TALE - 2 Course Design and Instruction of Engineering Courses

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Lecture - 35
So, What should the Teacher do?

Greetings and welcome to Module 3 Unit 17 which constitutes the final unit of the TALE 2 course, and here we have titled it, "So, What should the teacher do?"

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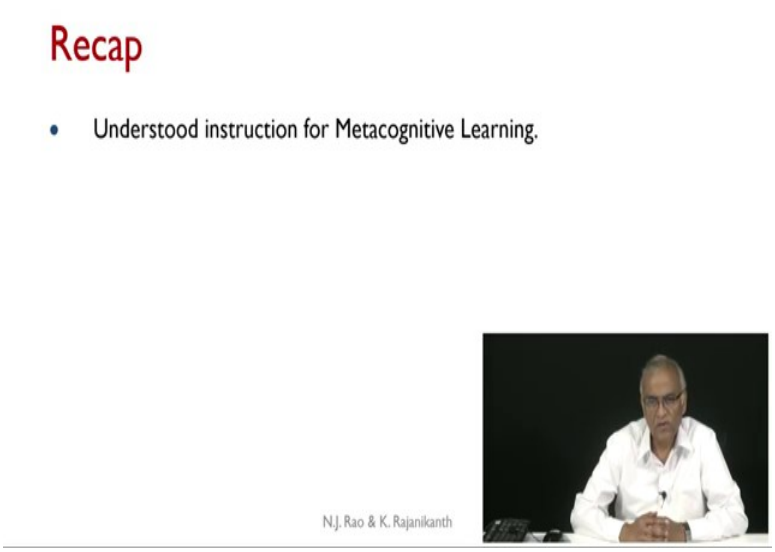

In the earlier unit, we understood the instruction for metacognitive learning, and if you look at all the previous units, we looked at various types/approaches to instruction and some theories of learning, instructional components, how the brain learns. Some of the activities that are related to that are based on learning by the brain. In TALE module 2, we looked at how to design a course to meet the requirements of outcomes specified by the NBA. Then we provided a framework for designing a course which was called ADDIE, and we looked at all the phases of ADDIE. Now, having presented all these, what can the teacher do?

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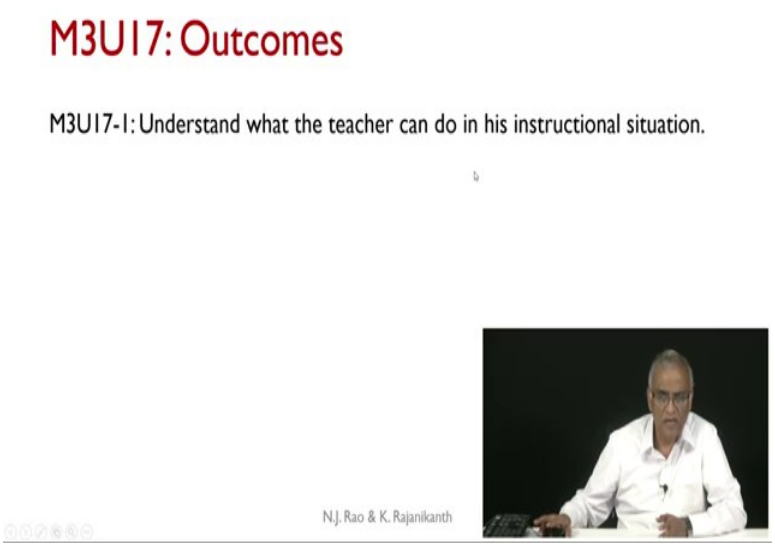

One of the first reactions is likely to be ‘yes, it is all nice to hear, but what can I do in my particular instructional situation?’ So, we will try to explore where we try to understand the context in which a teacher is operating, and within that context, what is it that it is possible to do. The primary outcome of this unit is to understand what the teacher can do in his instructional situation.

The instructional situation will include everything; the management, the head of the department, the way the department is organized, the resources that you have, the kind of classrooms that you have, who decides what is to be done. Some of the processes can be very rigidly defined, and you have all issues that are related, which provide a framework in which the teacher has to operate. One can put all these under the heading of an instructional situation.

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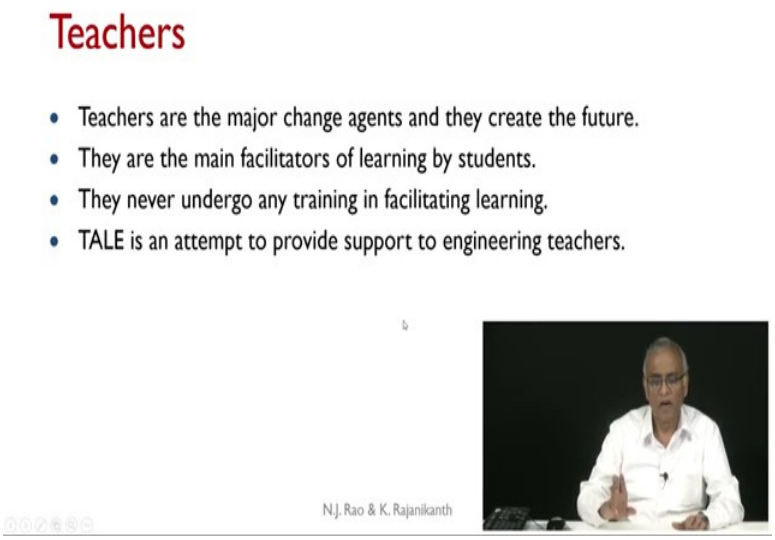

The first thing the teachers should realize is that they are the primary change agents, and they create the future. You are creating the future, the future you are creating is the trained students of your program, and you are responsible for their knowledge levels or their abilities. So, you should feel proud that you are the change agents. Teachers are the main facilitators of learning by students. They never undergo any training in facilitating learning, even though their main job is to facilitate learning. Unfortunately, in India and many other countries, when one becomes a teacher in higher education, there is no training given to him in teaching and learning.

When you took a postgraduate degree, you qualified yourself in a subject. However, knowing a subject is different from the actual process of facilitating learning. You should first acknowledge to yourself that you are not trained in facilitating learning, and you need to learn. TALE is an attempt to provide support to engineering teachers. TALE 1 Module 1-3, hopefully, provides support to all engineering teachers to fill the gap of not undergoing training in facilitating learning.

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Let us look at engineering education in India because we are operating in this context. India has a three-tier system for engineering education: universities and deemed to be universities, autonomous colleges, and non-autonomous colleges. Universities, including private universities, can design their own programs, they can select students as per their requirements, and they can conduct their own examinations and so on. Whereas autonomous college is still affiliated to a university, but they have autonomy with respect to the curriculum design, conducting the course and the examination, but following guidelines stipulated by the university to which they are affiliated.

Whereas, non-autonomous colleges are affiliated to universities, and as you all know, everything is decided in a central place. The curriculum is designed by the Board of Studies of the University; the examination is conducted by the university centrally, and all the processes evaluation, results declaration are made by one central place. Centrally funded institutions - IIT's NIT's and some Central Universities and a small number of semi-public institutions like IIIT's, recruit faculty, and admit students through an elaborate selection process. When you select your faculty and students through a very elaborate process, then you are assuring good quality faculty and good quality students.

Teaching and learning that takes place in such situation are very different from the other institutions; whereas, self-enhancing private universities are also of varying quality; some are good, but some are practically like autonomous colleges. More than 90 % of engineering colleges in India are self-financing and non-autonomous institutions. Our

focus now will be on teachers who are working in the self-financing non-autonomous institutions.

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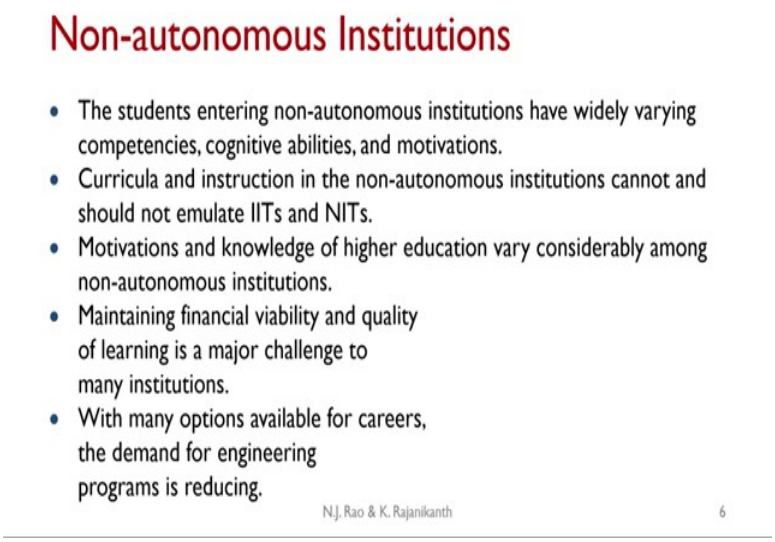

What is the nature of these non-autonomous institutions? The students entering non-autonomous institutions have widely varying competencies, cognitive abilities, and motivations. If you look at CET ranking as an indicator, you will have CET ranks in the range of 30,000. The minimum requirement is now has come down to something like 35 percent or 40 percent marks at the pre-university level.

Their motivations and competencies vary very widely varying, and in such a situation, the curriculum and instruction in the non-autonomous institutions cannot and should not emulate those of IITs and NITs. Unfortunately, that is a mistake people do whenever a curriculum is to be designed. The Boards of Studies of these universities look at the IIT curriculum and try to imitate, or in fact, add more content to the IIT curriculum, which is precisely the opposite of what they should be doing.

Motivations and knowledge of higher education vary considerably among the non-autonomous institutions. What it means is these non-autonomous institutions are set by a large variety of people who create educational trusts. If you look at their background, it varies - they could be industrialists/politicians/business people (business people in the sense they could be sugar barons) name anything - have all kinds of people who establish these institutions.

First of all, why are they creating an institution? Though whatever they write on a piece of paper may be all right, but what are their personal motivation and their knowledge of higher education? What exactly constitutes higher education? That will vary considerably among different managements

Once the institution is created and maintaining financial viability and quality of learning are major challenges to many institutions. There are two requirements: it should be financially viable, and assuring the quality of learning. Making these two to happen is a challenge for many of the self-financing colleges.

There was a tremendous demand for engineering programs in the late 1990s and early part of this 21st century. But, slowly over a period of time, the demand for engineering programs is reducing because there are many other viable careers these days. It may be tourism, hospitality management, health care (you name it) there are large types of jobs being created; to that extent, the demand for engineering programs is reducing. That is another challenge that many of these institutions have to face. As you would have noticed that in the last 2-3 years, a large number of colleges got already closed.

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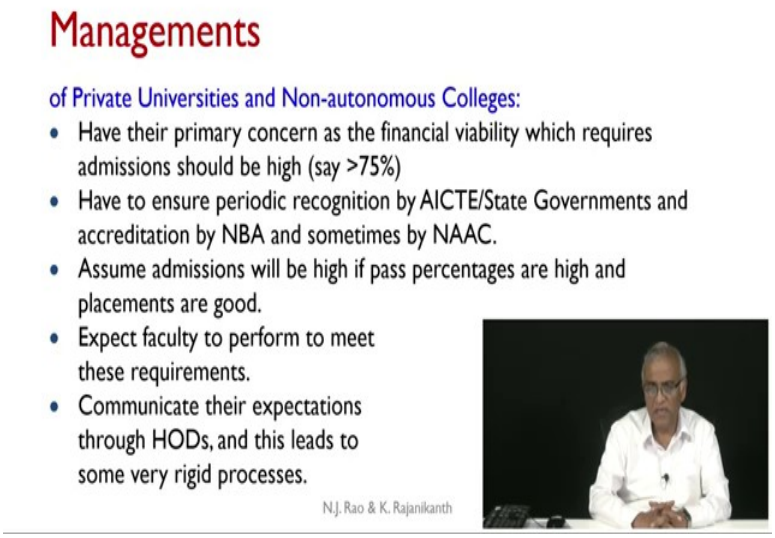

Managements of private universities and non-autonomous colleges have their primary concern as financial viability, which requires admission should be high. Unless at least it crosses 75%, they will have issues related to financial viability. They have to ensure periodical recognition by AICTE, State Governments (which is a requirement), and

accreditation by NBA and sometimes by NAAC. These managements also assume admissions will be high if pass percentages are high and placements are good. This is the general feeling of management.

So, they expect faculty to perform to meet these requirements; that means, irrespective of the quality of the students, the pass percentages have to be high, which actually makes the whole system exert itself to meet this requirement. The management communicates its expectations through HODs. Generally, this leads to some very rigid processes; that means, the teacher may not be permitted to deviate from whatever that has been practiced in that institute; he is not permitted to experiment with anything.

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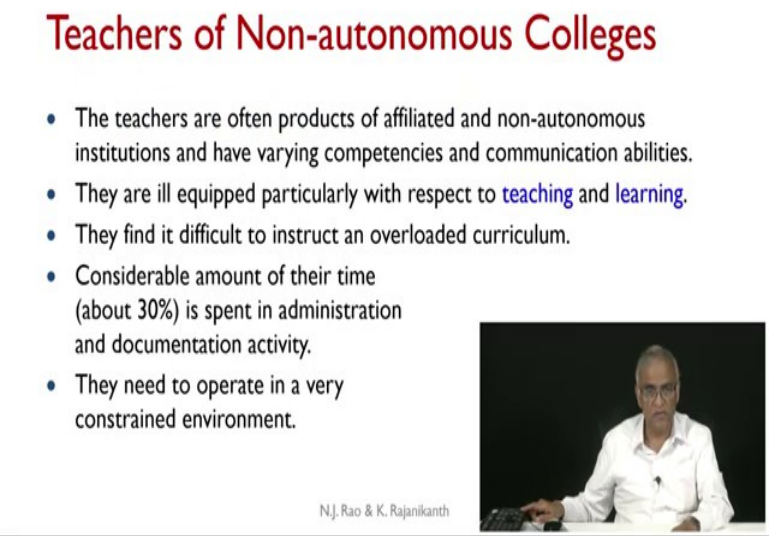

Once again, coming to teachers of non-autonomous colleges, the teachers are often products of affiliated non-autonomous institutions. They themselves have different competencies and communication abilities. After all, you cannot be very much different from the system from which you have come. You have a situation where teachers come with some limitations on their competencies and communication abilities. They are ill-equipped, particularly with respect to teaching and learning, which we have already mentioned because none of them needed to undergo any kind of training.

Teachers find it difficult to instruct an overloaded curriculum. First of all, the curriculum is overloaded to the extent that many times, the teachers end up taking a lot more extra lectures than scheduled. The only way they can cover the syllabus is by using the entire

50 minutes allocated for each classroom period to one-way communication, which is totally against good instruction. Besides this considerable amount of the teacher's time (about 30%) is spent in administration and documentation activity which many teachers resent. In these non-autonomous colleges, they have to operate in a very constrained environment.

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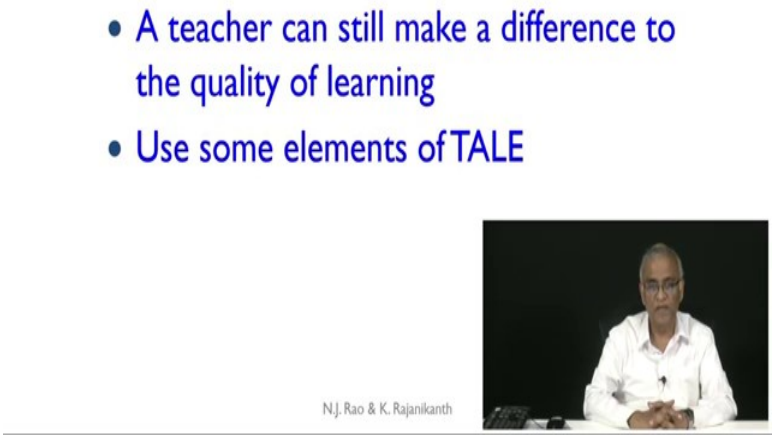

With all these limitations, we say a teacher can still make a difference in the quality of learning. How do you do it? Use some elements from that are provided by TALE.

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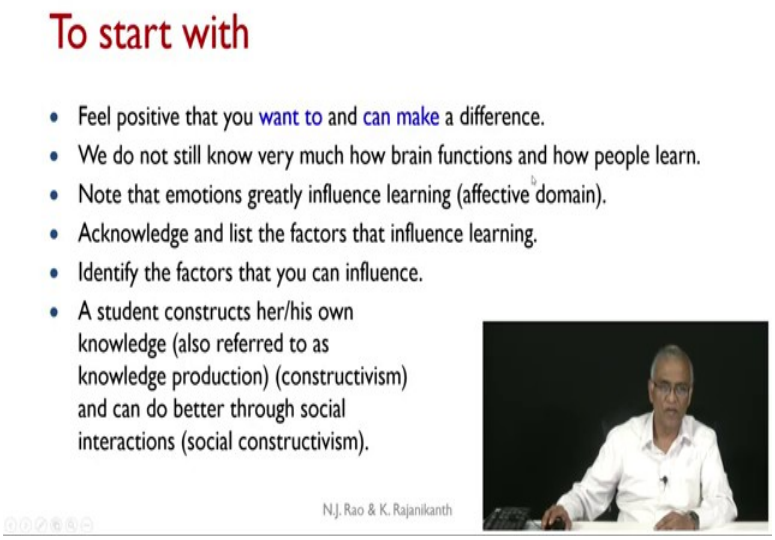

To start with, feel positive that you ‘want to’ and ‘can make’ a difference; unless you feel positive, obviously, you cannot make a difference. You must also feel confident that you can make a difference and there are plenty of examples, and you are not alone. We have seen many people taking initiatives on their own to make a difference in teaching and learning.

The teacher should remember, we still do not know very much how brain functions and how people learn. There is some limited knowledge and also note that emotions greatly influence learning; you cannot keep that aside; emotions do play a major role. How exactly to manage that? We do not know, but at least you have the acknowledge emotions greatly influence learning.

You should acknowledge or identify factors that influence learning and make a list of them and identify the factors that you can influence; all of them you cannot influence. In your context, with your limitations, identify the factors that you can influence. You should remember that a student constructs her or his own knowledge. Constructs also referred to as knowledge production by some people, and this is as per constructivism; that means every individual, every human being constructs his own worldview based on the inputs he gets.

But finally, everybody’s knowledge is different from every other person. Each one creates his own worldview and they can do this better through social interactions; that is what we called in TALE 1 social constructivism. Again you have to acknowledge this is a way the students learn and construct their worldview.

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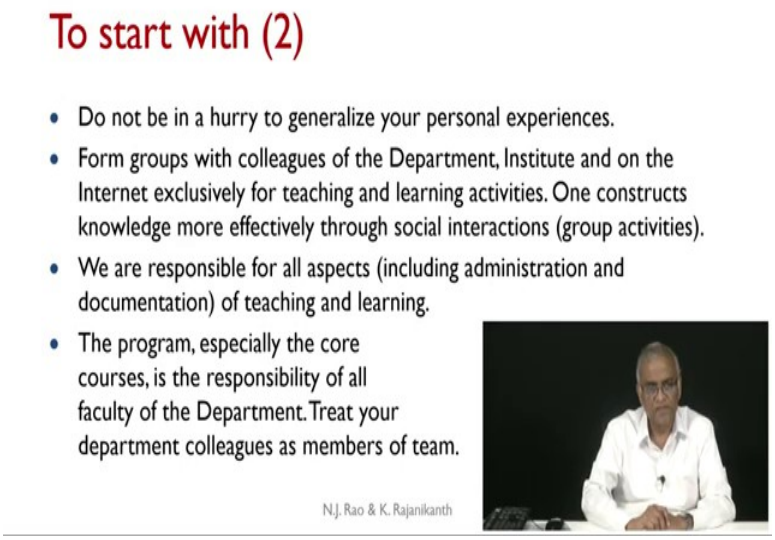

This is one caution; do not be in a hurry to generalize your personal experiences. This practically all people do, say this is the way it has to happen; do not take very strong positions based on your personal experiences. You form groups with colleagues of the department/institute and on the internet exclusively for teaching and learning activities. If you form a group where you share the type of courses that you teach, for each course you can form a group, where you can talk to each other, share with each other, evaluate each other and so on. If you can form a group that will greatly help overcome many of the other limitations. One constructs knowledge more effectively through social interactions, and that is a group activity.

As teachers, we are responsible for all aspects of teaching and learning; that means, sometimes you have to participate in timetabling, sometimes you have to participate in counseling, sometimes you have to look at grievance issues, student problem issues, administrative issues and documentation issues. You cannot say that this is all unnecessary imposition and wasting our time. Once you mentally accept that as a teacher, you are responsible for all aspects, then you will at least do all these work at least as a part of your regular activity, not something that is extra that is imposed on you.

The program, especially the core courses, is the responsibility of all faculty of the department. You have to treat your department colleagues as members of the team. That means when you are designing the curriculum/syllabus/courses of core courses, it is actually the responsibility for all the faculty of the department. It is not one or two individuals who teach that course; it is their responsibility because there are a lot of

interrelationships and interdependencies between courses; they have to be handled; you cannot overload one course and under load some other course. So, you have to address the issue of core courses together as a team.

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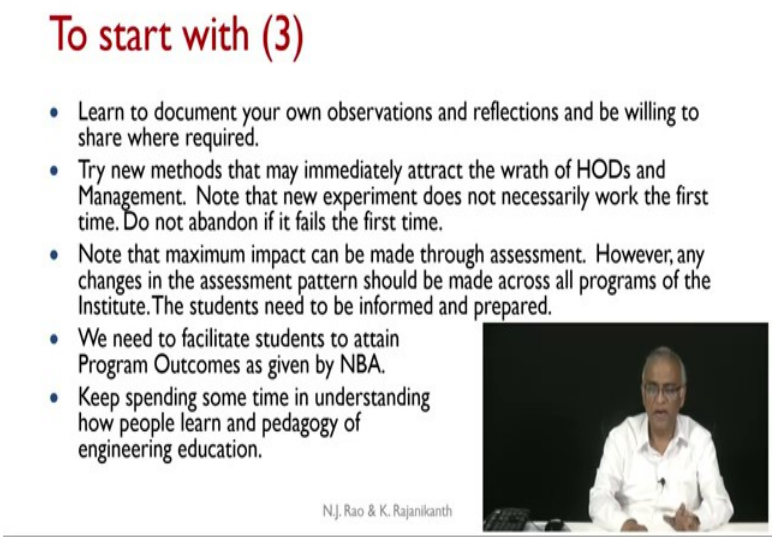

Another good practice is to document your own observations and reflections and be willing to share when required. Keep writing your own notes, 'notes to yourselves,' and try new methods that may immediately attract the wrath of HODs and management. But, note that the new experiment does not necessarily work the first time; generally, it will not. Because, after you try it once then only we will understand all the factors that influence the outcome of your experiment. The second time when you do, you will be able to adjust the entire experiment or taking all these factors into consideration. So, do not abandon if it fails the first time.

Note that maximum impact can be made through assessment; assessment actually as we stated 'assessment drives learning.' However, any changes in the assessment plan should be made across all programs of the institute; you cannot individually change your assessment plans for one course or one program. You have to sell your idea to the rest of the faculty. All of them should agree; once they agree, the students are to be informed and also be prepared that from then onwards, what the assessment plan would be. It cannot be thrown at them as a surprise.

Remember that we need to facilitate students to attain program outcomes as given by the NBA, which is our requirement. This is not just something to be written on a piece of paper. As a teacher, you should believe that all of us have to work with students to make them attain program outcomes as given by the NBA, whether you fully agree with them or not.

You have to keep investing some time in yourself in understanding how people learn , and the pedagogy of engineering education. There is plenty of literature you can get on the internet. You can also get access to books because teaching and learning is your profession. you should also learn that as a subject by yourself. Once you get into the habit of reading the related literature, you will be able to do a much better job of what you would be doing, what you need to do.

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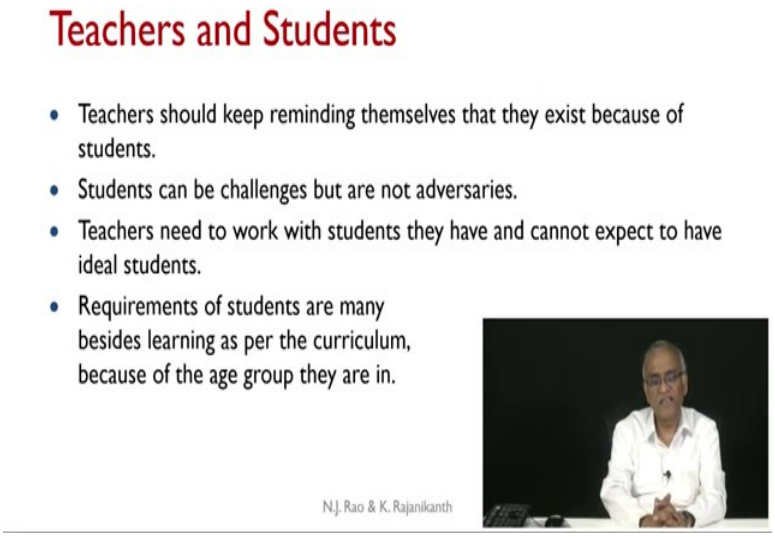

Let us look at teachers and students together; the first thing a teacher should remember or keep reminding himself/herself is that you exist because of students; if students are not there, there is no reason for teachers. Our jobs exist because of the students. While students can be challenges, in a sense, if some group of students has low cognitive abilities, they are not able to solve problems. They should be treated as challenges but as not adversaries saying that they are not interested in learning and we cannot work with them etc. A teacher cannot take that position because, as I said, teachers exist because of the students.

Teachers need to work with students they have and cannot expect to have ideal students because many times, we hear from the teachers that the problem is their students. You know they are not good enough, they do not want to work hard so, you will make such comments, but we exist because those are our students.

Another thing a teacher should remember - the age group in which they come to you that is about 17 to 21, which is a growing age, and the requirements of students are many besides learning as per the curriculum. They are looking at the world on their own terms. Students have many other interests they want to pursue and explore. Sometimes, they fail and get into problems, and some students feel they are in the wrong profession, with which the parents may not agree. You have all kinds of issues that come with that age group and that a teacher should be sensitive to, and there are no universal solutions for this.

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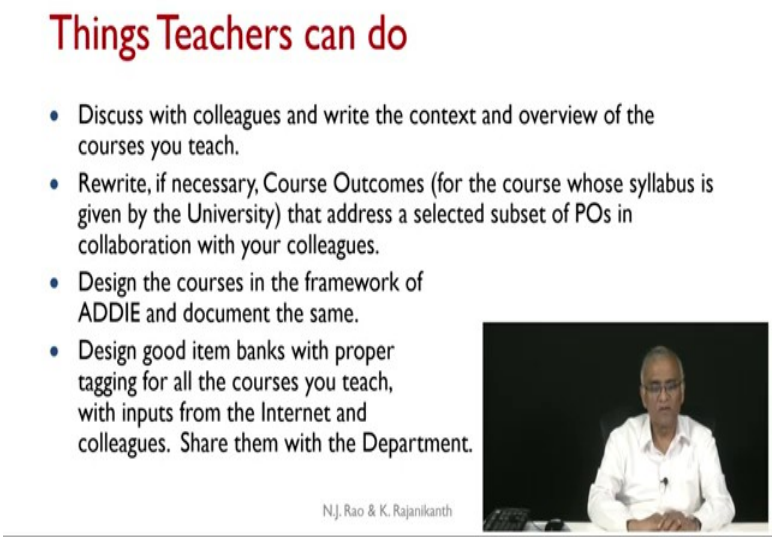

What can the teachers do? We give tips to some activities that you can pursue. Discuss with colleagues and write the context and overview of the courses that you teach. Please document that? What is the context and overview of the course, as we have already said in the analysis phase of ADDIE? Rewrite, if necessary, the course outcomes because most of the Boards of Studies write some course outcomes that may or may not be written in a proper format. Please redo that without changing the syllabus that you do not have any right to change. For the same syllabus of a course, you can rewrite the course

outcomes in a structure that we have indicated in the Analysis Phase of the ADDIE, tagging them properly, understanding why a particular PO is addressed/not addressed, but in collaboration with your colleagues?

Design your courses in the framework of ADDIE and document the same. Actually, the process of documenting itself is the learning process. It should not be seen as a burden; documenting should be seen as one of the processes of learning.

Most importantly, design good item banks with proper tagging for all the courses you teach with inputs from the Internet and colleagues. You have to share this output with the department because the department should not keep losing this resource every time a faculty member changes; cannot start with square zero.

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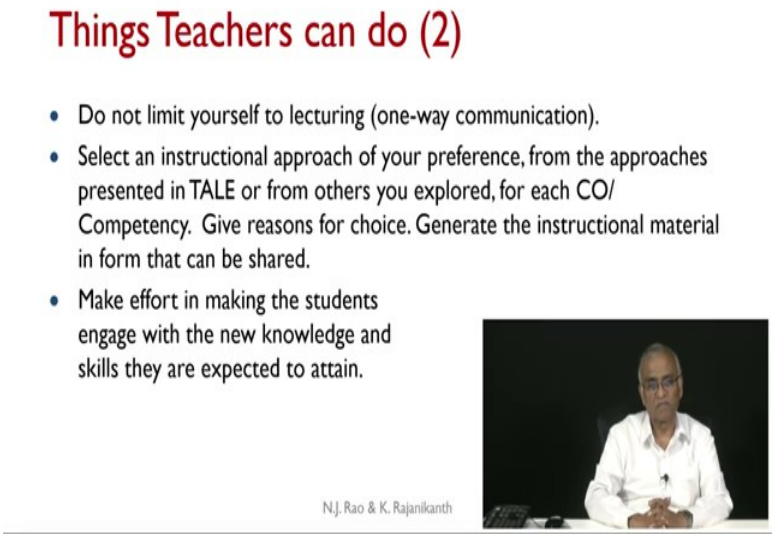

Do not limit yourself to lecturing which is one-way communication. You should use several instructional components that we have talked about and in some combination. Using some instructional approach of your choice, you should try things rather than just resorting to one way communication in the class.

Select an instructional approach of your preference; so, everyone does not have to follow the same instructional approach, from approaches presented in TALE or from others you have explored, for each CO and/or competency. Give reasons for your choice; generate

the instruction material in a form that can be shared. This we have done through several workshops, if possible, but it should be done as a group activity.

Make an effort to make the students engage with the new knowledge and skills that are expected to be attained. How do you make students engage with new knowledge? Doing some activity, doing some discussion, writing a 2-minute paper or drawing a diagram, or simulating something involve engagement. If the students are actively participating and interacting with the knowledge, engaging with the knowledge, you will have their attention and participation fully.

Once they are involved, they will also enjoy the course and, this is the most important one; how do you make your student engage with the new knowledge? These are a few things that we felt teachers can still do, in spite of all the limitations of the instructional situation they are in. Whatever you do will directly reflect in the quality of learning of your students because they are our goal, and they are our duty.

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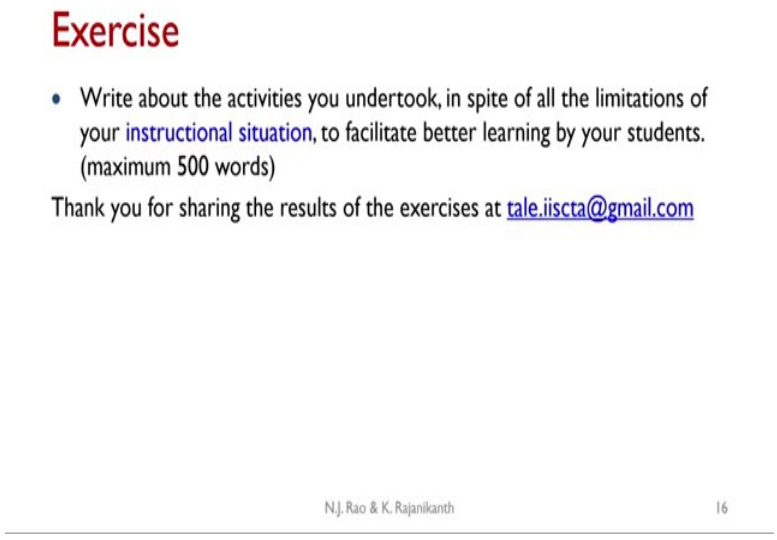

As an exercise, list the activities you undertook, in spite of all the limitations of your instructional situation, to facilitate better learning by your students. Please share with us in a maximum of 500 words whatever the activities you undertook, which you think has led to better learning, and send it to us at this address.

This is the last unit, as I mentioned, and I hope the TALE Module 2 and 3 are of help to you. You are welcome to mail to us asking more details, more questions, more clarifications and wish you happy learning

Thank you.