Lecture # 07

"Kinds of Knowledge and Assumptions of Teachers"

Lecture objectives:

By the end of the lesson, you will have:

- Identified different kinds of knowledge i.e. declarative, procedural and metacognitive.
- Identified lecturing, direct instruction and cooperative learning methods as useful teaching methods.
- Identified some key assumptions of teachers.

Outline:

- **Declarative knowledge**
- **Procedural knowledge**
- **Metacognitive knowledge**
- **Teaching methods use to teach declarative, procedural and metacognitive knowledge.**
- **Key assumptions of teachers**
  - **If teachers do not teach, students do not learn.**
  - **Learners learn best by working alone.**
  - **Learners need feedback on everything they do.**
  - **Students' tests indicate their learning.**
  - **Intelligence is a fixed capacity.**
  - **People learn in the same way.**

Look at the following learning and place them in three different categories:

1. Using dictionary
2. Types of pollution
3. Dissecting frog
4. History of Pakistan
5. Community service

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6. Research on school pollutants
7. Solving problems
8. Working in teams

In category 1: While learning about pollution and types of pollution, you are using your brain whether you are reading books or a teacher is telling you that these are different kinds of pollutants and environmental pollution is caused by these things. These are different ways to stop environmental pollution. These things that you are studying are becoming part of your memory. In the same way, history of Pakistan. To learn different facts and concepts are part of your knowledge. This kind of knowledge is called **Lecturing – Declarative Knowledge.** When you are learning in such a way that you are declaring knowledge. Knowledge that has been declared either in the form of facts or in the form of concepts.

In category 2: There are two things, dissection of frog and using dictionary. Knowledge of such kind is **Dir]ect instruction – Procedural knowledge.** If you want to search any meaning from the dictionary, you need to follow a certain procedure. In the same way, if you want to dissect a frog then you have to follow instructions.

In category 3: There is problem solving, community service, working with others, research on school pollutants. This is a knowledge or skill that if a problem has occurred in front of you then you are able to solve that problem. Working with others doesn't mean that you are working in a group. But you have to solve the problems while working with new kind of people. Similarly, when you are going for a community service, then you are working with the people. If you have learnt to live with the people then you can handle community service. Research is not something that is in your mind that you can conduct research in such a way. But it is actually practically conducting research. This is **Cooperative groups - metacognitive knowledge.**

1. Lecturing – Declarative knowledge:

This is the knowledge that is declared in books, research papers, newspapers or you acquired that knowledge from your elders/teachers. There are two parts in this knowledge: **facts and concepts**. **Facts** are something that you memorize e.g. Pakistan came into being on 14 august 1947, this is a fact and students learn it as it is.

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There are many facts in general knowledge books of elementary level, and this is called declarative knowledge because it is the collection of different facts and students memorize it. **Concepts** are Newton's law, rules of grammar, writing patterns, and we say that these are also part of our declarative knowledge. Unfortunately, we very much focus on this declarative knowledge. We think that this is the most important knowledge and we used to test our students on this knowledge.

2. Direct Instruction – Procedural knowledge:

This knowledge is a step ahead from that declarative knowledge. In which you have acquired the knowledge but still you need to know its procedures as well. E.g. you told a student that a frog is dissected in such a way, and its steps as well. And then you ask him about it by a written test that "what procedure is to be followed while dissecting a frog." A student gives the answer by stating all the steps of dissection. But procedural knowledge doesn't mean knowing the procedure, e.g. you know many recipes of baking, may be you have read them in books or listened from anyone. It doesn't mean that you can cook them as well. Every student has different potential of learning. If you teach them to use dictionary, all students may not use it in the same way. Some students may find the word "Alter" by going through every page of alphabet A. But some will directly browse to the page where words start by AL and will find the word. So, every student has its own procedure to learn something and that is procedural knowledge peculiar to that person. Procedural knowledge is not memorizing the procedures but which you have acquired through doing that procedure. Another thing that is involved in it is practicing. The more you practice, the stronger will be your procedural knowledge.

Teachers are just concentrating on covering the syllabus; they don't take the students towards procedural knowledge even. We do not allow the students to use the scientific apparatus in the labs. We show them the things in the classroom by demonstrating we are afraid that the students may not handle the apparatus carefully and it may broke. Unless we do not allow them to use the apparatus, there is no procedural knowledge. All the skills are part of the procedural knowledge and these can be learnt only by doing.

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3. Cooperative groups – Metacognition:

According to Wikipedia:

"Metacognition is cognition about cognition." E.g. a child does not know the concept of evaporation, but he learns that what he should do to learn the concept of evaporation. That is metacognition. We categorizes this knowledge and in that the first thing was problem solving, having great declarative knowledge does not mean that you can be a good problem solver. Problem solving is your part of metacognition and it means that in a new situation, you can apply/use your declarative knowledge. You can transfer your learning in a new situation. So this is also called as **transferable skill.** You may call it application of application. Creativity is also a part of metacognition. Learning to learn is metacognition. Metacognitive knowledge is actually of least focus in our schools. There is no focus of metacognitive knowledge in schools rather we teachers are not aware of that.

What are the methods to promote these three kinds of knowledge?

- Lecturing is the procedure to gain declarative knowledge. Because you just need to deliver facts and concepts. There are some teachers who organizes group discussions in the class, so declarative knowledge can be gained through discussion also. Through discussion, you can take the students to metacognition as well.

- Procedural knowledge is gained through direct instruction. You have to tell the student directly what he has to do. E.g. when students go into the schools, they learn to write different alphabets. The teacher is telling them how to write different alphabets. A child who is newly admission in the school could not follow the teacher, if the teacher writes all alphabets on board and ask them to copy. But he has to tell them by holding hand that how to write the alphabets. Hand writing is a skill and to teach this skill to students, teachers need to give them direct instruction by holding their hand and teaching them. So, direct instruction can be useful when you want to give procedural knowledge. You can never give the procedural knowledge through lecturing. Equipment handling is also an

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example of procedural knowledge. You have to guide every student that how to handle or use the equipment. It is not only that teacher shows them to use the apparatus. Procedural knowledge is acquired only through practice. So when we are expecting a child to do something or his skills should be improve, then we need to give them direct instruction and feedback.

- Metacognition is gained through problem solving. Definitely, if you do not give the students problems, they can never learn to solve the problems. So we need to give students such activities or tasks that involve their thinking and practical application as well. Team work is an important skill/knowledge that is metacognitive knowledge and it should be taught to the students. You can never give the students this knowledge unless you do not allow the students to work in groups. So, through team work you learn how to work in groups, how to resolve conflicts. Whenever you work in groups, there are many conflicts and disagreements. Metacognition is based on metacognition of declarative knowledge and metacognition of procedural knowledge.

Teacher's assumptions:

1. **If teachers do not teach, students do not learn.**

   Research says that students can learn by themselves, if there is no teacher. It is the responsibility of the teacher to maximize their learning time. They must facilitate the students so that they can reach to the maximum of their potential. This assumption is not true and it is also a misconception, because every student has its prior knowledge and if we do not test their prior knowledge, the students do not participate actively in learning. We think that we are going to teach the students from the beginning but it seems meaningless to them.

2. **Learners learn best by working alone.**

   Whenever we assign students a task, we want them to do it individually. If a student does not know something, we say that ask me, not your peers. We do not allow them to work in groups. There are two attitudes of teachers; firstly, we know that students cannot learn

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without a teacher, being a teacher we are in a superiority complex that we know everything. Secondly, we say that students can learn individually or by working alone. We should not hold this assumption; we should hold this assumption that learning takes place best when there is some social or group orientation. As we study earlier that **learning is a social process**, if learning is a social process then we need to believe that learning takes place when children work in groups. If students are working alone and they do not succeed. Their self-esteem becomes very low; they think that they cannot have the things done. If they can have a helping hand, their self-esteem becomes higher.

3. **Learners need feedback on everything they do.**

We always try to give students feedback and that feedback is of very low level that has no educational value. e.g. the words poor, good, excellent are the words used as feedback. We assume that if we do not give feedback, the students cannot learn. We develop attitude in students by feedback, students think that teacher will not check the homework so why we do it. This is because we cannot make learning enjoyable for them. Learning itself is a pleasure process. If the students will do everything for getting good feedback from the teacher, then definitely they will not develop habit of life-long learning. If we want them to be life-long learners, we must make them self-motivated.

4. **Students' tests indicate their learning.**

What do we do in classes; there are tests on our mind every time i.e. weekly tests, monthly tests, mid terms, final exams etc. unfortunately, every examination tests only the factual and conceptual knowledge of the students. And we think that we know who the brilliant students of our class are. It is not true because these tests are not associated with their learning. To test the learning there are many other possible ways, if we want to judge a student in art, we will ask him to draw something on the paper rather we ask him to write down on the paper how to draw things. Similarly, if we want to know how good a student can present, then we will ask him to present something and in this way, we will judge his communication and presentation skill. It is said that English language teaching focuses on four things; speaking, listening, reading and writing. But in our board exams, students' reading comprehension ability and writing is judged.

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We only judge their writing skill and never allowed them to speak in English, then how they can have command on English speaking skill. This is also a misconception that students' learning is always assessed by tests.

5. **Intelligence is a fixed capacity.**

   Research says that IQ is not enough. There are multiple intelligence theories which say that every student has his own intelligence. Some students have more special intelligence, some students have interpersonal intelligence. There is a major focus on emotional intelligence. It is expected from schools that teachers must develop the emotional intelligence of the students as well. IQ is a redundant term these days. We make ranking of the students that these students are brilliant, these are of average intelligence and the others are low achievers. We mostly use the word in the schools and we feel satisfied by the word and that is 'slow learners'. Learning depends on prior learning; everyone can be a slow learner in a new situation.

6. **People learn in the same way.**

   People have different learning styles. But we teachers assume that all students learn in a same way. We use the same teaching method in the class and assume that every student has got the lesson according to our expectations. We are diverse people, we have diverse learning styles. So being teachers it is our responsibility to use those teaching methods by which all students can learn well. We are decision makers; we have the autonomy to decide what we are going to teach and how we are going to teach. How to assess the students. But we have to fulfill our responsibility also that we should teach every student with justice.

So, these are some assumptions that need to be challenged. We have to develop ourselves professionally and the necessary things for growth are knowledge, experience and reflection.

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