

Chapter Six

Data Analyses: Development of Teaching Performance, Difficulties and Factors Relating to it.

6.1 Analysis of the videotapes

We will summarize the main aspects of the performance by doing them into five categories in which the greatest amount of progress was made in all cases during the videos. These categories are: lesson planning, instruction strategies, classroom management, instruction assessment, and mastering content knowledge. The following table (table.3) shows the improvement made in the main areas of performance. This improvement is calculated as a percentage of the whole group.

For example; the area of instruction strategies has six terms in the evaluation form, these are 4, 5, 6, 7, 14, and 15. In looking at the two evaluation forms through out the cases, we will find some terms changed from unsatisfactory level to satisfactory. This happened with five cases with the term four that belong to instruction strategies. These cases are: 1, 2, 4, 5, and 7. Thus, five cases out of seven developed positively, and the ratio 5/7 represent the development made in the seven cases. By using the same technique we get the ratios for the areas of performance: 5/7, 4/7, 5/7, 5/7, 4/7, 2/7, linking the following terms: 4, 5, 6, 7, 14, and 15 respectively. The average of the six ratios is the sum of ratios divided by six: it was 59.52% which appears in table 3.

Table3 shows all the percentages of improvement in the main areas of performance.

Table (3)
Main Areas of Performance & their percentages.

Areas of Performance	Percentage of Change
Lesson Planning 1; 2	$(4/7+5/7) / 2 = 64.28\%$
Instruction Strategy 4; 5;6; 7; 14; 15	$(5/7+4/7+5/7+5/7+4/7+2/7) / 6 = 59.52\%$
Classroom Management 10; 11; 12; 13	$(2/7+4/7+4/7+4/7) / 4 = 50\%$
Instruction Assessment 8	$6/7 = 85.7\%$
Mastering Content Knowledge 3; 9	$(4/7+2/7) / 2 = 43\%$

In looking at the two evaluation forms, we will note the movement of the curves' location, the positive movement goes from 6 through to 1 on the scale, whilst the negative curve goes back from 1 through to 6 on the scale on the evaluation form. Table (4) shows the development of the student teacher's performance in the seven cases of the study. These levels of satisfaction were calculated by the lesson evaluation forms during the practice teaching. With the exception of the evaluations of the first video, which were evaluated by the whole movement of teaching during the fifteen minutes long. The opinions of the

evaluators were discounted, because this fifteen minutes did not represent a complete lesson. In addition , it was too early to evaluate the trainees during this stage of the training course. In the literature, we found a handbook for the pre-service teacher education at Brock University, it was commented that, “student teachers are not expected in the early part of the year to perform adequately in every area listed on this form”. This quote reflects in a clear way that some areas (terms) listed in the evaluation form should not be used in the early stage of practice teaching.

The following table (4) shows the levels of satisfaction for the seven cases as well as the average of the satisfaction for the whole cases as a group within the videos.

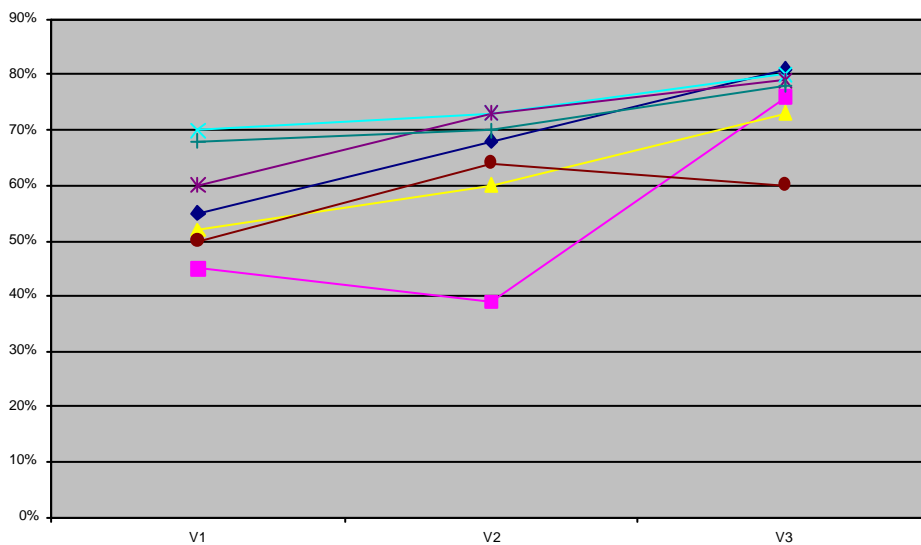
Table (4)
Performances' development during the videos.

Cases	Video.1	Video.2	Video3
1	55	68	81
2	45	39	76
3	52	60	73
4	70	73	80
5	60	73	79
6	50	64	60
7	68	70	78
The average.	57	64	75

One can see from this table the marks of each case during the videos. Each video was evaluated by three supervisors separately, and then they estimated the average of their marks. The marks of these videos were computed using the rating scale of the lesson evaluation forms.

The following curve shows the direction of the performance development through the videos. The majority of the cases are consistent in their direction of development from low achievement to high (positive direction). Case six is the exception to this trend, in so far as there was an improvement between the first two videos but then this does not carry on the contrary, there was a fall in the marks. This motivated the researcher to focus on this case, and to highlight this decrease in order to find out the reason for the fall in the marks..

Development of the cases' performance on the basis of the videos



In looking at the whole curve through three videos, the cases from down to up are: 2, 6, 3, 1, 5, 7, and 4. So, we also find that in case two the first mark was unsatisfactory but then also sharply further decreased. Although, the third video shows that the new improved situation satisfied the supervisor and the co-operating teacher about her ability to perform well. In deed, the depression in the second video of case two compels us to look at the circumstances that surrounded this case. Maybe when the whole picture can be completely formulated, we will be better equipped to look at this case. And it could be appear a suitable reason that interrupts the situation of this case.

At the same time, cases :one, four, and seven are more attractive to discuss in more detail. They represent the best example of the development of Mathematics student teacher's performance during their training course at school.

We selected the third video as the best performance for the student teachers, because it was their last task and acted as a final exam. The performance on the third video took much preparation time and thought.

We can derive the following areas that characterize there videos, strength areas, weakness areas, and the issues that are related to the performance of Mathematics student teachers.

All the cases confirmed that the student teachers had the ability to prepare the objectives of the lesson as an explained, and measurable learning sequence.

The majority of the cases (85.7%) pointed out the student teachers can implement pre-learning at an adequate level. (These cases are: 1, 2, 3, 4, 5, and 6).

All seven cases expressed that the lesson is based on content which means that the concepts have to be correct, specific, and complement each other.

All seven cases certified that the student teachers are able to anticipate pupils learning difficulties by helping them in performing their task, which related to the learning situation.

From most cases (71.42%) it can be ascertained that the use of learning/teaching methods is pupil centered and adequate for the topic. (These cases are: 1, 2, 4, 5, and 7).

Most cases (71.42%) pointed out teaching/learning media (materials, visual aids) are effective for learning achievement (These cases are: 1, 2, 4, 5, and, 7).

The majority of cases (85.7%) confirmed that the learning activities were used in a meaningful way. (These cases are: 1, 2, 3, 4, 5, and 7).

Most cases (71.42%) point out that the achievement of learning objectives was assessed, and the pupils achieved the goals during their classroom discussions. (These cases are: 1, 3, 4, 5, and 7).

All seven cases confirmed that the student teachers made no mistakes in their performance, especially in content knowledge, and teacher behavior.

All the cases pointed out in the last video of the teaching practice, that the student teachers were able to guide their classes through effective teaching/learning process.

All the cases except case six, confirmed that the student teachers were able to use the questioning technique. Without any details about the types of questions. But if we look at the transcriptions, we will find many student teachers used closed questions during their teaching practice.

At the same time, if we look at the lesson evaluation forms, we will find lack of function in some areas and the incapability of some student teachers to use the following areas: reinforcement, teaching/learning media in an effective way for learning achievement, assessment of learning objectives, using learning/teaching methods which are pupils' centered, appropriate pre-learning, preparing the lesson plan, and helping the pupils to get involved in thinking or discussing mathematical issues.

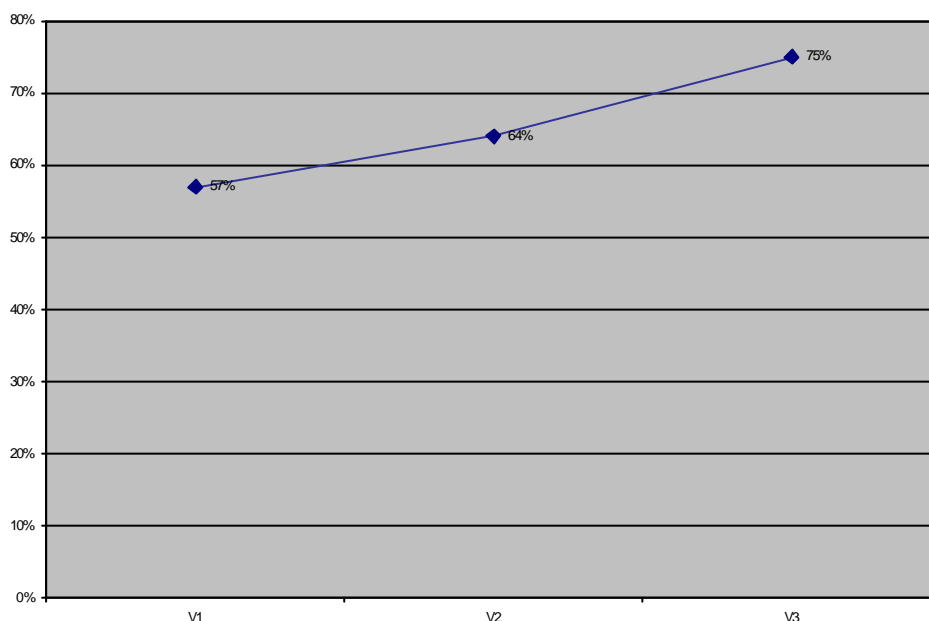
Therefore, one can simply conclude that the weakness and /or lack of using some strategies by the student teachers were the main aspects that influenced their performance. For example, the problem-solving approach, and the forms of mathematical inquiry were not used during their teaching practice. At the same time, there was a concentration on

traditional approaches to the teaching /learning process, which means the student teacher gave information, whilst the pupils were forced to listen to the teacher.

These were the main problems that faced the student teachers during their teaching practice. These are shown in the videos. Although, the third video portrays these problems less markedly because improvement had already been made. Actually it can be viewed normally, because the third video was a very important performance for the student teachers. It was the final exam.

However, the development of teachers' competence becomes clear by comparing between the videos for the whole group. The following curve shows the improvement of performance for the whole group during the sequence of videos:

Development of the average performance during the videos



At the end of the analyses of the videos, we will summarize the difficulties that faced the performance of the trainees through the V1, and V2.

In looking at the two evaluation forms, and by considering the rating scale of 4, 5, and 6 which represent unsatisfactory performance, they reflect an obstacles for the student teachers. Depending on this consideration, we find the following points illustrate by the table 5.

Table 5
Summary of the difficulties after the seven videos

cases	Unsatisfied terms, 4, 5, 6.		Details about unsatisfied terms.	Notes.
	V2	V3		
1	2, 6	...	Lesson planning, Methods of teaching.	
2	1, 2, 3, 5, 6, 7 8, 10, 13.	...	Planning, Methods of teaching, Assessment, Class management, Cont. Know.,	
3	6, 8.	6	Methods of teach., Assessment.	Still has problem in Methods.
4	
5	

6	6, 8, 13.	6, 8, 13.	Methods of Teach., Assessment, Class management.	Still has problems in Methods, Assessment, and Classroom management.
7

6.2 Analysis of the Interviews

Having established a tentative scheme of editing, modifying, and confirming, the frequency of occurrence of particular issues (lesson planning, content knowledge, methods of teaching, classroom management, assessment of teaching, and dealing with pupils) was taken into consideration. Categories that covered similar issues were grouped together, one put under one main heading in the tables and similarly were included as one issue when posed as a question in the interviews.

6.2.1 Lesson planning

The first question in the interviews was directly related to the situation of the student teachers in preparing the lesson plan.

The co-operating teacher describe these situation in the details that they aware. Their perspectives are not influenced by any personal factors, so that they were talked to separately from the student teachers. This arrangement was organized to keep their perspectives from influences each other. As well as to give them the freedom to express themselves.

The following table illustrates all details that rose in the answers of the first question of the interviews:

Table 6
The answers of first question of interviews, related to
Lesson planning.

Answers of teachers on Q1 of interviews.	Cases						
	1	2	3	4	5	6	7
At the beginning, S.T. can't prepare a lesson plan.	-	-	-	-	-	-	-
S.T. can't manage time.	-	-		+	⊕	-	-
S.T. can't prepare appropriate pre-learning.	-	-		+	⊕	-	-
S.T. can't select activities.	-	+	-	+	-	⊕	+
S.T. can't prepare materials & aids.	-						
S.T. can't write objectives.	-	-	-	+	-	-	-

+: Positive performance situation.

-: Negative performance situation.

⊕ : Positive performance at the end of the training course.

One can see from the table the main issues that rose in the answers of the co-operating teachers about the performance of lesson planning.

The two following quotes are very interesting to rote, they were selected from the Co. Ts' answers which characterized the cases three and six respectively.

“His planning was very exciting, maybe better than my planning”.

“I guide her, the activities should vary, and then she understood me very quickly”.

The first quote (case three) gives an impression about the ability of the co-operating teacher versus the student teacher who was suffering during the training course. The lack of the co-operating teacher's experience was the main reason for this situation. The second quote (case six) shows a clear picture about the level of authority of the co-operating teacher, especially when she said “she understood me very quick”, which means the student teacher accepted the opinion of the teacher and maybe applied it directly as she pointed out in the statement.

All the cases said that mastering mathematical content knowledge of the topic was accepted. The following quotes from the co-operating teachers' answers show us a clear picture about the situation:

“He knows more than the level of the textbook, He extended the activities beyond the textbook”, case one.

“She knows the content knowledge very well, no mistake ”, case two.

“I can't let him make mistakes in mathematical content knowledge”, case three.

“She didn't differ from my content knowledge”, case four.

“Mastering content knowledge was excellent from the beginning”, case five.

“I have to say, she was perfect in grade seven, but not in grade ten”, case six.

“She was very good in Mathematics content knowledge” case seven.

At the same time, the co-operating teachers mentioned about two cases who made a mistake, first case was the fifth case in which the mistake characterized a “scientific fault” in geometry. The second mistake was made by the sixth case in grade ten when she was just for observation, little bit for practice. By looking into the co-operating teachers' answers and what we have seen on the video, we can say that: mathematical content knowledge dose not representing an obstacle for the majority of the study cases.

The S. T. did not comment anything about mathematical content knowledge. Bennett and Carre (1993) and Moriarty (1995) reported that teachers are not sure of their own mathematical knowledge (Neride, F., 1999).

6.2.2 Methods of Teaching

The third question of the interviews was related to the methods of teaching that student teachers used during their practice teaching from the co-operating teachers' perspective. And the methods that the student teachers did not use. The answers of the co-operating teachers were classified into some headlines illustrated by the following table:

Table (7)
Methods of teaching raised in the answers of Q3 of the interviews.

Strategies	Cases	Percentages among the cases.
Use presentation.	1; 5.	28.56%.
Use questioning technique.	1; 2; 3; 4; 5; 6.	100%.

Use learning by doing.	1; 2; 4.	42.82%
Use discussion-centered pupils.	2; 6	28.56%.
Use sequential ideas.	3; 4; 7.	42.82%.
Use group work.	5; 7.	28.56%.
Use materials & visual aids.	5; 7.	28.56%
Use listening to pupils &...	3; 4; 6.	42.82%.
Use searching for different responses from many pupils.	6.	14.28%.
Organize the situation of problem-solving approach.	4.	14.28%

The previous table (table 7) points out all the cases used the questioning technique; but in different ways including different forms of questions. We remember that many closed questions were raised in the videos.

The important thing that arose from the table was the last two strategies: the first was the searching for different responses among pupils; which means many solutions (variations) for one issue. This variation helps the pupils to make relations between the solutions and to think divergently about one issue. The second was not organizing the problem solving approach. This approach gives the pupils opportunities to be good thinkers about their learning. Those two aspects were very poor for some student teachers, especially the consequences for the Mathematics classroom. This simply meant poor teaching strategy yields bad learning in future teaching.

As a result, the co-operating teachers' perspective that arose from the table, we can say nine strategies were not used in an adequate way. These strategies are: problem solving approach, variations, listening to pupils, using materials, group work, sequential ideas, discussion centered pupils, learning by doing, and presentation.

The strange thing one can see is what the co-operating teachers say; that the presentation was not used, while the videos confirmed exactly the opposite.

6.2.3 Dealings with pupils

According to the fourth question of the interviews, which was related to dealings with the pupils and the teachers. All the cases said that there were a good relation between the student teachers and their pupils. Moreover, their relations with teachers and pupils were very normal and they focussed these relations to help themselves in the teaching/learning process. This procedure took place in the majority of the seven cases. One case (case seven) seemed to be isolated from the people of the school, because her social situations did not help to make good relations with the teachers. She hadn't time to mix with others, as she commented in the questionnaires. The following quote highlights the issue, "I am not social, I felt myself outside the system of the school, the distance between the pupils and myself was very marked".

6.2.4 Assessment of teaching

The question number five was related to assessment of teaching. It's easy to find the majority of the co-operating teachers of seven cases (except case three) satisfactory about the process of assessment that guided the student teachers. And they described the strategy of the assessment of teaching used by the student teachers, as very exciting and meaningful. The student teachers came to the university weekly about two hours during the training course. So

that they could exchange their experiences among the discussion held under the authority of the supervisor of Mathematics. This seminar is called “weekly meeting”.

The technique of assessment was satisfied and over exciting for the co-operating teacher, which meant: how to evaluate teaching/learning process in the schools? Especially when we are talking about the low achievement of the pupils in Mathematics in Jordanian schools.

As a result of the co-operating teachers’ answers about this issue. We can say that, the area of teaching assessment was not a problem for the seven cases.

Al-Qudah, 2000; points out the main phases of evaluation in the school, which includes constructing, implementing, scoring, and analyzing examinations; while the results of the examination can be utilized for different purposes:

- (1) Classifying pupils into instructional group;
- (2) Assigning levels of performance mastery in assessment; and
- (3) Diagnosing specific weaknesses.

Moreover; Al-Qudah says that exam results should be analyzed so that the teachers are aware of the type of errors that have been made, so that emphasis can be placed on the particulars in their future teaching, this information is used to guide the next step of the teaching.

As one can see, the meaning of assessment was very efficient and the co-operating teachers were influenced by the implementation of the process of assessment, which was applied by the student teachers in the schools. The answers of the co-operating teachers show the level of their interest in this technique of assessment. (For additional details about preparing examinations & analyzing the results; see chapter nine Enjoying Teaching, 2000).

6.2.5 Classroom management

According to the last question of the interviews, which was related to classroom management. The answers of this important question are classified into many parts. Each one reflects the description of the situation of classroom management that related to the situation of the case. The important thing one can see is the relation that the co-operating teachers were diagnosing between classroom management and the factors related to it. The following table (table 8) shows the details of the seven cases about the co-operating teachers’ perspectives.

Table (8)
Main descriptions of classroom management relevant to
the student teachers’ performance.

Cases	The descriptions of the case situation.
1	Classroom management related to the lesson plan. “I couldn’t enter the class without lesson plan”.
2	Classroom management situations were related to: 1) Strategy of teaching that used; 2) Personality of the student teacher.
3	Classroom management situations were related to: 1) Personality of the teacher; sharp. 2) Agenda of a lesson; 3) Made the pupils busy all the time.
4	Classroom management situations related to: 1) Mastering content knowledge; 2) Motivate pupils by asking them by their names; 3) certain pupils roles, which give them more responsibility in the lesson.
5	Classroom management situations related to: 1) Good personality for the teacher; 2) Social skills of the teacher.
6	Classroom management related to: 1) Comfortable situation of the teacher, not sad or nervous, 2) Create suitable climate, 3) Lesson plan, 4)

	Dialogue between pupils and teacher 5) Opportunities to ask teacher, 6) Follow up during their work, and 7) Written feedback about their performances.
7	Classroom management situations related to: 1) Concerns of the situations of the pupils, their sitting, dealings among each others, their interests, and their needs, 2) Student teacher should be focused on pupils' learning.

As we see in the table (8), the co-operating teachers talked about factors that have influenced classroom management, especially some practical techniques that helped the student teachers in their classroom management.

The cooperating teachers confirmed that the important factor that relates to classroom management is the personality of the teacher. The lesson plan had appeared as a factor affecting classroom management, it should be prepared in advance. While other factors that influenced classroom management could be affected in different ways. For example, the following techniques suggested by the co-operating teachers which related to classroom management: giving the pupils opportunities to participate in certain roles, concern about the pupils' learning, and paying attention to the pupils' need.

At the end of the analyses of interviews, we summarize the difficulties described by the Co. Ts'. Perspectives. The following table shows these issues.

Table 9
Summary of the interviews

cases	Lesson Planning	Methods of Teaching	Dealings with pupils	Assessment of Teaching	Classroom Management	Content Knowledge
1	Bad situation	More Presentation	+ Relation	O.K.	O. K. because 1. planning, 2. following up pupils.	O.K.
2	Bad situation	Discussion not centered-pupils	+ Relation	O.K.	O.K. because she has a good personality	O.K.
3	Bad situation		+ Relation	Co. T. not satisfied	O.K. because he has good Content knowledge	O.K.
4	O.K.	Organizing the problem solving is not adequate.	+ Relation	O.K.	O.K. because nominate pupils by their names, and gave them certain roles.	O.K.

5	First bad situation and then improved	More presentation, Group work not used, and Media.	+ Relation	O.K.	O.K. because she has a good personality and social.	O.K.
6	Bad situation	Discussion not pupils-centered, don't care about variation	+ Relation	O.K.	O.K. because using questions, gave pupils opportunities.	O.K.
7	Bad situation	Group work, Media not used	Formal	O.K.	At the end O.K. because more concern towards pupils.	O.K.

As one can see, the factors that affect the performance from the Co. Ts.' perspectives are: Personality of the trainees, Teaching methods, Planning, Communication skills, Teacher concern, following up through the activities, Social skills, and using the technique for the pupils keeping busy all the time.

At the same time, Co. Ts. described a new technique to help the trainees have good classroom management, for example, asking pupils by their names, [don't use the word you], focusing on pupils' learning, and giving them certain roles to have more responsibility in the lesson.

6.3 Analyses of Questionnaires

According to the seven open questions of a questionnaire, each question characterized one issue that took place among the student teachers' perspectives. The researcher summarized the main results for each case. The common factors among the cases should highlight the discussion.

6.3.1 Experience of trainees with the supervisor

The first question of questionnaire was about the experience of student teacher with the supervisor. Their answers took the following approach through the cases. The following table illustrates this approach:

Table (10).
Experience of S.T. with supervisor.

Cases	Aspects of Experience.
1	Relations (friendly), professionalism (gave me useful feedback), practice information (weekly meeting).
2	Relations (exciting), professionalism (comparing my problems with colleagues' problems, useful feedback, our resource in practice teaching, practice issues, weekly meeting).
3	Relations (positive), practice issues (weekly meeting), professionalism

	(assessment, micro-teaching).
4	Relations (exciting), professionalism (expert, qualified/teacher and/or supervisor, micro-teaching).
5	Relations (positive; rich), feelings (sensitive towards me), practice information (weekly meeting), professionalism (rich experience).
6	Relation (good; exiting), practice teaching (many techniques helping and supporting our practice, and many issues learnt in practice not in courses), professionalism (centered practice).
7	Relation (formal), practice teaching (weekly meeting), professionalism (resource of practical knowledge, visits in classroom, discussion lessons, and feedback).

In looking at the previous table, we will find common factors through the seven cases. The first factor raised was the relation between supervisor and the student teacher, which characterized by “friendly”, “rich”, “good”, and “exciting”. The positive relation was the umbrella of the training process during the training course at schools. While seventh case pointed out the relations were formal with all people who were involved in the training course.

The second factor highlighted through the cases was professionalism. This meant the extent of experience of the supervisor that arose during the process of training was professionalism. In other words, the training processes have some aspects of professionalism, described by the student teachers as: useful feedback, the main resource in practice teaching, interested with micro-teaching, discussion of the lessons, and the visits in the classroom.

The third factor raised through the cases was practice knowledge. They described this factor by practice information and /or practice issues. So that they found this knowledge in the “weekly meeting”; not in “courses” at the university. We think that this point is very important and it has a background in the literature review, which categorized the knowledge of teacher training into two types of knowledge: 1) Theoretical knowledge already included in courses at the universities, and 2) Practical knowledge already found during practice in schools. In the same context, I remembered once a time, one of my group (a student teacher) who asked me during the weekly meeting, “I want to show how to improve these pupils’ motivation in privet school –not just motivation theories, but practical advice for my class, and I will tell you the result after the doing it”. This question from the student teacher reflects the needs of the trainees to the type of practice knowledge, needed during this critical period for them. It formed a challenge for the educators of teachers to formulate the knowledge into the frame of practice. Educators of teachers should be accommodated a long time among the teachers in the schools to keep in touch with the extent of practice knowledge. And maybe to gain practical information from the people involved in the practice. I remember another story about practice issues that occurred in a co-operating school in Amman. One of the trainees: asked her co-operating teacher during the lesson of Mathematics, “I need to finish a lesson on time, because I have to concentrate on the closure, not on those pupils (4 careless pupils), please tell me what I can do with them”. The answer was coming immediately from the co-operating teacher: involve them in some activities of your lesson plan. We think that the answer seems to be practical as corresponds to the needs of the student teacher.

6.3.2 Experience of trainees with the co-operating teacher

The second question of questionnaire was related to the experience of the student teacher with his/her co-operating teacher, who is closer to him/her more than any each other during the practice teaching at schools. The answers of the student teachers (S.Ts.) were categorized into the following categories illustrated by the table 11.

Table (11).
Experience of S.Ts. with their co-operating teachers

Cases	Aspects of Experience.
1	Relations (formal) gave me the chance to teach from the beginning, forced me to start the teaching during the observations, forced me to finish the textbook on time, no details, and no more discussion.
2	Relations (excellent), rich experience as a teacher, model for me in every thing; gave me useful written feedback.
3	A big gap between him and me. I was suffering silently.
4	Relation (excellent, sister, friend, colleague), closer to me more than others. She gave me the direction of work.
5	A good relations (like my sister; my advisor) supported me more than my expectations. Encouraged me and motivated me to do the best performance in teaching practice. She was teacher, supervisor, and councilor.
6	She was a hard worker; she didn't give me a chance to practice in all her classes. She likes her work, pupils, and me as a trainee.
7	She was tuff with me. She likes hard working people. She talks about the negative points of my performance. Moreover, she couldn't advise me how to improve my practice; I just need someone to give me the first step.

As one can see, the responses of the trainees in this question were not different so much from their responses in the previous one. But their descriptions about their experience with the co-operating teachers expressed the warm relation and the co-operating teacher was the closer person to them during their teaching practice.

At the same time, case seven talks about an important factor that can affect the performance. This factor is the advice of the co-operating teacher. The trainee said that "she [co-operating teacher] couldn't advise me how to improve my practice, I just need someone to give me the first step".

6.3.3 Pupils' knowledge

The third question of the questionnaires given to the student teachers at the end of the training course was related to the knowledge that the student teachers gained from the pupils about their learning and their needs within Mathematics classroom. The answers of the student teachers are classified in the following table (table 12):

Table (12)
Pupils' knowledge gained by S.T. during the training course.

Cases	Situations and descriptions cases.
1	I discovered with interaction some techniques that helped pupils to communicate each other. I found myself using the same language of the pupils which facilitated many things.
2	Understanding the pupils gave me a chance to acquire practice knowledge, which helped me to have flexibility.
3	I got some characteristics of the pupils in some classes, which helped me in teaching.

4	Yes, I gained the knowledge of the pupils, which helped me to develop a way of dealing with them. This made them and me very comfortable.
5	Good relations with pupils helped me to know many things about them. Really the pupils influenced my reflection about myself as a teacher.
6	I gained practical knowledge; because I was closer to the pupils. Methods of teaching, interactions, and classroom management were influenced by this knowledge of the pupils.
7	I am not social; I failed to understand the pupils' behaviors, as I need.

All the cases focused on the relation with pupils as a means of good contact, and active listening. They tried to understand pupils' situations by focusing on pupils' behaviors. We believe that, if the teacher adapted his /herself to deal with pupils under the umbrella of a human being and a social form, then he/she could pass through the phases. This enables himself/herself to acquire practical knowledge of the pupils. This knowledge gives the student teacher a rich experience about pupils' situation. Maybe the student teacher formulates this knowledge in some ways to facilitate his/her mission in teaching practice. This situation of rich experience gave comfort for both pupils and student teacher.

6.3.4 Classroom management

According to question number four which was about classroom management, the answers of the student teachers reflect their thoughts and their perspectives about their classroom management. While the interviews with the co-operating teachers highlighted this issue from the perspectives of the teachers.

The following table (table 13) shows the nature of the answers that arise through their responses on this question:

Table (13)
Perspective of S.T. in their classroom management.

Cases	Student teachers' perspectives in their classroom management.
1	Classroom management influenced by: 1 Level of mastering of content knowledge, 2 Environment of the class was comfortable for both the pupils and me, which found common language between us.
2	I Respect the pupils as well as they do, my strategy in classroom management depends on a relaxed and comfortable way.
3	Because the pupils compare me with their tuff teacher, they found me the more suitable and closer teacher. This supported me in classroom management, my classes were very comfortable.
4	Developed good relations with pupils, which made my mission very easy in classroom management.
5	Classroom management for me is simple task, because I am closer to pupils. Among those conditions my role went very smoothly.
6	Classroom management is smooth in class seven; but not in grade ten.
7	Classroom management change through the time; it depends on the situation of the pupils, level of class, arrangement of lesson in timetable, and the mood of the teacher. I can teach the pupils without problems.

As one can see from the table (13); the majority of the seven cases were talking about the relationship with pupils. If the teacher was closer to the pupils then his/her mission in

classroom management should be simpler. While the process of teaching/learning went through smooth conditions.

At the same time, the student teachers pointed out in a clear way some factors related to classroom management. They were classified as follow: levels of pupils, pupils' situations, level of class, the interests of pupils towards the teacher and / or towards the topic, the mood of the teacher, the level of content knowledge of a student teacher, the type of relation between the student teacher and his/her pupils, and the personality of the student teacher.

6.3.5 Teaching as a job for trainees

The fifth question of the questionnaires, was related to the job of teaching, and if the job of teaching is suitable for the student teacher or not. The majority of the seven cases (85.72%) like teaching and they go deeply in their answers to show how they are interested in teaching as a career. It is interesting to mention that case three didn't like the teaching for some reasons, he commented as follows: "I wouldn't like to be a teacher as a model of my co-operating teacher".

The arrangement of the answers in this question shows some cases gave some reasons for their answers, while the reasons were varied in feelings towards the pupils and lover the process of teaching/learning itself. On the other hand, two cases have totally different responses from the others, for example: case 6 couldn't decide if teaching is suitable or not. She couldn't forget her experience with grade ten. Moreover, she said that "if I have classes like class seven, then, I shall say it's suitable job for me". In addition to her need to work in the future. While case three was very clear when he said that, "I couldn't be a teacher". He reflected on his experience with the co-operating teacher: He added that, "I can't imagine myself working as a teacher as well as my co-operating teacher does with pupils, teachers, head-teacher, and the teaching/learning process". This case is motivated to get the university certificate, not to work as a teacher. He was careless (as I know him) influenced by the model of the co-operating teacher. Maybe other factors related to this situation besides the previous one.

6.3.6 Supervisor's visits

According to the sixth question of the questionnaires, which related to the visits of the supervisor. The type of the feedback given to the trainees, and trainees' opinions about the visits will be illustrated by the answers of the student teachers.

The answers of the trainees were illustrated by the following table (table 14)

Table (14)
Trainees' Responses on Sixth Question of the Questionnaire.

Cases	# Of visits	Type of Feedback.
1	9	Useful, highlights my way in teaching.
2	7	Practical, useful, meaningful.
3	11	I need these visits very much.
4	9	Those visits were enough to have useful feedback.
5	8	Practical and useful feedback.
6	11	Useful feedback.
7	9	That's enough to have useful feedback; it has full meaning for me.

One can see, there were some concerns from the supervisor about the two cases of the sample. Case three and case six had a high numbers of visits. While the low number of the visits was in case two. Case two was interested in the co-operating teacher, sometimes she seemed to be a copy of the co-operating teacher who has a rich experience of teaching in private schools.

All the cases confirmed that the visits were enough to have useful feedback. Some cases described it by practical and meaningful feedback. Thus there is a need to foster the feedback system.

6.3.7 Trainees motivation

The last question of the questionnaires related to the motivation of the student teachers (trainees) towards the career of mathematics teaching. Their answers in this question centered on their positive feelings and their attitudes towards mathematics as a subject and the teaching of mathematics.

We found all of them (except case three who has a positive attitude to mathematics) were motivated to work in the teaching career. Moreover, they were motivated to be a mathematics teacher for varies reasons. One case (case seven) wants to work in Arabian Gulf Countries, and another (case two) likes to continue her future Math-study in parallel to the position of a job in teaching. And in some cases the need to work itself to improve their economic situation and to cover the high living cost for their family members.

At the end of the questionnaires' analyses, we will determine the factors, difficulties, and facilities from the trainees' perspectives. the following table illustrates these issues.

Table 15
Summary of the questionnaires responses

Cases	Factors	Facilities	Difficulties
1	Relation Profession	Relation with Su., Co.T., pupils. Profession (useful feedback), Pupils' Knowledge.	
2	Relation Profession	Relation with Su., pupils, Co.T Profession (feedback, weekly meeting).	Understanding the pupils.
3	Relation Profession.	Relation with Su., Profession (micro- teaching, weekly meeting).	Pupils' characteristics
4	Relation Profession	Relation with Su., pupils, Co.T. Profession Pupils' knowledge	
5	Relation Profession	Relation with Su., Co.T., pupils. Profession	

		Reflection.	
6	Relation Profession	Relation with Su., Co.T. Profession Pupils' knowledge	Has a problem in teaching grade 10, but not in grade 7.
7	Relation Profession "how to advice the trainee?"	Relation with Su., Co.T. Profession.	How to improve your practice? 1 st step. I failed to understand pupils' behaviours.

6.4 Analysis of self-report

As we mentioned in chapter three, a suitable system to deal with the data collected from the self-reports, was to split the data into four parts. This procedure respected with time of the training course. These parts are: first month (observation month), second month (partial practice), third (full practice) and fourth month (full practice).

During the work on this data, we found the third and fourth months are more shaped practice each other. And then we dealt with them as one category characterized by complete practice or full time practice.

6.4.1 Observation Month

The first part of the training course is the observation. The observation consists of three phases, these phases are: general school observation, general class observation, and Mathematics class observation.

The following table (table 16) shows us the situations of student teacher during the month of observations:

Table (16)
Situations of cases in 1st month/observations

Cases	The situations
1	I looked like a guest, new, and strange. They were looking to me as unknown. I was afraid of the next days. Many difficulties during this time.
2	I was unknown for them, strange. No interaction with pupils, which made me isolated. Observation stage was long time, without contact with pupils, it was boring. It gives the pupils negative attitudes towards us as trainees.
3	I was scared, confused. My expectation was more than what I found. No concerns to trainees from the school. Observation stage killed me, bored, and out of spirit.
4	First week very hard for me. My feelings: no body like me. Second week is better because the supervisor visited me and he talked with head-teacher about our situations. Last week of the first month crowded with observations. Much work, I have no time to spread. Everything changed to the positive direction. I was afraid of standing in front of the pupils in the class.
5	First three weeks made me critical, confused, and scared. Observation time meant just listening, not useful, which was boring. I made some lessons during the first month instead of some teachers who were absent. I filled the gap. My lessons were without planning, nobody asks me to plan for these lessons. These lessons were not bad but not so good. It was a new experience for me.

6	Observation for one month was boring for me. Just sitting without talk and practice. I was afraid to face some classes, young classes. Grade ten refused me as a teacher before I met them. When they knew I would teach them in future.
7	The beginning was causing trouble. Observation month was very long time. It was boring, and tired. No role for me, just observe. I can't find myself in the school. My poor communication skills made me isolated from others. My co-operating teacher was a human being, friendly, and familiar with me during this critical time.

As one can see, all the cases were talking about long time of observation, which made them bored. One can conclude that their observations were not at a professional level. Maybe they were not serious about this important process. Because the observation itself is considered a first task that the student teacher passes to be able to go through the next steps. At the same time, the phases of the observation need to be organized in a new order. So that we are (as a supervisor) familiar with these complaints of our student teachers, especially about the long time of observation. This point should be on the desk of decision makers in the University of Jordan. At the same time, the student teacher needs to be aware about the purposes and advantages of the observation. The most time of the first month went to the observation. It is difficult to imagine that a cooperating teacher and a student teacher spending many hours weekly in the classroom without communicating. This type of communication is dropping or missing through the first month of observation. The cooperating teacher should be aware of this fact. Moreover, both the teachers and the trainees should be aware of the expectations of Jordanian society, and the expectations of educators who are looking for instructional strengths as well as need improvement.

We believe that the first month of observation, especially the phase of Mathematics classes is a very important opportunity for all sides of the training process. The purpose of this period is to organize a discussion between the co-operating teachers and the student teachers, and this discussion should follow the lessons as soon as possible.

One of the cases said that: "observation time is just listening, not useful".

This statement of the student teacher as she commented in her self-report highlighted the whole situation of the observation month.

6.4.2 Partial practice

This stage of the training course is a very important one, because the student teacher should perform some parts of the lesson. While the co-operating teacher should play the role of supervisor as a mentor. The philosophy of this stage as we understood (as a supervisor), is to train the trainee the main tasks and movements of the teacher inside Mathematics classroom. While the role of the supervisor is to participate in the process of training in the classroom, besides the role of evaluation in the purpose of given feedback. This feedback should discuss the atmosphere of cooperation from the sides of: the supervisor, the co-operating teacher, and the trainee. These were the main features that characterized the partial performance period.

The following table (table 17) shows the situation of the trainees and the training process itself during the second month, which included the partial performance of the student teachers

Table 17
Situations of cases study in the partial performance phase.

Cases	Situations
1	The 1 st chance to talk with pupils was very hard. I wanted to talk a lot, and this was a negative point of feedback from both the supervisor and the teacher. I made 2 mistakes during this critical period; I discovered my mistakes by myself. My strategy of teaching was just to tell the pupils the information, without fostering about pupils learning. Moreover, I did not care about the variations or the other solutions. I satisfied myself with imposing my solution on the pupils.
2	My relation with the pupils improved gradually. They felt the importance of my teaching. They were interested in listening and they participated very well. Grade five was my problem, to guide them and to achieve the goals of teaching. All the time they complained: “we don’t understand”. I motivated them and tried to do some special activities “worksheet”, which was considered efficient as individual work. The supervisor oriented me: “what should I do and how”, I think, our talk about: methods, evaluation technique, and classroom management influenced my performance.
3	The second month gave me confidence in teaching. My concern became directed to dealings with pupils. I made good relations with pupils, which enabled me to perform in a good way. The supervisor encouraged me to continue in this direction. The biggest problem for me was lesson planning.
4	I am closer to the pupils, but my problem is to face the class. The teacher helped me to pass this critical period. I made complete lessons influenced by the model of the teacher who motivated me to do this dangerous step. I became very happy when I reflected on what I had done. I concentrate my work in preparing the lesson plan, which became as easy task for me.
5	Everything was going smoothly in my class. Now, I taught, as I plan, not as the teacher wanted. My beliefs about lesson plan reached the point of satisfactory. Moreover, teaching without planning is just talk without meaning.
6	My duty is just 15 minutes. It is to prepare the lesson by preface, to organize a discussion, and to guide the class in solving the textbook problems. The performance was suitable in grade seven but not in grade ten The interaction in my classes was very exciting, because I concentrated on preparing a suitable technique of teaching, motivating, and participating in the lessons.
7	I have a problem standing in front of class, and movement in class. My voice can’t reach all pupils. It is not easy to face all the pupils. I was suffering during this period. I took the role of teaching in one section, while my role in the other was just to observe the teacher. We organized a discussion about our performances. This way made me aware of many practical issues. I was concerned with pupils’ learning, group teaching, and individual work by worksheet.

As one can see, there are changes in many aspects of the performance of the student teachers. They started to talk about their awareness of some practical issues: effective learning, effective methods, and communication skills. Moreover, their concerns about their pupils’ learning which were raised at high level. The important change that happened during this period was the care of the trainee about pupils’ learning.

6.4.3 Complete practice

This stage started at the beginning of the third month of the training course. During this stage the student teacher usually performed a complete lesson under the supervision of mentor. The co-operating teacher started to play the role of observer as a mentor.

The first month of this stage (third month of training course) is programmed to give the trainee some of the load of the co-operating teacher. This procedure was applied to give the trainee the time to reflect on his or her performance, and to think about how it should be done. At the same time, there was a chance to observe again the co-operating teacher when he or she performed the other half of the load. This chance wasn't repeated next month, it should be valuable for the trainees.

The following table (table 18) shows us the changes of the situations in some cases during the third month of teaching that characterized full practice teaching; I mean where the student teachers perform the whole lesson (45 minutes).

Table (18).

Changes in the performance of S.T. in 3rd month of practice teaching during the training course at schools.

Cases	Main changes
1	Today, I am concerned about the lesson plan. I focused on pupils-centered methods: how the pupils discover knowledge. I was interested to hear their answers (variations) about one question. I still have a problem in classroom management. The co-operating teacher has the same problem too.
2	The teacher forced me to apply his vision in all steps. Lesson planning, worksheet, and using materials were the important aspects of my teaching. I could not motivate my pupils. Teachers in school have the same problem too.
3	Regular visits of the supervisor, which enhanced my insight to be aware of my performance in the classroom. Lesson planning was interesting work for me. I was looking for feedback from the supervisor. The interaction was improved at the satisfactory level.
4	I taught lessons without difficulties. The teacher observed me and gave me feedback. The supervisor motivated me when he attended one of my lessons. His feedback was useful especially when he pointed out lack of pupils' participation in the lesson activities.
5	I performed lessons but I was still afraid when I faced the class, especially when the supervisor came to attend the lesson. The teacher interpreted the lesson for me, gave me some comments, which created a problem for pupils, and me. She started to play the role of the supervisor in observing my performance and writing feedback.
6	I made complete lessons very early. Lesson planning became easy work for me. I made some successful practice in grade ten. My feeling; I acquired many teaching skills.
7	My feeling and beliefs towards school improved. My concerns focused on pupils' learning. Questioning characterized this period of time. But I still have a problem in formulating question to be understood from the pupils. Interaction and classroom management automatically improved as a result of the changes in methods of teaching.

At the end of the third month of training course. We note that some problems started to disappear among the majority of the cases. For example; we didn't hear about the story of

being afraid to stand in front of the class. Also the following aspects of teaching: Lesson planning, classroom management, methods of teaching (questioning), and dealings with pupils are changing from a high level to the low. Maybe they did not represent complains for the student teachers.

The following table (table 19) illustrates the final situation of the student teachers' performance at the end month of the training course.

Table (19)

The S.T. performance in the fourth month of the training course.

Cases	Situations.
1	More coherence with pupils. Methods became pupil-centered. Classroom interaction and pupils' participating improved which influenced the classroom management to become comfortable. I prepared exams. I participated in two trips. Many things changed after those trips: pupils more closer to me; and the teaching became more efficient. While preparing lesson plan and implementation had improved to the point to enable me to do my work in successful way.
2	Last month was interesting; many aspects of performance were improved to be satisfactory for both the supervisor and me. I evaluated teaching by making exams; this experience was successful because I had the support of teacher as much as possible. I am still having problems in classroom management in one class, who cause trouble for some teachers. I was going deeply into their behaviors to change them, but I couldn't do better than the others.
3	My responsibility increased because I performed 22 lessons weekly. Pupils became closer to me. While the supervisor pushed me to do the best which made me thinker about each step of teaching. I prepared the final exams
4	Visual aids, and materials, became a main parts of daily lesson plan. Methods, communication skills, and classroom management had improved to satisfied point. My concern center to the pupils. I started quizzes to chick pupils' learning from time to time. I made final exams.
5	Pupils were closer to me during this period. They were interested in my teaching. I made some exams, worksheets, with the support of the cooperating teacher. Visual aids, and some materials were used in some classes. My awareness improved and was influenced by reflection about what I have done or/and what I shall do in future. I prepared the final exams.
6	Self-confidence increased while the supervisor said to me "you are aware of your work". Both the teacher and the supervisor supported me during this time. I made 2 mistakes during this time, but no body knows about this. I made good performances during the week when she was ill. I prepared final exams.
7	I became closer to my pupils. The cooperating teacher dealt with me as a teacher. She considers me a teacher. The visits of the supervisor made me comfortable. I prepared the final exams.

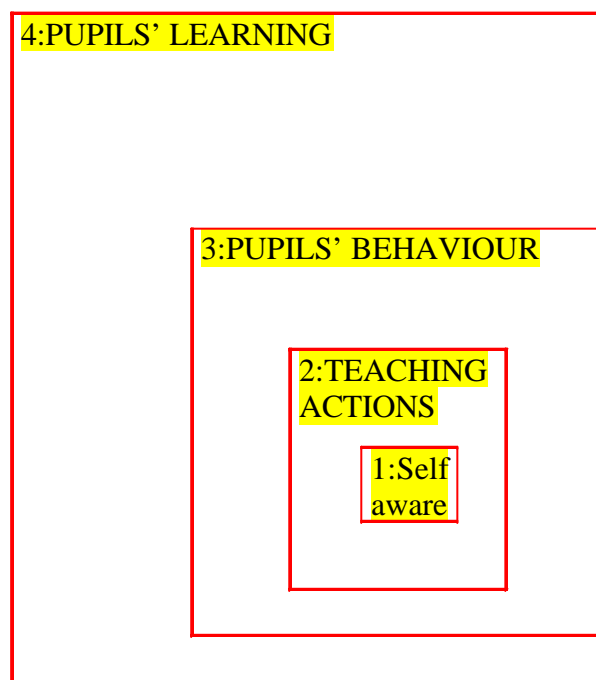
At the end of the training course; we have to read the last month of the student teachers that rose in the self-reports. This reading should be in very quite thinking in order to conclude results relevant to research questions. The reader maybe notes through the cases and/or through the final phases of the training course, how were the changes of the performance's aspects improved during the time of training course. Especially in some areas: lesson planning, methods of teaching, classroom management, assessment of teaching, dealings with pupils, care about pupils' situations, pupils' learning, and some issues referring to the teaching/learning process. For example; one issue raised on the peer related to the behavior of the teacher through the discussion and through the question that asked the pupils, he/she

changed the way of searching about more responses of pupils (variations) in one central issues including the question. This behavior itself reflected the new thinking of the student teachers about the philosophy of discussion or questioning inside the classroom. So that the student teacher centered the teaching process to achieve the pupils' learning goals.

On the other hand, if we look at the student teachers' perspectives about their performance in Mathematics classroom, as they mentioned (see table 19), we can imagine and understand the phases of their growth and development during the time of the training course. Those phases started from themselves as persons by interaction with their pupils through the media, methods, communication skills and others. And after that, their focus automatically moved gradually to pupils' learning. This movement depends on the ability of the student teacher; it is different from one case to another. They highlight some factors that relate to the teachers professional growth through their preparing in pre-service teacher education.

The following diagram shows us how their cares developed from the self aware throughout the teaching action, dealings with pupils, and pupils' learning:

The development of the student teachers' concerns during the training course.



The second stage, student teachers became more open to discuss problems and how to solve them. This maybe an ideal time to focus on lesson planning. The student teachers may have ideas about different approaches or outside resources, but they need encouragement in developing lesson plans. Supervisors and co-operating teachers can help student teachers to talk about their concerns and to develop effective approaches, which help them in their development.

Those student teachers that develop to the fourth stage are receptive to teacher's responsibility for pupils' learning. At this time supervisors should encourage the student teachers to express their ideas and to evaluate their own teaching by using reflection.

At the end of analyses of self-reports, we will determine the factors, facilities, and difficulties as perceived by the trainees. The following table illustrates these issues.

Table 20
Summary of the self-reports comments

Cases	Factors	Facilities	Difficulties
1	Social skills of trainee. Co.T. has a problem in classroom management.		Observation month, (guest, unknown). Did not care about variations, compel pupils with one solution. Classroom management.
2	Relation with pupils Time of training.	Relation with pupils Co.T. as a professional expert	Observation month (long time, no touch with pupils). Classroom management (in grade 5). Motivate pupils.
3	Regular visit of the supervisor.	Relation with pupils.	Observation month (killed me, boring). Lesson planning.
4	Co.T., Supervisor. The concentration in a task. “I concentrate my effort in lesson plan, it became easy work”.	Co.T. “teacher helped me to pass this critical period”.	1 st week in school very hard. Facing the class.
5	Beliefs Co.T.	Feedback of Co.T. Reflection	1 st three weeks in school made me confused facing the class. Co.T. interpretation during the lesson.
6	The concentration on the task. Supervisor. Co-operating teacher.		Observation month (boring, no practice).
7	Visits of supervisor. Beliefs Teaching methods. “classroom management and class interaction improved automatically as a result of new methods”.	Discussion between trainee and teacher about their performance.	Observation month (long time, boring). Poor communication skills made me isolated. Facing the class. Formulating the question to be understood from the pupils.

Now, at the end of the discussion, the whole findings are in our hands, we will summarize the main findings in the following table (table 21). This table focuses on the aspects of performance and the four main tools through the first analysis. This table will help us to use the two directions of analyses which explain the data analyses approach in the methodology (see chapter 3).

Table (21)
Summary of the findings on the bases of performance's aspects.

Aspects of performance.	Videos (V2, V3).	Interviews	Questionnaires	Self-reports
Lesson Planning.	Weak in plan V2 and still in V3. See table 5. The mean percentage of the development is 64%. See T-3.	There is a problem in preparing plan at the beginning. See T-9.		<u>The beginning:</u> Problem, Believes, T16, 17 <u>The end:</u> Care about plan, Easy work, Improving. T 18 and 19.
S.Ts'. Content Knowledge.	Not a problem for the majority. The percentage of the development is 43%. See T3.	No problems at all, the level of S.Ts'. Content knowledge is very high. See T9.		
Methods of Teaching.	<u>Used:</u> Traditional approach, Questioning technique. The mean of improvement is about 60%. <u>Not used:</u> problem solving approach, Inquiry forms.	<u>Used:</u> Questioning technique. <u>Not used:</u> Problem solving, Different responses for one question, Group work, Presentation, and Discussion centered pupils.	Influenced by content Knowledge of both S.Ts. and pupils.	<u>Beginning:</u> Tell the information, Don't care about: discussion, Variations. Care about: Worksheet, Individual work. <u>Ending:</u> Care about variation, Individual work, Questioning, and Pupils' learning.
Classroom Management.	There is a problem in v2. No problem for the majority in v3. The improvement is 50%. See T-3.	Affected by: S.T. Personality, Beliefs of S.Ts.' about pupils' needs, and pupils' learning, Social skills. Teaching methods, Lesson plan. Following up. See T-9.	Influenced by: Knowledge of pupils, Mastering content knowledge, Relation with pupils, Level and type of the class, S.T. mood, Arrangement of the lesson on the timetable.	<u>Beginning:</u> Dealings with pupils, Different problems. <u>Ending:</u> still having problems: motivating pupils, lack of interaction. Methods of teaching affected the management.
Assessment of Teaching.	No chance in v2. No problem in v3 at all. The development is 85.7%. T-3.	Evaluation system very new, exciting. S.Ts. made exams perfectly at the end.		<u>Beginning:</u> no chance at all. <u>Ending:</u> prepared the most exams. See T-17, and 19.

At the same time, we tried to reflect the findings versus the points of the study, we mean, some findings categorized as the factors related to the development, obstacles blocking the growth of the development of the student teachers, and the facilities that support and help the development of the performance. The following table (table 22). Shows these details:

Table 22.
Summary of the findings on the bases of the points of the research.

	Videos.	Interviews.	Questionnaires.	Self-reports.
Factors , which influence the development of performance.	Co-operating teacher. S.T. Personality. Level of class. Type of pupils. S.T. Skills. Social skills. Quality of lesson plan.	Lesson plan, personality of teacher, teaching strategies, teacher's knowledge, certain role for pupils, social skills, the mood of the teacher. See Table 9.	Relation to pupils and co. T, Profession: Weekly meeting, Practical knowledge, Reflection. Pupils' knowledge. See table 15.	Support of Co.T. And supervisor. Relation. Feedback (regular visits) The time of training. The concentration on the task. Beliefs. Teaching methods. See table 20.
Obstacles.	Teaching method: traditional, lack of strategies. Lack of experience in: lesson plan, class management, media, and assessment during the implementation. See table 5.	Methods of teaching: problem solving, materials, discussion, and group work. See table 9.	Pupils' characteristics. Understanding the pupils. Teaching high class (grade 10). Improving practice. See table 15.	First week in school. 1 st .month of observation. Observation not ordered/randomly. Lesson plan. Classroom management. Reaction. Teaching methods Motivation. Facing the class. Variations. Communication skills. See table 20.

Facilities.		Relation with pupils. See table 9.	Relation to pupils ,Su., and Co-T. Profession: Weekly meeting. Microteaching. Visit between trainees. Feedback. Number of visits. See table 15.	Relation. Feedback. Co-T. Reflection. Discussion between Co-T. and S-T. See table 20.
Supervision			Feedback was useful and practical.	Good relation. Main source and counsellor. Supporter.
Development with time .	Two stages: 1 st .: v1 → v2 is 57% → 64%. 2 nd .: v2 → v3 is 64% → 75.5%.	Assessment of teaching was great and perfect.		