Model Schools Network Program

In-Service Teacher Professional Development

This report is the third of four final reports each highlighting important thematic outcomes of AMIDEAST's Model Schools Network (MSN) Program. Based upon extensive evaluation of the USAID-funded, AMIDEAST-administered three-year engagement with 40 public schools in promoting quality teaching and learning through in-service professional development for teachers and principals, the following draft policy recommendations are presented. These recommendations are premised upon the statement that in-service professional development which aims to promote high quality, learner-centered instruction within Palestinian classrooms is most effective when the following conditions exist:

POLICY
Recommendations

1 A highly flexible implementation framework with a variety of ongoing interventions that are primarily school-based and encourage a culture of support, cooperation and reflection. The training does not overload teachers' schedules and occurs primarily during regular school hours.

2 Selection and grouping of teachers for training recognizes prior experience and skills, as well as distinguishes teachers by grade, discipline and specialization.

3 Small groups of teachers are chosen from a school so that there is a common professional development experience that allows teachers to build communities of practice.

4 Professional networking is further strengthened through a system that clusters schools so that neighboring teachers and principals are all engaged in a holistic continuum of professional development.

5 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 should also include subject-specific content based on the Palestinian curriculum.

6 Teacher evaluation systems are 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.

7 Online instruction has a supplementary role unless all participants are guaranteed easy and free access to the internet. Trainers and teachers receive sufficient IT training to participate via the internet and the virtual platform is user-friendly.

8 A national network of teacher educators is developed to deliver training. These individuals are able to model and integrate student-centered teaching practice, as well as coaching, supervision, classroom observation and teacher performance assessment.

9 Program requirements, incentives and school - district - MoE policies are aligned in order to provide sufficient motivation for trainers to deliver and teachers to participate in an in-service professional development program. This includes MoE policies that avoid the transfer of teachers out of training mid-way through a program.

10 In-service professional development is linked to systems to improve school leadership and encourage school-based management reform.

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Background and Research Approach

MSN's Professional Development Program was a major component of AMIDEAST's approach to creating an effective model school network involving professionally-certified teachers committed to a process of school improvement. In all, 291 teachers of English, math, and science participated in eighteen-month long Professional Certificate programs. This report is framed to explore the extent that MSN's Professional Development Program has resulted in measurable increases in learner-centered approaches to teaching and learning; the extent that the Professional Development framework fits into the Palestinian context; and, to provide recommendations for larger-scale Professional Development initiatives. The concept of a learner-centered classroom refers to a schooling environment in which students increasingly take responsibility for their own learning by engaging critically and collaboratively in activities that result in transferable knowledge and skills. In contrast, a teacher-centered classroom is one where the teacher takes primary responsibility for the delivery and assessment of curriculum content.

To explore these issues, several statistical scales were created. The Scale of Learner-Centered Practices consisted of eighteen questions[1]. A corresponding Scale of Teacher-Centered Practices comprised seven questions. A similar set of scales was created for the students' surveys on the assumption that changes in teaching practices associated with in-service professional development would likely be reflected in student responses[2]. A Scale of Professional Development Satisfaction was also created to assess teachers' views about MSN's professional development program. Furthermore, 90 hours of systematic classroom observations were conducted with teachers from the MSN schools and two of ten control schools[3]. Finally, qualitative data from focus groups and in-depth interviews with teachers and students help to explain and contextualize findings from the quantitative research.

Table 1 Sample Sizes of Research groups

	MSN Schools		Control Schools	
	Pre	Post	Pre	Post
Teachers	521	655	146	104
Principals	57	40	13	10
Parents	918	1603	180	364
Students,grades 4-5	147	726	111	96
Students,grades 6-9	739	1799	275	314

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

1. This scale is based on a five-point frequency scale: 1 = never, 5 = always.
2. The scale for the students is a four-point Likert agreement scale: 1= strongly disagree, 4 = strongly agree.
3. The comparability of the ten control schools to the 40 MSN schools was confirmed through an ANOVA analysis comparing the means of key variables.

KEY FINDINGS

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 2 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 increase is certainly associated with MSN's provision of computer and science labs for every MSN school, as well as netboks for teachers.

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 2

Learner-Centered Practices	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	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

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.*"
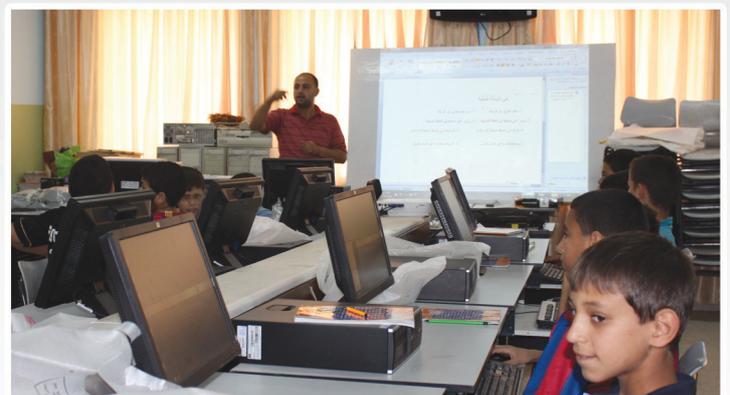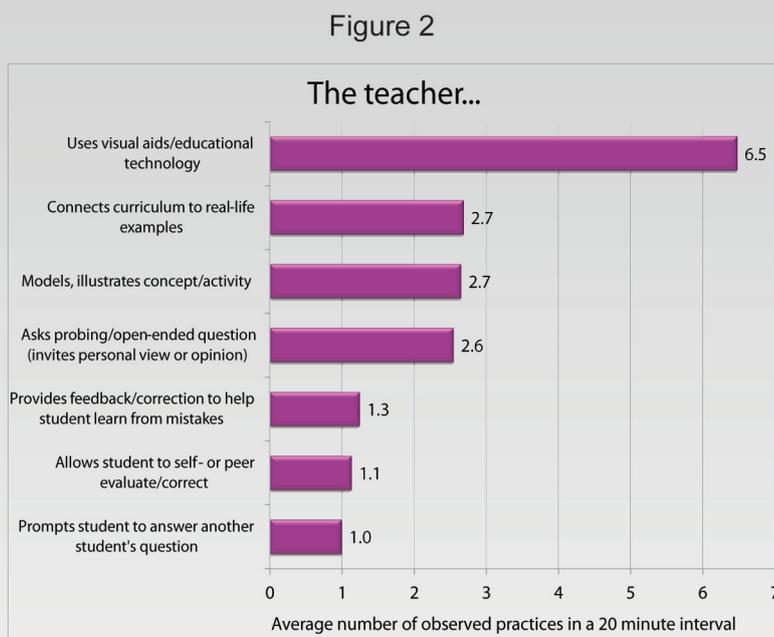
Classroom Observations of Teachers' Performance

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[4]. As shown in Figure 1, 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.

Figure 1

Proportion of Leaner-Centered vs. Teacher-Centered Practices in MSN Classrooms at Close of MSN
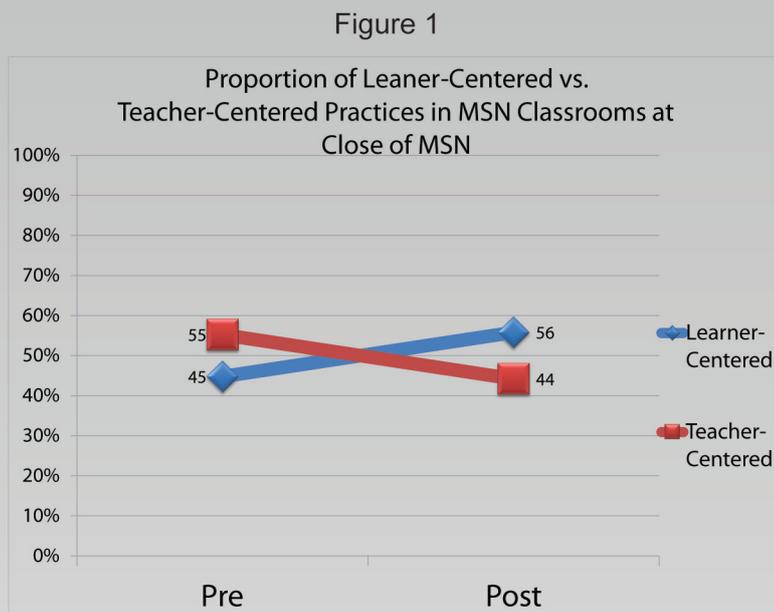
Evidence from classroom observations suggests that MSN's strategy of systematically blending professional development and teachers' access to educational tools and resources such as netbooks, the Internet, newly renovated and equipped science and computer labs, and Teacher Resource Libraries improved 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 2. 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 2

The teacher...

Practice	Average number of observed practices in a 20 minute interval
Uses visual aids/educational technology	6.5
Connects curriculum to real-life examples	2.7
Models, illustrates concept/activity	2.7
Asks probing/open-ended question (invites personal view or opinion)	2.6
Provides feedback/correction to help student learn from mistakes	1.3
Allows student to self- or peer evaluate/correct	1.1
Prompts student to answer another student's question	1.0

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.

"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.

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4. 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.

Students' Perceptions of Classroom Instruction

Student perceptions provide added evidence that MSN's professional development has shown success in helping some teachers to partially transform their classrooms into more learner-centered environments. The surveys administered to students in grades 4-9 included the Scale of Learner-Centered Instruction[5]. 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 3 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 3 mirror those from the teachers' survey.

The survey results for students in grades 6-9 present a more complicated picture. As seen in Table 4, 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. However, the bottom four descriptors registered a net decline by the end of MSN. 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 learner-centered instruction should start in the earlier grades because it becomes more difficult to change teacher-centered practices in the higher grades.

Table 3

MSN Students: 4th-5th Grades			
My teacher	Pre	Post	% Change
Use style of teaching makes the class interesting.	2.62	3.07	17.23
Alows me the freedom to express my ideas and opinions.	2.75	3.16	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

Table 4

MSN Students: 6 th-9th Grades			
My Teacher…	Pre	Post	%Change
Asks students to work in groups to complete assignments or projects.	2.60	2.87	10.38
Uses activities that make me 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 make the class interesting.	2.60	2.52	-3.34
Gives me helpful feedback after tests, quizzes or assignments.	2.91	2.74	-5.84

5. 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

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 very 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.

Furthermore, in a 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 various 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 3. 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, with no training in the summer months. Similarly, reflective learning circles were once a month and held after school in a 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; team-taught trainings 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, the distribution of netbooks, which allowed teachers easy access to Moodle and other internet-based communication, as well as the provision of teacher resource libraries in each school.

Figure 3

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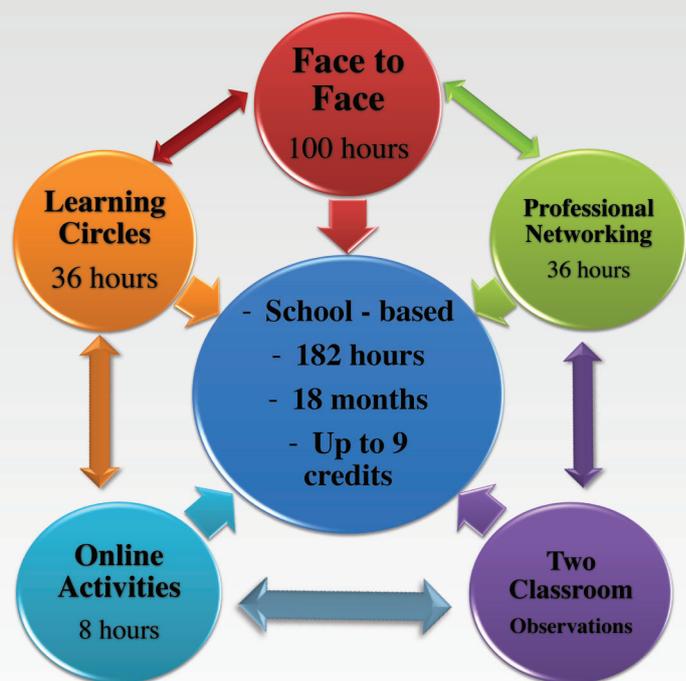
A total of 291 public school teachers started the 18-month long program, and 85% successfully completed and received certification. Table 5 provides the breakdown of completion rates and earned credits, which were based on seven graded and weighted criteria: 1) development of a teaching portfolio; 2)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

Table 5

291 In-service Teachers		
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 is that its small scale did not allow for more specialized training and content specificity between subjects, such as creating specific groups of physics, biology, and chemistry teachers, as well addressing the needs of teachers teaching very different 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. Overall satisfaction increased 9.4% over the length of the program. 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 6. The results of the specific questions are ranked according to the degree they changed.

Table 6

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 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. 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, Face-to-Face activities, and use of Moodle.

"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 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."*

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. Teacher educators or university trainers posted assignments and resources, and 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, university trainer's IT skills and having a high comfort level in using an online platform are essential.

Teachers' accessibility to the internet is 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, all had internet access at school provided by MSN and all 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 interest to engage in online elements of the program varied markedly. A 2009 study conducted by the MoEHE revealed 75% of teachers did not use any education technology and motivation was low regarding its adoption. On the other hand, teacher responses to the MSN survey question, "I use technology to connect with other teachers/educators as a result of my participation in this training program," received an average response between agree/strongly agree.
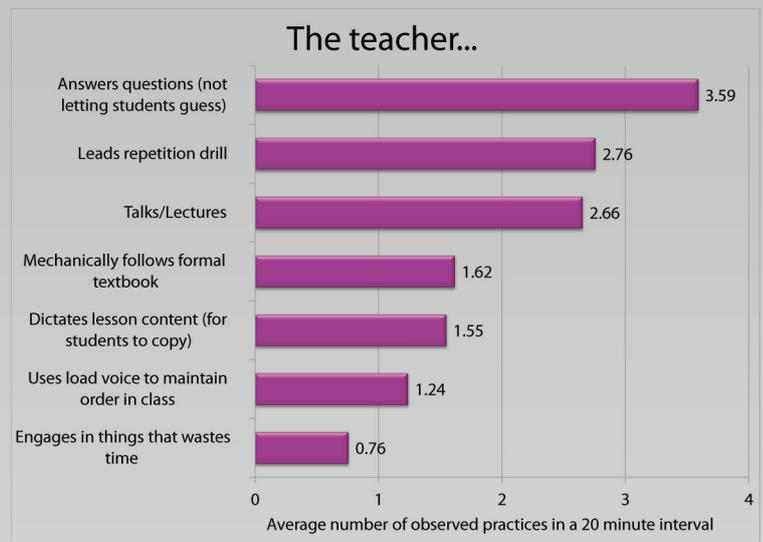
MSN's experience highlights some important considerations. Access to technology and the internet, as well as teachers and trainers having the necessary IT skills are necessary for integrating an online component. However, these factors alone do not guarantee successful implementation of an online component. 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, easy access to a computer and the internet, and that online tasks are deliberately woven into the goals of the in-service program.

Challenges to In-Service Teacher Professional Development

Effective in-service professional development notwithstanding, the persistence of teacher-centered approaches to curriculum and instruction remains formidable. Teachers' responses to the questions relating to teacher-centered practices imply they 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 them master skills actually increased 5% between pre- and post-measurements. Similarly, a reliance on quizzes and tests to assess student learning also increased 4%.

The teacher...

Practice	Average number of observed practices in a 20 minute interval
Answers questions (not letting students guess)	3.59
Leads repetition drill	2.76
Talks/Lectures	2.66
Mechanically follows formal textbook	1.62
Dictates lesson content (for students to copy)	1.55
Uses load voice to maintain order in class	1.24
Engages in things that wastes time	0.76

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." Results of classroom observations, as illustrated in Figure 4, also suggest that teacher-centered practices remain stubbornly persistent in the instructional habits of many teachers.

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 MoEHE 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."

These results highlight the challenge of depending too much on in-service professional development to transform instruction. Investments in professional development may have little effect on teacher practice if the only change is 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. **In short, the MSN findings 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.

In sum, a flexible, decentralized delivery system whereby MoEHE policies at the district and school level directly support voluntary teacher participation; allow teachers and principals the "space" to apply changes in teaching practice; and encourage the use of new models of supervision and evaluation will greatly facilitate real reform. MSN's program included a variety of inputs which were expensive. On the other hand, a national model of teacher licensing with the MoEHE's imprimatur linked to teacher standards and salary incentives would go a long way to addressing the question of teacher motivation and professionalism, and by extension, the perceived relevance and retention of teachers in an in-service professional development program. Such an approach toward large-scale teacher professional development raises challenges associated how best improve the system of school-management.