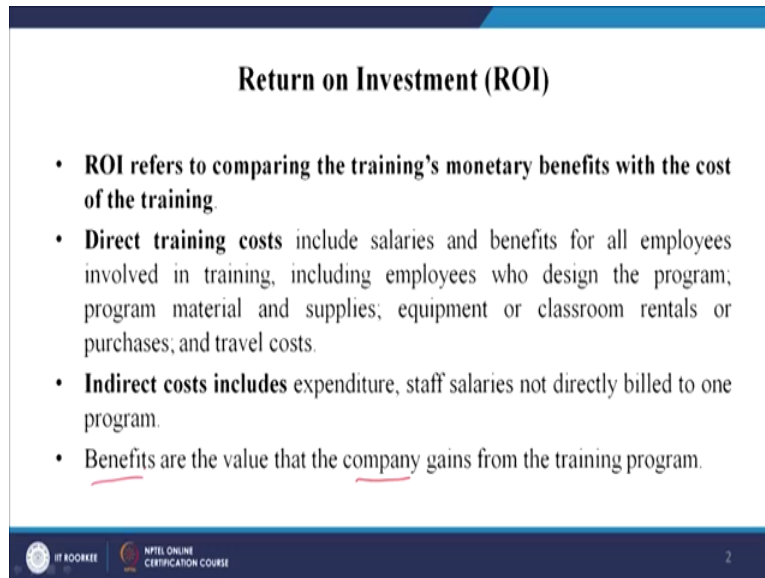**Training of Trainers**
Professor Santosh Rangnekar
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Lecture - 47
Training Evaluation II

As I was discussing about the evaluation of the training programs and then I was talking about the models, different models that are there. Now, I will continue with the next concept in that evaluation and that is about the return on investment.

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Now, return on investment refer to comparing the training's monetary benefits with the cost of the training. So we have to see that is the, whatever investment is made, now there are basically the six investments we are making in the training program.

One is the man, manpower, that is the trainer and the organization is also providing the trainees so therefore definitely that manpower, the time of that manpower that is becoming very very very crucial. So, first and foremost is the man is there. Then machinery is there, the technology which we are using for the conducting this training programs the cost of the technology. The simple example is of the LCD projectors. So when we are talking about the LCD projectors then the cost of using the LCD projector that becomes the very very important is there.

Then we are using the study material also. Now, it is very interesting that is the how trainer decides their honorarium and then what factors they consider in their cost. So

actually they are tangible and intangible. So when we are talking about the study material, in the study material intangible cost that becomes very very important.

Whatever the knowledge, knowledge sharing because there can be, like this example is there, like there are, there are certain contents are there, with the contents trainer shares his experiences. He talks about the different case studies. He talks about different incidents. He talks about the different events. So whenever these type of issues are there then what is the cost for that knowledge.

Like in the patent we talk about TK, traditional knowledge, and then that particular type of the knowledge which the trainer shares in addition to whatever he is sharing from the literature that becomes very very important is there. So therefore, that is the trainers cost, the study material cost, machineries and equipments cost.

Then the method, now you see I have discussed with you the number of the training method are there, so therefore case studies, business games, exercises then the group activities are there, then there are the different panel discussions, then the group discussions, then the brainstorming sessions, the solutions to the. How to generate the solutions to the problems? This becomes very very important issue.

So for this once a person learns the approach, learns the analytical approach and that cost, right? So therefore that becomes very very important because normally it is not that measurable. The experience of the person not in terms of the years, but what experience he has got that is not measurable and therefore, in that case we will have to understand that is the what cost we are incorporating in that particular the input, input costs, so that becomes very very important.

So man, machine, material, method and the money, so whatever the infrastructure investment is there, so what money has been invested in that. Then whatever the indirect cost is there that is also to be considered, whatever other overhead cost is there that is also has to be considered during the training program and then many cost as I mentioned intangible costs are there then there, they are not measurable. Then the minutes, last is minutes, man, machine, material, money, method and minutes. Minutes mean times. So somebody is sharing his 8 hours, somebody is sharing about the 6 hours, now there might be the difference different trainers.

So sharing of 8 hours and 10 hours with the trainees, what should be the cost? So therefore in that case you will find that is the measurement of the cost is itself in the training program is very very difficult, because it is the knowledge-based activity. And for a particular knowledge what problem will be solved and then what will be its efficiency in effectiveness on productivity that is very difficult to measure.

However, we will be discussing about in the normal way is that is how we are talking about the return on investment. So direct training costs are include the salaries and the benefits for all employees, involved in training including employees who designed the program. It is a very very important of design thinking and therefore in that case the design thinking that we have to also consider, I will take the certain, certain input on the design thinking that is the how we have to go for the designing the program and then for the designing the thinking and program that material how because they, like for example the leadership.

Now in the leadership there are number of training programs are conducted by the different trainers, but how the training program on leadership is to be designed? Like I think that is the designing the training program on the research-based. That was my very very important, I feel in a topic which talks about that is the how we can incorporate the research methodology in during training program and can take out further the findings of this training program into the publications, research publications.

So, if this type of the considerations are there then we have to understand that is the whole crux the important is on the designing the program. Then what is the equipments or classrooms are there? Like the infrastructure we are talking as I mentioned that is what are the rentals are there or the cost is there and the travel, another important cost is that is the travel cost.

So when we are talking about the direct training cost, so we are talking about the salaries and benefits for all the employees, designing the program, program material and supplies, equipment or classroom rentals are the purchases and travel cost is there.

When we talk about the indirect cost it includes expenditure which having the staff salary not directly build to the one program. Now definitely there will be office and in

office there will be number of employees in addition to the trainer, so these will be the these staff employees, they will be supporting to the trainer for the all these preparation of study material and then that will also incorporate the cost and therefore that has to be, that is the one program, it is not for the one program. We can see monthly, monthly how many programs are conducted on basis of that we can go for this particular training programs.

So therefore, in that case it becomes very very important that is the how one can go for this particular classification of the staffs salary in the number of programs. What are the different number of programs are there and in those number of programs how you are dividing the cost? And then if the number of programs are more, naturally the cost will go down, but if the number of training programs are by the organisation is not creating the equilibrium. So then definitely that will be a problem.

Now, I will talk about the indirect cost includes bill to the one program, benefits are the value that the company gains from the training program. Now here is my submission, that is the whenever we are talking about that the company gains from the training program these benefits then we have to understand how we can derive more and more intangible benefits?

So this particular knowledge capturing, creation of knowledge, storage of knowledge and distribution of knowledge. The maximum cost is for the creation of knowledge because whatever you measure is really intangible that is the what level of knowledge and then how much benefit is provided so this benefits, the values that the company gains from this particular training program that becomes a very very important.

So here when we talk about that the company gains from the training program the benefits and determining the value for that particular training program, that what will be the value for the training program.

So this direct and indirect cost, direct cost is okay fine, you can measure it, but when you are talking about the indirect cost then we have to be very very careful.

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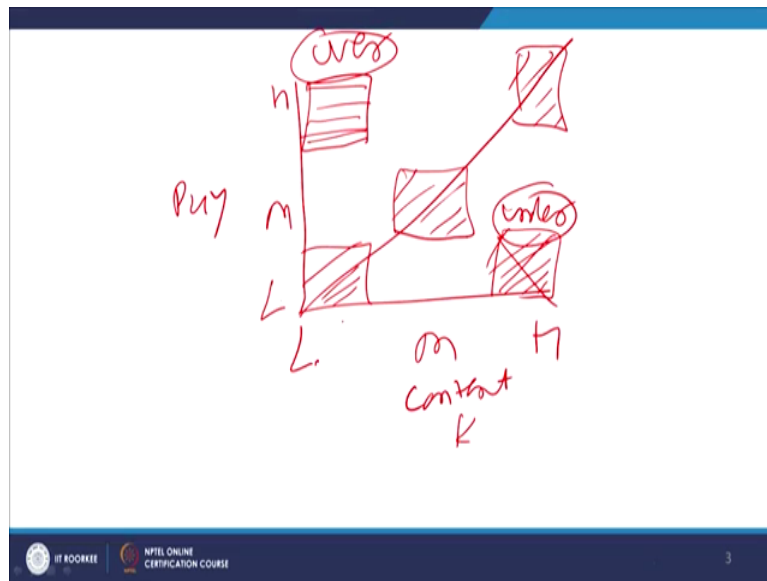
And when we talk about the principle of equilibrium so when we talk about this particular incident that is the how we are going for this program in this case particular training program we have to find out that is the whether we are going for this particular understanding.

For example I was talking about this particular equilibrium and in the equilibrium we will go, that is the how we can go for this one for, this understanding. I was talking about the equilibrium, that if you want to create an equilibrium that is the suppose we are going for the considering that is the what will be the content level and what will be the pay? So this knowledge and then this equilibrium so therefore, in that case you can easily understand that is the, it will be equilibrium will be low knowledge, low pay. Then moderate knowledge and moderate pay, and then high knowledge and the high pay.

Now this particular equilibrium which we create in the training program. Now here organizations are required to understand the content the study material and then they have to justify on the basis of what benefits there going to derive. So it is not the question that is the how much time is spent, but what time is spent and what solutions provided, that is becoming the more important.

Always organizations when they are talking about the return on investment, they should focus on that is the they have to go by the principle of equilibrium and in the content if the high content, very high content is there and the low pay is here than in

that case it will be becoming the under payment. Because the contents are high, but the payment is low so then this is not advisable. So therefore this is to be considered that is the high.

If the content is low and the payment is high then in that case you have to go for this, here you will find that is the content is low and the payment is high so then in that case what is it? That is the overpaid.

So please understand that is that during when we are talking about the cost and return on investment of the cost of the training program we have not to go to the very underpayment no, this is underpayment that is contents are high, but the payment is low so this is the underpayment. This is the overpayment that is also not advisable, so advisably is that, that is the creation of the balance between the whatever the contents are there and whatever the payment is there and that equilibrium that is to be considered.

So this is about when we talk about this particular program then the return on investment, the benefits, the value of the benefits that the company gains from the training program that is becoming very very important.

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Outcome or Criteria	Level	What is Measured	Example	Method of Measurement
Reactions	1	Learners' satisfaction	Comfortable training room	Surveys
			Useful materials and program content	Interviews
Learning or Cognitive	2	Principles, facts, techniques, procedures, or processes the learners have acquired	Electrical principles Safety rules Steps in interviewing	Tests Work samples
Behavior and skills	2 or 3	Technical or motor skills or behaviors acquired by learners	Preparing a dessert Sawing wood Landing an airplane Listening	Tests Observations Self, peer, customer, and/or managers' ratings Work samples
Affective	2 or 3	Learners' attitudes and motivation	Tolerance for diversity Safety attitudes Customer service orientation	Attitude surveys Interviews Focus groups
Results	4	Payoffs for the company	Productivity Quality Costs Repeat customers Customer satisfaction Accidents	Observation Performance data from records or company databases

If you remember, in earlier module I have not talked about basically the 4 parameters. One was the reaction, other was the learning, third was the behaviour and forth was the results. In this particular figure we will find that I am talking about the five

parameters, there is one more parameter is the level is included here and that is the affective is there.

So in reactions the level one. Because when you start the immediately, the reaction comes and reaction comes about the trainer, reaction comes about the study material. So learner satisfaction that becomes very very important. So what learner wants, the learner wants, what is the goal and objective of an individual that has to be matched with that particular organizational goals or the training program and trainees goal and objective has to be matched with the content of the training program. So therefore, that is becoming the learner satisfaction.

Here example has been given, comfortable trainer training room, very simple example is comfortable training room is provided and therefore they are comfortable in an amicable environment is there so that they can learn very smoothly. Useful materials, whatever material is there, that is relevant to the whatever the goal or objective of the training program is there, and whatever the contents are there they are matching with the objectives and goals of the training program.

If the trainer is experienced then definitely he will be able to manage these examples otherwise we can go by the surveys, we can find out like what we do, we visit to the different places and we find out that is how was the training room, what facilities are provided in the training room, what is the infrastructure which has been provided so that the trainees, simple example is the sitting arrangement.

Whether the sitting arrangement is proper or not? Normally we prefer a flexible seating arrangement during the training program because we use the Syndicate method. Syndicate method means group discussion, group discussions, case studies discussion so therefore, they have to go through individually then they have to form a group, they have to select one representative from the group and then they, that representative comes for the presentation which I have already demonstrated in the training program of the case study.

So if that is the system, then the sitting arrangement, comfortable room so that can be arranged. So with the service we find that is during the training program it should not be the fix furniture, there should be the furniture which is flexible. Second important point is many trainers, they start the training program with the micro lab. Micro lab,

they start with the micro lab what they do? They ask the trainee is that is, the trainer will stand in the center and the rest of the trainees are surrounding to him and for example he will say that is the fire in the mountain run run run run run and like this and then they talk to each other, they talk about the strength and weaknesses, so the micro lab is to be conducted and then, if you do the survey you will find that is many trainers using the micro labs.

Then interviews that is the you see I talk to the experience trainers and asked them that is how do you conduct? So different pedagogy that you come to know, like I have taken one test in on the digital pedagogy, so the digital pedagogy that is also from the we understand that yes that is to be planned accordingly.

Second outcome criteria is learning or cognitive, level two, that is the principles, facts, techniques, procedures or processes the learning have acquired. So principle of learning is there, so there can be the group learning, there can be the individual learning and therefore, that for particular facts and techniques, procedures that can be used that is how to make the group learning is to be done. So this will be the part, the learners have to acquire.

Examples are electrical principles, safety rules, steps in interviewing all these will be the type of the training which will be the cognitive learning will be there. So when we talk about the how to be interviewed? And how to be answered in the particular questions? So then that will be example that is the how the training program is to be conducted.

Then the, what is that, that is the test is there, the method of measurement. How do we measure? That is this cognitive learning has taken a place or not, that is a test work and samples. You ask somebody, what you have learned? The person talks about that what he is learning sample technique that can be also you can use.

Third is behaviour and skills, two or three level, so therefore in the behaviour and skills are the technical or the motor skills or behaviour acquired by the learners, very good example can be given that is about the stress management. Whether the person is having that particular behaviour, the learner has learnt about the managing the stress or not, and to manage the stress suppose the solution is given the time management, that is the stress is because of the trainee is unable to manage his time.

So he has to, the trainer has to give the input that is the whether it is urgent and important, urgent and not important, not urgent and important, not urgent and not important. So he has to classify his tasks and understand that is the where he can put that particular task and then decide that is the which task is to be performed?

So this preparing a dessert sawing wood and landing and the airplane landing an airplane and then this type of the days is also exercised I will share that is the how; that is when your plane is landing into a dessert and then how you have to take the decisions on that particular situation, so during exercise that will also I will talk about this particular exercise that is the landing in the dessert and how to then come out from that dessert.

So method of measurements can be whether the person's change in behaviour are scales or not, test, observations, self, peer, customers and or manager's ratings and work samples. So these will be these methods that will be the measurement for the behaviour and the scales.

Third will be the affective, affective is the that is the second or third level. Second and third level it talks about that is the learner's attitude. How the learner's attitude is there and motivation? So learner's attitude and motivation that will be talked about. Motivate a person, for the motivation like when we talk about it we have to understand the need theories.

So whether, suppose we are talking about the Maslow's theories, Herzberg theories and we are talking about that is the how in the hierarchy the need depends or it does not depend and then identify your goal, identify your need that is it should not be only the life of the professional life. We have to consider the holistic, otherwise there will be the vacuum after retirement. So therefore, we have to understand what motivates me? If my carrier motivates me, fine that is very good, but what after the retirement? What will motivate you? Otherwise there will be big vacuum and then the people will understand stress.

So the motivation is to be holistic goal, willingness is to be holistic goal, so that is to be taught, that is to be learned by the trainees and then for this purpose in affective's attitude and the motivation this is intolerance that is how to develop the tolerance for

the diversity because every person is not same, so there are different individuals, so in that case you will find they are different individuals, different personalities.

And if they are different personalities then we have to understand we have to work with them, we have to have a tolerance with them working because they have different thought process, their behaviour, their activities, their actions. So therefore, we have to take care that is the affective whether they are able to learn this particular affective component.

Then there can be the safety attitudes are there. So many people they are highly concerned with the safety, it is a mindset, so some people there are very less concerned with the safety, some people are very highly concerned about the safety, so that is another example is there.

Third example here given is customer service orientation. Whether the person is having the customer service orientation or not? I have talked about the servant leadership and when we talk about the servant leadership it becomes very very important that is the we are capable to do the serve to others. Our mindset is that is we are not doing the only job for my bread and butter but I am doing the job so by doing job I am serving others.

So therefore, the service orientation is important, here example is given customer service orientation. I talk about the overall servant leadership is there and can, you can think, can it can be the value of the life? This is wherever we are, we are in the professional role or we are into the personal role or we are capable to going through this service orientation to serve the family, to serve the organization, to serve the superior of course and to serve the colleagues and then to serve the subordinates. So that service orientation, helping others, how we can develop that, that will be the example of the affective commitment.

Then attitude service, this method of measurement can be the attitude service, interviews and the focus groups and that is also possible. Finally about it is the results. Results are that is the whenever we are talking about the pay it is the level four, because ultimately these are the goals, these are the concern of the organizations that is they want the results. So payoffs for the company, so productivity, quality, cost, repeat customers and then the satisfaction and the number of accidents so therefore,

we can measure on basis of this, whether the productivity it is increased or not, whether the quality is improved or not, whether the cost is reduced or not, whether there is a repeat customer?

So therefore, once you conducted the training program for one organization and are they asking you to conduct this training programs again and again then that will be the repeat customers will be there and then there will be the satisfaction that is the how the customers are satisfied? Whether they are satisfied or not? Especially the trainees and then the number of accidents have been reduced or not?

So the outcome of these particular training programs that can be measured on the basis of the productivity, quality, cost, repeat customer, customer satisfaction and the accidents that is the whether the reduce deduction of the accidents are not the training program is on safety as I mentioned earlier also.

Now, what are the methods of measurement? First and foremost is the observation. Like after the training program do you really find that is you observe and find out that is yes in the organization there is a change, there is a change in to the interpersonal conflicts, there is a change in to the number of accidents, there is improvement in the productivity, so observations.

Performance data, so when you are talking about the productivity, then definitely the quantity and quality both whether the quantity and quality that has been improved or it is not improved and therefore that will be the performance data from the records of the company databases, company keeps on generating the databases and you can find out whether, a simple example, another example in the previous model I have given about the employees turnover and people are very comfortable while working in the organization and then that is why they are comfortable because they have learnt through training in the organization that is they how to work together.

So if this is the concept is there then definitely in that case the ROI, return on investment in the training program on this parameters and on this the evaluation that will be giving you the right picture. It will help us to understand what type of training programs are to be conducted and what type of the cost is to be incurred in this particular training program.

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Evaluation Practices

FIGURE 6.3
Training
Evaluation
Practices
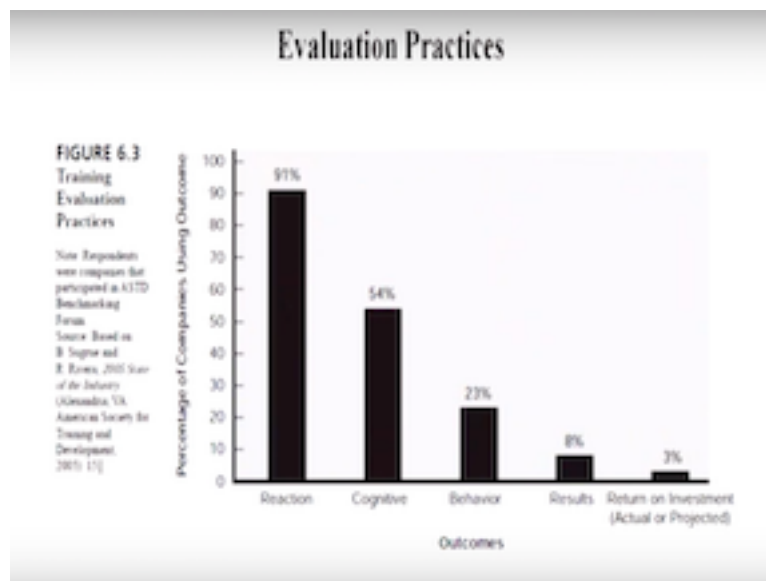
Now what are the practices? We will see that is the respondents were companies that participated in a study benchmarking forum and there in that case they have come out with this particular data that is the reaction 91 percent, cognitive 54 percent outcomes are there, that is the percentage of company is using the outcome.

And in the behaviour is 23 percent are using the outcome and the results the 8 percent are using and the 3 percent are return on investment actual or projected is there. So this you will find, it is there.

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Determining whether Outcomes are Appropriate

1. Relevance
   * Criteria relevance refers to the extent to which training outcomes are related to the learned capabilities emphasized in the training program.
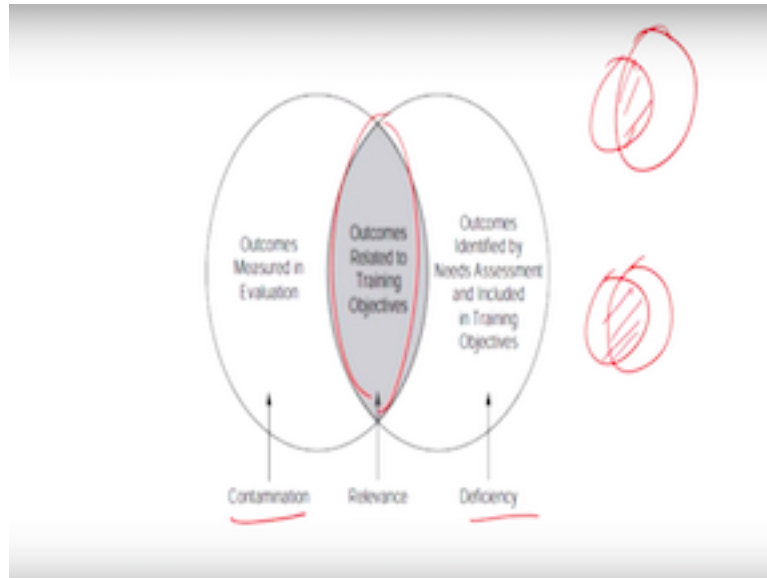
   Two ways that training outcomes may lack relevance:
   * **Criterion contamination** refers to the extent that training outcomes measure inappropriate capabilities or are affected by extraneous conditions.
   * **Criterion deficiency** refers to the failure to measure training outcomes that were emphasized in the training objectives.

Now, we will talk about the determinant. Determining whether the outcomes are appropriate or not. So first one is the relevance. Criteria relevance refers to the extent to which training outcomes are related to the learned capabilities emphasized in the training program. So these outcomes whatever the capabilities I have been developed or mention are the emphasized during the training program have been reflected after the training program or not. That is there is the first relevance.

That can be the criterion contamination refers to the extent that training outcomes measure inappropriate capabilities or is affected by the extraneous conditions are there. So there will be certain criteria, you will refer those criteria and then you will measure the outcomes and then you will find whether it is an appropriate or inappropriate capabilities are affected.

Second is criterion deficiency, criterion deficiency refers to the failure to measure training outcomes that were emphasized in the training objectives. If there was a particular training objectives and then in that case they are not able to meet those objectives then we will say there is the criterion deficiency.

So here we will find that is the there is a contamination, as I mentioned and explained that is criterion contamination this is refers to the extent. So this particular criterion contamination this will you will find here that is the, this criterion contamination is there and there is the criterion deficiency so this is the criterion deficiency.

When we talk about the criterion deficiency and criterion contamination and we have to connect with the relevance. So it comes like this, that is there is the contamination, criterion contamination, outcomes measured in the evaluation, deficiencies outcomes identified by needs assessment and included in the training objectives that what are the need assessment are there at the time of identifying the training needs and then included in the training objectives, then training program is conducted.

So this is the whatever the objectives that has to be considered, this is the whatever the outcome is there and here you will find that is the overlapping is there. This overlapping is related to the relevance. What it means, outcomes is related to the training objectives.

So you have to connect the criterion contamination and the criterion deficiency. The objectives, the training needs identifications, training programs conducted, the outcome measured and you are clubbing that and when they are clubbing and they are having the more.

Now you can have the picture like this also. You can have the picture like this also, more relevance area what I want to say, less relevant area, more relevance area so these bigger will be the your relevance, then definitely you are matching more with the outcomes. Whatever the training need identifies were there and whatever the training objectives have been framed and the outcomes they are covering more area of relevance and that means that these are the outcomes for the training objectives.

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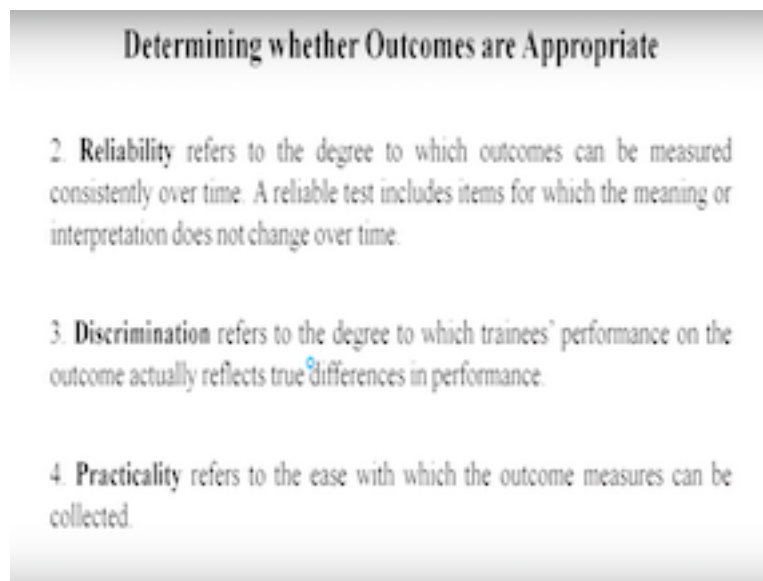
Relevance was the first and now we will talk about the reliability. Reliability refers to the degree to which outcomes can be measured consistently over a period of time. Now, what should be a time; this can be a question in in your mind and the time can be normally a quarterly. What I suggest is that is that if you plan for full one year then definitely in that case it will be very difficult to identify the reliability, but if you're going to the quarterly it will be appropriate time period to identify the reliability.

A reliable test includes items for which the meaning or interpretation does not change over time. So with the period of time that reliability it does not change and then you find that yes when you evaluate in quarterly you find that is the yes, there is a consistency is there.

Discrimination, discrimination refers to the degree to which the trainees performance on the outcome actually reflects two differences in performances. Now you see, that is the one can be a very good in the classroom, but may not be in the field. So whatever is learnt like a student and scored very high marks in organizational behaviour, but outside the classroom his behaviour may not be appropriate, that is called the discrimination.

So therefore in that case it is the learning, learning is becoming very very important, as we talked about it is a permanent change in behaviour. So permanent change in behaviour, so one is that in the classroom learning, answering the questions and the other is practicing the questions.

So if there is informative then it is fine, otherwise there will be the discrimination in this particular the reality and performance what it means is the trainees performance on outcome and actually true performance of the trainees.

Practicality refers to the ease with which the outcome measures can be collected. So therefore, I think that this fourth one is very very important that is whenever we are talking about this particular determinants when relevance, reliability, discrimination and practicality. Practicality is the most scientific and realistic outcome that refers to the ease with which the outcome measures can be collected. If the outcome measures can be collected then that will be the practicality.

So it should not be like a student of the year Organizational behaviour who is the very good scorer in the OB subject, but outside of the classroom his behaviour is not appreciated so that should not be there.

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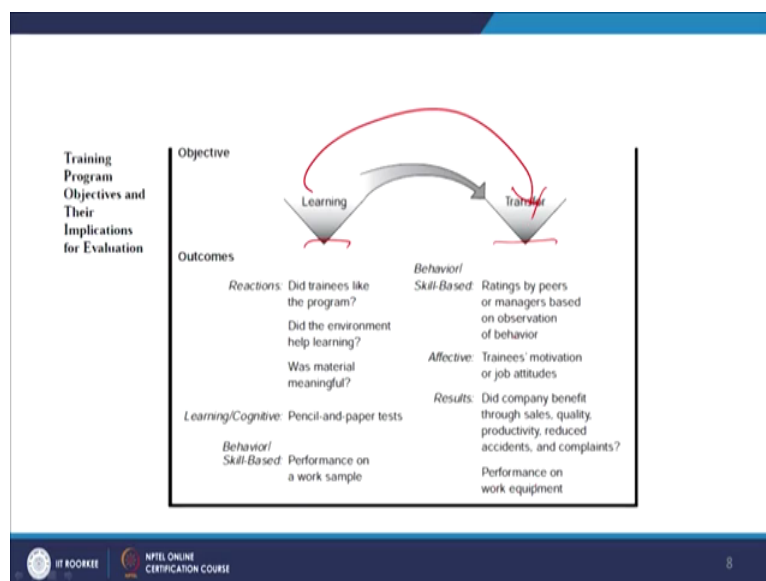
Here, now I will talk about the training program objectives and their implications for the evaluation is there. As I mentioned this is a learning, and this is a transfer. What will be the learning? So reactions are, did trainees like the program? Ratings by peers or managers based on observation of behaviour and therefore yes he may say yes I like the program, but the behaviour skill-based will say transfer that is the okay learning is fine, that he has learned what the Fiedler's model of leadership is talked about he has learned, but really he is practicing or not this you can observe only by
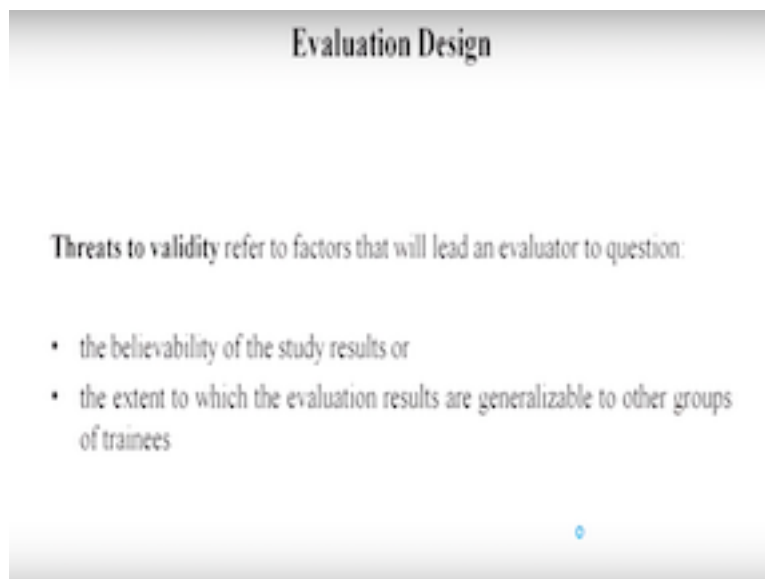
the ratings by his peers or manager based on the their observations of the behaviour of this particular person who has been scored very high.

Did the environment help learning? And now here, we have to find out that is whether the really that environment enabling conditions that have been created or not. If it is created learning will convert into the transfer, but if the environment is not helping in learning then it will not be transferred.

Was material meaningful? The study material, which was provided whether really that is becoming the useful or not is there. So ineffective the trainees motivation or the job attitudes that becomes very very important. That is the whether it is the behaviour of skill-based, behaviour is affective, that is the trainee is motivation and job attitudes have changed and it has become the positive or not that is to be seen.

The next is the learning the cognitive. The pencil and paper test, so there for the behaviour skill based on performance on a work sample learning is there and therefore he may do very nice as I mentioned that is the pencil and paper test is there and another important is that is the transfer learning to the transfer here and then in that case it is a performance of the work equipment. Is there is a performance on the work equipment or not that is has to be checked.

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Evaluation Design

Threats to validity refer to factors that will lead an evaluator to question:

- the believability of the study results or
- the extent to which the evaluation results are generalizable to other groups of trainees

So finally I will talk about, this is my last slide that is evaluation design. Whenever we are talking about the evaluation, the training need evaluation then that we have to

understand what factors, what determinants, why it is there is a need for evaluation, how to do the evaluation and then what are the factors are there which will be determined that is the during training and after the training the training at the workplace is properly mention or it is not as well has been mentioned.
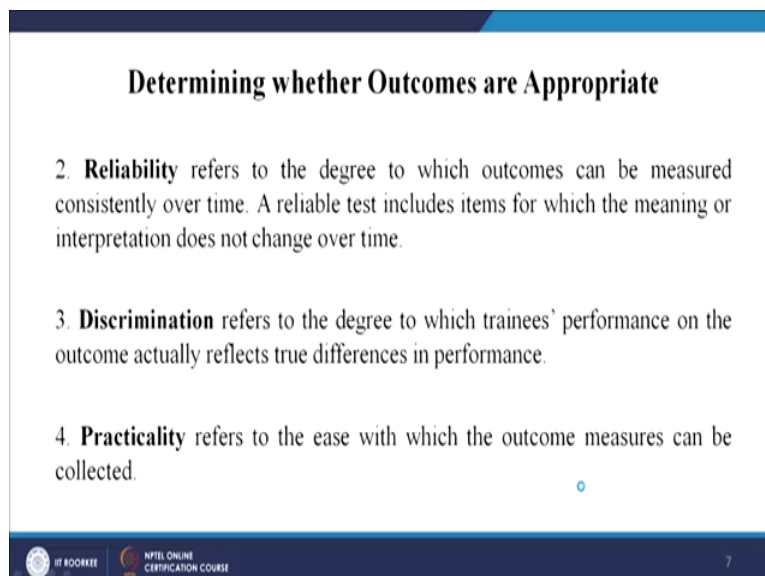
So there will be the threats to the validity and what will be the threats to validity that will lead an evaluator to question. The believability of this study results. Now, when you are using the survey method, the survey method the most important weakness is the responses by the respondents are true or not.

So this is the believability whether you will believe those responses or not because there is the social desire. Are you highly motivated, there will be certain items on motivation. What a person when response, person will try a social design behaviour, respondent with the respond in a way that is and it is having the more socially acceptable.

So I am highly motivated person and therefore do you serve the others? What will be the response? Yes I serve the others, nobody will say no I do not serve the others.

So therefore, this is a threat should be validity is in the evaluation and that is the believability of the study results or the extent to which the evaluation results are generalizable to other groups of trainees and what is applicable to the one trainee, then not necessarily that will be applicable to the another trainee.

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So when we are talking about the reliability and validity then whether this is reliable or not? I have nation about the reliability in my earlier slide that is the how outcome that has been measure consistently over the time. So if it is the same results are there, then definitely you can rely that is the yes you can give the result that is the training program that has been become successful with the period of time, that is the same behaviour has been shown.

But when we are talking about the validity then in that case we have to also see that is the whether it is believable or it is not believable or extent to which the evaluation results with the, we cannot generalize with the other groups.

So here I leave the two questions. One question is the understanding the group behaviour, group dynamics and the second one is that is the design thinking. So group dynamics and design thinking, these are the two issues whenever we are talking about the evaluations. So evaluations is the most important part is that is whatever you content you design are you able to go for the design thinking, second is that is the what is you are the group dynamics is there because whenever you are conducting the training program it becomes very important there will be, there will be formal and informal groups during the training. and then how to handle the group dynamics that is also becoming a very very important question.

And therefore, in the evaluation of training program and with the validity, threats to the validity will overcome through the, as I mentioned in my next module of the group dynamics and the design thinking. So this is all about the training evaluation and on basis of this we can evaluate the training program, we can find out whether the learning is really transferred or not. Thank you.