Teaching and Learning in General programs (TALG)

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Lecture – 13
Psychomotor Domain

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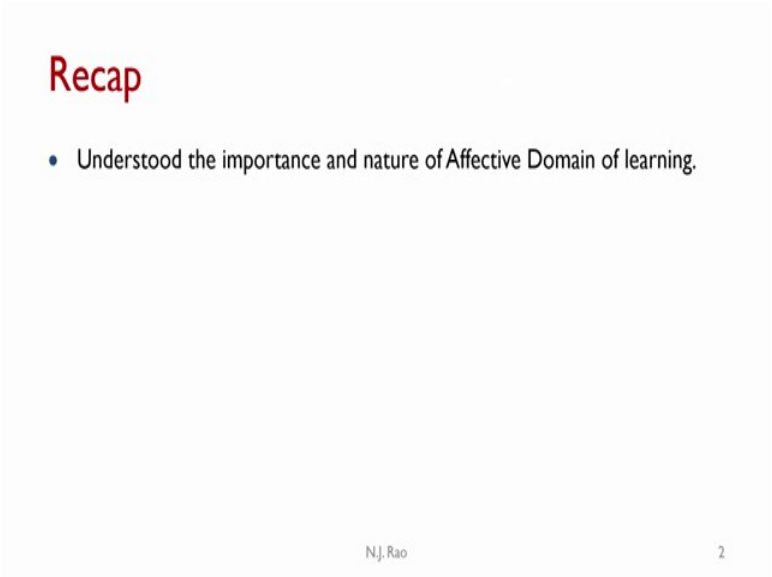

Greetings and welcome to unit 13, which is related to Psychomotor Domain. In the last unit we understood the importance and nature of affective domain of learning. We looked at the taxonomy of affective domain as given by Pierce and Gray and we tried to explore the importance and the role of affective domain at higher education itself.

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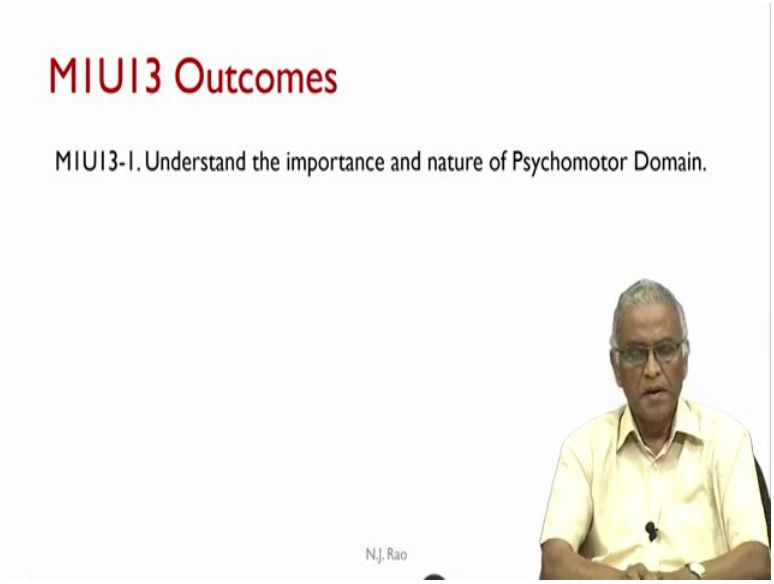

In the current unit, the goal is to understand the importance and nature of psychomotor domain. The role of psychomotor domain may differ from one course to the other. In terms of general programs; programs related to arts and social sciences, the role of psychomotor domain can become very important or sometimes even dominant. Let us look at what it is.

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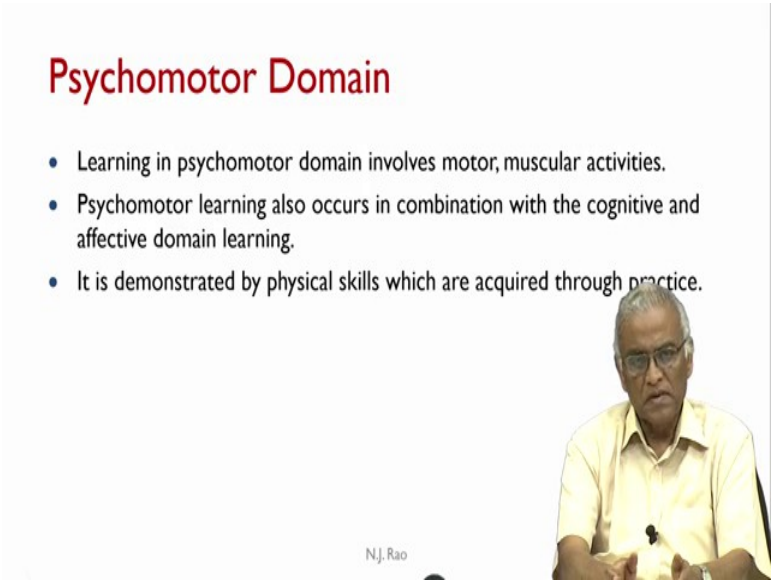

Learning in psychomotor domain involves motor and muscular activities; that means, your hand movements and leg movements are important. Even while you are involved in

cognitive activities there are activities that belong to psychomotor domain; which we normally refer to as gestures and body language. And body language is a very dominant feedback mechanism to the teacher or to the other individual who is interacting with you.

So, the psychomotor domain has an important role even though the activities involved are dominantly cognitive. Psychomotor learning occurs in combination with cognitive and affective domains of learning. One does not have to say that practically every experience that we go through, including what we go through in a class room, all the three domains are involved in varying degrees, it depends on the particular subject, topic or activity that you are dealing with. The psychomotor domain is demonstrated by physical skills which are acquired through practicing.

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Development of motor skills requires practice and is measured in terms of speed, precision, distance, procedures, or techniques in execution. So, these are adjectives that you would use with the performance in psychomotor domain. Some examples are riding a bicycle, driving a car, playing a musical instrument, typing, acting and running etc.

The psychomotor activities become important and even dominant in courses in programs like BA in theatre, BA in music, BA in painting, BSc in sports or any medicine, nursing, dentistry, emergency medical services - you can have a fairly important dimension of psychomotor domain in them. For example nursing and emergency medical services in

my view combine the three domains in a very integrated manner and all the domains are equally important in those professions.

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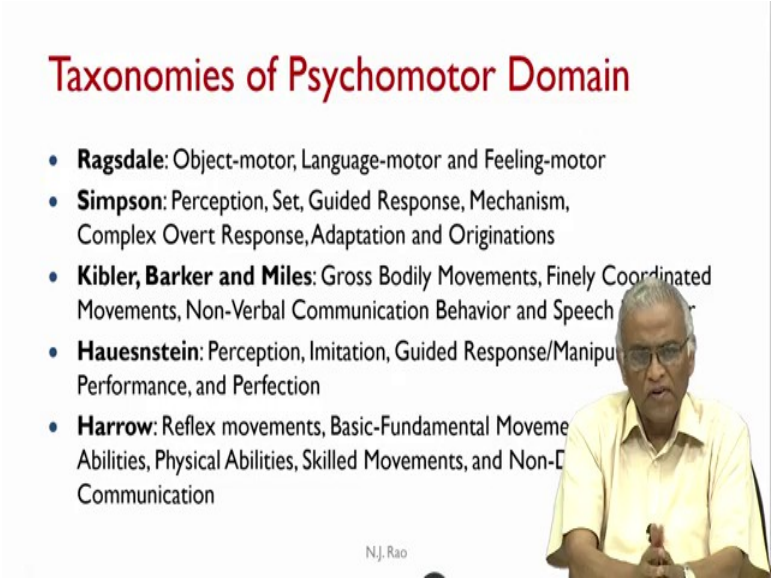

For some historical reasons we do not have to go through - people did not pay that much attention to the taxonomy of psychomotor domain, and yet you have several taxonomies presented. One is referred to as Ragsdale, Simpson, Kibler, Barker-Miles, Hauesnstein and Harrow and here they have given anywhere from 3 levels to 7 levels. Obviously, there is not much agreement between or correspondence between all the psychomotor levels that they have defined.

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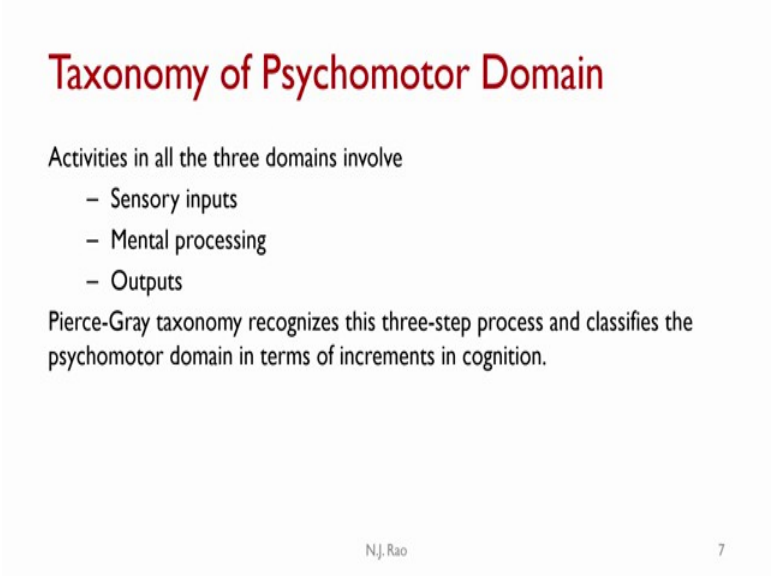

And once again we come back to pierce and gray taxonomy. as mentioned in the previous unit, activities in all three domains involve sensory inputs, mental processing and outputs and they provide the basis for actually creating the taxonomy of psychomotor domain.

In Pierce and Gray taxonomy; as you consider the role of cognitive processes the level corresponding the level of psychomotor domain also increases. That means, higher psychomotor domain level corresponds to higher cognitive level domain as well. It is arranged in increments of the cognitive dimension.

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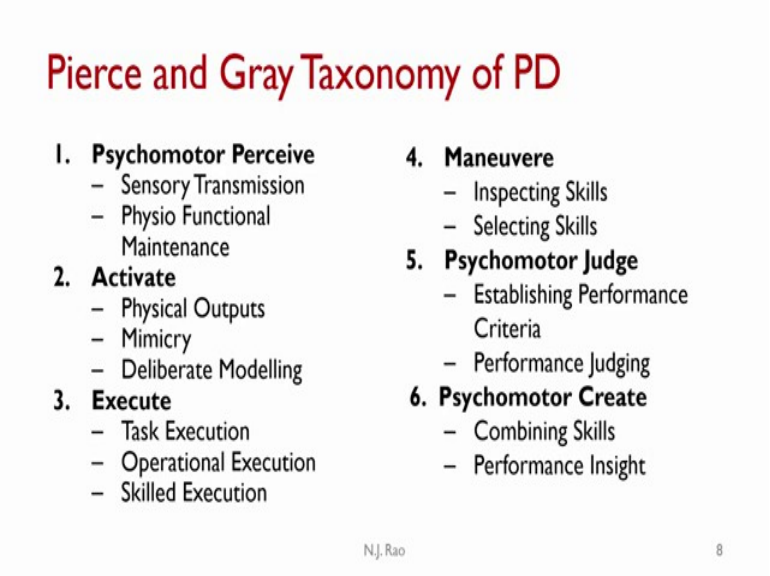

Pierce and Gray taxonomy of psychomotor domain has 6 levels, we have psychomotor perceive, activate, execute, manoeuvre, psychomotor judge and psychomotor create. Like in the case of cognitive and affective domains, one can also identify the sub processes involved in each one of these levels, in some cases we have three in some cases we have two. And these levels are distinctly observable, but we will not be going through too much of detail of these sub processes. We will try to understand the 6 levels of psychomotor domain.

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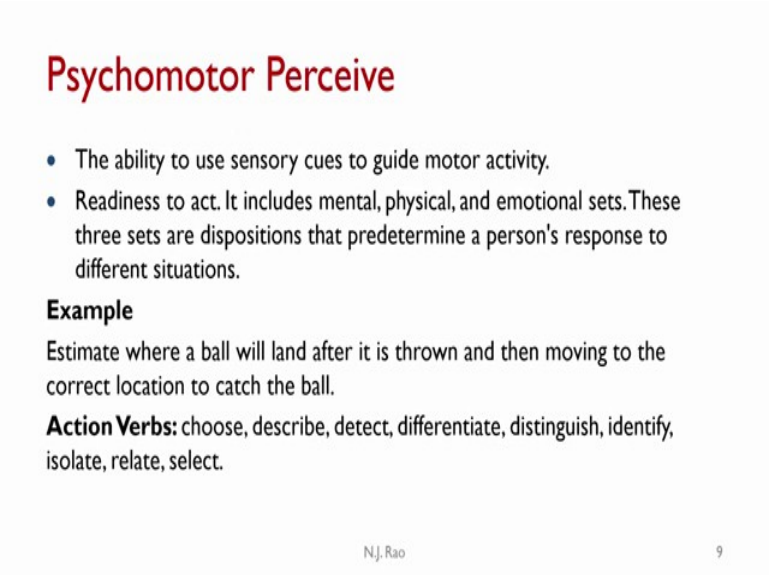

Psychomotor perceive means, you must have the ability to use sensory cues to guide motor activity, that is you should be able to observe or feel or through with any kind of sensory cues, you should be able to take and guide the motor activity. In addition it also involves readiness to act. That is yes I observe - I know what is involved, but I am not willing to move, I am not ready to act. In that case, you do not move forward in the psychomotor domain at all. Readiness to act includes mental, physical and emotional sets. Unless all the three are involved, you cannot actually act. These three sets are dispositions that predetermine a person's response to different situations.

Let us look at an example: estimate where the ball will land after it is thrown and then moving to the correct location to catch the ball- you are not actually catching the ball, but you have perceived; that perception involves estimating where ball is likely to land and then moving to the correct location to catch the ball, you are moving to the location, but not actually catching the ball. So, these two steps will characterize the psychomotor perceive. Action verbs related to that are choose, describe, detect, differentiate, distinguish, identify, isolate, relate and select. Words like estimate and move can also be used to represent as psychomotor perceive.

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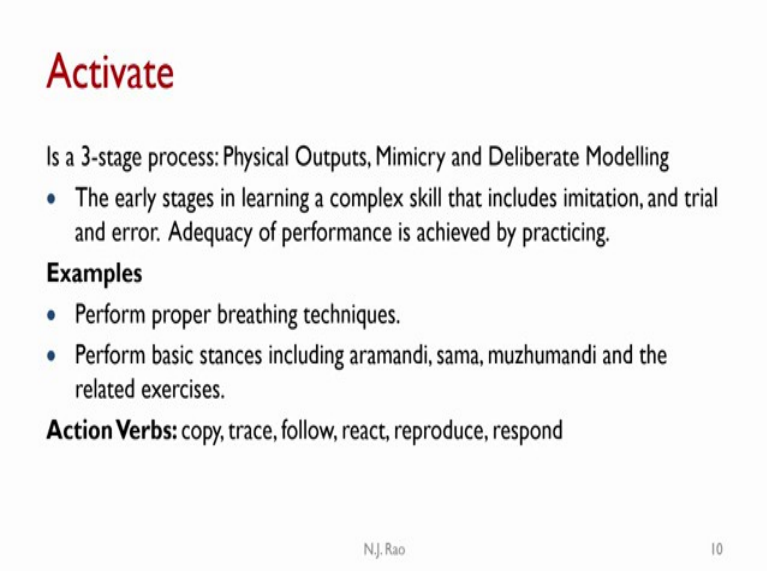

Activate is a 3 stage process. They include physical outputs, mimicry and deliberate modelling. The early stages in learning a complex skill includes imitation and trial and error. If somebody is teaching you how to hold a tennis bat then he will show you, you

try to imitate and then by trial and error you will keep attempting until you get it right. And adequacy of performance is only achieved by practicing, how to hit a ball let us say at what level you should hold the bat and at what angle you should do that all that somebody may show it, but then you first try to imitate and internalise the whole thing by trial and error.

Some examples: perform proper breathing techniques, somebody demonstrates how to perform breathing in a yoga course and then you are performing proper breathing techniques. In dance perform basic stances including Aramandi, Sama, Muzhumandi and the related exercises. Each one is an element of a much larger integrated movement, but here you are looking at one particular thing and you are trying to perform that. Action verbs related to that are perform copy, trace, follow, react, reproduce, respond.

'Execute': it is a 3 stage process: task execution, operational execution and skilled execution. Learned responses have become habitual and the movements can be performed with some confidence and proficiency. In the cricket matches, when a ball is thrown at fielder; the ease and comfort with which he catches the ball comes only with repeated use and you know exactly how to hold your hand, how to stand, how to look at the ball; all these will come when you reach the level of skilled execution.

So, it is a 3 stage process; some examples include operates a computer quickly and accurately- when you are repeatedly using something your movements will become very confident, exact and less wastage of time in terms of movement and so on. Like in dance perform tha- thai- tham adavus; you should be able to perform with proficiency, that is the execute of psychomotor domain. The action verbs could be perform skilfully, react fast, reproduce fast or response fast.

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Then maneuvere is a 2 stage process, inspecting the skills and selecting the skills. Any master sportsmen – he thought to hit a ball in a particular way, he will first practice that. But then that may or may not suit everybody's physique, he keeps on attempting to make minor modifications until he feels comfortable and gets it right. We are going to the next level of inspecting your own skill and then selecting or modifying your skill. So, skills are well developed and the individual can modify movement patterns to fit special requirements. He is capable of adjusting his movements depending on the circumstances, he will not use the same thing in all instances.

Examples: Perform a task with a machine that it was not originally intended to do; I am sure if you are anywhere connected with a workshop you would know when you would start using the machine when you depending on the task that you use in which the machine is not really designed for. Or link different movements together like in, a dance performance or a music performance. Or prioritize equipment in order to carry fewer loads in my backpack; that is, you are training a group of children for a tracking and asking them to carry fewer loads in the backpack and to reorganize, prioritize the equipment. So, this is some kind of a maneuvering. The action verbs related are adapt, alter, change, rearrange reorganize, revise, vary and so on. So, this is the fourth level of taxonomy of psychomotor domain.

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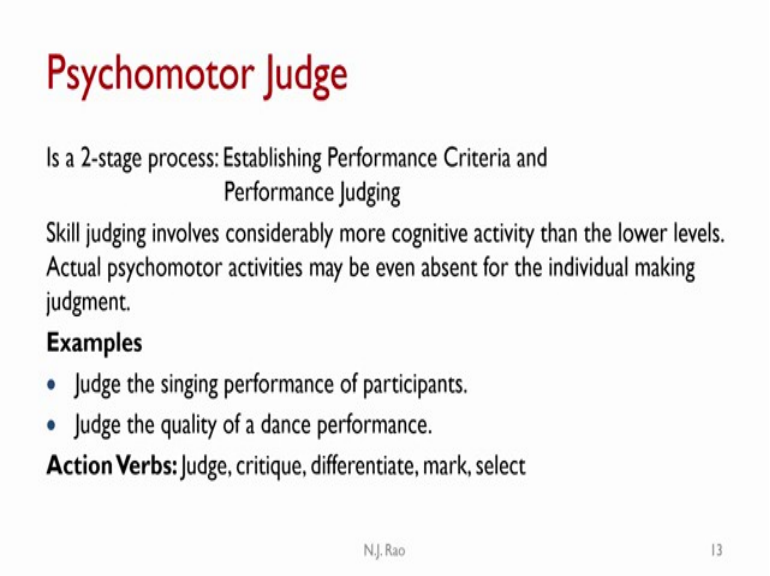

Then coming to psychomotor judge, it is a 2 stage process; you are establishing performance criteria and performance judging. If you look at these words once, they look very similar to evaluate process of cognitive domain. That is, you identify criteria for comparison and then you are applying those criteria to judge, but in case of psychomotor judging you are judging the actual psychomotor activities.

But when somebody is judging, he is not actually performing the psychomotor activity. Like in many reality shows, for example music, judge is sitting and judging the performance of the performer. He is giving some marks and for giving those marks he has his own set of criteria which he may or may not share with others. If multiple judges are involved in judging the performance, they may commonly agree with a common set of criteria. Skill judging involves considerably more cognitive activity than the lower levels. Actual psychomotor activities may maybe even absent for the individual making judgement, he may give an explanation, like why he considered a performance as not acceptable and in that process he may demonstrate, but judgement itself does not require any kind of psychomotor activity. But as we can see especially in Olympics, type of performances, for example gymnastics, the marks given by 5 to 7 judges do not differ. They differ only sometimes at second or first decimal place. That means, all of them are able to judge the performance very accurately and that cannot be done by anyone and everyone unless you are really trained in that.

Some examples are judge the singing performance of participants or judge the quality of a dance performance. Action verbs include judge, critique, differentiate, mark or select.

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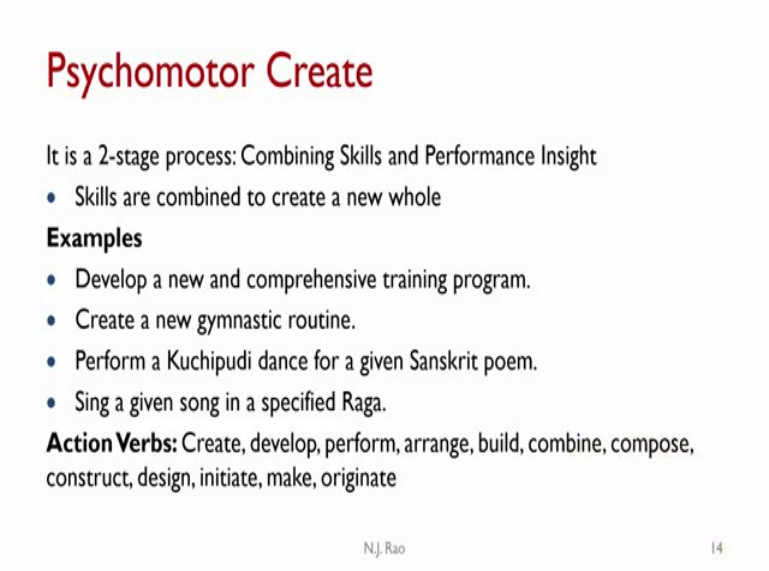

Psychomotor create: it is a 2 stage process combining skills and performance insight. Essentially skills are combined to create a new whole. For example if you have a dance competition/reality show, the choreographer puts a complete dance programme for a given song. It is not exact reproduction of what was done originally in the movie, but he creates his own way of presenting the song. Or develop a new and comprehensive training program- which is dominantly cognitive, but, a training program related to sports activity; how do you train somebody to be a good runner? So, a coaches training program can be different from somebody else's. Or create a new gymnastic routine. Or perform a Kuchipudi dance for a given Sanskrit poem. Something is given to you now you have to re think how to perform Kuchipudi dance for that, or sing a given song in a specified raga; original song my might have been sung in a different raga. Action verbs are create, develop, perform, arrange, build and so on.

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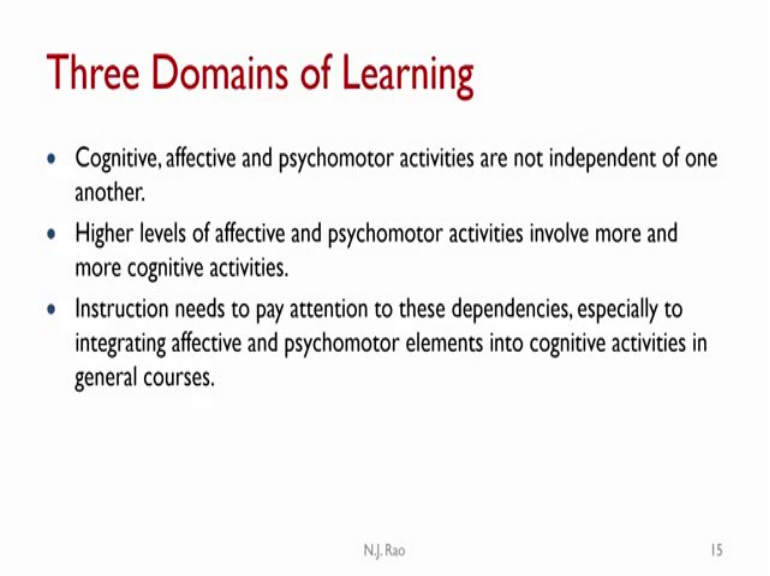

Having looked at the three domains let us look at all the three domains together. Cognitive, affective and psychomotor activities are not truly independent of one another. The activity you do could be dominantly cognitive, but the other two elements are present in varying degrees. But unfortunately we look at all our college education as mainly cognitive though we do not disagree about the role of others. But our system does not permit paying attention to the affective and psychomotor domain activities; and that is where the major reform has to come. The teachers will have to look at their role, not merely in the cognitive domain, they also should look other two; at least for those programs where these domains play an important role.

Higher levels of affective and psychomotor activities involve more and more cognitive activities that we will acknowledge. That is, a good dancer cannot be dumb, they are intelligent. Higher levels of affective and psychomotor activities are involved in higher level cognitive activities. Instruction needs to pay attention to dependencies especially to integrating affective and psychomotor elements into cognitive activities in general courses. This is a great challenge; we do have some instances somewhere, but it as of today it is not standard practice for teachers to integrate affective and psychomotor elements into their regular classroom teaching. There are instances and exceptions, but; but it is not a kind of a routine thing as yet.

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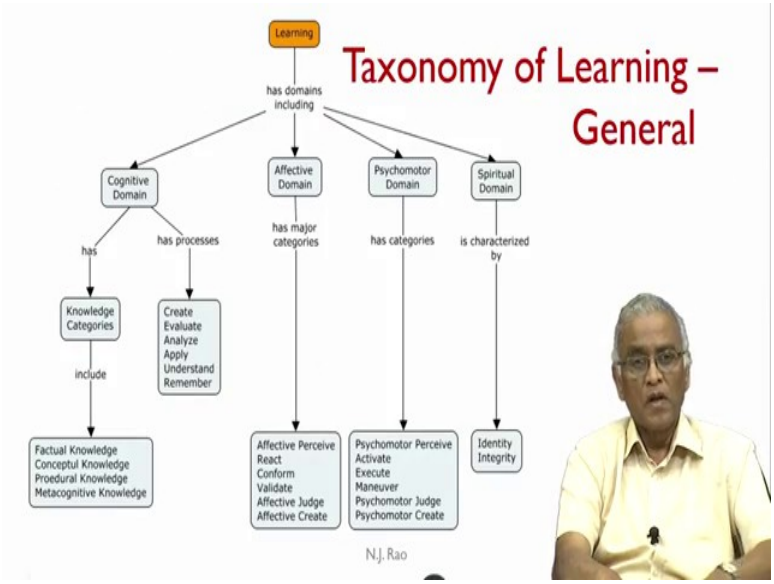

We will put all the domains together: learning has domains including cognitive domain, affective domains, psychomotor domain and just for completion we will include spiritual domain, but just for indication only. Cognitive domain has knowledge categories and has cognitive processes. Affective domain has major categories where we are talking of six affective levels. Of course, one can add the affective goals in which there are three levels. Psychomotor domain has six psychomotor levels, and spiritual domain has two levels that are called identity and integrity. This is a concept map of taxonomy of learning of general programs. We will add some more knowledge categories in some specific cases, like in the case of engineering, we add four more categories of knowledge. Someone may work out that in the case of some program, say a music, there could be some additional categories of knowledge, but we do not know what they are right now, there is not much literature on that, but based on the currently available information the taxonomy of learning can be presented in this kind of map.

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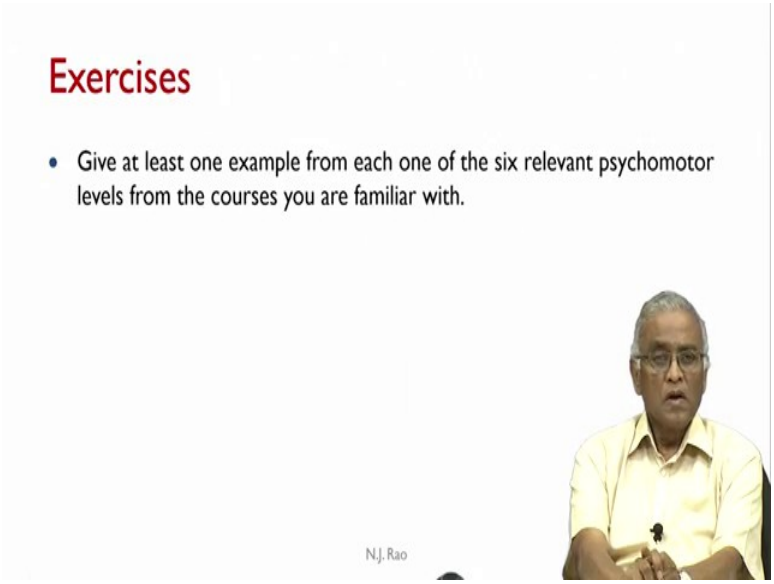

We request you to give at least one example from each one of the six relevant psychomotor levels from the courses you are familiar with. We understand if you are taking a mathematics course or physics course it may be difficult to identify psychomotor levels, but with some effort at least you may be able to find one or two a relevant psychomotor levels for that, but humanities and social sciences, arts courses - one should be able to find plenty of examples of multiple psychomotor levels.

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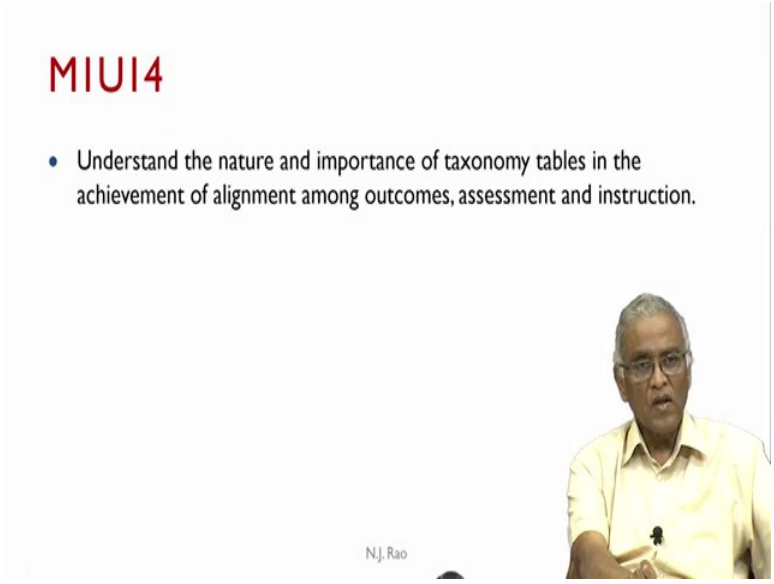

And in the next unit we try to look at the taxonomy tables that we use in achieving alignment among outcomes, assessment and instruction. It is a very simple tool, we will present how to affectively use that tool to achieve this kind of major goal of alignment among outcomes assessment and instruction.

Thank you very much.