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Executive Summary

Improving schools is a major issue in almost every country in the world. There are a myriad of factors which must be considered and the complexity of the challenge is reflected in the ongoing global debate on how best to accomplish education reform. In 2007 the United States Agency for International Development (USAID) entered into this debate in the Palestinian context by committing significant resources to explore models of school improvement. AMIDEAST, the US-based education organization, became the lead agency in implementing the USAID-funded Model Schools Network (MSN) Program. Initially, the effort was aimed at 17 private schools in the West Bank; however, in 2009 40 public schools were added to the MSN Program. In cooperation with the Ministry of Education (MoE) these public schools became the primary focus of the MSN Program.

Over a three year period, the MSN Program embarked upon a series of capacity-building interventions aimed at enhancing the quality of school leadership, and teaching practices through in-service professional development among principals, teachers, supervisors and district-level staff. MSN also introduced innovative approaches to education technology in schools and strengthened the role of student extracurricular activities and community engagement. A key objective was to document and evaluate these interventions in order to develop evidence-based recommendations that the MoE could act upon to improve student learning outcomes in Palestinian schools. As a consequence, MSN evolved into one of the most robustly evaluated education initiatives in Palestinian history.

This final report highlights key outcomes of the MSN Program with a particular focus on achievements pertaining to the 40 public schools. The conclusion of this report includes 20 policy recommendations which were presented and discussed in draft form with key stakeholders during four separate events in May and June 2012. Overall, the evidence points to a successful effort of building a holistic model of institutional capacity-building that improved schools. However, the degree to which the approaches and interventions are replicable for all Palestinian schools varies considerably. In some cases, much can be accomplished if the MoE revisits education policies and reconsiders how issues of autonomy and authority are managed in a school setting. In other cases, the ability to scale up worthwhile interventions is a question of resources and priorities for the Palestinian Authority.

Perhaps the single most important policy dimension emanating from the MSN Program is the recognition that improved school leadership, increased knowledge and skills of teachers, and greater community involvement in schools have greater impact when integrated under a single vision for school improvement. In other words, interventions that collectively target improved instruction in the classroom, as opposed to activities conducted in isolation, offer far greater reward in terms of creating a school climate and classroom environment that lead to improved learning outcomes. Comprehensive school improvement must also be supported by an alignment of policies and procedures at the local, district and national level that engender motivation and commitment for educators to change their current practices. This report is divided into four themes which reflect the most significant contributions of the program. Each of these themes is presented below with key outcomes described in brief:

Outcomes in School Leadership

- The Leadership Diploma Program (LDP) was established as an accredited professional diploma managed and delivered by the National Institute of Education and Training.
 - Principal satisfaction with the LDP increased 7.6% at the conclusion of the program.
 - Principals used multiple opportunities to engage teachers in the school reform process including the School Improvement Teams and District Leadership Teams. These efforts resulted in substantive changes to the daily teaching practice of participating teachers.
 - MSN's professional development programs created opportunities for principals and teachers to understand the key interrelationship between school leadership and classroom instruction,
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particularly in terms of the principal's role as an instructional leader who reinforces a common vision toward improving teaching and learning.

Outcomes in Teacher Professional Development

- Professional Certificate programs for teachers of math, science, and English resulted in measurable increases in learner-centered approaches to teaching and learning, as well as increased capacity of teachers to integrate new technology into their classroom instruction. Professional development also promoted a community of practice among teachers in the network.
- Teachers demonstrated a shift in practices toward more formative types of classroom assessments that encourage critical thinking and collaborative problem solving.
- Observations of MSN teachers in actual classroom settings provided strong empirical evidence of increased learner-centered instruction over teacher-centered practices.
- The most consistently-recurring practice among MSN teachers was the use of visual aids and/or educational technology, which provided students multiple entry points to engage with the curriculum.
- Findings from surveys, focus groups and in-depth interviews highlight how MSN's model of professional development assisted teachers to critically evaluate, self-reflect, and change their fundamental assumptions and practices about their own and their students' learning.

Outcomes in Education Technology in Schools

- MSN's provision of computers and Internet connectivity among its network of schools noticeably improved teachers' capacity to access and incorporate teaching resources into the curriculum and instruction. Students' use of educational technology also increased impressively.
- Use of technology for both administration and teaching and learning purposes registered a 54% gain over the course of the program.
- MSN's introduction of connectivity in schools provided a national model that is effective, reliable, affordable and can scale to hundreds of schools.
- The MSN's introduction of technology in schools demonstrated added value, provided that teachers and trainers have sufficient technology skills; easy access to a computer and the internet; and that online tasks are deliberately woven into the goals of the in-service program.

Outcomes in Community Engagement and Extracurricular Activities

- MSN's extracurricular activities improved classroom outcomes and learning. Approximately one third of participating educators remarked on how student participation in activities improved academic achievement, particularly among low-achieving students. Students were also exposed to new opportunities which improved their confidence and self-efficacy.
 - Teachers developed an intrinsic interest in extracurricular activities which resulted in increased teacher motivation to support activities. This support was present despite the fact that teachers were not paid to facilitate after-school activities.
 - MSN interventions contributed to improving the integration of classroom learning tasks and extracurricular programming. Activities most directly linked to academic subjects were the most sustainable.
 - The MSN Program successfully "activated" existing Parent Teacher Associations (PTAs). Parents of MSN schools registered a 26% increase regarding the quality of the performance of PTAs.
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Background and Goals

Launched in October 2007, the Model Schools Network (MSN) Program aimed to build institutional capacity in the Palestinian school system. The MSN Program focused on developing a school improvement network that would serve as a model for basic education in Palestine.

Within a network of 57 public and private schools in the West Bank, the MSN Program sought to introduce a student-centered, 21st century approach to teaching and learning that integrated child development at the physical, cognitive, psychological, and social levels. The major emphasis of the program was to improve the quality of teaching and learning in the disciplines of English, science, and mathematics. MSN's network of schools served as a foundation for replicating lessons learned and best practices for other Palestinian schools. The MSN Program had three main objectives:

- Introducing educational concepts, teaching approaches, techniques, and resources that would measurably improve student learning outcomes at participating schools
- Development of an expandable network of private and public schools that embraced a comprehensive, systemic approach to teaching and learning
- Evaluating and documenting the program results for future replication and scaling up

AMIDEAST designed five core components to implement these objectives:

- School Leadership
- Professional Development and Networking
- School Physical Capacity Building
- School and Community Involvement
- Monitoring and Evaluation (M&E)

The School Leadership component was a major dimension of AMIDEAST's approach to creating an effective model school network involving professionally certified principals and teachers committed to a process of school improvement. AMIDEAST's approach was a capacity building effort targeting the school and district levels. To this end, AMIDEAST created two types of leadership teams as part of the MSN Leadership Program: School Improvement Teams (SITs) and District Leadership Teams (DLTs). These teams represented the collective leadership at the district and school level. The intent was to infuse the appropriate educational leadership with understanding of, appreciation for, and a commitment to systemic change. All leaders were charged with the task of improving the quality of education offered in MSN schools. Another aim of this collective leadership structure was to better ensure that instructional leadership goals were recognized as important by school principals and district staff. The teams provided support and structure in the implementation of new procedures and processes that were agreed upon by all team members. Building the capacity and facilitating the functioning of these teams was a joint effort between the MoE and the MSN Program staff.

The Professional Development and Networking component comprised two tracks to effectively create mutually supportive communities of practice among school leadership and teachers: the Leadership Diploma Program (LDP) for principals and the Professional Certificate Program for teachers. The primary aims of the LDP were to significantly improve the quality of school leadership in MSN schools, as well as to develop a culture of continuing professional development among school principals. The program focused on three key actors within Palestinian basic education: principals, district administrative staff, and supervisors. Framing this approach was the LDP for the 40 MSN public school principals. The LDP required a total of 320 hours divided among a practicum, action research, face-to-face training, reflective learning circles and a leadership project. These components occurred over eighteen months and approximately half involved face-to-face meetings with homework assignments. The other half took place as an on-the-job practicum. The LDP was



designed to be highly relevant by integrating real issues in the daily life of school principals with theories of leadership. The LDP was developed and delivered locally with staff of the National Institute for Education and Training (NIET) taking the lead. This program is now accredited by Accreditation Quality Assurance Commission and will be scaled up for national delivery by NIET.

The Professional Certificate Program (PC) was delivered to teachers of English, math, and science at participating MSN schools. The PC combined monthly face-to-face training events throughout the academic year; learning circles held at local and district levels; individual observation and feedback sessions; activities on the MSN Virtual Learning Environment (VLE); and online support to assist the teachers in completing certificate requirements. The blended framework was developed and delivered by AMIDEAST. It required teachers participate in four strands of activities: 1) at least 96 hours of face-to-face training; 2) 36 hours of district or regional learning circles/communities of practice wherein all subject teachers in the network had the opportunity to share and discuss themes, challenges, and issues; 3) 36 hours of school- and district-level learning circles/ communities of practice; and 4) approximately one hour of weekly VLE activities.

The curriculum for the PD program was based on a common set of core themes. Each of these themes was explored by the teachers within the context of their specific subjects using discussion, reflective practice and hands-on activities. The core themes included:

- student-centered learning
- strategies for promoting critical thinking
- assessment theory and techniques
- curriculum analysis as it applies to the classroom environment
- information technology in the classroom
- materials design, focusing on low-cost alternatives

The School Physical Capacity Building component was a major initiative to improve the infrastructure and physical capacity of the schools. It included supplying schools with all the needed equipment for project participation, as well as assisting them in improving the infrastructure of their facilities in order to optimize the learning environment. The objective was to better support the implementation of new educational concepts, teaching approaches and techniques for improved teaching and learning, as well as to generally enhance the quality of education in the school. The MSN team administered a comprehensive needs assessment in cooperation with schools' management and MoE directorates. The total estimated cost for the 40 schools' capacity building projects was around three million US dollars, with an average of approximately \$66,000 for each MSN school. With input from the SITs, the needs of each school were categorized within the following areas: books, renovation, maintenance, and refurbishment; net books for teachers; computer lab equipment (IT), science lab supplies, and wireless internet services.

The School and Community Involvement component aimed to improve the learning environment and school climate at MSN schools through a holistic approach toward strengthening partnerships between schools and their communities. A large part of this component involved providing students with greater access to extracurricular programming. The Youth Enrichment Program (YEP) sought to engage students and school communities in creative, collaborative and competitive activities through a variety of interactive learning experiences. Between January 2009 and April 2012, MSN sponsored over 1,500 activities involving over 18,000 students among 57 public and private schools in the West Bank. These activities aimed to do the following: promote student motivation and achievement; encourage critical thinking; strengthen the link between schools and communities; and create more child-friendly schools by enhancing the variety and quality of extracurricular activities available to students. MSN also engaged PTAs and created national guidelines for parent engagement in schools.

Finally, the MSN M&E component included a system of formative and summative assessment approaches for the purpose of evaluating, documenting, and sharing MSN's impact. As such, M&E

was an integral part of all project activities. MSN’s internal M&E Department conducted a wide range of data gathering. The most substantive efforts are summarized below:

- Annual satisfaction surveys of over 23,000 principals, teachers, students and parents on six key domains.
- Approximately 5000 principals, teachers and students were surveyed about MSN’s procurement of education technology.
- 448 teachers and principals were specifically surveyed about their use of netbooks.
- 210 oral interviews of participants in extracurricular activities.
- 67 interviews were conducted with principals, teachers and students with a sample of ten schools regarding MSN’s school physical capacity building upgrades.
- 43 observation visits of extracurricular activities.
- 12 written evaluations of specific extracurricular activities.
- 5 comprehensive evaluations were conducted of MSN’s in-service teacher professional development program, as well as two evaluations of the leadership program for principals and supervisors.

For most survey collection, MSN’s M&E Department used purposive sampling to distribute surveys to all participants or relevant stakeholders. The only exception was for the annual satisfaction surveys, in which 20% of the student and parent responses were randomly selected after collection due to the large volume of responses. Qualitative data was coded to give additional depth and explanation to quantitative findings, particularly in cases where quantitative data was ambiguous or unexpected. The qualitative data often provided useful insights as to why a particular pattern emerged in the quantitative data. This internal data was triangulated and integrated with the pre- and post- study.

The external evaluation component, which included technical input and data gathering from the MoE’s Assessment and Evaluation Department, was conducted by the MSN Assessment Team. The Assessment Team designed a mixed-methods approach for its research. Quantitative data collection consisted of surveys, while qualitative methods included focus groups, in-depth interviews and narrative comments from classroom observations.

Table 1: Principals’ satisfaction with their professional development

	MSN Schools	
	Pre	Post
Teachers	521	655
Principals*	57	40
Supervisors	NA	14
Parents	918	1603
Students, grades 4-5	147	726
Students, grades 6-9	739	1799

*The sample of principals in the Pre-study included a subsample of deputy principals: 17 from MSN schools and 3 from control schools.

A pre-intervention study took place at the start of the MSN program to establish baseline data and was followed by a post-intervention study at the program’s conclusion. Furthermore, ten schools outside the MSN network were selected by the MoE for inclusion in the pre- and post- study to provide a more robust basis for determining whether changes were the result of MSN’s interventions or other factors at the 40 MSN schools. The comparability of the ten control schools to the 40 MSN schools was confirmed through an ANOVA analysis comparing the means of key variables. Table 1 shows the sample sizes for the groups comprising the survey research.

Major Achievements

This report presents the major achievements of AMIDEAST's Model Schools Network (MSN) Program. While many challenges still remain, research-based evidence demonstrates that MSN succeeded in achieving its core aim of building a holistic model of institutional capacity-building leading to the development of a school improvement network to serve as a model for basic education in Palestine. In the sections that follow, the report presents findings of MSN's extensive evaluation of capacity-building interventions aimed at enhancing the quality of school leadership; teaching and learning through in-service professional development among teachers, principals, supervisors and district-level staff; supporting education technology and physical capacity building; and strengthening school and community involvement through student affairs and extracurricular activities.

School Leadership

This section presents findings from capacity-building interventions aimed at enhancing the quality of school leadership through in-service professional development and networking among school principals, supervisors and district-level staff. Extensive evaluation by MSN's M&E research points to the significant success of MSN's interventions aimed at effectively creating mutually supportive communities of practice among the multiple dimensions of school leadership and classroom instruction.

MSN Principals' Satisfaction with their Professional Development Experiences

Based on internal evaluation surveys, principals' satisfaction with the Leadership Diploma Program was consistently high. The most significant percentage changes between the beginning (pre-) and end of program (post-) evaluations were reflected in the overall framework and logistics (4%) and results (3%), as well as the role of facilitators (3%). AMIDEAST also created the Scale of Principals' Satisfaction with Professional Development, which consisted of seven questions designed to gauge principals' perceptions about the effectiveness of their professional development experiences in regard to their relationships with teachers, students, and other principals; how new ideas and skills improved their work performance; how well professional development aligned with the objectives of the school improvement plan (SIP); and how satisfied they were with the overall quality of the professional development activities. Based on these indicators, principals' overall satisfaction with the impact of their professional development experience on their leadership capacity increased 7.6% at the conclusion of the program.



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Despite these positive levels of satisfaction, some principals were unable to complete the MSN Leadership Development Program because they were transferred to schools outside the MSN network.

Over the course of MSN's leadership program, 35% of the principals were transferred to other schools. This instability occurred even after specific understandings had been reached with the MoE about the importance of continuity in school leadership. Clearly, Ministry policies and procedures regarding principal and teacher transfers need to be revisited for any nationally-scaled program of in-service professional development.

A principal noted the following: ***“At the start of the MSN project, we were told that we wouldn’t be transferred and that we would be able to continue our [school improvement] plans to fruition. I feel I am playing catch-up here and there is no time. Three out of five of the MSN principals in my district were transferred during the course of the project.”***

These comments are echoed by a parent in a focus group: ***“I am concerned, as a parent, about the transfer of teachers and principals at the beginning of school. Moving a principal from one school to another and bringing a new principal who needs time to get to know the school causes student achievement to suffer and can even increase fights at the school.”***

Table 2: Principals’ satisfaction with their professional development

Professional development experiences this year...	Pre	Post	% Change
Included opportunities to work productively with teachers at my school	3.74	4.25	14
Helped me understand my students better	3.8	4.19	10
Included opportunities to work productively with principals from other schools	3.76	4.14	10
Led me to make changes in my work	4.02	4.39	9
Included enough time to think carefully about, try, and evaluate new ideas	3.7	4.03	9
Were closely connected to my school's improvement plan	4.3	4.36	1
Were sustained and coherently focused, rather than short-term and unrelated	4.17	4.22	1

For those principals who did complete the program, changes in the mean scores for the individual questions on the Scale indicate, as seen in Table 2, that MSN principals credit their professional development experiences with improving two key dimensions of school management and leadership. Firstly, their experiences fostered more productive and meaningful relationships with teachers, students and fellow principals. In other words, MSN’s leadership development provided conditions in which principals could enhance their connection with their own school as a community of learning, as well as with principals from other schools in a broader community of practice. Secondly, MSN principals were not only exposed to new ideas about school leadership, but many felt motivated to apply their new learning in ways that resulted in substantive changes to their work as principals. Finally, MSN principals indicated their professional development experiences were closely aligned with their SIP, an opinion that remained mostly consistent from the beginning to the end of the MSN program.

A principal from the Hebron District noted, ***“It was good training. The newest aspect for us was the participation of teachers, students, and the local community in writing the vision of the SIP. It was hard at first to do the planning, but by the end we were really happy.”***

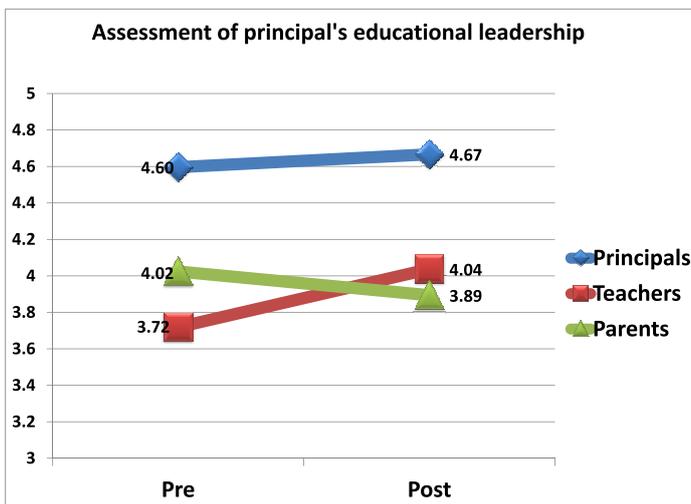
Stakeholders’ Views about the Overall Quality of School Leadership

MSN created the Scale of Principal’s Leadership. This scale consisted of six questions designed to assess the perceptions of principals, teachers and parents on the quality of school management and leadership. The scale was based on a 5 - point Likert agreement scale.

The questions elicited opinions about the leadership role of principals in promoting school reform; new methods of instruction; professional development of teachers; shared decision making; the school as a community of learning; and parental and community involvement. Results overall for the three groups of stakeholders are generally positive, as shown in Figure 1. Principals offered the most positive opinion of their leadership, a view that remained constant throughout the study. The mean score for teachers-the stakeholder group with the most instrumental contact with principals-was not only positive, but also improved 8% by the end of the study.

Although MSN’s leadership structure attempted to integrate the community in the planning of school improvement, parents nevertheless had some misgivings about this effort. Survey results for parents showed a slight decrease of 3%. Two chief areas appeared to be of concern for parents: the capacity of principals to promote broader educational reforms in their children’s schools, and their capacity to build stronger connections between schools, students’ homes and the larger community. Although anecdotal evidence revealed many positive examples of parental engagement, the MSN experience highlights that the nexus between parents, principals and teachers needs further research, awareness raising, advocacy and action.

Figure 1: Results for the Scale of Principal’s Leadership



A review of the individual questions within the Scale shown in Table 3, reveals that the principals believe they encourage teachers to try new methods of instruction, an opinion substantiated by survey results for teachers and parents. Results also indicate principals believe they have improved their efforts toward increasing parental and community involvement. Principals also indicate they are taking more direct interest in the professional development of teachers. Indeed, teachers appear to agree fully that their principals’ attention to their professional development increased markedly. Likewise, they also credit principals for being more proactive in encouraging parental and community involvement.

Table 3: Questions comprising the Scale of Principal’s Leadership

	Principals			Teachers			Parents		
	Pre	Post	% Change	Pre	Post	% Change	Pre	Post	% Change
At this school, the principal... Encourages new teachers to try new methods of instruction	4.82	4.93	2	3.99	4.27	7	4.12	4.12	0
Works to create a sense of community in this school	4.82	4.83	0	3.74	4.02	7	4.05	3.87	-4
Takes a personal interest in the professional development of teachers	4.61	4.78	4	3.76	4.14	10	4.01	3.78	-6
Promotes parental and community involvement in this school	4.3	4.53	5	3.74	4.07	9	4.04	3.86	-4
Is a strong leader in school reform	4.49	4.5	0	3.78	4.07	8	4.15	3.95	-5
Is strongly committed to shared decision making	4.53	4.45	-2	3.31	3.66	11	4.15	3.95	-5

The Scale of Principal’s Leadership also points to a promising change. When asked to assess the extent to which principals are strongly committed to shared decision-making, the mean score for teachers increased 11% by the end of the MSN program. This surprisingly strong increase suggests that MSN’s LDP has had a measure of success in helping principals use multiple opportunities for engaging teachers in school reform through the SITs and DLTs.

A principal from Ramallah District commented, *“When I first became a principal, I concentrated on the administrative side of things. The MSN leadership course made me focus on educational improvement and the needs of the teacher. I went and observed the classes and instead of asking about the light bulb and if it is working and if the window is closed, I started asking, ‘Why aren’t you getting the students to participate? Where is the critical thinking? Where are the questions? You are talking too much.’ The MSN leadership program opened my eyes to these things. The workshops and training made me a better leader.”*

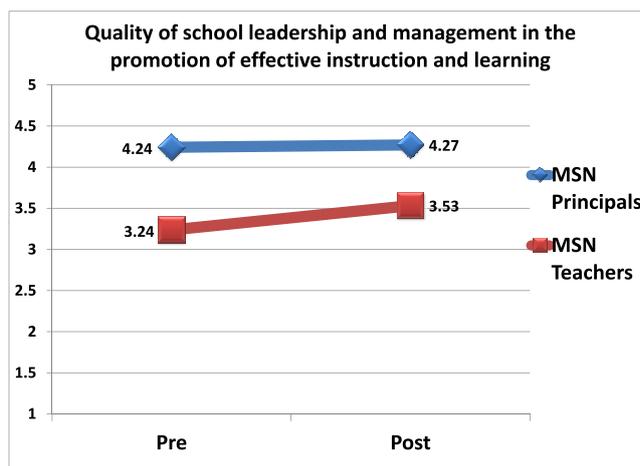
Leadership and Teacher Performance

Enhancement of student learning outcomes was a major goal of the MSN Program. Consequently, the LDP focused on instructional leadership which pertains to the ways in which a principal of a school encourages educational achievement by prioritizing instructional quality. The Scale of Educational Leadership was designed to gauge the perceptions of both principals and teachers about their schools’ capacity to enhance teachers’ instructional performance through the provision of greater autonomy, supportive supervision, and constructive feedback. The scale consisted of 11 questions and was based on a 5 - point Likert agreement scale.

Thus, the scale sheds light on the effectiveness of the principal in creating a supportive professional environment for teachers to practice new learner-centered strategies and assume more responsibility in making decisions on matters of curriculum and instruction.

The results of the Scale shown in Figure 2 indicate that principals rate their school’s leadership in support of good teaching to be quite positive. Even though this assessment remained virtually unchanged by the end of the MSN program, it highlights how seriously principals take their role in providing educational leadership to support teachers’ efforts to improve their instructional performance. Results for the teachers on this same scale support this conclusion. Although teachers were more restrained in their assessment, their recognition of educational leadership rose 9% by the end of the MSN program. This increase suggests that teachers perceived their

Figure 2: Results for the Scale of Educational Leadership



principals were making an increased effort to support their work in the classroom. Interviews with principals highlight the prominence of this aspect of the LDP training.



A principal from the Jerusalem Suburbs District observed, ***“I became more involved in how teachers teach and how students learn, my observations and follow-up is no more limited to administrative issues but expands to other academic issues.”***

A Ramallah District principal further noted, ***“I started to see changes in the quality of assessment in my school, exam papers and worksheets are different than what they were before the program. I see more focus on critical thinking. Teachers start to share their papers and only after they get the feedback from their colleagues they the final design version. Teachers use the resource library a lot.”***

A review of specific questions comprising the Scale of Educational Leadership, as shown in Table 4, reveals that teachers felt most positive about the capacity of school leadership to enhance their teaching performance through supportive supervision and constructive feedback.

Table 4: Results for selected questions about leadership and teaching

	Pre	Post	% Change
School leadership makes a sustained effort to address teacher concerns about new teacher support	3.78	4.09	8
Teachers receive constructive feedback that helps them improve teaching	3.65	4.01	10
Teachers feel empowered by the leadership of this school	3.68	3.98	8
School leadership promotes an atmosphere of trust and mutual respect within the school	3.58	3.97	11
Teachers feel comfortable raising issues and concerns that are important to them	3.67	3.94	7
Procedures for teacher performance evaluations are applied fairly and consistently	3.66	3.82	4

For instance, teachers gave the highest scores in the case of support offered to new teachers; the provision of constructive feedback to improve teaching; feeling empowered; fostering an atmosphere of trust and mutual respect within the school; feeling comfortable raising issues and concerns important to teachers; fairness in how teacher evaluations are conducted; and finally, opportunities to participate in leadership roles.

On the other hand, Table 5 shows that questions measuring the extent of teachers’ autonomy in matters of curriculum and instruction received the lowest assessments; an indication of some dissatisfaction. However, the percent change on the three questions is significant and can be explained as a result of program interventions. For example, although teachers did not feel they had sufficient opportunity to determine the content of their in-service professional development program, they did take advantage of their opportunity to provide feedback and evaluate the modular curriculum.

Table 5: Results for selected questions about leadership and teachers’ autonomy

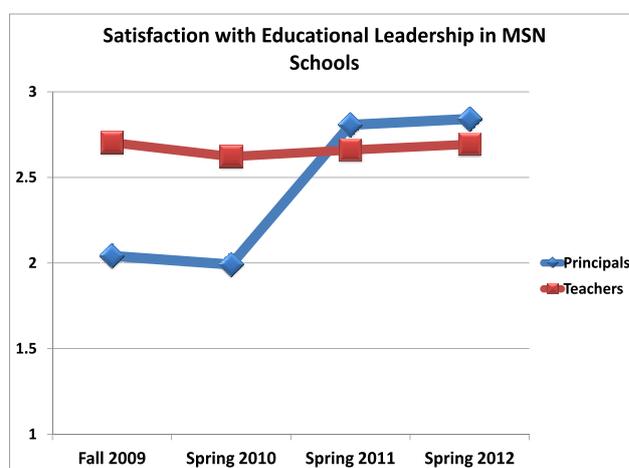
	Pre	Post	% Change
Teachers are provided with opportunities to determine the content of in-service professional development programs	2.95	3.34	13
Teachers are integrally involved in decision-making about educational issues	2.59	2.91	12
Teachers are trusted to make sound professional decisions about instruction	3.07	3.33	8

Four different evaluations over the course of their training provided important feedback and led to some changes in content and delivery methods. Teachers also registered a 12% increase in their involvement in decision-making, which may reflect their contribution to the school improvement planning process. Finally, teachers also showed an 8% increase in terms of being able to make decisions about classroom instruction. This may be a reflection of an increase in their knowledge and skills based upon MSN's teacher in-service professional development program. In sum, the reflective and participatory nature of the in-service leadership and teacher professional development programs clearly provided new opportunities for teachers to increase their feeling of autonomy in matters of curriculum and instruction, although there is also room for improvement.

MSN also created a scale to measure the satisfaction with education leadership. This scale consisted of three questions from the surveys given to principals and teachers. The questions explored stakeholders' perceptions of overall school management and leadership; the school's capacity to support teachers and provide for professional development; and the school's capacity to consider the needs of teachers¹. The surveys were administered at four intervals over the course of the MSN Program.

The results suggest the MSN professional development programs targeting both principals and teachers reinforced a common vision toward improving teaching and learning. Evidence of this common vision is illustrated in Figure 3. At the inception of the MSN program, a substantial gap in perception existed between principals and teachers. However, during the course of the LDP, principals broadened their view of their responsibilities to include instructional leadership and better responding to teachers' needs. In other words, MSN's professional development programs created opportunities for principals and teachers to recognize the important interrelationship between school leadership and classroom instruction, particularly the principal's role as an instructional leader.

Figure 3: Results for Scale of Leadership Satisfaction



A principal from a Jerusalem suburb made these remarks about this process: ***“I feel that I have a better understanding of what I do. I learned that I should do things in comprehensive ways that include students, teachers and administrative staff. As a school leader, I am now more aware of my role in teaching and learning in addition to my administration role.”***

School Improvement Teams

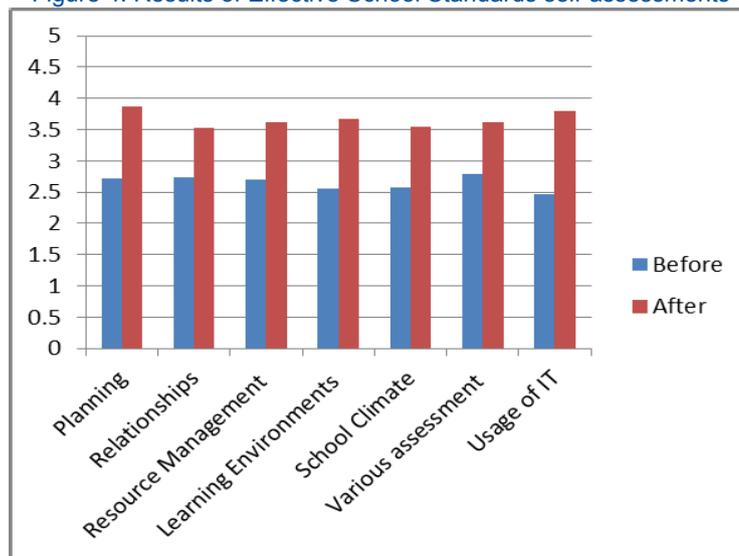
The school improvement planning process involved creating a comprehensive improvement plan that outlined school priorities and needs. The outcome was a plan that detailed each school's major priorities; specific areas of improvement; and institutional initiatives which would be revised annually. It also included an explanation of the school's vision, internal professional development needs, and detailed new equipment and renovation needs. This document was then used as a blueprint for the MSN program to procure high priority items for each school.

The School Improvement Teams (SITs) were charged with two core responsibilities. First, they conducted a school self-assessment based upon a set of seven Effective School Standards developed by NIET. The school self-assessment helped set school priorities and was linked to the second responsibility of participating in a school improvement planning process.

1. The alpha reliability coefficient for the three items in the Principals' scale: alpha = .603; and for the Teachers' scale: alpha = .857

Survey results from teachers and principals representing 30 of 40 pre- and post-school self-assessments revealed an average 38% increase across seven domains. All 40 MSN schools conducted a pre-self-assessment; however, 10 schools did not submit the post-self-assessment. Thus, these results reflect a completion rate of 75%. Principals from five of these ten schools were transferred to other schools during the MSN program which affected the continuity of this process. Figure 4 illustrates these dramatic increases between January 2010 and May 2012. Use of technology for both administration and teaching and learning purposes registered the largest gain, 54%. Two other domains that changed dramatically were: planning based upon a school vision and mission, which increased 42%, and changes in school climate, which increased 44%. The areas of alternative assessment and external relationships changed the least and need further support from the MoE. Overall, the perspective of teachers and principals who served on their school's SIT highlight their strong belief that their schools are more effective institutions as a result of participating in MSN's interventions.

Figure 4: Results of Effective School Standards self-assessments



Based on a pre- and post-evaluation from each School Improvement Team, 32 schools (80%) of MSN public schools completed at least 70% of their school improvement plans. A further eight schools believe they accomplished at least 90% of their goals. Given that more than a third of MSN schools saw a transition in leadership during the program, as well as the fact that AMIDEAST was not able to fully fund some school improvements due to funding limitations, this outcome is considered quite positive.

The following impressions of a principal in Hebron illustrate the value of this process: ***“In the beginning, we studied the needs of the school, both material and otherwise. Then the local community got involved and we met to get the opinions of the teachers, the families and the students. Before we would meet only with the teachers, but MSN got us to consult with the community and the students as well. What changed is our way of thinking. Before everything was routine, but now we have a work plan to change the atmosphere, to remove violence and make students love school.”***

The Role of Supervision

The MoE assigned 42 district supervisors to follow-up with the math, science and English teachers in MSN schools. The supervisors participated in four orientation sessions relevant to the aims of the teacher in-service professional development program. Each supervisor, as well as the head of the supervision department in each district, received a netbook in order to facilitate communication with teachers and colleagues. The supervisors also conducted at least two classroom observations per teacher in their respective disciplines. To assess the impact this component had within MSN's leadership initiative, a questionnaire consisting of 29 closed-ended and 3 open-ended questions was administered to 14 randomly selected supervisors. Though small in size, a purposive sample of 6 women and 8 men provided a balanced representation of supervisors of math, science, and English subjects from schools in all seven districts of the West Bank.

Results of the closed-ended questions indicate the supervisors were very pleased with the impact of MSN's interventions on enhancing their professional capacity and skills. In particular, the program significantly improved the capacity of supervisors to use ICT to carry out their work more efficiently and effectively.

Responses to the open-ended questions revealed that the use of technology and the Internet was credited with enhancing the supervisors' capacity to network with fellow supervisors and facilitate follow-up communication with teachers after classroom observations. With regard to the formal process of conducting classroom observations, the supervisors uniformly agreed that MSN's classroom observation form was practical, easy to use, and comprehensive. Supervisors found it consistent with the MSN observation form used by principals.

An important result from the survey indicates the supervisors' agreement that MSN's workshops helped advance their self-confidence in providing not only improved supervision to teachers, but also increased the role supervision plays in fostering positive change in the classroom. This perception of a more cooperative working relationship with teachers is highlighted in the open-ended responses whereby several supervisors credited MSN's leadership training in creating an atmosphere of professional trust and respect between supervisor and teacher. In the words of one supervisor, the MSN workshops for supervisors "broke down the barrier of fear between the supervisor and the teacher, and helped restore teachers' confidence and courage."

In sum, the structures and practices that MSN put in place involving DLTs and SITs supported the implementation of the program in important ways. Sustaining these structures and their school-based reform mandates requires changes in MoE policy and practice. These teams need to become part of the district structure in order to create an institutional mechanism that ties school improvement to in-service professional development. This in-service professional development would include both school leaders and teachers.



In-Service Teacher Professional Development

This section of the report presents findings from MSN’s M&E research on capacity-building interventions aimed at enhancing the quality of teaching and learning through in-service professional development among teachers. By all accounts, MSN’s eighteen-month long Professional Certificate (PC) programs for teachers of math, science, and English resulted in measurable increases in learner-centered approaches to teaching and learning; increased the capacity of teachers to integrate new media and digital technology into their classroom instruction; and promoted the development of a community of practice among teachers in the network.

Results of Teachers’ Survey

Results from the Learner-Centered Scale, in addition to other research evidence, point to an incremental upward trend in learner-centered practices among MSN teachers. Data produced from the Learner-Centered Scale revealed a 4 percent overall change for MSN schools. This measure was strongly supported by qualitative research. Together this suggests that MSN teachers perceive their students as increasingly engaged, both critically and collaboratively, in the classroom.

These improvements point to a shift in teachers’ practices toward more formative types of classroom assessments that encourage critical thinking and collaborative problem solving. Table 6 ranks the top 10 of the 18 indicators from the Learner-Centered Scale with the most increase. The single most dramatic change is seen regarding students’ use of computers at school. This increased 30 percent—nearly three times more than the next largest item. The dramatic change is certainly associated with MSN’s procurement program, which provided fully-equipped computer and science labs for every MSN school. A 9th grade student explains what a difference the labs have made: ***“Our lessons are more developed now. The science lab helps us to understand the material better, and that is of course the most important thing. In technology class, there used to be only two computers. Now there are 21 computers, with one or two girls using each one. We use them once or twice a week, depending on the lesson, in science and technology class.”***

Although MSN teachers are making tangible progress in adopting learner-centered instructional practices, the survey points to a number of desirable learner-centered practices that teachers appear to be using less frequently. These activities include giving students more opportunities to work independently in the classroom without monitoring by the teacher; having students write essays in which they are expected to explain their thinking or reasoning at some length; and engaging students in project-based assessments that require at least one week to complete.

Table 6: Learner-Centered Practices

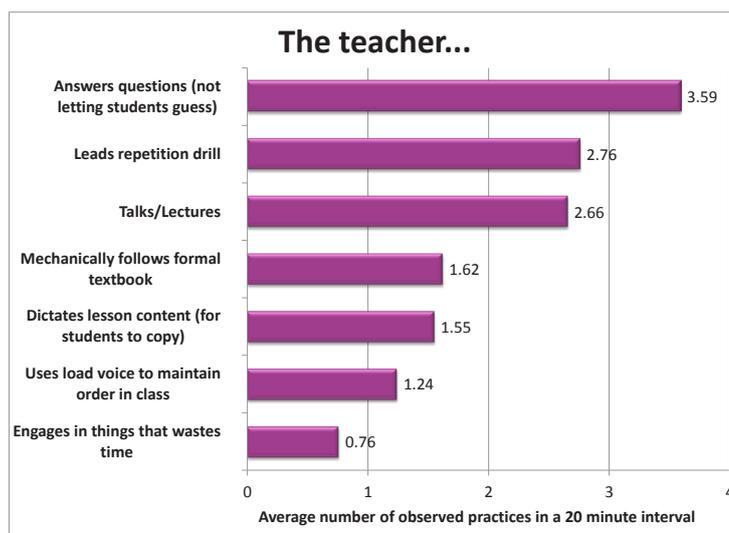
Learner-Centered Processes	MSN Teachers			Control Teachers		
	Pre	Post	% Change	Pre	Post	% Change
Students use computers at school to work on class assignments	1.8	2.34	30	1.89	1.79	-5
Students are asked about what they already know about a topic before new or more advanced information is presented	3.82	4.16	9	3.93	3.98	1
Students work on projects to be displayed or performed for others	2.85	3.08	8	3.13	2.69	-14
Students hold debates and argue a particular point of view which may not be their own	3.23	3.49	8	3.39	3.24	-4
Students are allowed time to participate in classroom discussion	3.96	4.2	6	4.12	4.31	5
Students are asked to evaluate and reflect upon their own work and progress	3.32	3.51	6	3.58	3.57	0
Students are asked to suggest or to help plan classroom activities or topics	3.25	3.41	5	3.45	3.19	-8
Students are given feedback about their assignments that help them improve their learning	4.16	4.36	5	4.2	4.45	6
Students discuss the link between the subject matter and real world situations	4.01	4.2	5	3.99	4.14	4
Students respond to open-ended questions to encourage class discussion	3.95	4.13	5	4.14	4.19	1

Furthermore, the persistence of teacher-centered approaches to curriculum and instruction remains formidable despite well-intentioned in-service professional development. Results from classroom observations, as shown in Figure 5, and teachers' responses to the questions relating to teacher-centered practices indicate that teacher-centered practices remain stubbornly persistent in the instructional habits of many teachers. Teachers are still spending a good deal of class time teaching curriculum content in ways that encourage memorization of facts from lectures and textbooks for later summative assessments, such as quizzes or tests. For example, the practice of having students perform oral repetition drills to help master skills actually increased 5% between pre- and post-measurements. Similarly, a reliance on quizzes and tests to assess student learning also increased 4%.

Some teachers admitted feeling pressure from their own students to stick to conventional teacher-centered assessments, explaining that while many students welcome more authentic, learner-centered assessments, others do not: ***“My high-performing students refused the alternative assessment. They said I am giving too many points to low-performing students and they asked me to apply more tests.”***

These results highlight the challenge of expecting too much from in-service professional development alone to transform instruction. Investments in professional development may have little effect on teacher practice if the only change is an individual teacher's knowledge and skills. If the curriculum, assessment approach and general classroom conditions remain the same, teachers may become frustrated when trying to introduce new ideas.

Figure 5: Teacher-centered practices



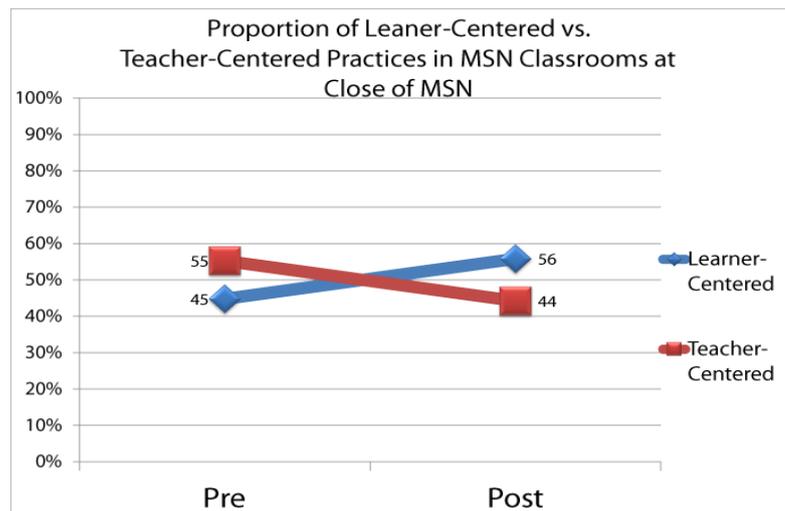
Classroom Observations of Teachers' Performance

Observations of MSN teachers in actual classroom settings provides strong empirical evidence that systematic and sustained professional development of the kind offered by MSN can make a difference. The results of 90 hours of classroom observations of MSN teachers provide empirical evidence supporting the findings of the Learner-Centered Scale discussed in the preceding section. The sample of teachers was based on a random selection from 8 MSN schools. Baseline observations took place in March 2010 and a second round took place in March 2012. As shown in Figure 5, by the end of the MSN professional development program, the relative proportion of learner-centered to teacher-centered practices had improved noticeably. MSN's research also revealed learner-centered teaching practices varied between subjects, with higher levels exhibited in English and science instruction compared to math instruction.



Evidence from classroom observations suggests that MSN's strategy of systematically blending professional development and teachers' access to educational tools and resources such as netbooks, the Internet; newly renovated and equipped science and computer labs; and Teacher Resource Libraries improved overall impact. Of the seven descriptors used to record learner-centered practices, the most consistently-recurring practice among MSN teachers is the use of visual aids and/or educational technology, as seen in Figure 6. In other words, when professional development is accompanied by access to educational tools and resources, teachers are more empowered to provide students multiple entry points to engage with the curriculum.

Figure 6: Proportion of learner-centered vs. teacher-centered practices in MSN classrooms at close of MSN



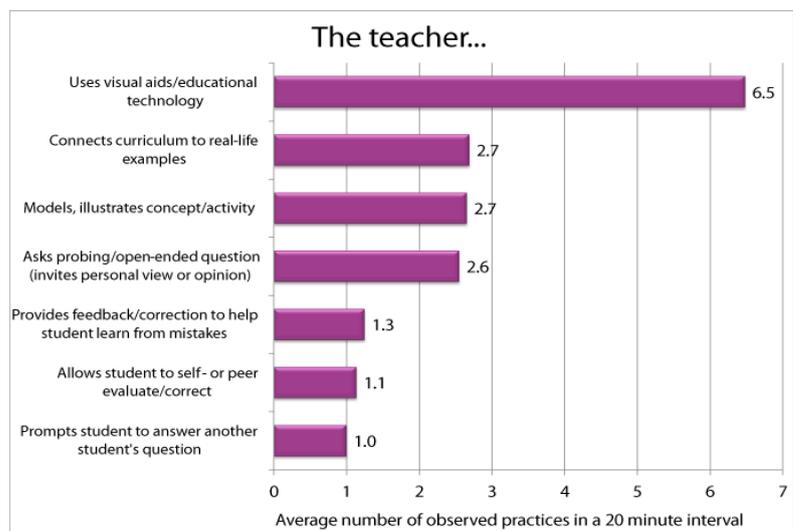
“The training made me capable of using new teaching methods, not just the traditional one. I started using extra activities in addition to the activities in the textbook. In the past we used exams as the only evaluation method, but now we are using additional methods, including educational games and lesson activities where we as teachers can notice, observe and evaluate the individual abilities of our students more accurately” - Science teacher from Hebron.

Furthermore, MSN's introduction of a variety of theories relating to curriculum and learning enhanced teachers' capacity to better meet the differentiated learning needs of students.

“The training enriched our teaching methods by teaching us how to use new teaching aids and asking students to prepare them, it helped us also in recognizing the concept of the multiple intelligences. All these new skills enriched our teaching performance” - Math teacher from Nablus.

Figure 7: Learner-centered practices

“I’m aware now of the idea of cooperative learning and that’s why I started making mixed groups of students during the class, and I’m making sure that the groups have different levels of students. In addition to this I believe that using educational games as a teaching method has a good influence in students learning” - Science teacher from Ramallah.



Students' Perceptions of Classroom Instruction

Student perceptions provide added evidence that MSN's professional development has helped some teachers to transform their classrooms into more learner-centered environments. The surveys administered to students in grades 4-9 included the Scale of Learner-Centered Instruction². Between the pre- and post- measurements, students in grades 4-5 from MSN schools reported a 7.2% increase in their perception of a learner-center classroom climate. Table 7 shows that by the end of the MSN program, fourth and fifth graders credited their teachers for creating a more interesting classroom climate, one in which students are encouraged to explore new knowledge and express ideas through a variety of assessment activities. Virtually all of these positive changes in Table 7 mirror those from the teachers' survey.

Table 7: Learner-centered teaching according to students grades 4-5

My teacher ...	MSN Students: Grades 4-5		%
	Pre	Post	Change
Uses a style of teaching that makes the class interesting	2.62	3.07	17.23
Allows me the freedom to express my ideas and opinions	2.75	3.13	14.91
Encourages me to ask questions in class	3.05	3.35	9.84
Makes learning interesting by teaching in different ways	3.2	3.42	6.87
Helps me when I do not understand something	3.35	3.58	6.87
Cares a lot about what I think	2.8	2.99	6.79
Encourages me to think and solve problems	3.33	3.53	6.01
Grades my work (assignments, projects, and tests) fairly	3.07	3.25	5.86
Clearly explains new topics or skills so that I learn them easily	3.31	3.38	2.11
Lets me work in small groups with other students	3.12	3.09	-0.96

The survey results for students in grades 6-9 present a more complicated picture. As seen in Table 8, the top six descriptors reflect positive strides in using activities that encourage students to take more responsibility for their own learning through multiple opportunities-both individually and collaboratively-and to critically explore, question and share their ideas and learning.

Table 8: Learner-centered teaching according to students grades 6-9

My teacher ...	MSN Students: Grades 6-9		%
	Pre	Post	Change
Asks students to work in groups to complete assignments or projects	2.6	2.87	10.38
Uses activities that make us think	3.01	3.11	3.32
Gives us topics that are interesting and challenging	2.85	2.93	2.81
Allows me to share my ideas or opinions about what we are learning	2.99	3.07	2.68
Takes time in class for students to discuss what we are learning	2.93	2.97	1.37
Assigns projects that require several days or more to complete	2.56	2.57	0.39
Clearly explains new topics or skills so that I learn them easily	3.14	3.13	-0.32
Encourages me to ask questions in class	3.11	3.08	-0.96
Uses a style of teaching that makes the class interesting	2.6	2.52	-3.34
Gives me helpful feedback after tests, quizzes or assignments	2.91	2.74	-5.84

However, the bottom four descriptors registered a net decline by the end of the MSN program. The sharp drop in the scores of the bottom two descriptors implies that students may be experiencing greater teacher-centered instruction than in grades 4-5. This suggests that

support for learner- centered instructional strategies needs more emphasis for teachers of grades 6-9.

2. The scale included 10 identical items for grades 4-5 and grades 6-9. The scale is a 4-point Likert agreement scale: 1 = Disagree Strongly, 4 = Agree Strongly

Student Achievement Results

Students in MSN schools were included as a sub-sample in the MoE’s national tests in math and science in 2010 and 2012. In 2010, students in grades 4 and 10 were sampled, one section per grade in each of MSN’s 40 schools. In 2012, all grade 4 and 10 students in MSN schools participated in the testing. Table 9 shows the mean scores for each grade level and subject over both years, as well as the percentage change between the two years. In all tests but grade 4 math, MSN schools’ change was more positive than the national average. In grade 10 math, for example, MSN schools’ scores actually increased by 12%, while the national average declined by 6%. In grade 10 science, MSN schools’ scores increased, while they held constant for the national average. In grade 4 science, while all schools experienced a decrease in scores, MSN schools’ scores decreased less than the average. The more positive trends in grade 10 may be related to a greater focus within MSN interventions on improved classroom instruction at the higher grade levels. Importantly, these results only represent a two year period. A more accurate indication of trends in student achievement is best understood over a much longer period of time.

Table 9: Science and Math Student Achievement Results

Test	Group	Average Scores		Percentage increase
		2010	2012	
Math 10	MSN	29	33	13%
	National Schools	31	29	-6%
Science 10	MSN	34	36	7%
	National Schools	34	34	0%
Math 4	MSN	27	29	9%
	National Schools	28	32	14%
Science 4	MSN	50	48	-4%
	National Schools	48	45	-6%

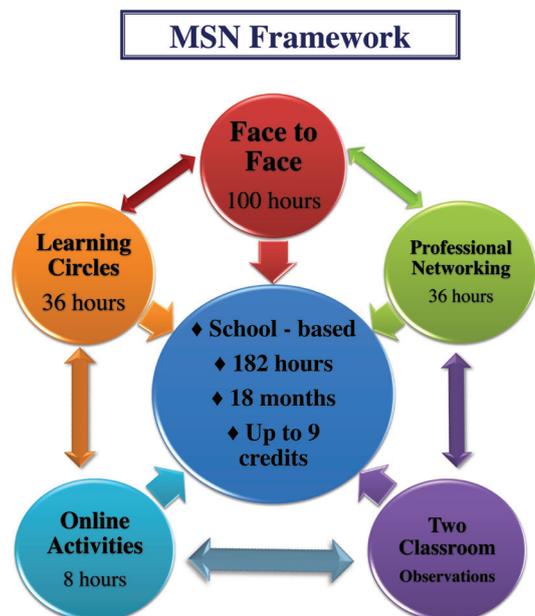
MSN’s In-Service Teacher Training Framework

The primary aims of the Professional Certificate programs in math, science and English were to 1) significantly improve the quality of teaching and learning in the targeted subjects in MSN schools; and 2) develop a culture of continuing professional development among teachers in the network.

The National Teacher Education Strategy notes, *“There is a need to adapt continuing professional development and in-service education to meet the needs and characteristics of the teachers. There is also a need to link this training to the teachers’ and schools’ needs.”* The MSN approach carefully considered this perspective.

The content for the discipline-specific certificate programs included six practical multidisciplinary themes: student-centered learning; strategies for promoting critical thinking; assessment theory and techniques; curriculum analysis as it applies to the classroom environment; information technology in the classroom; and materials design, focusing on low-cost alternatives.

Figure 8: MSN Framework



Furthermore, in an MSN survey of 791 public school teachers, eight out of ten teachers preferred a training schedule that involved meeting once a month on a school day, as opposed to other more intensive options or during a teacher’s weekend. In the same survey, integrating an online element to the training received teacher support, but only as a supplementary or minor part of the training program. School-based, face-to-face instruction received the highest priority.

Consequently, AMIDEAST used a blended framework, described in Figure 8. Full-day, face-to-face sessions were held once a month, and the modular curriculum was distributed over 16 monthly sessions held on a weekday. No training occurred in the summer months. Similarly, reflective learning circles were held after school hours at a participating school for 2-3 hour sessions. Professional networking comprised attendance and presentation at two national conferences.

Every element of the certificate programs reflected an effort to adhere to international best practice: small class sizes of no more than 15 teachers; trainings co-facilitated by carefully recruited university faculty with relevant credentials and experience; meticulously managed logistics with free transportation to the training site; and a modular curriculum that blended theory and practice which was independently evaluated and updated. A variety of teacher incentives were provided including the ability to earn nine credits from a local university toward a bachelor’s or master’s degree, participation in professional conferences, and the provision of a teacher resource library in each school. Netbooks were distributed to participating schools for use by teachers involved in the professional development program. This allowed teachers easy access to Moodle and other internet-based communication.

A total of 291 public school teachers began the 18-month long program, and 85% successfully completed and received certification. Table 10 provides the breakdown of completion rates and earned credits, which were based on seven graded and weighted criteria: 1) development of a teaching portfolio; 2) classroom observations; 3) essays; 4) presentation of action research; 5) Moodle participation; 6) a final exam; and 7) school principal’s evaluation.

Table 10: Teacher Completion Rates

291 In-Service Teacher Enrollments		
Teacher Enrollments	Credits Earned	Percent
215	9	74%
22	6	8%
9	3	3%
45	0	15%

The three most common reasons why 15% of the teachers did not complete the program are the following: a) transfer to another school; b) maternity leave; c) insufficient motivation. Teacher motivation was tied closely to how relevant the teachers found the training. A shortcoming of MSN’s program was that its small scale did not allow for more specialized training and content specificity between subjects, such as grouping physics, biology, and chemistry teachers. In addition, its small scale meant that content was general and could not address the needs of teachers teaching specific grade levels. A nationally-scaled program could be structured to overcome this by selecting and training teachers by subject taught, academic specialty and grade level.

Findings from surveys, focus groups and in-depth interviews suggest that MSN’s model of professional development contributed to assisting teachers to critically evaluate, self-reflect, and change their fundamental assumptions and practices about their own and their students’ learning. Compared to their prior in-service experiences, and based on results from the Scale of Professional Development Satisfaction, MSN teachers were largely pleased with the effectiveness of MSN’s professional development. Prior to start of MSN, the mean score for teachers on the Scale of Professional Development Satisfaction was 3.2, which increased to 3.5 by the end of the program a year later. Other quantitative and qualitative evidence supports this conclusion and suggests teachers valued the MSN approach because it:

- Enhanced their capacity for professional networking;
- Fostered a culture of learning in and across schools;
- Provided a variety of opportunities for learning with others;
- Encouraged collegial relationships;
- Helped teachers take greater responsibility of their professional growth.

These five areas of improvement are reflected in Table 11. The results of the specific questions are ranked according to the degree they changed.

The biggest change relates to the teachers' capacity to integrate new media and digital technology into their classroom instruction. By the end of MSN, 57% of MSN teachers "somewhat agreed/agreed" that professional development increased their capacity to use computers and educational technology.

Table 11: Teacher professional growth under MSN

Professional Development ...	MSN Teachers		
	Pre	Post	% Change
Increased your capacity to use computers and educational technology	3	3.53	18
Increased the capacity of teachers and parents to cooperate in your school's improvement plan (SIP)	2.78	3.06	10
Delivered training that was sustained and coherently focused, rather than short-term and unrelated	3.12	3.4	9
Increased your content knowledge and skills for more effective instruction	3.46	3.63	5
Helped you to understand your students better	3.41	3.56	4
Included enough time to think carefully about, try and evaluate new ideas	3.39	3.53	4

The significance of this

change probably has much to do with teachers' use of educational technology inside and outside the classroom. Focus groups and interviews revealed that technology expanded their capacity for professional networking through the use of netbooks and digital media.

MSN teachers credited the collegiality that often developed in the face-to-face meetings and learning circles as a chief reason for gaining new knowledge and skills and even for improving their self-confidence as teachers. On the survey, a majority of MSN teachers indicated that their professional development experiences improved their knowledge and skills for more effective instruction (59%) and gave them enough time to think carefully about, try and evaluate new ideas (55%). In focus groups and in-depth interviews, teachers often stressed the collegial atmosphere created by MSN's learning circles and face-to-face activities.

"The learning circles were wonderful. The main purpose was the discussion and gaining knowledge through the discussion and not just covering material. We benefited a lot from exchanging information with others. Also, during the conference we benefited from networking a lot, particularly during the first conference when private school teachers shared their experience with us" - English teacher from Jenin.

The variety of opportunities for learning with others through MSN's professional development also helped some teachers gain a sense of belonging to a community of practice. In focus groups and interviews, MSN teachers often spoke glowingly of what they gained as professional educators via meetings with co-teachers, visiting other schools (a favorite), classroom observations, attending conferences, and communicating online

“I love teaching and I feel committed to my profession. The training enhanced these feelings and succeeded in connecting me to my school in a better way. I notice that the principal and the rest of my colleagues value my new skills and performance, and in return I’m very collaborative and always offer help to my colleagues, especially in using the technological tools.” - Math teacher from Jericho.



A science teacher spoke of the continuing impact of networking: ***“The program assisted us in meeting through the VLE and also through the face-to-face sessions and learning circles. A great deal of communication among the participants got built over time. Even now that the training has concluded, we still communicate.”***

Lessons Learned from MSN’s In-Service Teacher Professional Development

The findings from MSN’s M&E research suggest that effective large-scale teacher professional development should go beyond improving teachers’ knowledge and skills. While effectively designed and administered in-service professional development can clearly result in tangible benefits to teachers, a systemic approach to raising student achievement should also include improved school leadership and school-based management reform that directly addresses school and district resources, capacity and teacher incentives.

One of the most important lessons learned from MSN involves structuring an in-service teacher professional development program that addresses teacher motivation and retention. Training location and timing are also important factors for teacher participation. The time, effort and money associated with reaching a training site influences teacher attendance and attitude toward the program. While teachers may prefer to receive professional development during regular teaching hours, this also poses a major challenge for the MoE, since a pool of substitute teachers to cover classes while teachers receiving training does not exist. An MSN English teacher remarked in-service activities sometimes came with a price: “The absence of the teachers from their classes while attending MSN trainings was a problem. There were no substitute teachers and students lost a lot of class time this way. The curriculum was not completed each semester.”

The MSN Program also attempted to go beyond just providing teacher training by successfully piloting the newly accredited, non-credit-bearing LDP. The program immersed 40 MSN principals in a process of leadership development closely tied to their school environment. The effort linked the in-service professional development of teachers to a modest but explicit involvement with forty School Improvement Teams and seven District Leadership Teams. The intention was to concentrate resources, training and capacity building among district administrative staff, supervisors, school principals and teachers in a school-based reform effort.



In sum, a flexible, decentralized delivery system is needed whereby MoE policies at the district and school level directly support voluntary teacher participation; allow teachers and principals the latitude to apply changes in teaching practice; and encourage the use of new models of supervision and evaluation would greatly facilitate real reform.

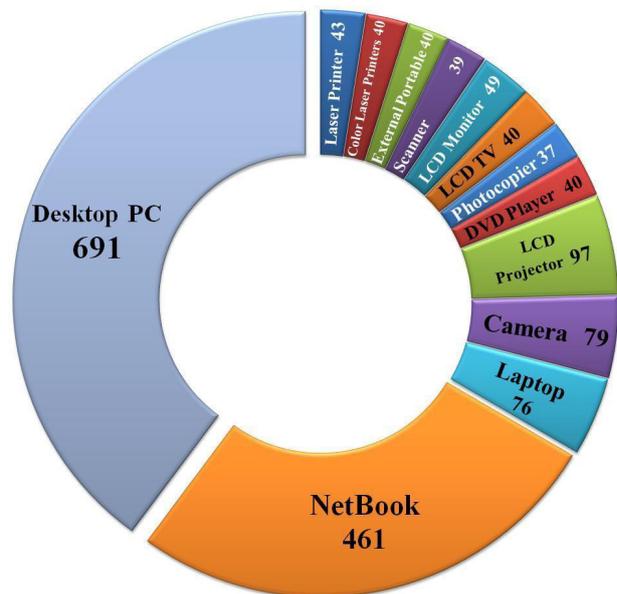
Education Technology in School

This section of the report presents findings of evaluation research on the impact of MSN's School Physical Capacity Building component and its allied Education Technology Strategy (ETS). MSN refurbished and upgraded computer and science labs, brought all schools online with Internet connectivity, and supplied netbooks to all participating teachers and principals, as well as to district school supervisors. Evidence from MSN's M&E research indicates that MSN's physical and technology capacity-building strategy succeeded in connecting classrooms and teachers to the wider world, enabled professional networking among teachers, fostered communities of practice among teachers, principals and supervisors, and improved teachers' capacity to integrate technology in classroom instruction to the benefit of their students' learning experiences.

Renovation and Procurement

MSN renovated 29 school computer labs and provided all new equipment for 38 schools. As shown in Figure 9, MSN also provided 461 netbooks to math, science, technology and English teachers, as well as to principals and some supervisors. Netbooks enabled teachers to practice the integration of technology to support instruction and learning in their respective subjects. Teachers were expected to draw on content and resources available to them on the Internet, as well as to encourage collaborative learning using netbooks among their students and colleagues. Teachers also used their netbooks as a vital tool to support their participation in MSN in-service professional development.

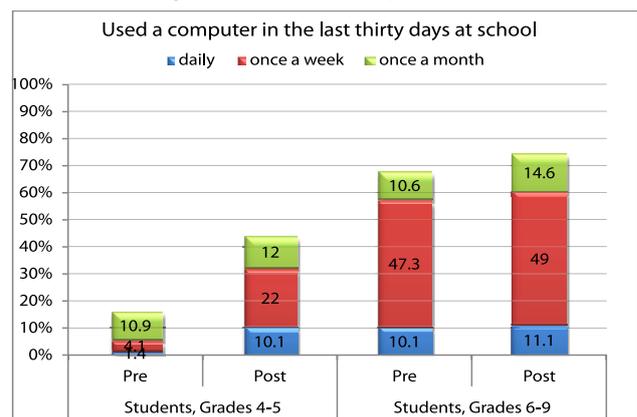
Figure 9: Items procured by MSN



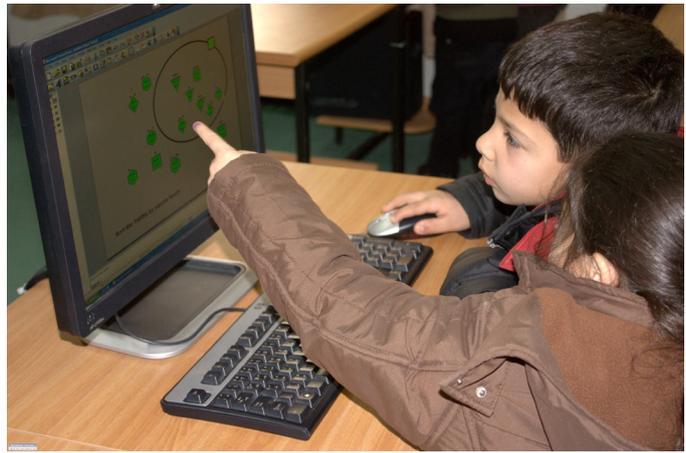
Procurement of computers and the provision of Internet connectivity have made a dramatic improvement in the IT infrastructure of MSN schools. The MSN experience demonstrated the introduction of netbooks was relatively easy. Although skill levels varied considerably among teachers, many required little to no computer training in use of the netbooks. Schools reported more requests for advanced training and increased access to the Internet following netbook distribution and Internet provision. Based on reporting by principals, all of the MSN schools had Internet connectivity, while the control schools reported just 20%. This disparity is highlighted by the fact that there is virtually no difference in the availability of computers or the Internet in students' homes. Eighty percent of students from both MSN and control schools reported having a computer at home, with 50 percent having Internet access.

Students' use of educational technology in MSN schools increased impressively with the addition of refurbished or new computer labs and the provision of Internet at school. Figure 10 highlights the frequency of student computer use over time. Until more households can be connected to the Internet, schools with Internet connectivity are the most accessible and affordable source of educational technology for Palestinian students.

Figure 10: Student computer use



MSN's provision of computers and Internet connectivity among its network of schools noticeably improved teachers' capacity to access and incorporate teaching resources into the curriculum and instruction. The survey for teachers and principals included a Usage Scale of Education Technology comprised of seven question based on a 5-point Likert frequency scale (1 = never, 5 = always). The questions asked teachers and principals to indicate how often they used a computer at home or in school to:



- Create instructional materials (e.g., handouts, tests, multimedia presentations)
- Gather information from the Internet for planning lessons
- Access model lesson plans from the Internet
- Access best practices for teaching from the Internet
- Participate in professional development activities/courses via the Internet
- Download software from the Internet to use in class
- Give multimedia presentations in class

Connectivity in Schools: A National Model

MSN's approach to connectivity in schools was to design a national model that was affordable, would easily scale to hundreds more schools, and could be centrally monitored and maintained for quality assurance. A local area network was installed at each school to allow Internet via WiFi access in all classrooms and administrative areas. AMIDEAST created a broadband WiFi, virtual private network (VPN) at each of the 40 schools with the following key features:

- 3 Mbps upload/download speed with a maximum capacity of 20 Mbps within the VPN.
- Ability to use high-bandwidth technologies between schools (e.g. video conferencing).
- Symmetrical connections so that students and teachers can create content at all locations.

The MoE's central network monitoring and management system allows:

- Access to a "dashboard" showing in near-real time the status of all connected sites.
- Filtering and blocking inappropriate sites and setting Internet bandwidth allocation rules for each school .
- Links to other MoE online resources and internal content .

Internet service has been continuous since November 2011 and a local Internet service provider (Coolnet) will continue providing all 40 schools with Internet until September 2014. The average student body of each school is 432 students, therefore, annual per pupil costs are approximately 26 NIS.

The results of the Usage Scale shown in Figure 11 indicate that MSN teachers, compared to their control school peers, increased their use of computers and software for school and related educational purposes. An analysis of the discrete questions comprising the Usage Scale revealed that among the most dramatic changes for MSN teachers was their enhanced capacity to access resources from the Internet for use in class, as well as their improved opportunities to participate in online professional development. The results also indicate that teachers appear better able to create instructional materials and give multimedia presentations in class³.

Furthermore, the frequency of netbook use in classrooms was correlated to three factors: 1) the background of the teacher, particularly educational attainment; 2) prior home computer ownership; and 3) access to the Internet at home. These factors influenced teachers' frequency of netbook use in their classrooms. The most frequent use came from individuals where all three of these factors were present. The two most common types of netbook usage involved classroom related tasks, such as lesson preparation and using the netbook in tandem with an LCD projector to teach a unit or lesson.

Figure 11: Teacher computer use

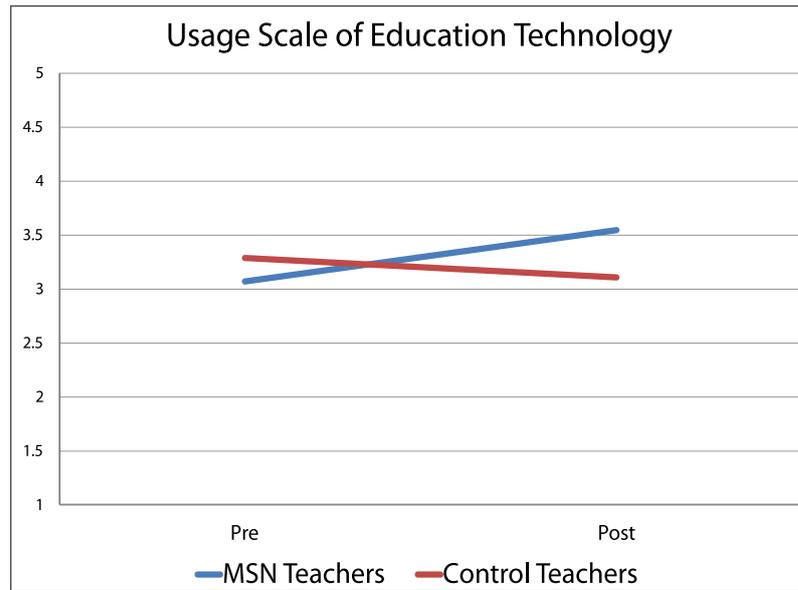
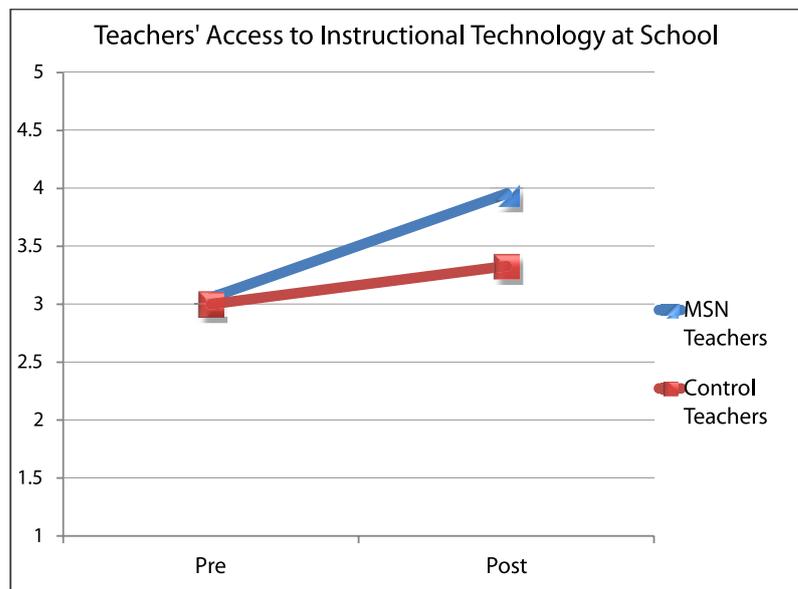


Figure 12: Teachers' access to instructional technology at school



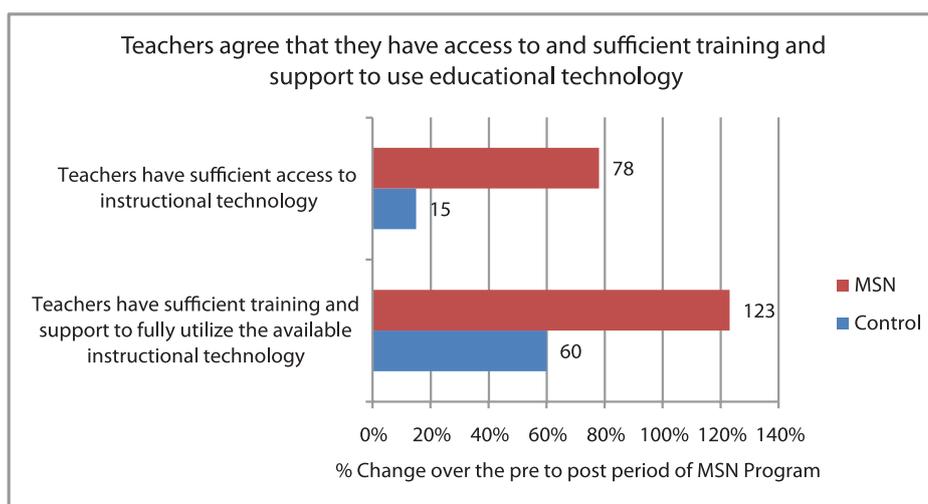
The MSN survey created a second composite variable to measure the availability of and access to instructional technology for teachers at their schools. This included computers, printers, software and Internet access, including sufficient training and support to fully utilize the available technology resources. As shown in Figure 12, MSN teachers exhibited improvement in this domain compared to their counterparts in the control schools. Results for principals regarding the same variable mirrored those of teachers, but with even larger gains in satisfaction over the pre-and post- periods⁴.

3. Statistical evidence from a t-test of variance shows that the differences between the pre-post means of the Usage Variable are statistically significant, providing further evidence of MSN's likely influence: $t(614.01) = -7.67, P = .000$

4. The differences in the means from pre-post for the MSN teachers and principals are statistically significant teachers: $t(1052.40) = -17.25, P = .000$; principals: $t(74.35) = -8.23, P = .000$

The positive impact of MSN's procurement strategy on teaching and learning is further illustrated in Figure 13, which shows the dramatic increase in the number of MSN teachers who believe they have both sufficient access to education technology and sufficient training and support to use it. On the other hand, though MSN teachers' assessment of technology training markedly improved,

Figure 13: Percentage change in teachers' access to instructional technology at school over pre/post period



still less than half the teachers feel they have sufficient training and support in this regard. Indeed, most teachers and administrators had only a rudimentary understanding of basic computer use for educational purposes, and required significant training and supervised contact with their netbooks in order to use them most effectively. This finding, which is confirmed in other MoE studies, highlights a clear imperative to provide sufficient and ongoing training when introducing education technology. On the other hand, simply having access to the technology inspired further learning and interest in obtaining more advanced training.

Lastly, a major challenge during the MSN Program was ensuring that netbooks and computer labs remained functional. The netbooks were frequently infected with viruses, particularly from the use of flash drives, underscoring the need for continuous antivirus protection or alternative solutions, as well as effective technical support. Although teachers were trained in how to mitigate computer viruses on their netbooks, frequent misuse reduced the efficiency and functionality of the machines.

Teacher Professional Development and the Virtual Learning Environment (VLE)

The MSN Program blended face-to-face learning experiences with synchronous and asynchronous activities and assignments on the MSN Virtual Learning Environment (VLE). The VLE is a Moodle-based platform used for assessment, communication, content sharing, collaborative work, and reflection. An important aim of the VLE was to create virtual communities of practice within each discipline. Two of sixteen professional development modules for math, science and English teachers specifically addressed the integration of technology in the classroom, while the IT teachers participated in specialized skills sessions, such as designing and maintaining a school's presence using Moodle and managing the VLE. The results of these efforts are apparent in a variety of research data collected by MSN's M&E Department.



The provision of Internet connectivity at MSN schools greatly facilitated teachers' capacity to access online resources and integrate them into their instruction.

Overall, MSN teachers reported nearly a 20% increase in their participation in online professional development (PD) activities. The percentage reporting frequent online PD participation doubled. Over the same period, teachers in the control schools reported nearly stagnant rates of participation in online PD activities. The total number of VLE logins by teachers and trainers in both public and private schools during the PD program exceeded 600,000, and the total number of posts to the VLE approached 70,000. This level of activity reflects the blended nature of the PD program.



Increased Internet connectivity and use of technology provided the foundation for a more collaborative community of learning among students and teachers. An English teacher from Hebron remarked, ***“The students have started to bring us PowerPoint presentations that they have produced. We take them, edit them and improve them and then show them to the class as the work of the student. This has encouraged the students to use technology more.”*** Another teacher also alluded to how educational technology is bringing the students’ homes into the larger community of learning: ***“I learned that by using technology students will try to imitate me and they go home and try to do things that we did in the classroom, and do an online search. If they struggle, they get their parents involved, and that is an overall learning experience for all of us.”***

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Teachers are eager to integrate instructional technology into their teaching practices. MSN’s evaluation provided examples of how technology in schools improves learning. For example, comments by some teachers illustrate that they believe the use a netbook, an LCD projector and a well-equipped computer lab allows a teacher to provide good conditions for student learning: ***“I noticed when the students see the videos they understand the material in a different way. We use technology to motivate the students to try harder.”*** Students found the classes using technology more exciting. The link between encouraging student motivation and higher student achievement should not be underestimated. A Ramallah principal’s feedback also highlighted how teachers’ use of computers minimized individual differences, encouraged group work, enhanced research skills, and made students think beyond the prescribed textbook.



Subject teachers actively integrated technology into their instruction. One student remarked, ***“In math class, we learned about the Pythagorean Theorem. [The math teacher] made the lesson not just lecture, lecture, lecture, but engaged us so that we were all involved. We came to the computer lab and researched it on the Internet.”*** Furthermore, comments received from teachers in focus groups and interviews reinforce the perception that MSN’s interventions in instructional technology have contributed to improving teachers’ professional self-esteem. A teacher from Hebron remarked ***“I enjoy using technology as I discover new things that enhance my knowledge. Now I’m using the computer to access scientific websites that help me in delivering my lesson***

to my students. And on the personal level I have new information as well.”

Teachers’ level of satisfaction with the professional development provided by MSN in the use of computers and related instructional technology increased. The post-intervention survey indicated an 18% increase in teachers’ satisfaction with their capacity to use IT, as developed under the MSN professional development program. As one teacher noted, **“We took another IT course, but it was short and brief. The MSN training was longer and it covered various issues. The use of technology during the training was for a longer period than any other previous training so it enhanced our skills more.”**

Despite the very positive responses from teachers and students to the introduction of educational technology in classroom instruction, more research is needed to determine whether teachers at MSN schools are using instructional technology in learner-centered ways. Teacher and student interviews and focus groups frequently describe how teachers use technology and new media (i.e., netbooks, LDC projectors, PowerPoint slides, and YouTube videos) to “show” students content, but it remains unclear if students were using technology to actually demonstrate they understood the ideas or concepts being taught. For example, one student observed: “The teachers want to show us lessons in color and sound, and using the computer does just that.”

A teacher made a similar comment: “We used to use transparencies, but the new LCDs are with color and project things differently and get the students’ attention better.” This ambiguity about the effect of technology on student classroom learning is telling when a student compliments her teacher’s use of technology to help her to “remember” rather than understand content and ideas: “[Teachers] are trying to advance by taking us to the computer lab and that is certainly good and definite progress. [But] it’s the teacher that makes the lesson interesting; if she does it in an interesting way, we remember better.”

Overcrowded classrooms and Palestinian classroom practices can also pose challenges to the introduction of technology. The chronic problem of overcrowded classrooms continues to hamper effective teaching and learning even in schools with newly equipped computer labs. One teacher noted “We have 25 computers, but we have some classes that have up to 47 students. It is difficult to get the students’ attention when there are so many of them in a classroom.” Teachers’ assessment approaches do not readily take into account the assessment of students using technology, such as when students conduct research projects using the internet, use a computer lab for other subject classes, or conduct group work in class. These types of activities are often not assigned a grade or given suitable weight for a student’s effort and learning. Furthermore, teachers and principals sometimes acknowledged that pressure to prepare students for tests undermines their capacity to integrate technology in ways to support learner-centered curriculum and instruction.



In sum, the continuing challenge of how to effectively integrate rapidly changing forms of new media and digital technologies in education is evident in Palestinian schools, as it is in much of the rest of the world. These challenges are especially difficult in the education systems of low resource countries, such as Palestine. What the MSN research findings reveal is that easy access to Internet connectivity and mobile technology, such as netbooks in classrooms, combined with teacher professional development, can be a powerful catalyst for practical change in Palestine's public schools. The findings highlight the importance of establishing strong national and district-wide policies to support in-service professional development for assisting teachers to effectively integrate technology in learner-centered approaches to instruction and assessment.

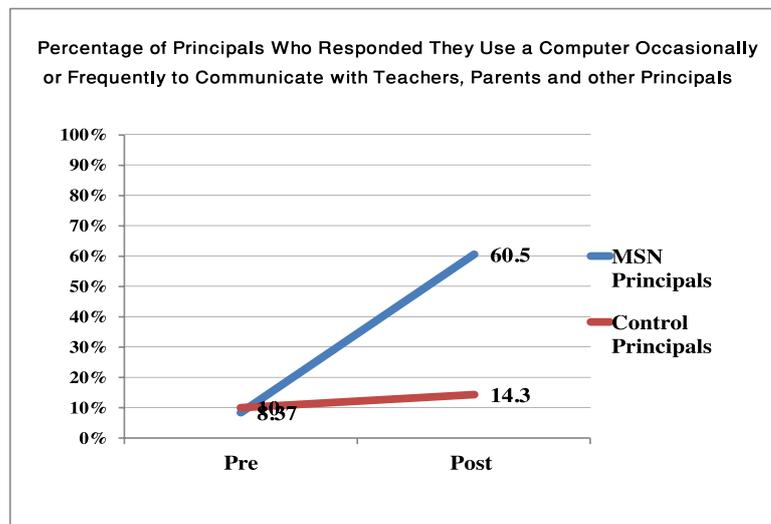


Technology and School Leadership

Finally, it bears mentioning also that principal responses demonstrated the benefits to school leadership in the integration of technology and training in their schools. Ninety-four percent of the public school principals felt they had learned how to utilize the VLE upon completion of their LDP. Furthermore, Figure 15 illustrates how the introduction of information technology and Internet connectivity in schools dramatically influenced their online communication with teachers, parents, as well as with fellow principals.

The implications of this change point to the expanded leadership capacity of principals to foster not only improved communications among teachers, staff and district supervisors, but also their enhanced capacity to strengthen home-school connections and community outreach.

Figure 14: Principal use of computer to communicate with teachers, parents and other principals



Online Instruction in Teacher Professional Development

The National Teacher Education Strategy recommends in-service programs use e-learning or online instruction to allow the training of large numbers of teachers. MSN integrated an online component using Moodle, although this element only amounted to about 5% of the overall time requirements. Trainers posted assignments and resources, as well as engaged in online discussions with teachers. Several issues emerged regarding the added-value and viability of the online component.

University trainers were not recruited for their specific experience and skills facilitating online instruction, although they did receive training on Moodle. A survey of trainers at the conclusion of the program revealed some trainers struggled with using Moodle. This is reflected in the fact that a quarter of the trainers were responsible for more than 75% of all views and posts on Moodle. One quarter of the trainers were highly active, 42% were occasionally active, and the remaining one third were minimally active or never used Moodle. In short, a university trainer's IT skills and high comfort level in using an online platform are essential.

Teachers' access to the internet was a further serious obstacle. According to the Palestinian Central Bureau of Statistics, in 2011 only 30% of Palestinian households had access to the internet. In contrast, 50% of MSN teachers had internet access at home, and had internet access at school provided by MSN, as well as were issued a netbook. In short, MSN attempted to provide the necessary inputs for online delivery and teacher participation. However, these resources were expensive and trainers and teachers still remarked that internet access was problematic.

Teachers also received Moodle training, although their ability and motivation to engage in online elements of the program varied markedly. A 2009 study conducted by the MoE revealed 75% of teachers did not use any education technology and motivation was low regarding its adoption. On the other hand, a majority of teachers agreed or strongly agreed with the MSN survey question, "I use technology to connect with other teachers/educators as a result of my participation in this training program."

MSN's experience highlights some important considerations. Access to technology and the internet, as well as teachers and trainers having the necessary IT skills, are necessary for integrating an online component. However, these factors alone do not guarantee successful implementation of an online component. Creating mechanisms that directly address trainer and teacher motivation are essential. The importance of recruiting university trainers with experience and an interest in facilitating online instruction should be proportional to the importance such a component has in the overall implementation of professional development. In this regard, an online component should be carefully integrated with other forms of training, thus assuring that online tasks and assignments are proportionally assessed and linked to the overall curriculum. The virtual platform must be simple and user-friendly, private and, ideally, free.

In sum, the current Palestinian context presents some significant challenges to effective implementation of online teacher training, particularly if it is a required component and constitutes a major part of an in-service professional development program. The MSN experience demonstrates it can provide added value so long as teachers and trainers have sufficient technology skills, as well as easy access to a computer and the internet. Finally, online tasks must be deliberately woven into the goals of the in-service program.

School and Community Involvement

This section presents findings of MSN’s extensive evaluation of interventions in school and community involvement, with special attention given to student affairs and extracurricular activities. Evidence from MSN’s M&E research indicates that MSN’s approach largely succeeded in creating conditions that promoted student motivation and achievement; encouraged critical thinking; strengthened the link between schools and communities; and fostered more child-friendly schools by enhancing the variety and quality of extracurricular activities available to students. MSN’s capacity-building efforts to empower PTAs ultimately did not evolve into a priority area of engagement, and in hindsight this represents a weak aspect of the program’s goals. However, MSN did produce national guidelines for parent engagement in schools.

Outcomes of MSN’s Extracurricular Activities

Adult stakeholders—teachers, principals, and parents—and students at MSN schools give a generally positive assessment of both the variety and provision of opportunities for extracurricular activities⁵. Survey results indicate that the views of MSN teachers and principals, when compared with the control schools, show a modest improvement from the pre- to post-periods.

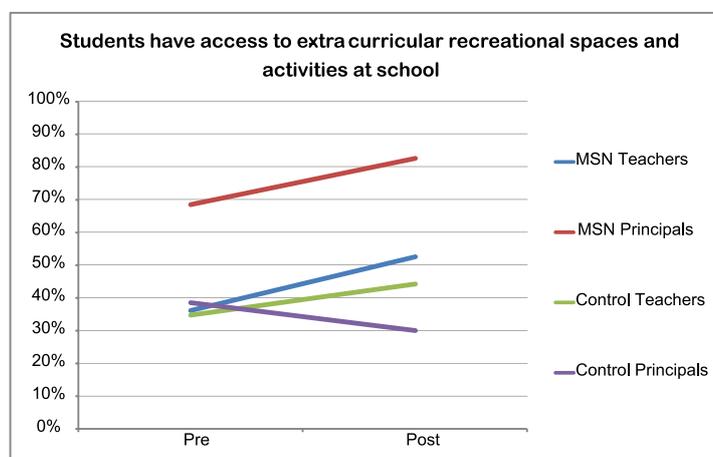
Interviewees and survey comments highlighted how the MSN activities exposed them to new opportunities and improved their confidence and self-efficacy. The diversity of experience the provided activities enabled students who had not previously been “academic all-stars” at their schools the chance to show and develop abilities that had not been recognized by their teachers or within the school community. MSN’s extracurricular activities were also associated with improved classroom outcomes and learning. Approximately a third of those interviewed remarked on how student participation in activities, especially among low-achieving students, improved academic achievement. Eight percent of those interviewed remarked on the tangible experience extracurricular activities gave students in cementing their understanding of academic concepts and connecting theory to real world situations.

“The projects we do here are very connected to what we study now and what will we study next year.” Ahmad, student at 2011 First Lego League competition.

In response to a survey question about whether students have access to extracurricular recreational spaces and activities at school, MSN teachers and principals, as shown in Figure 15, are dramatically more likely to respond “somewhat agree/agree” compared to their counterparts from the control schools. Moreover, scores for the principals from the control schools decreased in the post-survey. This may be a result of MSN schools having greater opportunities and variety in their extracurricular programming.

Another noteworthy trend is that MSN schools seemed to succeed at building the capacity of a larger number of teachers to facilitate extracurricular activities. The number of hours MSN teachers reported supervising extracurricular activities decreased from 5 to 3.7 hours per week, whereas teachers’ commitment from the control schools increased from 3.1 hours to 4.4 hours. In essence, as activities increased at MSN schools, the overall workload was distributed over a greater number of volunteers.

Figure 15: Extracurricular activity space at schools

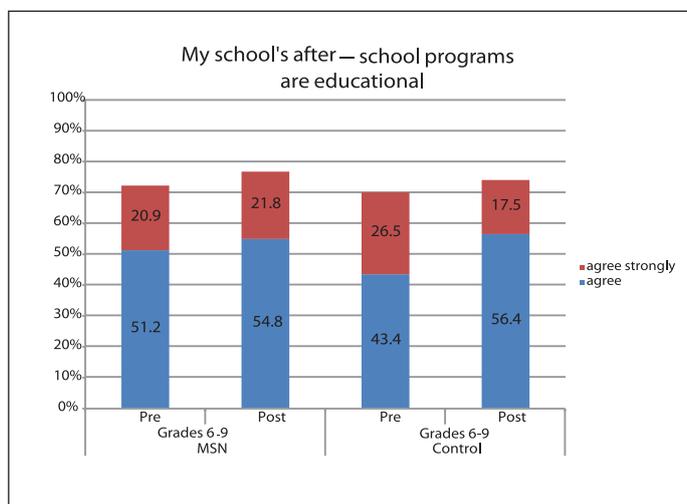


5. The survey did not distinguish between co-curricular activities such as a fieldtrips to complement a math or science unit and an extracurricular activity.

Furthermore, teacher interviews revealed that some teachers developed an intrinsic interest in extracurricular activities as they evolved and showed promise. This resulted in increased teacher motivation to support extracurricular activities. This is significant because public school teachers were not paid to participate or facilitate after-school activities. Nine percent of comments from interviewees noted an increase in teacher awareness of the importance of extracurricular activities. Furthermore, twenty percent of those interviewed said that MSN's efforts had increased teacher professionalism and interest toward supporting extracurricular activities in their schools.

Figure 16: Educational after-school programs

MSN students from grade levels 4 to 9 judged their school's after-school programming as exhibiting variety as well as educational and recreational value. MSN students in grades 6 to 9, as seen in Figure 16, appear more likely than students from control schools to "agree strongly" that their schools' extracurricular programs are educational. This trend suggests that MSN interventions contributed to improving the integration of classroom learning tasks and extracurricular programming.



Anecdotal evidence from in-depth interviews and focus groups further support this statement. A number of students and teachers reported that teachers now make a conscious effort to integrate fieldtrip activities with learning concepts and skills in their curriculum. Students reported being asked to work on projects and reports demonstrating what they learned from participating in activities. Principals also observed that the integration of curriculum and extracurricular activities provided opportunities for students to develop critical thinking and problem-solving skills, while also improving students' communication and leadership skills.

While solid majorities of students in both MSN and control schools report participating at least once a month in some form of extracurricular activity for "fun and recreation," rates of participation among MSN students in grades 4-5 were significantly higher for activities related to math and science relative to their peers in the control schools. MSN's interventions seem to have had some impact on strengthening students' engagement with specific subject areas of the curriculum. Qualitative data from focus groups and in-depth interviews with students, teachers, and parents help contextualize the trends about participation in after-school programming. Most students interviewed welcomed the variety of extracurricular and co-curricular programming as opportunities to enhance not only their learning experiences, but also to build on personal hobbies and interests such as art, music and computers. In addition to fostering a child-friendly environment and building stronger school-community relationships as a part of recreational activities, the survey results demonstrate MSN's interventions may have strengthened students' engagement with specific subject areas.

Challenges to Implementing Extracurricular Activities

Specific challenges to implementing extracurricular activities emerged from the research and evaluation. For example, teachers often requested more training for their facilitation role. Eight percent noted that the sustainability of the program could have been increased by training teachers to implement all of the activities. In contrast, AMIDEAST subcontracted certain activities to outside local organizations without engaging teachers directly. Similarly, a small number of interviewees noted the need to include school teachers, not just principals, in planning activities.

Another challenge involved creating the right balance of activities for each age group and the need to engage a broader cross-section of students. Some students said they chose not to participate in extracurricular activities because they didn't see the academic benefit. As one student explained: ***"We have drama club at my school, but I like to concentrate on my classes. I don't like to participate in extracurricular activities. I don't feel like they are beneficial."*** Another reason heard from students and parents is that some activities privilege students who excel academically or athletically, making less talented students feel unfairly left out. Based on attendance, registration documents and photos, it is clear some students participate in multiple activities, while others do not participate at all.



"We have noticed that the students' personalities are showing some development but still there is a problem we have faced: that is, most of the students who participate in the activities are always the same". District student activities staff member.

There were also indications that some students may be selected to participate in activities as a reward for good grades. This selection process could explain why some students participate in many activities while others do not. Other reasons for why students chose not to participate ranged from shyness, expenses, and personal time constraints. Encouraging all students to participate includes recognizing the barriers to voluntary participation when planning activities.

The availability of resources presented a constant challenge, although significant resources were provided as part of the MSN program. Importantly, the availability of space at the right time was a major challenge. Schools offered their space for extracurricular activities by either scheduling the activity during the school day, so the school facility would be open, or extending school opening hours into the afternoon and weekends to accommodate extracurricular activities.

Some parents in focus groups commented that low participation of students in extracurricular activities could be linked to poor teacher motivation. They noted this was a consequence of teachers being underpaid and overworked and thus unable or unwilling to devote extra time and effort without the school's reasonable accommodation for time and compensation. For their part, teachers commented that pressure from their supervisors to cover the official curriculum is a major disincentive to volunteering for extracurricular activities. Such concerns are supported by the fact that over half of MSN schools made use of breaks between classes for some extracurricular activities. Nearly three quarters of schools scheduled at least some of their extracurricular activities during class time and in related classes.

About 60% of school principals or coordinators mentioned the importance of intrinsic teacher motivation in support of extracurricular activities. In this context, the value of acknowledgement and praise for a teacher's contribution was important. AMIDEAST requested each MSN school designate a coordinator of extracurricular activities. In this regard, principals recognized the importance of clear delineation of roles. By assigning a central contact person, as well as different



teachers for each activity, personal ‘ownership’ of each activity was promoted. If given the resources, 88% of MSN school principals indicated they would like to have a teacher dedicated part-time to coordinating extracurricular activities.

Furthermore, principals and coordinators both acknowledged in retrospect that they should have been more strategic in choosing and planning the appropriate activities for their schools.

Sustainability of extracurricular activities is contingent upon many factors. The majority of MSN schools expressed their intention to continue to implement eight of the ten extracurricular activities initiated by MSN. The activities most directly linked to academic subjects received the strongest support for continuation.

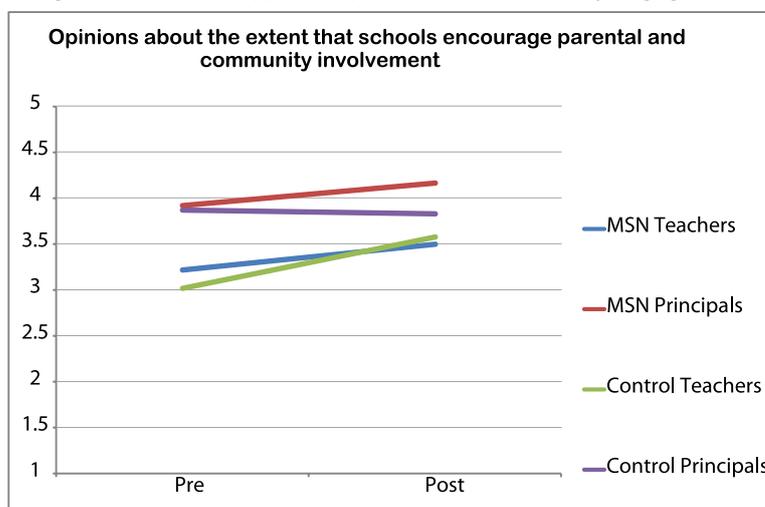
In sum, teacher motivation and training; parent awareness and support; strategic scheduling and management of limited resources; and open student participation are key factors in the successful delivery of extracurricular activities.

Community Outreach and Parental Involvement

Research findings which indicated that teachers, principals, and parents believed MSN schools made improved efforts toward community outreach were tempered by other indicators which suggested these efforts did not fully translate into actual parent and community involvement. Trends over the pre-post period provide some evidence of positive momentum in the direction of mobilizing better community involvement. Figure 17 shows that scores for teachers from both MSN and control schools trend in the same modest upward direction. Scores for principals of MSN schools increased while those for control schools remained static. This latter trend may be attributed to MSN’s leadership training and its emphasis on community outreach.

Figure 17: School support for parental and community engagement

Survey results show that teachers and principals from MSN schools responded positively on questions pertaining to two-way communication between home and school, as well as the school’s efforts to provide parents with useful information about their child’s learning. The introduction of education technology within MSN participating schools was a key factor in encouraging principals to increase their outreach efforts to families.



With Internet connectivity, it became easier for MSN principals and teachers to communicate with students’ families, including parents who might not visit their child’s school regularly. Comments by adults and students in focus groups and in-depth interviews noted that some parents became better informed about school events and calendars due to the use of text messaging and web-based social media with secure login features like Facebook and Twitter.

Comments from parents in focus groups describe their MSN schools as having become more proactive in soliciting and integrating their participation and input in some learning-related activities. Importantly, while some parents credited efforts by their principals and teachers in promoting better home-school involvement, others observed that the high rate of transfers of principals and teachers at the beginning of the school year seriously undermined the capacity of a school to develop and strengthen the trust and respect necessary for effective home-school-community relations and partnerships.

Despite the overall positive impressions of principals, teachers, and parents concerning their schools' efforts toward community outreach, research findings paint a less certain picture of actual parent and community involvement. Nearly one-third of MSN principals remarked that by the end of the MSN Program, they were still unsatisfied with the level of parental engagement at their schools.

However, principals' opinions about the extent of educational support provided to schools from parents and the community increased 10%, which was double that of principals from the control schools. This upward trend illustrated in Figure 18 suggests, once again, that MSN leadership development may have had some impact.

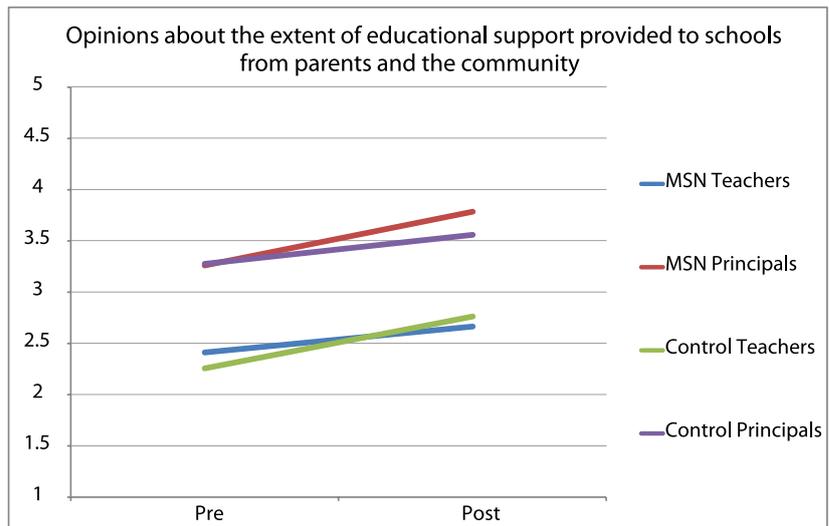
Though survey results of teachers' views of educational support from parents were lower than that of principals, several teachers in interviews commented they had seen improvement after their schools offered educational workshops for parents. For example, science and computer workshops designed to enhance parent knowledge about what their children were studying seemed to make a difference.

One teacher noted that these workshops were organized by her school using computers procured by MSN, although the workshops were not part of the MSN program.

It is worth noting that one reason why some parents rarely visit the school or are reluctant to become more involved in school may be the result of their children's belief in the stigma of a school visit being associated with student discipline problems or academic failure. In focus groups, some students admitted they hide or throw away school invitations to their parents because of this stigma. This perception is not universal, however, as one student explained:

"The principal sends invitations to our parents regularly to visit the school for meetings but some of them don't show up. It is because some of them can't or don't care, which will decrease their children's academic achievements. Parents must visit the school and inquire about their children's performance no matter what the circumstances."

Figure 18: Parental and community support for schools



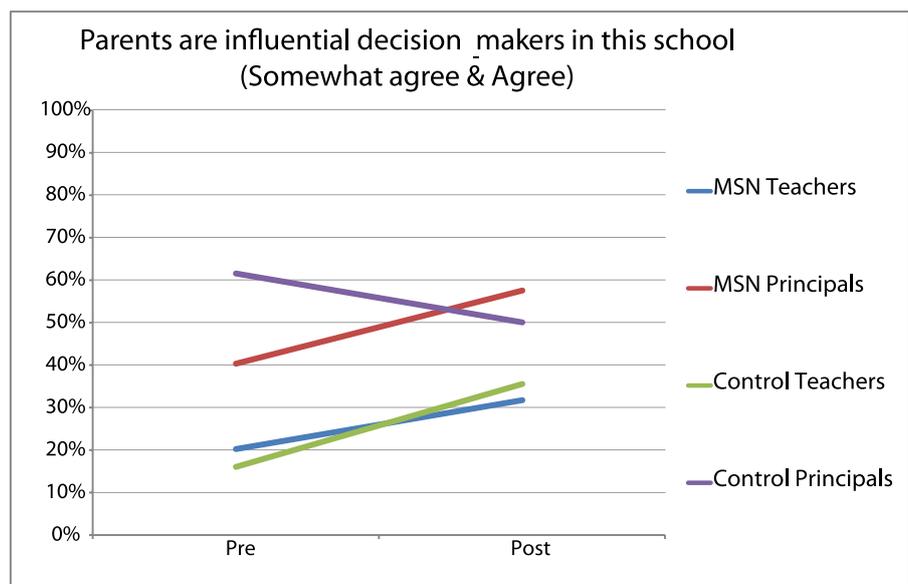
Statistical and anecdotal evidence suggest that teachers and principals underestimate and possibly undervalue the extent of learning support that children receive at home from parents and older siblings. Survey results for students from both MSN and control schools report much higher assessments of their parents' involvement with their learning at home than teachers and principals credit. Overwhelming majorities of students surveyed from 4th to 9th grades "agreed/strongly agreed" that their parents either check or help them with homework. Furthermore, comments by students in focus groups and in-depth interviews regularly framed the home as a space where older siblings or parents could be relied on to act as mentors, tutors and even surrogate guidance counselors. As one student noted, **"When I have a problem that I couldn't solve I let my older brother help me,"** while yet another noted, **"My mother helps me study English and science. And my dad is an engineer, he helps me in math."** This underscores the need for schools to explore innovative strategies for stronger, more collaborative home-school partnerships.

Parents perceive they are increasingly expected to contribute to their child's schooling through financial or in-kind support. This burden comes without a reciprocal increase in their influence on school decision-making. However, MSN schools are moving in a more positive direction than control schools in advancing parental involvement in decision-making.

Principals from both MSN and control schools-more so than teachers-believe that parents are making larger cash or in-kind contributions to their schools.

Only a third of the teachers and just over a half of the principals think that parents influence school decision-making as highlighted in Figure 19. However, the views of MSN principals increased over the pre- and post periods, while those of principals from control schools decreased. One reasonable explanation is the impact of MSN leadership development for principals. It is possible that MSN leadership training increased the principals' capacity to involve parents in the development of the School Improvement Plan.

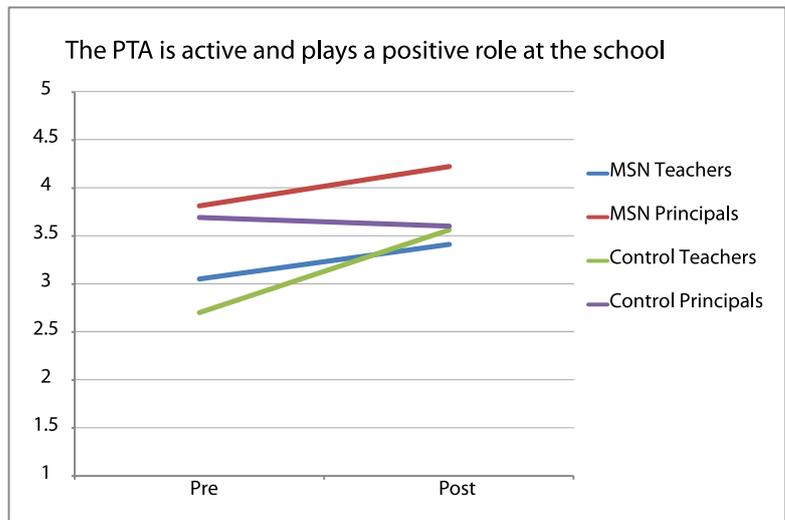
Figure 19: Parent influence at school



Statistical and anecdotal results suggest some modest improvements in the performance of PTAs, particularly for MSN schools and possibly associated with MSN's Leadership Diploma Program involving principals. There was a 26% increase regarding the quality of the PTA performance among MSN parents as illustrated in Figure 20.

Figure 20: PTA role at school

The MSN Program sought to “activate” existing PTAs. Examples of new activities undertaken by these PTAs included the following: the formation of a PTA extracurricular committee; supervision of some extracurricular activities formerly administered by school staff; parent participation in community involvement activities; and parent participation in the School Improvement Planning processes. Anecdotal evidence from parent focus groups suggest that improved relations between principals and parents in MSN schools are indeed making a difference.





Policy Recommendations

The discussion of capacity-building interventions supporting school leadership, in-service teacher professional development, integration of education technology and school-community cooperation offers a body of research-based evidence to justify scaling aspects of the MSN model in Palestinian schools. The replication of the model, however, is predicated upon on the existence of educational policies that can fully support and sustain resources and conditions to ensure high-quality, learner-centered instruction in Palestinian schools. For this to happen, the following policy conditions should exist:

- 1. In-service professional development is linked to systems and administrative mechanisms at the district and school level to improve school leadership and encourage school-based management reform.**
- 2. The newly accredited Leadership Diploma Program implemented by NIET becomes a mandatory credential for all principals. Variations of the framework and curriculum should be adapted for new and experienced principals.**
- 3. A highly flexible professional development program makes use of the school as the basic institution for development and builds on effective school standards. Program delivery is led by a highly skilled team of national trainers composed of university faculty and other experts.**
- 4. Professional networking of principals and teachers is strengthened through a system that clusters schools so that neighboring principals and teachers benefit from shared experience, as well as to support collaborative practice as a mechanism for improvement. Principals and teachers are engaged in a holistic continuum of professional development.**
- 5. Selection and grouping of teachers for professional development into communities of practice from a school or cluster of schools recognizes prior experience and skills, as well as distinguishes teachers by grade, discipline and specialization.**
- 6. Professional development includes a modular curriculum that addresses common themes of teaching while carefully integrating theory and practice in ways meaningful to teachers. The curriculum includes subject-specific content based on the Palestinian curriculum.**
- 7. The MoE develops and codifies performance standards for principals and teachers and links them to performance indicators that have relevance and substance to career enhancement, program requirements, and incentives. School, district, and MoE policies provide sufficient motivation for principals and teachers to participate in an in-service professional development program.**
- 8. MoE policies ensure that principals are not transferred to another school while earning the Leadership Diploma, and teachers are not transferred mid-way through a professional development program.**
- 9. The teacher evaluation system is transparent and consistent, so that the goals of teacher certification are clearly met and nationally recognized. This includes minimum standards for any training program requiring online participation.**

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10. The MoE adopts a strategy that provides all public schools with Internet connectivity and the necessary technology infrastructure and training to support the effective use of new media and digital technologies in curriculum, instruction and professional development. Teachers have access to portable computers for use inside classrooms and at home.
 11. Pre-service and in-service teacher education prepares teachers to use education technology to enhance learner-centered, authentic forms of student performance activities. These activities emphasize collaborative problem-solving and project-based approaches to assessment.
 12. The MoE reviews the Palestinian curriculum by grade and subject in order to create supplemental content and guidelines for integration of education technology in the classroom. These guidelines and content support learner-centered strategies which are consistent with internationally accepted standards for the integration of education technology.
 13. The MoE works in tandem with the District Offices and school principals to establish new strategies, guidelines and procedures for the maintenance of all technology, particularly hardware that is mobile and virus-prone, and for in-class scheduling that encourages multidisciplinary use of the computer lab.
 14. Communication and outreach occurs between schools and parents in order to keep stakeholders better informed about connections between social and academic development and co-curricular and extracurricular activities. Community outreach and parent involvement training is strengthened in the Leadership Diploma Program for school principals.
 15. Principals and school staff make broader use of education technology to communicate more effectively and efficiently with teachers, students and parents through the use of e-mail, as well as a school website, Facebook or other appropriate platforms.
 16. Principals and teachers are given wide autonomy to initiate and manage new extracurricular activities and community engagement.
 17. Teachers, as facilitators of extracurricular activities, are viewed in a professional capacity and receive sufficient training. Teachers' participation in activities is voluntary. Teachers receive incentives (financial or in-kind) and are supported by a part-time designated teacher who, with the assistance of district offices, serves as the extracurricular activity coordinator at each school.
 18. Recruitment and participation among students and parents in school life are transparent and voluntary. A variety of student interests, skills, grade levels, gender and socioeconomic backgrounds are taken into consideration, so that activities attempt to engage all students in collaboratively-planned activities, with clear, agreed-upon goals by all stakeholders.
 19. Institutional mechanisms to increase families' involvement in school decision-making are developed or improved. Training is offered for parent and community members in committee participation and leadership.
 20. The MoE reviews its own policies and procedures at the school, district and central level in order to address the recommendations in this report.

Appendix A

Monitoring and Evaluation of MSN Key Considerations for the Future

A major objective of AMIDEAST's MSN Program was to test, develop, evaluate, document and share results of the model's approach. MSN's Monitoring and Evaluation program (M&E) was designed to evaluate model practices that could be replicated and scaled up to enhance the quality of Palestine's national education system. MSN adopted a two-pronged M&E approach. The first was an "in-house" system of formative and summative assessments which included: baseline and recurring satisfaction surveys of principals, teachers, students, and parents; periodic quantitative and qualitative evaluations from participants in all teacher and principal workshops; and student achievement data shared by the Ministry of Education. The second approach comprised a semi-independent, mixed methods research study designed to assess the extent to which MSN's capacity-building interventions were causally associated with changes in behaviors and attitudes of principals, teachers, and students. This design involved a quasi-experimental approach that included the selection of 10 schools outside the MSN network of schools for the purpose of comparison.

Both of these approaches allowed for a robust triangulation of research findings which produced one of the most extensively evaluated education programs in Palestine. As a consequence of this effort, a number of key considerations arose from the research methodology that could inform the monitoring and evaluation efforts of education programming in the future. These issues are highlighted below:

Qualitative versus Quantitative Evaluation: School improvement, and more broadly education reform, is difficult to evaluate completely on the sole basis of quantitative information. Although the donor community frequently emphasizes numerical targets or statistical outcomes, changes in teaching practice or leadership approaches are better measured when qualitative experience is also captured. AMIDEAST deliberately designed a mixed methods approach in an effort to provide balance; however, this implied a more complex effort, as well as the ability to summarize, synthesize and share qualitative and quantitative data. The level of effort, time and expertise to adequately undertake such an approach should not be underestimated.

Time and Funding: Measuring the impact and outcomes of interventions in education development involving a baseline and pre- and post-analysis requires at least three years, and ideally five or more years. Donor funded projects, USAID included, rarely build in sufficient funds or allow the time necessary for long-term longitudinal studies. In order to produce reliable, informative data on education reform outcomes, systems and resources need to be in place over many years that can easily and systematically measure results at key moments in time. The timing of these measurements should be linked to the academic calendar year.

Evaluation Design and Planning: M&E must begin with a backward design approach in which the goals and objectives of all interventions are conceptually clear and operationally defined. The M&E rationale and methods should be developed in consultation with all key stakeholders. Similarly, there needs to be an M&E research team whose primary responsibility will be the design and implementation of research instruments, sampling strategies, and protocols/procedures for analysis. It is challenging to assemble and keep all these elements in place, as well as to retain the institutional knowledge and expertise over a period of years. In this regard, the MoE's Assessment and Evaluation Department, as well as the Monitoring and Evaluation Division within the Directorate of Planning are the most logical areas for capacity-building and further cooperation.



Control Sample: AMIDEAST used a quasi-experimental design involving 10 control schools in addition to the 40 schools participating in the MSN interventions. The objective of this approach was to provide a sound statistical basis by which to examine relationships of actual causality rather than mere correlations between interventions and outcomes. However, attributing causality to MSN interventions was problematic due to the fact that not enough was known about the kinds of professional development activities that occurred in the control schools. This uncertainty made it difficult to explain some of the differing results obtained from the MSN and control school samples. Although the data from non-MSN schools did provide an additional layer of triangulation for some variables, for comparative purposes the use of the control school sample was limited.

Teacher Performance and Student Achievement: Increasingly, international evaluation methodologies focusing on improving teacher performance have attempted to benchmark success by examining changes in student achievement. AMIDEAST attempted to do this with the original cohort of private schools using local, university-designed and administered tests of students in select grades. This effort was repeated for the cohort of 40 public schools using the MoE's national test data in math and science. While the results showed very positive gains, the short timeframe – approximately two years in both private and public student cohorts - was too brief to reflect genuine trend lines. The process of linking causality of in-service teacher professional development to specific student test results is extremely complex and requires a level of capacity and expertise that does not yet exist in Palestine.

Dissemination of Results: The best designed and administered evaluation studies may never inform policy or practice without a strategic plan for dissemination and a receptive audience willing to review and consider the results. AMIDEAST deliberately produced four smaller thematic reports whose content constitutes this final report. Each of the four thematic reports was produced separately. Each report was presented to and discussed with stakeholders during four separate events. Feedback and reflection from these events were integrated into the final report, with the most important modification being a consolidation and refinement of the policy recommendations. In sum, the value of any monitoring and evaluation effort is contingent on how the data is presented and used by decision makers. This last step, in what may be a very long process in producing solid, informative studies, is perhaps the most important.