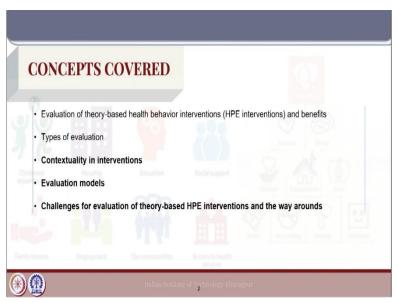
Basics of Health Promotion and Education Intervention Dr. Arista Lahiri Dr. B C Roy Multi Speciality Medical Research Centre Indian Institute of Technology, Kharagpur

Lecture - 37 Evaluation of Theory-Based HPE Interventions Part II

So, welcome back on the second part of the discussion on evaluation of theory based HPE intervention, self-promotion education intervention.

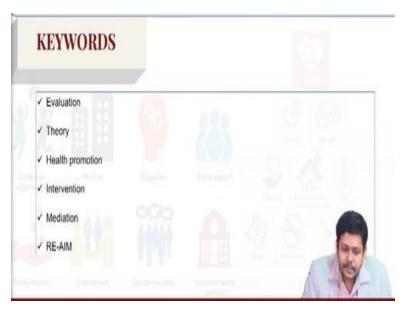
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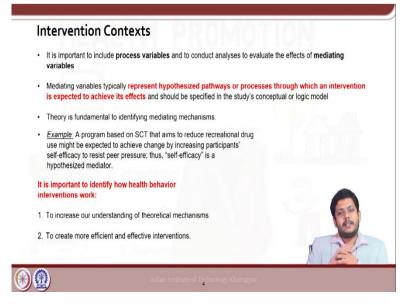
So, we already have discussed regarding the evaluation of theory-based health behaviour interventions and their benefits and the types of evaluation, the four major types that we have already discussed in our previous lecture. In this lecture we will be discussing about contextuality in the interventions because, see in the previous lecture while we were discussing about process evaluation.

We have had encountered the contextual factors and we have encountered the contextual moderators also. So, that part will be discussing in this lecture, though will be discussing modulators later on but contextuality will be discussed here. Then, we will be having a look at certain evaluation models and we will have a look at the challenges for evaluation of all these theories based HPE interventions and what are the, I mean way outs for that.

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So, let us start with the intervention context or the contextuality. See it is always important to use the process variables because remember during our session process evaluation, we were encountering the contextual variables or contextual factors. So, it is always important to understand the context we must engage the process variables also because, you see to conduct the analysis and to evaluate the effects of mediating variables are also important.

So, from context you include the process variables, how the process is going suppose from A to B to C to D, A is your input D is your outcome now in between B and C are your process variables so include those variables because they may be the mediating variables. So, in the in

the contextuality or the contextuality of mediators the mediating variables typically represent the hypothesized pathways or process through which an intervention is expected to achieve its effect.

So, as I was mentioning from A to B to C to D, B through C is the process part, they may be the mediating factors. Now, in health behaviour or health promotion interventions remember that you may have a difficult or you may have a very complex process but in order to simplify that part the need for simplification is that because when you are finally putting forward some recommendation or analysing that data to give some recommendation, you have to simplify the whole process.

And for that simplification part you have to identify the key mediators in that process because based on those you will be giving your recommendation or you will be analysing the data that you have. Now, here I have given an example the example is that of a program based social I mean program based on SCT that aims to reduce recreational drug use that might be expected to achieve change by increasing participants self-efficacy to resist peer pressure thus, self-efficacy here is a hypothesized mediator.

You have already seen in your previous lecture on health behaviour models that there are certain mediators. See in this example also, I mean the self-efficacy that I will not do this or reducing the recreational drug use that means the person who is here considered is internally motivated and has this self-efficacy or the confidence of not giving in to the urge of recreational drug use.

So, that urge or that self-efficacy here is basically the mediating factors because it is preventing him or it is in fact ultimately helping him to resist the peer pressure. So, this is how the mediation takes place. A key construct of a model may itself be a mediating factor and that is in fact the context of the model that we often consider when we discuss the process evaluation part. So, it is more it is important to identify how health behaviour interventions work.

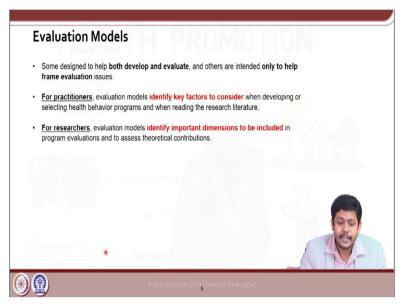
We have outlined two ways, the first is to increase our understanding of theoretical mechanisms remember the part in process evaluation in a previous lecture where we were discussing the mechanism of change. So, the health behaviour interventions work is to increase our

understanding of the theoretical mechanism the process of change the mechanism of particular change and to create more efficient and effective interventions.

I mean modify the interventions in such a way that it yields a better result or it yields a better cost-effective result. Now, these are the two important issues that we need to identify when we consider when we discuss about these health behaviour interventions so the evaluation models. So, in the previous part we discussed about the contextuality, in the contextuality we understood that the process variables are important there may be mediations through contextuality.

And also, we understood that the context is important in what ways you know in order to understand the theoretical mechanisms, how the thing is happening the mechanism of it and also to understand the modification what is necessary or how the modification can itself be done that part we have understood through context.

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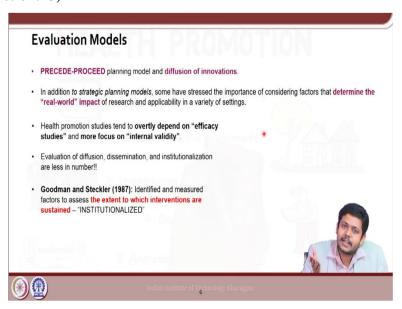
And now we move on to the evaluation models itself. So, how evaluation models can help us? See here, we have divided in two parts for the practitioners or the program managers who are particularly not interested in core psychological research for them it is evaluation models identify the key factors to consider when developing or selecting health behaviour programs. So, they are interested in identifying the key factors what is there for implementing a program or for a successful implementation.

Or for a good outcome or a better outcome whatever you say. So, for them the key factors are important. This is what the evaluation models give these are the I mean deliverables from analysis or these are the developer deliverables if we analyse the evaluation models and for researchers who are interested more on a core psychological or theory-based area for them the evaluation models identify important dimensions to be included.

That means they keep on refining the model they keep on improving the model itself. So, in a way the evaluation models the use of the evaluation models among the practitioners and the researchers or the program managers in the researchers are complementary. Because, the program managers are inclined to understand the key factors that you get through the evaluation models and the same evaluation model will yield what are the improvement areas.

Now, when that improvement is again incorporated the program manager will again understand a new set of key areas or take up the new set of key areas that will improve the program. So, this is in a cyclical way both of these the practitioner part and the researcher part the utility part of evaluation models are complementary.

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Now, we come to different evaluation models. See we have discussed about the formative evaluation the process evaluation the impact and the outcome evaluation. But we have certain

models for it those were the types of evaluation. Now, we dig deep into the evaluation models, we discussed about what are the models I mean do they give certain frameworks for you to perform certain analysis they have certain variables built in them the variables develop ultimately into a model.

Now, you analyse the relationship between those variables to understand the pathways inside a model. So, that is how evaluation models we will be considering those are the factors that will be considering and for that we have certain models. You have, already considered the precede proceed and the diffusion of Innovations model in your health behaviour model section but, remember while they are also the health behaviour models or the models for behaviour change, they are also the evaluation models.

Now, this brings me to this intriguing conclusion or this intriguing finding that in health behaviour researches you will find the models or the theories which is in fact translated into models or the other way around, I mean this area is a bit complex. But these are reciprocal in nature and you can say complementary but still I mean still then you have all these models which are also health behaviour models and they are also the evaluation models.

Because remember we are already evaluating the theory-based health behaviour programs. So, obviously some of those self behaviour models will have something to offer in our evaluation part. And in a similar way you have this precede proceed and diffusion as Innovation model has two very important models in our evaluation model framework. They help in evaluation of the behaviours.

So, there are certain strategic planning models in business administration or management we use the term strategic planning, it is not simple planning. We use strategy and planning together to achieve strategic planning which is believed to be and proven to be more efficient. So, when we are doing evaluation, we have to since it is an activity, we have to have certain strategic planning models. Now precede proceed diffusion you can consider it as a part of this strategic planning models but apart from these strategic planning models which are already there or in fact evaluating through strategic planning frameworks. We must consider factors that determine the real-world impact of research and applicability in variety of settings. Because health promotion intervention behaviour change communications the; behaviour change part is often an integrated thing or you can say an implicit thing often an intangible thing.

So, for that for any intangibles this kind of thing this kind of issue we must understand the factors that affect its real life or the real-world impact. So, it is not only the strategic planning part you see the strategic planning part here it deals with the I mean the whole lot of theory part. But it is not only the theory that is important you must remember I mean recognize the utility of the real-world impact of it.

So, apart from that in health promotion studies if you go through the literatures, I mean several authors have done certain reviews on how evaluations are done in health promotion studies or health promotion intervention packages. But they have found out is that, these evaluations are more or less dependent on efficacy studies efficacy studies they may be how effective the intervention are and are more focused on the internal validity of it.

External validity and internal validity are two different parts internal validity is how valid the intervention or whatever the program is in within the sample an external validity means, how we can extrapolate it to a similar kind of situation or a similar sample in simple terms these are the internal and external validity parts. So, the health promotion studies mostly in the literature they focus more on this internal validity part.

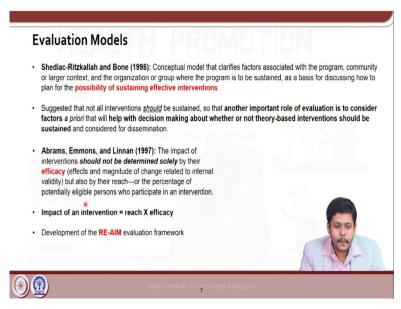
But if you consider conceptually, you will understand that since these are all the intangible benefits but these are intangible benefits in such a way that the behaviour change or the health promotion will ultimately yield the good health of the community as a whole. So, the stake or the yield that we are aiming at is so high that we need to extrapolate the findings or we need to extrapolate the strategies to a population of similar population.

So, that is the part which is lacking in the evaluation component of health promotion evaluation in research context perhaps. I mean you can go through the literature and you can still keep digging but the major literatures they focus on the effectiveness part of the efficacy part and the internal validity how good the interventions are within the sample. So, then comes the issue of institutionalization of changes.

Now, this concept was introduced by Goodman and Steckler in 1987. It I mean they identified and measured the factors to assess the extent to which interventions are sustained. You remember when we were discussing about the health behaviour change the steps in behaviour change there was in trans theoretical model also there was certain thing called maintenance of the behaviour. So, the sustenance the sustainability of this is again important in that context also.

Here, the issue is why sustainability is needed because a sustained intervention is basically the repeated one and through the repetition of the intervention the maintenance of that behaviour may be achieved. So, that is why the sustenance is called the institutionalization of the intervention.

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Now, there are certain debates, now we are moving a bit into certain debated areas and certain newer horizons in this evaluation models. While Goodman and Steckler they discussed that we need sustenance of the interventions there are certain issues that we may not require sustained

interventions. I mean some interventions may be so that the single interventions may be sufficient or some interventions may be, so that some interventions I mean they are sustained.

So, that is again contextual in nature so in those evaluations' models again contextuality comes into play. Consider this in recent past in fact, the conceptual model that clarifies factors associated with the program community or larger context and the organizational group where the program is to be sustained as a basis for discussing how to plan for possibility of sustaining effective interventions.

So, here we discussed about the extent to which interventions are sustained, the extent how much they are sustained. And here I mean we discuss about the plan for possibility of sustaining the interventions, why certainly we move from the extent to the possibility. You can find the example in the next bullet point. This suggested that not all the interventions should be sustained. That I was discussing that this is a debated area which intervention to be sustained and which one should not be sustained.

So, that is why they should not be sustained. So, that another important role of evaluation is to consider factors a priority that will help with decision making about whether or not theory-based interventions should be sustained and considered for dissemination. So, again a cyclical process emerges, we are discussing about evaluation models and these evaluation models in fact their responsible for discussing or they are responsible for considering the factors that will help in decision making.

That will help in deciding whether that particular intervention will be sustained or not. So, we have evaluation models first there are different evaluation models. And in evaluation models we are considering sustainability of the intervention to the extent to which or the possibility. Now, when we are discussing about the possibility it is responsibility of the evaluation model that we have taken up to itself decide or give some decision value to us.

So, that we; can decide on whether that theory-based intervention should be sustained or not. So, another role of evaluation models is not only to identify the extent to which the sustainability

must be there also, to explore the possibility of whether any other intervention should be

presented or that this same intervention should be sustained. So, a bit hazy spectrum you can say

or a bit interrelated spectrum that I would suggest, I mean it is fascinating.

And then after the issues of the extent to which it should be sustained whether it should be

sustained or not. We come to the topic of impact of intervention should be determined by what

factors. What are the factors that we should consider when we determine, I mean when we

discuss about the impact of those interventions. One concept is that, the efficacy that is more

focused on the literature is not the only one or not the only aspect we should focus.

We should focus on several other issues like the reach part of it. If you remember our discussion

during health communication part or health communication message's part, we repeatedly told

that for discussing or for devising health communication program you must consider the reach.

And you have several factors for that you have the you have to do the audience research you

have to do the environmental research everything you have to do but, you have to consider the

reach.

Which population is going to take up my interventions for whom I am devising the interventions,

how what percentage of the population is going to get that intervention, these are all the issues

that comes under reach. So, this is the impact of intervention is calculated to reach multiplied by

efficiency. This is one aspect that Abrams et al they have formulated and then we have the RE-

AIM evaluation framework.

We have a separate lecture for this RE-AIM evaluation framework because it is a very

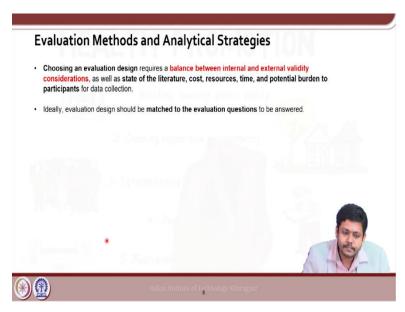
interesting framework and also a very effective framework because it encompasses the five

domains in the input process output paradigm it can compass is the different five domains which

helps us understanding the evaluation spectrum of any health behaviour.

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Next, we come to the evaluation methods and analytical strategies because, now in our next lecture we will be moving on to the analytical methods more in a bad statistical and epidemiological context. So, we gradually now move through this evaluation methods to the analytical strategies. So, while we choose an evaluation design as I have already said most lecture, I mean most literature they are concerned with internal validity.

We have to balance between internal and external validity in order to be a good evaluation design or good evaluation methodology. So, for that we have to consider the state of literature what we can find from the literature the methods or the cost resources time and the potential burden to the participants for data collection. Because, we have to collect data from the participants we have to engage them in the process.

We have to take some time from them all these issues are there we have to balance all this to consider the external validity also. So, ideally evaluation design should be matched to the evaluation questions to be answered. So, here the evaluation questions are the key factors, like in any research we have to answer the research question and for that we have to devise our strategy the methodology and everything.

Here, also in evaluation also when we are designing evaluation it is in fact a form of research and for that we have to match the evaluation question. For example, we have seen certain evaluation

types like formative evaluation. We have seen process evaluation; we have seen impact and

outcome evaluation. So, consider in this case we want to consider through behaviour change

intervention.

I am again coming into the covid 19 pandemic example because I feel it is relatable to us but

still, I mean let us go on with the example in covid 19 pandemic related area we have done

certain behaviour change exercises. Now, let us consider behaviour change with use of mask and

the imminent threat of mortality. So, in this study or in this behaviour change intervention the

digital outcome here is the mortality part.

And the immediate change is the practice of using mask. So, when we analyse this part when we

analyse this intervention what should be our evaluation design. We should promptly resort to

impact and outcome evaluation strategies. Because here, we have a short-term outcome or I

mean short term findings from this if we have a change use of mask, we can evaluate how many

people have started using mask.

And then we can evaluate what is the mortality pattern in the community or how many people

are still dying. So, I mean in a way what we can think of is I mean in a way our main research

question if the research question here would be the change in mortality pattern through the use of

this behaviour change program or through the use of this mask. Then the research design should

be outcome evaluation only.

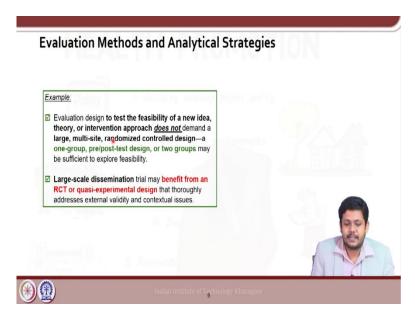
But, in the same example if we consider the use of mask only then our research design will be

again limited to the impact assessment. So, this is how our research question will ultimately

dictate the evaluation design of us.

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Now, here I have given an example, a more research methodology-oriented example like we have now chosen the evaluation type. Now, we have to choose which particular design to take up. So, first was in order to choose the design first was to evaluate take up the evaluation type then, now we have to find out which particular evaluation methodology or which particular design we are going to choose. Supposed to test the feasibility of a newer idea.

We must not demand a large multi-scale study because a newer area we may have a pre-pose design or a small scale two group analysis comparative analysis it may help. But large-scale dissemination trials they may be tested through multicentric RCT's or large-scale studies in fact. So, this is how our research question for example here the research question was a newer idea an emerging concept a novel one we did a small-scale study.

But when we have an established idea now, we want to understand the effect size or the utility of it, for that we are doing a large-scale study or here we chose the design of an RCT or a quasi-experimental design. In fact, we chose to resort to the different experimental designs here.

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Evaluation Methods and Analytical Strategies

• Strategies for assessing mediating mechanisms of change: hierarchical modeling, path analysis, latent growth curves, etc.

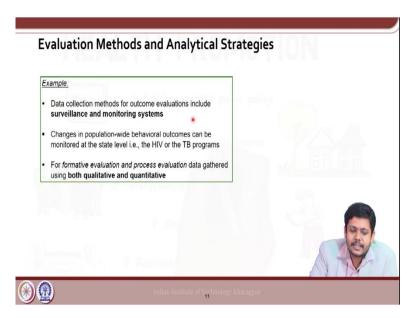
• Data collection methods vary with the type of design and evaluation questions asked.

So, this is how the different designs we are taking up. Then, strategies for assessing the mediating mechanisms of change you remember the contextuality of the things. So, we have to keep in mind the mediating mechanisms of change and for that we have to use certain advanced analytical techniques we in fact with the advancement of the computational techniques we have several of these strategies.

Or several of these technical modalities with us through which we; can promptly analyse those mediating factors and moderating factors. Some examples, are like hierarchical modelling we have different hierarchies and through I mean, it is kind of a multi-stage analysis you can say. And then through path analysis you can do it then you have I mean latent growth curves you can have in fact structural equations models you have different options over here.

And also, the data collection methods may also vary through the type of design like for a simple I mean for a simple small-scale study you can focus on a very detailed and very rigorous data collection design. You can focus more resources through that but, when you have an established idea for that when you are going to do an RCT for that you only focus on the key elements of it. Because now, you have to use I mean you have to handle a large amount of data with it. So, data collection methods may vary.

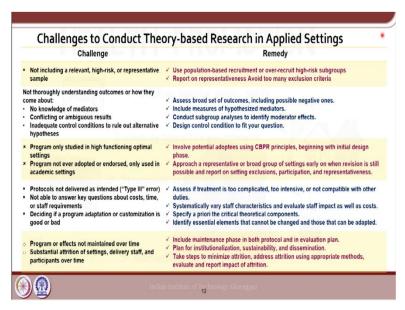
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Now, this is what I have given an example of different methods like you can have surveillance and monitoring systems and also changes in population wide outcomes can be monitored. Even at the state level you may not have to do a first-hand data collection itself because the authority is already doing it like for in HIV and TB programs over in India, you have different portals for identifying the patient behaviours or the patient practices.

So, from there also you can get the data of course. You have to have certain permissions but, these are also the sources. And then you can do for formative evaluation and process evaluation you can do both qualitative and quantitative techniques. We were discussing that also in the previous lecture.

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Now, this brings us to the last part of this lecture what are the challenges of this theory-based research in applied settings and how to overcome them. There are numerous challenges and there are certain remedies of it. Now see this slide it will be given to you as a supplementary material, you will be having ample time to go through it I am not going into details but what I want to highlight over here I want to highlight the concepts that are behind the challenges.

These will be I mean clearer to you when we discuss the RE-AIM method of evaluation later on but, let us first discuss a bit about all these challenges. Like the first one it says it is not including a relevant high risk representative sample, the issue of internal versus external variety that I have mentioned. Next, is not thoroughly understanding outcomes how they come about the concept of understand.

The researcher or the program manager has to have a sound understanding of how the changes are brought about. Then next level you have the programs only studied the high functioning optimal settings. Again, the issue is related to the internal and external validity because not all the settings are involved. See through all these examples you can understand that in typical evaluation of health behaviour related interventions the internal and external validity does not only imply.

I mean simply to the population per say or simply to the settings per say, I mean it is a

multifaceted issue you have to have your setting like these the optimal high functioning settings,

you have to have the representative sample also. So, this is bit, I mean into related part, but again

this poses a challenge, then you have another thing called type 3 error. We have in epidemiology

and bar statistics type 1 and type 2 errors and here we call it a type 3 error.

This is protocols not delivered as intended, remember while we were discussing the process

evaluation part, we were discussing what we intended and what we delivered. So, this part is

related to this type 3 error. Now there are certain other issues like cost times and staff

requirements these are all there. And then the programs or effects not maintained over time. So,

there is issue of maintenance.

Now this for this part I would like to say that this maintain or maintenance part is related to the

or maintenance of the RE-AIM framework, I mean we will go into details of that but, the to

highlight the challenges these are all your challenges. But for that you also have your remedies

for that because, these are all related problems you can recruit the representative sample from

representative areas.

You can study the representative areas through studying both the high output areas or optimally

outperforming areas and also the areas which are not performing that much well. So, by

combining this you can also address the issue of external validity. Now I mean, here also you

consider this like this maintenance issue and all you can consider the institutionalization part,

you can consider the sustainability part, you can consider its dissemination.

And also, you can consider the steps to minimize the attrition part of it. So, I mean the solutions

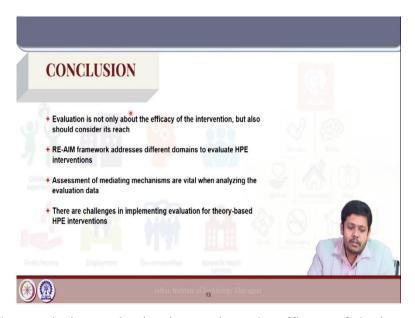
are just simple in terms of their problems. The main highlight of this chart is that first you have

to identify the challenges what are the challenges for your program for your intervention and

then you identify the corresponding remedy for it.

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So, coming to the conclusion evaluation is not about the efficacy of the interventions but also should consider its reach, the reach is an important part. The RE-AIM framework that we will be discussing later on, it addresses different domains the assessment of mediating mechanisms is you know vital, because they are the contextual factors and we have to understand the contextuality.

And there are challenges in implementing the evaluation of theory-based HP interventions, challenges that I have shown in just the previous slide and you have to always keep in mind the remedy because then only you can prepare a robust health promotion education intervention. The robustness will also come out when you do the evaluation of it. So, evaluation in a nutshell through these 2, lectures.

You can understand gives you the right to provide the evidence that yes, it is working. So, for that you have to be scientific and you have to choose according to your question.

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So, these are the resources both the books I recommend you can go through it, that is it thank you. Now, we move on to the analysis part, see you in the next lecture bye.