

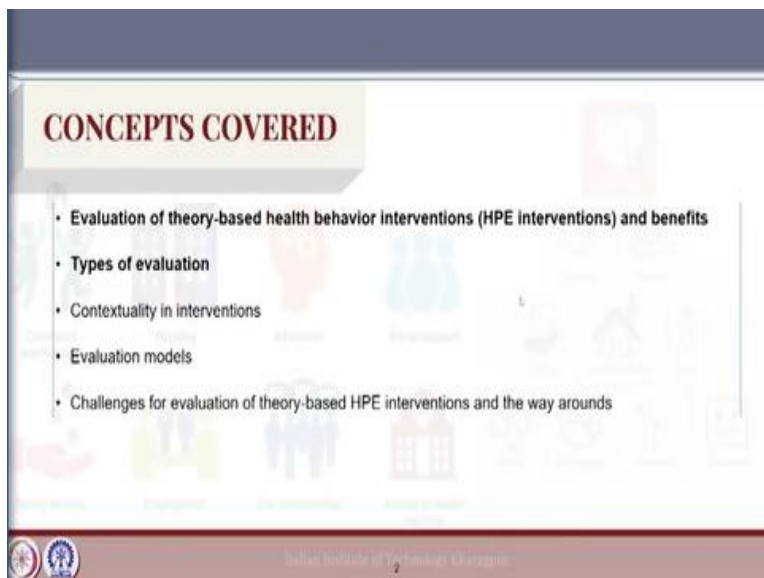
Basics of Health Promotion and Education Intervention
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Lecture - 36
Evaluation of Theory-Based HPE Interventions Part I

Hello everyone, till now we have had a very long discussions in each week. We discussed about health behaviour we discussed about health promotion; we discussed about health promotion education interventions and how to implement them how to plan to begin with. Now in this week we will be discussing on how to evaluate those interventions that we have proposed. We have learned theories we have learned models.

Now we are going to learn how we must evaluate the theory based HPE interventions HPE means health promotion education interventions. The context of evaluation of theory-based health promotion and education intervention is basically divided in two lectures. In this first lecture we will be discussing about different types of evaluation and in the next lecture we will be going into a bit detail. So, let us start with this lecture.

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These are basically the concepts that we will be covering in this lecture the highlighted ones. The evaluation of theory-based health behaviour and its benefits, the general overall outline for the evaluations and its benefits and the types of evaluations. The remaining three parts these are

more you know I mean a more detailed discussion is required for that which we will be doing in the next lecture.

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So, when we discuss about the benefits of evaluating any theory-based health behaviour. There are two major questions that we must answer first. First one is why do we need a theory-based health behaviour intervention in the first place or HPE intervention in the first place? Because see the theory-based interventions are when we incorporate theory while devising an intervention it becomes more robust and it becomes more objective.

So, why evaluating a theory-based intervention, why discuss it separately. Because what we want to tell you is that please focus on incorporating theories when we are I mean you go on to develop certain HPE interventions because that is how it will make it easier to evaluate and also objective like the intervention while using theory is becoming objective. The evaluation again because the theory is used is becoming objective because of its several constructs because of its several variables that we have.

So, now that we will be discussing in subsequently. What we start with is actually what Weiss has said in his 1998 paper. There are two overarching and important reasons for evaluating these interventions. So, what are the two reasons? Improvements in programs and improvements in policy. So, health intervention programs are running and the programs are in a way part of the whole health policy.

So, through evaluating those health intervention programs or HPE interventions that may be part of a program also we are benefiting the program itself and also, we are benefiting the policy in a larger scale. So, these are the basic two objectives of doing this evaluation or in fact not objectives I would say these are the two major benefits of it. So, how evaluations that I mean help improve the programs?

They basically what happens is they may clarify the dose or intensity of the intervention. You may remember that for any drugs or any kind of intervention pharmacological intervention we use the term dose of this drug or those are dose of this intervention. In a similar way when we discuss those response in health behaviour in health promotion intervention also you have the idea of dose and here you also have the idea of intensity.

Basically, both of these dose and intensity what they imply is how the intervention is being implemented how frequently that is implemented how we are reaching the target audience in this way. So, what this dose or intensity of intervention does is it brings about certain behaviour change and then we measure the extent of that behaviour change. So, that is how the dose response relationship is established in behaviour change interventions also.

So, by understanding the dose or intensity of intervention that is required to produce the minimum level of change. I am not talking about the degree of change I am talking about the minimum level of change or even you can say the degree of change also. That part gives an insight to the; programs and that is how the dose or intervention it is usually resource intensive. So, utilization of resource is dependent on how much we invest on a particular health promotion campaign per say.

So, understanding that those are intensity or in a simple term the frequency of that campaign we can wisely decide on these resources. So, that is how it helps to improve the program a wiser distribution of resources in a program. And also, evaluation how it helps in improvement in policy? It may clarify see over here it may clarify sorry again the laser pointer thing, we have a laser now. So, that how improvement in policy is brought about through evaluation.

It may clarify the costs and resources that are required. We were discussing about wiser distribution of resources in programs part now that wise distribution ultimately leads to the policy objective of it. Because there through the dose response thing we have determined what resources how much resources we have to give and now in terms of policy or in a higher level above program level what we have is we have a clarity regarding the costs that are involved with the resources.

So, that is how it benefits the program through its return on investment. When we discuss about return on investment it is a macro level thing, it is not about a single program it is usually about an umbrella of programs or package of programs. So, that is at the policy level by determining the costs it helps in benefiting the return on investment. So, how in fact these evaluations may help? It may also help in mobilizing the public support or increase the political will to make the needed actions.

Or remove the support for ineffective programs and provide accountability to funders and stakeholders. So, remember a program, an evaluation it must not necessarily always say the good things about a program. Through evaluation we have to be objective and we have to be data

driven we have to provide evidence. The evidence may point out at certain good things it may point out at certain bad things.

If a program is having certain bad things which is not again cost effective and which is misutilizing the resources the program should be dropped and that is how evaluation will help in removing support for ineffective programs. But for effective programs we need to have the support of the community and we also need to have the support of the administration as a whole. So, through evaluation we generate the evidence for all those things.

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Benefits of Evaluating Theory-based Health Behavior Interventions

- Evaluation results may contribute to the **development of new knowledge that creates new theory, refines existing theory, or contributes to the evidence base for intervention effectiveness.**
- Strong theoretical foundations are the hallmark of carefully constructed interventions that emerge from strategic planning efforts.
- One is able to **measure specified intervention outcomes**, as well as the **change in the theoretical constructs** that were **expected to lead to the change in outcomes**
- Researchers and practitioners are typically most interested in the outcomes or results of their study or program.
- Conceptual and logic models can be used to depict how intervention activities or "inputs" are expected to produce desired outcomes by way of changes in intermediate factors that are often theoretically linked.

Continuing with what are the benefits, you know the evaluation may contribute to development of new knowledge that creates new theory. Those were the programs and policy parts now take a step back and think about how these programs and policies are developed. These are developed researches and evidence generations at the planning phase or in the building block phase. So, through evaluation there also we can develop new theories.

We can identify why a program is failing or why a program is ineffective. It is a separate issue that if a program is ineffective, we will be dropping support from them or we may decide on that. But the basic reason for failing is basically identified through good research and that is a new knowledge a new theory may be formed. Again, through evaluation one is able to measure specified intervention outcomes.

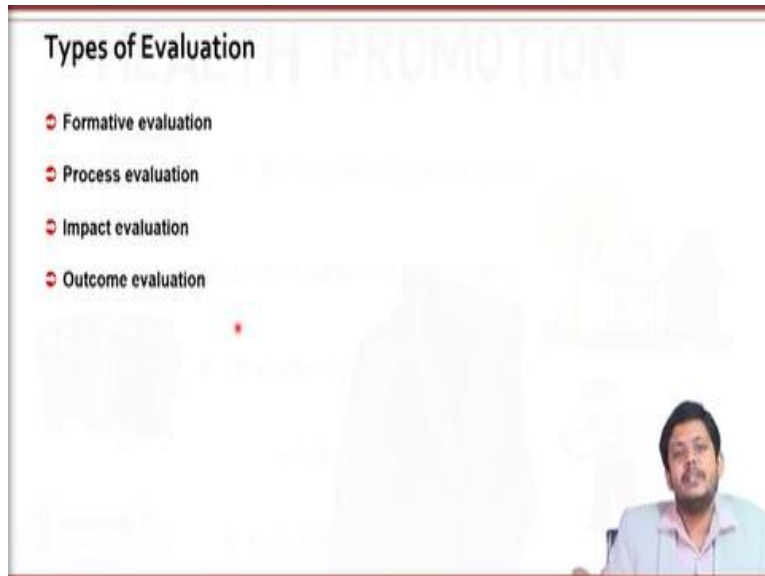
You can easily relate to outcomes research also and as well as the change in theoretical constructs that we expected to lead the change in outcomes. In a way this discussion ultimately will lead to identification of whether that behaviour change program was good or bad. But the expected to lead to change in outcome I mean the expectation that the program will ultimately lead to a change in behaviour it is in the spectrum in a positive end of the spectrum.

So, if we do not find any significant change from evaluation, we will consider it as a non-improvement or you can consider it is a bad investment also because we are not getting certain or expected improvements. So, for that the reasons as I was discussing is identified through research here also, we are identifying what are the theoretical constructs that are leading to this change the good change or the failed changes I mean no changes.

So, basically through evaluation I mean what we are interested as a researcher or a program officer we are basically interested in results or outcomes, we evaluate those things. But the idea that we must follow is that for any evaluation you must remember that the process of behaviour change has started from its planning phase or the inputs of it. The particularly we use the term inputs and outputs. So, only evaluating the outputs will not give you sufficient idea about the evaluation.

You must also identify the inputs and you must also analyse those inputs that is also part of evaluation. So, that is why we need a conceptual and a logical model. You can have a conceptual model like a framework and you can also have a logic model like what we call a logical framework. Now those are different discussions I will not be going into details of those but just remember that conceptual and logic models are important when we are evaluating all these theory-based health behaviour interventions.

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Now this brings to the next part of this lecture that is the types of evaluation. Broadly I mean I have taken this part or I am discussing this part from what the textbook on health behaviour change by glance at all teaches us is regarding these evaluation parts. So, I recommend you go through that part I mean that textbook that is highlighted also in the references of this lecture and show you that.

So, what that the text says is that the evaluation it can be mainly of four types when we are discussing about theory-based health interventions. First one is the formative evaluation you can also relate it to the formative research then is the process evaluation then is the impact evaluation and the outcomes evaluation. So, will be discussing impact and outcome evaluations together but now let us start with what is formative evaluation.

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Formative Evaluation

- Occurs **prior to the development of an intervention**
- Designed to help **refine and assess the strengths and limitations of theoretically based ideas or materials before full-scale implementation.**
- Formative evaluation should be conducted with **members of the intended audience**, may be qualitative or quantitative, and may use a variety of data-gathering tools such as focus groups, observations, surveys, and interviews, as well as **emerging data collection methods** such as photovoice and storytelling.
- *Example:* formative research often helps in developing culturally and contextually appropriate intervention strategies



Formative evaluation basically occurs prior to development of an intervention. See I was discussing about the inputs of a program or inputs of a health behaviour change activity for that you need to have a formative evaluation. See the term I have highlighted it before so it is designed to help refine and assess the strengths and limitation of theoretically based ideas the theory that you are going to utilize for developing that intervention.

For that part you need to have a formative evaluation to understand whether that is right or wrong or whether that is supported by the evidence or not supported by the evidence. So, that is why it is done before the full-scale implementation of any program. Now for formative evaluation you have many types of data collection techniques with you may have a quantitative technique or traditional quantitative technique or you may have certain qualitative techniques.

Because I mean if you go through literature, you may find that formative research of formative evaluation is mostly loaded with qualitative research methodologies. But it is not true all the time because you can also have certain descriptive quantitative research also because formative evaluation is all about exploring scopes and plugging in the gaps.

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Process Evaluation

- Measures the **extent** to which an intervention was delivered or implemented as intended
- Essential for **answering "how" and "why"** interventions may have been effective (or ineffective)
- Necessary for understanding how well the program or policy was delivered as originally planned and how it may have been modified.
- Measures whether the program was received, how much was received, and by which subgroups.
- Can help **tease out negative outcomes** and can help **expand understanding of positive outcomes**.

Now come to process evaluation. So, from input process to output the process form is the in between part or the part how input is ultimately converted to output. For health education interventions or health promotion and education intervention or health behaviour change intervention whatever you call it for that the whole process of bringing about the behaviour change comes into the purview of process evaluation.

What happens with process evaluation is it measures the extent to which an intervention was delivered or implemented as intended. So, after formative evaluation or the input evaluating the inputs now, we have a plan on how to implement the research activity or implement the program. So, through process evaluation what do we do we identify the extent to which an intervention was delivered actually.

We match like suppose we wanted to implement it in X way suppose in a capital X way and we implemented suppose in a small x way. So, we match how these two implementations the proposed implementation and the actual implementation they differ from each other. This gives us some indices for process evaluation also. So, basically what process evaluation answers is how and why interventions may have been effective or ineffective I have said.

Now that the intervention we were proposing they may be effective means in a good part of the spectrum or positive part and they may not bring about any change that is a bad part of the

spectrum that is the effective and ineffective. So, process evaluation explains how and why. How the intervention actually changed the behaviour in a good way or did not change the behaviour and why it did so. So, these are the issues addressed by our process evaluation part.

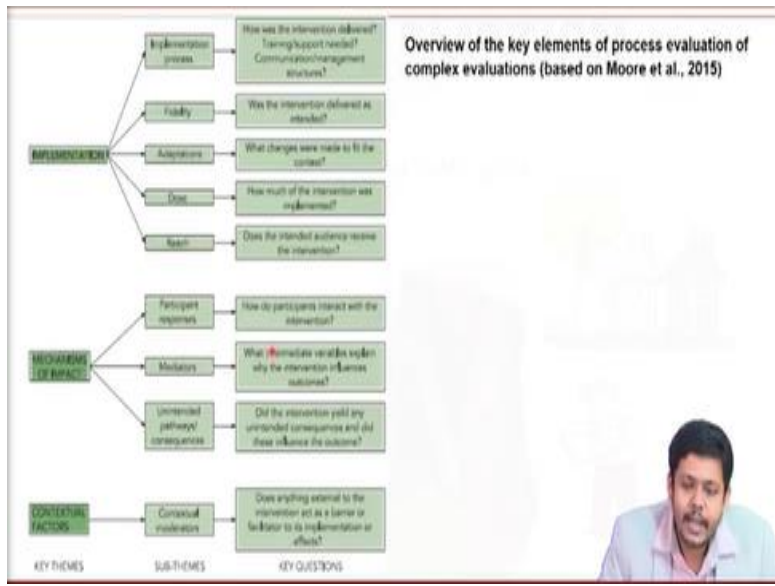
It is you know it is also necessary as you can see for understanding how well the program or policy was delivered as originally planned. I already told you it is a comparison between original planning and how it was delivered actually. So, by that comparison we not only have certain indices by that comparison we give feedback. Remember the feedback loop in our communication lectures from receiver you have feedback to the sender again.

So, it is a say in the same way from the outputs from the analysis of all the process part we have a feedback in itself to improve on the process and that is how we plan on to modify it. It in fact measures whether the program was received and how much it was received. We will be discussing about certain models of evaluation and for that how the program was received and how many participants participated in all these issues they mostly relate to you know reach context of it.

So, that is again a very important part of process evaluation and you can easily understand that since we are digging deep into how and why of these interventions this part. So, from how research in how and why you can easily identify the negative parts negative outcomes or how or why the program is not yielding any effect and also understand how it is yielding the effects. So, from that understanding you can easily maximize the benefits by yielding more effects.

Or influencing those factors or putting in more and more those factors you only plug in those factors which are influencing the change and you remove the factors which are hindering the changes. So, through that you can tease out the negative outcomes also.

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Now based on the work by Moore et al this is a framework I mean overview of key elements you know for process evaluation of complex evaluations. See evaluating input process output and the simple process in a simpler intervention will be easy it will be based on simple certain simple indexes. But when we go on multiple, I mean if you consider multiple interventions as a single package of intervention if you have to evaluate a single package then you have to think through this framework.

See the key themes here on your left side, see their implementation, mechanism of impact and contextual factors and we will be discussing about contextuality in later lectures I mean in next lecture itself. So, from these themes we have to identify the sub themes and we have certain key questions. I will not actually elaborate all the questions but I will just show you how to go about it. So, for implementation you have something like implementation process.

For that you have a question how was the intervention delivered. See the how and why we have the first question is how. The training or support needed whether the for the interventions you needed any training or support then any communication or management structures needed for development of the intervention this is usually important in program part and is particularly relevant when you are planning for any policy level in thing.

Then there is another thing called fidelity, the question is, was the intervention delivered as intended. So, the difference the pro difference that we want to understand is whether it was delivered as intended or not. So, this part comes under this question then there is question of adaptations, what are the modifications that is what relates to the adaptation then there is a question of those how much of the intervention.

See that the dose response relationship then the question of reach is there how I mean does the intended audience receive the interventions. I told you in the previous slide that when we discuss about the audience the number of audiences did, they receive it this will come under the issue of reach. So, this is where more at all have placed it. This is regarding the implementation part. Now for a process you have implementation that is going to be the program is going to be implemented then before outcome you also have the mechanism of impact.

Because you are aiming at an impact from this whole thing from this whole behaviour change program. So, for that you have must have a mechanism of impact. Here I must say that the mechanism of in fact devising that mechanism the use of theory is there. Through models and through theories you can think of certain mechanisms and that is how evaluation of theory-based health promotion interventions I mean that is relevant.

And for that relevance also the evaluation of mechanism of in fact it is again I mean in a reciprocal way it is again important. So, what are the themes under this the participant responses then there is the issue of mediators unintended pathways or consequences that we most commonly when we discuss about in epidemiological terms, we consider confounders that may be there. The mediators will be discussing a bit about mediators because mediators are very important in health behaviour research you know.

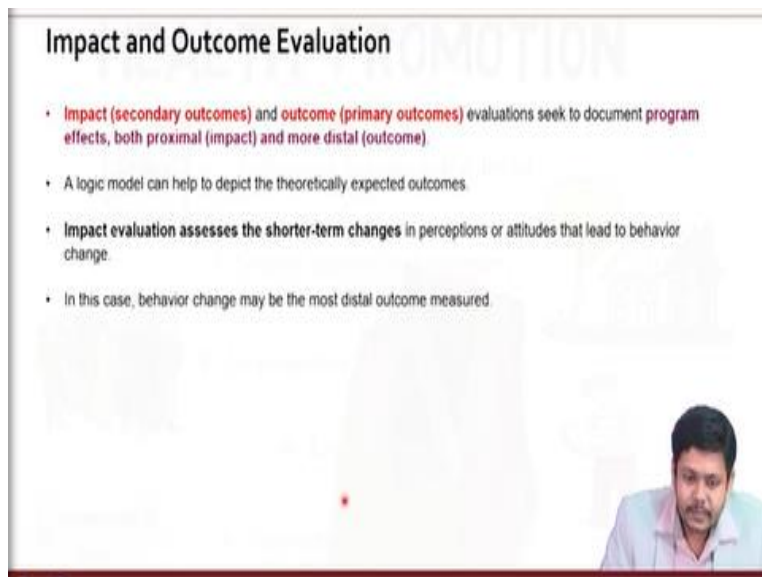
So, that will be discussing later on these are all the sub themes that come under mechanism of impact. Because here we are discussing mechanism how that change is going to come. So, in participant response you have a question how do participants interact with the intervention. The participants interact with the intervention that means the how the participants are receiving the

interaction whether they are receiving it at all or not the interface of this intervention and participant it comes in between.

And then under moderate and the mediators you have what intermediate variables explain and why the intervention influences the outcome. So, there may be something placed in between like the process is in between in input and output the process itself when we are evaluating the mechanism of change may be again dictated by some things. Here they have mentioned about mediators but also, we may consider moderators as important factors.

But we will be discussing them in later lectures. And under contextual factors there are contextual moderators. See I was discussing about mediators and moderators I was telling that moderators may be present even in the mechanism impact phase. The authors have placed moderators as contextual moderators under the contextual factors behind the process.

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Impact and Outcome Evaluation

- **Impact (secondary outcomes) and outcome (primary outcomes) evaluations seek to document program effects, both proximal (impact) and more distal (outcome)**
- A logic model can help to depict the theoretically expected outcomes
- **Impact evaluation assesses the shorter-term changes** in perceptions or attitudes that lead to behavior change.
- In this case, behavior change may be the most distal outcome measured.

So, with process evaluation let us now come to the final part of input process output model the impact and outcome evaluation. The impact is the secondary outcomes and the outcomes are the primary outcomes. Now it is bit tricky you know see the proximal, proximal means what we can have immediately that is basically the impact or the secondary outcome. And what we can have more distally in a more long-term way that is the major outcome for this study or for this research or for this program.

That is the primary outcome of it. So, this is what outcome and impact and outcome evaluation they consider. Now the proximal and distal thing the timeliness of it or the or how they are placed in the time control that can differ. For this we must have a logic model as I have already mentioned because without a logical framework you cannot define or you cannot discriminate from impact and outcome.

So, what impact evaluates is basically impact evaluation assesses the shorter-term changes that I was discussing more proximal the nearer changes and perceptions or attitudes that lead to behaviour change or the key thing here is the shorter-term changes. And when impact evaluation is basically evaluating the shorter-term changes in perceptions or attitudes. In that example you can consider behaviour change as a whole as the digital outcome measured.

So, when the model or when the evaluation strategy as a whole will measure the behaviour change that will be the outcome evaluation. Because see through perceptions and attitudes then the ultimate behaviour change will occur. So, first occurs is change in perceptions and attitude and then behaviour change occurs. So, impact evaluation here will be the shorter-term changes and the shorter-term changes are the attitudes and perceptions over here.

And the longer-term changes are the behaviour change as a whole. So, that will be the behaviour change in this example will be the outcome evaluation.

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Impact and Outcome Evaluation

- Impact evaluation may focus on behavior change, and outcome evaluation may be even more distal—i.e., changes in morbidity, mortality, or quality of life.
- The decision about what to measure as outcome/impact evaluation **depends on the type and intensity of the intervention, timeframe to assess results, and the stated, measurable objectives** of the intervention components.
- A continuum of outcomes is often the reality in public health projects.

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See I have highlighted in red over here. The impact and outcome evaluation may be intervening in us in a way that they you know they may change places like impact evaluation may focus on behaviour change and outcome evaluation may even focus on more distant change. If you consider the example of how smoking behaviour will ultimately lead to morbidity or mortality in a population then mortality is your long-term change and smoking behaviour is your short-term change.

So, then even though it is a behaviour it becomes the impact evaluation constitutes the impact evaluation part and mortality constitutes the outcome evaluation part. So, this is how the temporality of it changes basically on the aspect that we want to evaluate. The one which is coming nearer or which comes first in the timeline it will be the impact evaluation and the one which is placed later on in the timeline remember it will be the outcome evaluation.

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CONCLUSION

- + two overarching and important reasons for evaluating interventions are to contribute to (1) improvements in programs and (2) improvements in policy
- + Formative, Process, Impact, and Outcome evaluations are the major types of evaluations used in theory-based HPE interventions

So, in the conclusion we must again come back to the main two issues. What Weiss has said and through which we started this discussion is that the evaluation of this kind of theory-based health promotion education intervention they usually help in improvements in programs. As I have already told interventions they make certain interventions may constitute and program and the program strategies may be modified, resource may be allocated to a different part of it through these, programs may be improved and improvements in policy.

How improvement in policy occurs? Improvement in policy occurs through proper utilization of resources the cost issue of it and all these macro level things like return on investment these are all decided through improvements in policy. For that you also have certain economic evaluations also which may again come under the purview of evaluation of the health behaviour and education interventions.

And we have studied the four different evaluation methods or the four different evaluations which start from input continuous with process then through output and we discussed that impact and outcome evaluations how they differ in the timeline. The first one impact evaluation is the evaluation of the secondary objectives and the outcome evaluation is the evaluation of primary objectives or the more distal outcomes.

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RESOURCES

- Glanz K, Viswanath K, Rimer B. Health Behavior: Theory, Research, and Practice, 5th ed. San Francisco, Calif.:Jossey-Bass;2015.
- Prestwich A, Kenworthy J, Conner M. Health Behavior Change - Theories, Methods and Interventions. Routledge; 2018.



The slide background features a grid of icons representing various health and social concepts: Children's development, Housing, Education, Employment, Childcare, Employment, Communities, Access to health services, and a central icon of a lightbulb.

So, I was discussing about these resources particularly this resource is very helpful in this context. So, you may consider going through this or else you will be having the handouts also I will be having the supplementary materials. Please go through them to have a deeper understanding. We will see you in the next lecture and with a deeper understanding of certain other factors certain other issues that we have left for discussion. Thank you.