafraq Governorate in the academic year 2012-2013. A random sample of 496 teachers (64.4% of the population) was drawn, from which 25 teachers were earmarked for the interview. A randomly stratified clustered sample of 784 parents (39.2% of the population) was drawn according to the variables of gender, educational level, and the class level of the son/daughter (first-through fourth-grade and fifth-through eighth-grade).

<b>Variables</b>	<b>Levels of variables</b>	<b>numbers</b>	<b>Total</b>
<b>Gender</b>	male	379	784
	female	405	
<b>Educational level of parents</b>	Bellow secondary	500	784
	Bachelors and above	284	
<b>Class level of their son/daughter</b>	First grade – fourth grade	256	784
	Fifth grade – eighth grade	528	

### Instruments of the Study:

**Content Analysis.** The first instrument used is a content analysis of the messages retrieved from parents in response to an open-ended question about what they would want science teachers to do to improve teaching and learning science. The content analysis checklist included domains such as teaching methods, homework, methods of reinforcement and motivation, and the initiatives of students in science, skills laboratory work, student behaviors, teacher personal behavior, and monitoring and evaluation.

**Procedures of the Content Analysis:** the content analysis checklist was designed to identify the needs identified by parents to improve science education for their children. The messages were analyzed and themes emerged in eight categories: teaching methods, homework, reinforcement and motivation methods, initiatives of students in science, the skills of laboratory work, addressing student behavior, the teacher personal behaviors, and monitoring and evaluation.

The content analysis was performed following the procedures outlined below:

1. The aims of the analysis: the content analysis checklist aimed at collecting the needs identified by parents to improve science education for their children.
2. The unit of analysis: for the quantitative assessment of the categories of the analysis, the theme of the message was adopted in counting the frequencies of the categories of analysis.

3. The categories of analysis: these are the elements on which the analysis is based. These categories of analysis were determined in eight domains: teaching methods, homework, reinforcement and motivation methods, initiatives of students in science, the skills of laboratory work, addressing student behavior, the teacher personal behaviors, and monitoring and evaluation.
4. Control of the analysis process: This includes the following:
  - a. The analysis process is limited to the retrieved parents responses.
  - b. A systematic approach was followed in analyzing the retrieved parents' responses.
  - c. The analysis process of the retrieved parents responses was done by the first researcher.
  - d. The analysis process was done within the same period of time.
  - e. Tables were used for counting the units and categories of retrieved parents response.

To establish the validity of the content analysis checklist, it was given to jury of experts from the departments of Curriculum and Instruction, Measurement and Evaluation, and Counseling and Educational Psychology at Yarmouk University (Irbid, Jordan). The jury's comments on the wording of the items and the extent of the coverage of the categories of the analysis were taken into account in the finalization of the instrument.

The reliability of the checklist was established through test-retest of the stability of the analysis over time. The content of a sample of 20 messages, excluded from the sample of the study, was analyzed and then reanalyzed four weeks later. Using Holisti's (1969, p. 140) equation, the reliability coefficient for the two analyses amounted to 0.90, which is appropriate for the purpose of this research.

$$\text{The reliability coefficient} = \frac{\text{number of agreements}}{(\text{number of agreements} + \text{number of disagreements})} \times 100 \%$$

Inter-rater reliability of the content analysis was also established through engaging a colleague in content analyzing twenty of the parents' messages based on the theme as the unit of analysis. There was an average of 0.99 agreement between the two analysts on the four chosen categories of the checklist.

<b>Table 2</b> Percentages of agreements of the messages retrieved from parents				
<b>Number</b>	<b>Domain</b>	<b>Content of Parents' Message</b>	<b>Intra-Rator Agreement (100%)</b>	<b>Inter-Rator Reliability (100%)</b>
1	Teaching methods	Emphasizing discussion and avoiding spoon feeding in teaching science.	100	98
		Emphasizing the use of technology in teaching science.	100	97
		Taking into account individual differences in assigning homework, activities and tests in science.	99	98
		Emphasizing individual learning to develop creativity in science.	100	98
		Using the iterative method (repetition) to better understand science.	100	100
		Emphasizing laboratory work.	100	100
		2	Homework	Increasing homework on various topics of science.
Decreasing homework on various topics of science.	100			100
Assigning homework which would develop scientific thinking among students.	100			99
Making sure that the students themselves do their own homework in science.	100			100
Taking into account individual differences in assigning homework.	100			100
3	Methods of Reinforcement and Motivation	Stimulating students' commitment to short and monthly tests in science.	100	100
		Providing all forms and types of reinforcement to students' for learning science.	100	100
		Motivating students to learn about science (capture students' attention).	100	99

4	Students' Initiatives in Science	Making use of students' models and drawings.	100	100
		Accepting students' ideas and suggestions about learning science and communicating with them in a friendly manner.	100	99

**Interview with Science Teachers:** An interview schedule, whose questions were derived in part from the content analysis of the parents' messages, was designed to obtain data relating to the actions of science teachers about the messages directed to them by parents, and the potential of and difficulties against implementing the content of these messages, in addition to the potential effect of these messages in improving the learning and teaching of science and the teachers' beliefs about family partnership in education. The structured interviews were conducted in Arabic and translated later for the purpose of communicating the results of the research.

The validity of the interview schedule was established by a jury of experts from the departments of Curriculum and Instruction, Measurement and Evaluation, and Counseling and Educational Psychology at Yarmouk University (Irbid, Jordan). The jury's comments were all taken into account in the finalization of the instrument.

The reliability of the interview was established through test-retest of the stability of the analysis over time. The content of three interviews, excluded from the sample of the study, was analyzed and then reanalyzed four weeks later. The reliability coefficient for the two analyses amounted to 0.97, which is appropriate for the purpose of this research.

The inter-rater reliability of the analysis of the interview responses was established through engaging a colleague in analyzing a sample of the interviews. There was an average of 0.91 agreement between the two analysts, which is appropriate for the purposes of the research.

**Procedures for the Interview:** the interview schedule was designed to probe further into the teachers' perceptions of and beliefs about the potential validity and implementation of the content of the parents' for improving science education for their children. To ensure both the confidentiality and sincerity of responses, the names of the respondent were withheld and replaced by a code. Not only was this hoped to ensure honesty of expression but also to maximize the accuracy of the data.

The interviews were all recorded and then transcribed prior to the analysis. The responses were analyzed, and frequencies and percentages were calculated. The validity and reliability of the interview schedule were established, as shown above.

#### **Implementation procedures:**

The study has been implemented per the following procedures: 2000 message templates were distributed to the three districts of education in the Governorate of Mafraq to be delivered to parents through their children in the basic stage (i.e., three letters for each section of the first through eighth grades (without repetition). The messages retrieved from parents were subjected to the analysis, which culminated in the selection of twenty-five science teacher to be interviewed. Statistical analysis of the data was performed to inform the presentation and discussion of the results and put forth the recommendations of the study.

**Results and Discussion:****Results of the First Questions:**

The results of the first question, What do parents want from science teachers to improve science instruction?, show that there are 33 topics that concern parents most, as shown in Table (3).

<b>Number</b>	<b>Domain</b>	<b>Content of Parents' Message</b>	<b>Frequency</b>	<b>Percentage</b>
1	Methods of Reinforcement and Motivation	Stimulating students' commitment to short and monthly tests in science.	159	20.3
		Providing all forms and types of reinforcement to students' for learning science.	464	59.2
		Motivating students to learn about science (capture students' attention).	214	27.3
2	Teacher's Personal Behaviors	Getting students to assume partial responsibility for learning science.	177	22.6
		Developing scientific attitudes and moral values among students.	126	16.1
		Exhibiting adequate Knowledge and manual and performance skills.	150	19.1
		Commitment to the ethics of the profession (flexibility, calmness, good conduct, and good example).	549	70.0
3	Addressing Students' Behaviors	Involving parents in addressing their children's behaviors in science.	142	18.1
		Using various, non-traditional methods to modify students' attitudes towards learning science.	336	42.9
4	Teaching methods	Emphasizing discussion and avoiding spoon feeding in teaching science.	299	38.1
		Emphasizing the use of technology in teaching science.	412	52.6
		Taking into account individual differences in assigning homework, activities and tests in science.	158	20.2

		Emphasizing individual learning to develop creativity in science.	100	12.8
		Using the iterative method (repetition) to better understand science.	80	10.2
		Emphasizing laboratory work.	255	32.5
5	Laboratory skills	Maximizing laboratory experiments.	255	32.5
		Emphasizing the practice of skills of science processes.	219	27.9
		Taking into account individual differences in laboratory activities.	158	20.2
		Allocating more time for laboratory work as opposed to classroom time.	189	24.1
6	Students' Initiatives in Science	Making use of students' models and drawings.	189	24.1
		Accepting students' ideas and suggestions about learning science and communicating with them in a friendly manner.	136	17.3
7	Homework	Increasing homework on various topics of science.	119	15.2
		Decreasing homework on various topics of science.	127	16.2
		Assigning homework which would develop scientific thinking among students.	149	19.0
		Making sure that the students themselves do their own homework in science.	155	19.8
		Taking into account individual differences in assigning homework.	158	30.2
8	Follow-up and Evaluation	Using modern evaluation methods in science (e.g., estimation scales).	171	21.8
		Reverting to traditional methods of evaluation in science (e.g., pen and paper).	25	3.2
		Providing students with ongoing feedback about their performance in science.	132	16.8

		Addressing students' weakness in science in different ways.	70	8.9
		Following-up students' achievement, guiding them and answering their questions in science.	236	30.1
		Providing parents with written reports on students' progress in Science.	180	23.0
		Taking into account students' individual differences in constructing tests.	158	20.2

Table (3) shows that there are 33 topics gleaned from the parents' messages to science teachers. These topics were classified into eight domains which are consistent with the national standards for science teachers' professional development in Jordan. It further shows that all the domains are addressed since there is at least one item in each domain, even though there are differences in the priority of these items among parents.

A holistic regard of this result primarily reveals a weakness in science teachers' follow-up and evaluation of student performance in a manner that reflects these students' true abilities, reluctance to use alternative assessment methods and technology in teaching, and not providing timely and adequate reinforcement for students. The results further reveal a weakness in science teachers' commitment to the ethics of the teaching profession.

These results may be attributed to a number of interrelated factors, the most notable amongst which are the absence of educational supervision in the vast governorate, factors of societal and school poverty, and a relative lack of experience amongst teachers, especially since the majority are novice teachers from outside the governorate.

#### **Results of the Second Question:**

The results of the second question, What is the percentage of parents who are willing to get involved in their children's science education through directing messages to the teacher?, show that the rate of parents' participation in sending messages to science teachers amounted to 39.2% (as the researchers retrieved 784 responses to the 2000 letters distributed), which mandates an immediate response to their concerns. This result is consistent with the findings of other educational studies (e.g., Alkhchini, 1992; Coyle and Wicher, 2004) who also reported low response rates, which can be attributed, in this particular instance, to the social conditions in the governorate of Mafraq, customs, traditions and the economic, social and educational systems and the extent of their interest in the citizens' active involvement and communication, and creating opportunities for listening to others, accepting criticism, and ongoing societal reform. These findings are also consistent with those of Nasr (1992) and Al-Khatib al-Khatib (2006), which show that there is an interest, albeit inadequate, in the interaction between the home and the school.

#### **Results of the Third Question:**

The results of the third question, How do science teachers respond to parents' messages to improve science instruction?, are presented in Table 4 below:

Rank	Teachers Responses	Frequency	%
1	Welcome these messages, read them.	20	40
2	Implementing the content of the parents' messages.	16	32
3	Call the parent and report the content of his/her messages to the school administration.	14	28
Total		50	100

With respect to the matter of how science teachers respond to parents' messages to improve science instruction, the effect of these messages, and the applicability of their content from the science teachers' perspective, the results were as follows.

The analysis of the results of the interviews revealed that only 40% of the science teachers, who were interviewed, welcome these messages, read them and ponder their educational implications to gauge their applicability within the available resources of their schools. Three of these teachers have said the following:

*I willingly accept these messages, familiarize myself with their content and identify their main objective.* (Interview\_12 May 2013\_ Female chemistry teacher\_ 12 years of experience)

*I never read these messages.* (Interview\_22 May 2013\_ Male biology teacher\_ one year of experience)

*I just read the message out of curiosity, and then carelessly throw it away. The information the students claims to be from her parents may not be true, and parents should not believe everything their children tell them but should come to the school for information.* (Interview\_21 May 2013\_ Female physics teacher\_ 4 years of experience)

This could be due to the fact that some demands of the parents' demands may be impossible or need a lot of time and money to achieve, not to mention that the parent's educational level may be reflected on the nature of his/her demands of science teachers.

The analysis of the results of the interviews has also indicated that only 32% of the teachers who were interviewed report implementing the content of the parents' messages. One teachers has reported the following:

*Most of the parents' messages can be realistically implemented, because the majority of the messages are about teaching, and I rely on the school management whenever I am not able to implement the content of the message by myself.* (Interview\_12 May 2013\_ Male chemistry teacher\_ 12 years of experience)

This result may be attributed to the difficulties faced by science teachers in the course of their teaching, which may prevent science teachers' from heeding the content of parents' messages. These problem may include large numbers of students in the classroom, inadequate equipment in the science laboratories, inappropriately equipped classrooms, traditional management styles, and inadequate computer laboratories, in addition to the poor

time allocation for science, under-qualified laboratory technicians, lack of specialized courses, and heavy teaching load.

The analysis of the results of interviews also revealed that only 28% of the science teachers do call the parent and report the content of his/her messages to the school administration. Some have said the following:

*I call the parent whenever necessary to address a particular problem, and report to the school administration to shoulder part of the responsibility with me and discuss the matter with the parent. (Interview\_21 May 2013\_ Female chemistry teacher\_ 12 years of experience)*

*We only see the parent when there is a problem with his son. We inform the school administration to avoid any repercussions. (Interview\_21 May 2013\_ Male physics teacher\_ 5 years of experience)*

These findings may be attributed to the fact that the parents' concern is for their children first and foremost whereas the teachers' concern is for the lesson. Thus, parents often expect the science teacher to do academic miracles for their children, while most teachers expect parents to leave all academic matters to them and just focus on organizing fund-raising campaigns for the school.

#### **Results of the Fourth Question:**

The results of the fourth question, What is the potential effect and applicability of these messages, as perceived by the science teachers themselves?, are presented in Table 5.

<b>Rank</b>	<b>Effect of Parent Message</b>	<b>Frequency</b>	<b>%</b>
1	Support a partnership with the family, in order to solve students' problems and increase communication with parents.	35	65
2	Attest to the effective contribution of these messages to their children's knowledge, behavior, and identifying their points of strengths and weaknesses in science.	19	35
Total		54	100

As for the effect of these messages in improving the teaching and learning of science, the teachers' responses to the interview revealed that 65% of the science teachers who were interviewed support a partnership with the family, in order to solve students' problems and increase communication with parents. Some reported the following:

*Partnership with parents is a key element in solving the problems. I aspire for a more effective partnership and a closer contact with the parents. (Interview\_27 May 2013\_ Female biology teacher\_ 5 years of experience)*

*This partnership is crucial, because it corrects a lot of teacher misconceptions, helps*

*solve problems and increases the level of interaction and communication with parents.* (Interview\_27 May 2013\_ Male physics teacher\_ 18 years of experience)

*I consider partnership with the family crucial for the teaching/learning process, because the family is the foundation of children's education, and through it I can communicate to resolve the obstacles which I face in teaching science. I give my best when I feel the constant follow-up and support of the student's family.* (Interview\_27 May 2013\_ Female chemistry teacher\_ 11 years of experience)

The results of interviews analysis also indicated that 35% of the science teachers who were interviewed attest to the effective contribution of these messages to their children's knowledge, behavior, and identifying their points of strengths and weaknesses in science. Some have said:

*By identifying the student's weaknesses in science, the teacher can make use of and remedy them in his/her teaching.* (Interview\_21 May 2013\_ Female geology teacher\_ 7 years of experience)

*Parents draw the teacher's attention to some of their children's interests, such as play and television programs, so that the teacher can use these interests to promote teaching science in the classroom.* (Interview\_12 May 2013\_ Female geology teacher\_ 3 years of experience)

This result could imply that the science teachers' evaluation of the student's academic and behavioral performance should be very precise, and that they should communicate to the parents the amount of effort exerted by their children and their respective behaviors in the classroom, how responsible they are, and their potential ability to participate in classroom and other activities. These data should be made available to parents to offer them the opportunity to get to know the science teacher's abilities and have confidence in his/her performance, which would create a sense of relief among parents and, thus, a positive outlook to cooperate with the science teacher in their children's education.

### **Conclusions:**

Based on the above discussion, communication emerges as the foundation for the partnership between the school and parents, as this communication is a bidirectional compromise for the attainment of a common goal. Thus, the process of real communication does not focus on what the parents know or on what the teachers believe that the parents know, but rather on what teachers want parents to know and what they should work together to know. In this context, the school administration emerges as the key to all successful relationships and positive communication with parents.

### **Recommendations:**

In light of the findings of the study, the following recommendations are put forth:

1. Teachers should respond to parents demands and, thus, reduce the number of these demands by addressing many of the student and teacher behaviors.
2. Teachers should open all channels of communication with parents, taking into account the diversity of communication methods to strengthen cooperation between parents and teachers.

3. Teachers should take into account the parent's educational level and culture and accept his/her ideas, regardless of their tone, to enhance communication, and organize pressure-free meetings between parents and teachers.

### References in English:

- Allen, J. (2007). *Creating Welcoming Schools: A Practical Guide to Home-School Partnerships with Diverse Families*. New York: The International Reading Association/Teacher's College Columbia University.
- Baez, A.V. (1976). *Innovation in Science Education Worldwide*. Paris: UNESCO.
- Bojuwoye, O. (2009). Home-School Partnership: A Study of Opinions of Selected Parents and Teachers in Kwazulu Natal Province, *South Africa*, 24(4), 461-475.
- Bouffard, S. (2008). Tapping into Technology: The Role of the Internet in Family-School Communication. (Family Involvement Research Digest). Cambridge MA: Harvard Family Research Project. Retrieved 15 November 2013 from <http://hfrp.org/publication-resources/publication-series/family-involvement-research-digests/tapping-into-technolog-therole-of-the-internet-infamily-schoolcommunication>.
- Bruder, M. B. (2000). Family-Centered Early Intervention: Clarifying Our Values for the New Millennium. *Topics in Early Childhood Special Education*, 20(2), 105-115.
- Calvert, D. (1974). Dimensions of Family Involvement in Early Childhood Education. *Teaching Exceptional Children*, 37(9), 655-659.
- Coyle, L.M. & Witcher, A.E. (2004). Transforming the Idea into Actions: Policies and Practices to Enhance School Effectiveness. *Urban Education*, 26(4), 390-400.
- Everett, S.A., Luera, G.R. & Otto, C.A. (2007). Pre-Service Elementary Teachers Bridge the Gap Between Research and Practice, *International Journal of Science and Mathematics Education*, 6 (1), 1-17.
- Gallagher, P.A.; Rhodes, C.A. & Darling, S.M. (2004) Parents as Professionals in Early Intervention: A Parent Educator Model. *Topics in Early Childhood Special Education*, 24 (1), 5-13.
- Glaser, B.G. & Strauss, A.L. (1967). *The Discovery of Ground Theory: Strategies for Qualitative Research*. New York: Aldine De Gruenter Publishing Company.
- Hill, E. & Tyson, F. (2009). Parental Involvement in Middle School: A Meta- Analytic Assessment of the Strategies that Promote Achievement. *Development Psychology*, 45(3), 740 – 763.
- Hung, C. (2007). Family, Schools and Taiwanese Children's Outcomes. *Educational Research*, 49 (2), 115-125.
- Liu, L. & Meng, S. (2010). Re-Examining Factor structure of the attitudinal items from TIMSS 2003 in cross-cultural study of mathematics self-concept. *Educational Psychology*, 30 (6), 699-712.
- Liu, L. & Meng, S. (2010). Re-Examining Factor Structure of the Attitudinal Items from TIMSS 2003 in Cross-Cultural Study of Mathematics Self-Concept *Educational psychology*, 30(6), 699-712.
- Moral, E. (2002). Involving Latino Parents in the Middle-Level School. A Study of First Generation and Second-Generation Mexican-American Parents. *Dissertation Abstracts International*, 57(12), 540-727.
- Rock, M. (2000). Parents as Equal Parents: Balancing the Scales in IEP Development, *Teaching Exceptional Children*, 32 (6), 30-37.

- Salem, R. (2010). *School and Community*. Amman, Jordan: The Arab community library.
- Sanchez, S. (2010). Involving Latino Families in Schools: Raising Student Achievement through Home-School Partnership. *Journal of Latinos & Education*, 9 (7), 81–83.
- Sheldan, F.; Saima, S. & Barhoum, A. (2011). The Reality of Communication between the Secondary School and the Local Community in the Gaza Strip and Ways for Improvement. Paper presented at the Fourth Educational Conference: Educational Communication and Dialogue. the Islamic University, 30-31 October (in Arabic).
- Uchida, D.; Cetron, M. & McKenzie, F. (1996). *Preparing Students for the 21<sup>st</sup> Century*. Arlington, Virginia: American Association of School Administrators.
- Wei, G. & Yawkey, T.D. (2009). An Investigation of Teacher's Attitudes towards Home Based family Intervention Models Utilized by public school Teachers in China, *Journal of Instructional Psychology*, 36 (1), 49–58.
- Wright, V. & Rogers, R. (2006). Assessing Technology's Role in Communication between Parents and Middle Schools, *Electronic Journal for the Integration of Technology in Education*, 7(1), 36-58.

#### References in Arabic (المراجع العربية):

- أبو رمان، فاديه. (2000). واقع التعاون بين المدرسة والأسرة ومتطلبات تطويره من وجهة نظر معلمي مدارس محافظة البلقاء الرسمية. رسالة ماجستير غير منشورة، الجامعة الأردنية، عمان، الأردن.
- الأحمد، عبد الرحمن. (1985). الحياة المدرسية والعلاقة بين البيت والمدرسة في التعليم العام بدولة الكويت. مجلة جامعة الكويت، 4 (2): 239-262.
- أوتشيدا، دونا ومارفين، سيترون وفلوريتا، ماكينزي. (2004). إعداد التلاميذ للقرن الحادي والعشرين. (محمد نبيل نوفل، مترجم)، القاهرة: الدار المصرية اللبنانية.
- بدوي، رمضان، وقنديل، محمد. (2004). مهارات التواصل بين المدرسة والبيت. عمان: دار الفكر للطباعة والنشر.
- بربخ، فرحان. (2012). المدرسة والمجتمع. عمان: دار أسامة للنشر
- البرت بايز. (1987). التجديد في تعلم العلوم. (جواد نظام، مترجم). بيروت: معهد الإنماء العربي.
- البناء، هالة. (2010). العلاقة بين أولياء أمور الطلبة والإدارة المدرسية. ط1، عمان: دار صفاء للنشر.
- البوهي، فاروق. (2001). الإدارة التعليمية والمدرسية. القاهرة: دار قباء للطباعة والنشر.
- الجلال، فيصل. (2006). مدى إهتمام أولياء أمور طلبة المرحلة المتوسطة بالعملية التربوية في دولة الكويت. رسالة ماجستير غير منشورة، جامعة عمان العربية للدراسات العليا، عمان، الأردن.
- الجوير، إبراهيم. (2013). الأسرة والمجتمع: دراسات في علم الاجتماع العائلي. ط1، مصر: دار عالم الكتب للطباعة والنشر والتوزيع.
- حسن، عبد. (2000). برنامج مقترح لتفعيل أدوار أولياء الأمور في العملية التعليمية - التعليمية. رسالة ماجستير غير منشورة، جامعة البحرين، المنامة.
- حيدر، عبد اللطيف وأحمد، محمد. (2006). دور المدرسة كمجتمع تعلم مهني في بناء ثقافة التعلم وتنميتها، مجلة كلية التربية، 21 (23): 31 - 53.

- الخشيني، محمد. (1992). *العلاقة بين أولياء الأمور ومديري المدارس الأساسية في لواء عجلون ودورها في معالجة المشكلات الطلابية*. ماجستير غير منشورة، جامعة اليرموك، إربد.
- الخطيب، أحمد والخطيب، رداح (2006). *المدرسة المجتمعية وتعليم المستقبل*. الأردن: عالم الكتب الحديث للنشر والتوزيع.
- خليل، رائدة. (2006). *المدرسة والمجتمع*. ط1، عمان: مكتبة المجمع العربي للنشر والتوزيع.
- الخولي، سناء. (2009). *الأسرة والحياة العائلية*. الإسكندرية: دار المعرفة الجامعية للطبع والنشر والتوزيع.
- رشوان، حسين. (2005). *التربية والمجتمع*. دراسة في اجتماع التربية. الإسكندرية: مؤسسة شباب الجامعة.
- زيتون، عايش. (2006). *أساليب تدريس العلوم*. ط5، عمان: دار الشروق للنشر والتوزيع.
- السادة، حسين. (1990). *دراسة واقع التعاون بين المدرسة والأسرة والمجتمع بالبحرين*. مكتب التربية العربي لدول الخليج: رسالة الخليج العربي، 1 (35): 67-98.
- سالم، رائدة. (2010). *المدرسة والمجتمع*. الأردن: مكتبة المجمع العربي.
- السناني، عمر. (2008). *المشاركة الأسرية في إدارة العملية التربوية كما يراها مديرو المدارس الأساسية في محافظة مسقط*. رسالة ماجستير غير منشورة، جامعة اليرموك، إربد الأردن.
- شلدان، فايز وصايمية، سمية وبرهوم، أحمد. (2011). *واقع التواصل بين المدرسة الثانوية والمجتمع المحلي في محافظة غزة وسبل تحسينه*. المؤتمر التربوي الرابع بعنوان التواصل والحوار التربوي الجامعة الإسلامية في (30 - 31 أكتوبر)، 2 - 3.
- الشياب، معن (2005). *أثر استخدام أسلوب تعليمي محوسب لتدريس الفيزياء في القدرة على تطبيق المفاهيم وحل المسألة الفيزيائية لدى طلبة الصف العاشر الأساسي*. أطروحة دكتوراه غير منشورة، جامعة عمان العربية للدراسات العليا، عمان.
- صلاح الدين، عريفة. (2000). *فاعلية مجالس أولياء الأمور من وجهة نظر المديرين والمعلمين والمرشدين التربويين في المدارس الثانوية الحكومية في محافظة رام الله*. رسالة ماجستير غير منشورة، جامعة النجاح الوطنية، نابلس، فلسطين.
- طراونة، أخليف وسواق، ساري. (1996). *استقصاء مستوى العلاقة بين المدرسة والمجتمع المحلي كما يدركها مديرو ومديرات مدارس تربية محافظة الكرك*. مجلة أبحاث اليرموك، سلسلة العلوم الإنسانية والاجتماعية، 12 (4): 87 - 119.
- عفيفي، محمد. (1990). *التربية ومشكلات المجتمع*. ط2، القاهرة: مكتبة الانجلو المصرية.
- العليمات، علي والقطيش، حسن. (2007). *درجة ممارسة معلمي العلوم للكفايات الأدائية في مدارس المرحلة الأساسية في محافظة المفرق*. مجلة أم القرى للعلوم التربوية والاجتماعية والنفسية، 19(2)، 153 - 202.
- عياصرة، علي والفاضل، محمود. (2006). *الاتصال الإداري وأساليب القيادة الإدارية في المؤسسات التربوية*. عمان: دار ومكتبة الحامد للنشر والتوزيع.

- فرج، عبد اللطيف. (1988). العلاقة بين المدرسة وأولياء الأمور. مجلة جامعة الملك عبد العزيز للعلوم التربوية، م1، 151-207.
- القاضي، ركان. (1994). مدى اهتمام أولياء أمور الطلبة بالعملية التربوية في محافظة المفرق من وجهة نظر المديرين والمديرات في المدارس الحكومية التابعة لوزارة التربية والتعليم في المحافظة. رسالة ماجستير غير منشورة، جامعة اليرموك، إربد، الأردن.
- الكعبي، حامد. (2007). درجة ممارسة مديري المدارس لدورهم في تفعيل العلاقة بين الأسرة والمدرسة في دولة الإمارات العربية المتحدة. رسالة ماجستير غير منشورة، جامعة اليرموك، الأردن.
- المصاروة، أسامة. (2012). عزوف أولياء الأمور عن المشاركة في مجالس الآباء والمعلمين وأثره في العنف المدرسي من وجهة نظر مديري مدارس محافظة إربد. رسالة ماجستير غير منشورة، جامعة اليرموك، الأردن.
- موسى، محمد. (2005). التربية وقضايا المجتمع المعاصر. ط3، الإمارات العربية المتحدة: دار الكتاب الجامعي.
- نذر، فاطمة. (2001). التنشئة الديمقراطية كما يدركها الوالدان والأبناء في الأسرة الكويتية، دراسة ميدانية. مجلة العلوم الاجتماعية، 29(4): 87-113.
- نصر، نوال. (1992). التعاون بين المعلمين و أولياء الأمور لتربية الحلقة الاولى من التعليم الاساسي في مصر . دراسات تربوية، 7 (41): 225 - 264.
- نيول، كلاركس. (1993). السلوك الانساني في الإدارة التربوية. عمان: دار مجالوي للنشر والتوزيع.
- وزارة التربية والتعليم الأردنية. (2007). تعليمات مجالس أولياء الأمور والمعلمين في المؤسسات التعليمية الحكومية والخاصة لسنة 2007. عمان، الأردن.
- وزارة التربية والتعليم. (2004). استراتيجيات التقويم وأدواته. (الإطار النظري). عمان - الاردن.
- وظفة، علي والشهاب، علي. (2004). علم الاجتماع المدرسي. ط1، بيروت: المؤسسة الجامعية للدراسات والنشر والتوزيع.