Research for Marketing Decisions

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Week - 06

Lecture - 27

Measurement and Scaling: Multi item Scales, Conceptual and Operational Definitions

Good afternoon everybody. We were discussing the multi item scales last time. So there are couple of topics that are left from there, and once we cover them, we will move towards questionnaire development topic. So in the multi item scales we read about why for measuring a particular concept multiple questions would be relevant.

Multiple questions would make more sense than one question, right? Now going into more depth of that, the scale, single question or multi-question is called operational definition. And the concept, the definition of the concept that we are measuring that is called conceptual definition. So whenever we have some concept which is in the black box of customer, in the mind of customer which is a black box. Whenever we have certain concept, its conceptual definition is what it is?.

It is a generalized idea. What is the general idea about that particular? So when we say conceptual definition, how do you give an idea? What is understanding of that particular concept that is called conceptual definition. An operational definition is how you are going to measure that concept. So conceptual definition is it is a general idea about what that particular concept is generalized idea and operational definition is the way to measure that conceptual definition, so our operational definition should align with the conceptual definition to the minimum, which means it is minimum that it should align then it has to be reliable and valid the operational definition if it is a multi-item scale we will see what it is so

so, I hope you understood these two things. The conceptual definition. Let us say we will take an example. Introversion. Let us say I want to measure.

I want a conceptual definition of introversion and operational definition. So conceptual definition is an idea about what this concept is. Is an abstract idea is the conceptual definition. I could say that introversion is the stable personality characteristics. When I say stable, which means it doesn't change frequently.

Introversion is a stable personality characteristic in which one feels more ease and comfortable when alone. Right? This becomes a conceptual definition. Now what is the operational definition, operational definition is how I am going to measure it for example, operational definition is this particular multi-item scale starting from I blush blush easily at parties, I tend to be a wallflower staying home every night is alright with me, so that becomes the operational definition. Right? Let me take another example.

Customer loyalty. I can define the conceptual definition. The abstract idea about customer loyalty is let's say I say that it is the feeling of attachment that one feels for a brand. It is the feeling of, so customer loyalty I am defining. I am giving an abstract idea.

It is the feeling of attachment or somebody could say that it is the feeling of love which one has for a particular brand, customer loyalty. It could be, again, conceptual definition can be, the definition can be different. So this is, let us say, this is the definition. So what could be the operational definition? There can be multiple operational definitions.

One operational definition is, multi-item scale, I can ask if my conceptual definition is of the customer loyalties, the attachment that one feels with the brand is brand loyalty, is customer loyalty towards a brand, customer loyalty towards a brand. The operational definition, which means how I would measure it, I can put the multi-question scale saying that I feel discomfort when I don't have that brand strongly agree to strongly disagree. I refer this brand to my friends to buy I prefer this brand over other brands.

So, you have multi question that could measure this customer loyalty, right? It is a multi item scale. One could also measure customer loyalty in a different way saying that I am going to measure. So, one is this three these items which I said. When you define conceptual definition, there is a conceptual definition for customer loyalty towards the brand.

Then there is a operational definition. I said number of items which you can use to measure it you have to take the average for a particular respondent the score will be customer loyalty towards that particular brand. There is other way to measure it let's say I measure it by asking how many times when you made purchase in that particular product

category you bought the particular brand? If it is always, I would say it is the customer loyalty. So this is I am using the behavior. I am asking how many times. This is another way of measuring.

This is again operational definition. So there can be different operational definitions for a conceptual definition. And you have to see which operational definition would capture your conceptual definition. When I say degree of attachment with a brand and I measure using suppose I measure using how many times you buy this brand whenever you buy this product category? will it capture the conceptual definition? somebody could buy because nothing else is available right? so we have to see whether the operational definition captures the conceptual definition. So let's say we have another concept called let's say stress in the classroom its conceptual definition abstract idea is the the sense of discomfort

and unease mental unease that one feels in the classroom right? this is conceptual definition abstract idea, but then you have to measure it one is you go to the google scholar find out stress in the classroom, how do you measure multiple question, what are the multiple questions, there are other ways, let's say I borrow the the BP machine or the heart rate small machine that we are putting for measuring oxygen level, and give it to each one of you, and that will show somebody who feels a lot of stress in the classroom the heart rate would be very high. That is another way of measuring the stress. So, for a particular concept there can be multiple ways of measuring the stress. The operational definition has to be selected keeping in mind that does it align with your conceptual definition.

If it does not align then that is not the right operational definition that you are choosing to measure a particular concept, and even the conceptual definition has to be chosen in such a way that the abstract idea about it is commonly accepted I cannot have this conceptual definition which is difficult for people to believe that this is the idea behind this particular this is the abstract idea behind this concept. So when you are going to do studies related to market research, marketing and you are required to do a survey, the first step would be for your variables you need to define them. There has to be abstract idea has to be written. Only then you will choose the definition, the operational definition.

Whether you are going to use single item Likert scale, multi item Likert scale or other methods. Because that is how you are going to test your hypothesis. You have to measure. You have to measure attitude towards the brand, attitude towards this, their

feelings towards the brand, their knowledge about a brand, their image towards a brand, their image, their idea, their perception or their attitude towards a particular characteristic of a brand. You will have to do all that.

and then you will have to define a particular concept based upon the abstract idea and make sure the operational definition that is chosen alliance to that conceptual definition otherwise if they don't align which means you are defining it in a one way and measuring it in another way that should not happen, and let me cover the last concept also before we begin the exercise that is given at the back of the sheet. Now so when you have in step 2 hypothesis written and step 3 you are doing the research design conclusive research design right? you will have to you will have to make a survey questionnaire for a descriptive research in your project also you will have to make a survey questionnaire. In survey questionnaire, you would know for what concepts you would have to make the questionnaire because those concepts are part of your hypothesis and research questions. Now before you make the survey questionnaire, you will have to define, you will have to look at their definition. Let's say in step number 2, you would have chosen those concepts from somewhere.

What is their conceptual definition? And in that paper itself, you will get the operational definition itself. Let's say we were looking at service quality, responsiveness, one of the attribute, one of the constituents of service quality, which was part of the step number two. In research design, descriptive research design or survey making, when we make the survey in descriptive research design, we will have to put questions to measure responsiveness, which comes as one of your hypotheses. How you would measure?

Go back to the same paper, find out how responsiveness, what were the items used and then include that as a part of your survey. Can you develop multi-questions on your own for a particular concept? You can develop but they would not be reliable and valid. So better to use a consulting report or a research paper where the multi-item measure is already there. If you are not going to use multi-item measure you can use other ways of measuring the same conceptual definition.

As I said for measuring the stress you need not always give the Likert scale, you can give the machine and look at the heart rate for everybody in the class and you would be able to measure stress that way also provided you know how to look at the heart rate for stress indication. Let me say we have to know the theory behind the like how the heart rate correlates to stress. Then only we can use that method. Ah yes.

So let us say you want to measure this concept. Let us say you want to measure this particular concept. Graphically let us say there is some this is a particular concept you want to measure. And you have let's say four arrows, four arrows represents four items, four multi questions to measure which you are using to measure this particular concept. Let's say item number one, item number two, item number three, item number four, what I am showing here is

these items are actually this item is measuring something capturing this thing, capturing this thing, capturing this thing, capturing this thing, all of them are capturing different different ideas and they are not also capturing the one they were intended to capture. So when all of them are capturing different ideas, these four items are unreliable and when they do not capture the idea that they are intended to capture, they are invalid. So right now they are not reliable, not valid. We should not use such scales. So that generally doesn't happen this kind of problem.

So what did you tell that they are unreliable? Reliable means whether all of the items are measuring the same thing. If they are measuring the same thing, then if they are measuring the same thing, that's what if that's what when we develop a scale, we capture different let's say, introversion, for introversion you look at the different items, the different questions that we put. What were the questions? In parties, I tend to be a wallflower.

I like to stay at home in the free time. So, all of these questions are actually true of somebody who is introvert. So there will be correlation. Right? So when we develop a scale, we look at different behaviors.

But all of them are correlated. Somebody, you want to see... You want to measure, you want to see, let's say, how much alcohol somebody has consumed?. One way is to use that machine which our police uses. The other way is you look at how he, one indicator is how he speaks, how he walks.

How he is looking at things. You will get an idea. So these are multiple behaviors that give you an idea. All of these are correlated because somebody who is heavily drunk would do all these things. So you would know these three behaviors are happening and they would happen to somebody who is heavily drunk.

Likewise the scales, the different questions of the scale are such that they are captured different aspects of this particular concept. But they would happen when the concept will

happen. Now let's say these are four items. Now they are measuring the same thing. But they are not measuring what they are intended to measure.

Which means, let's say if a mother has four children. If she says to each one of them go to store and buy milk. All of them go and come back with chocolate in hand. They are doing the same thing, but they are not bringing what they are intended to bring. So which means they are reliable.

All of them are consistent. So this is all of them are consistent. But they are not doing what they are intended to do. So they are invalid. Now, when all of them will be here, then, we say they are both reliable because they are consistent doing what is asked to them to do.

If a mother says bring milk, all of them bring the same 4 milk packets. That is consistent with each other which means reliability and doing what is expected of them. So items, Consistent with each other and measuring what they are expected to measure that is called validity. So the multi-question scales that we use should be reliable, as well as valid.

How they will be reliable and valid? Better that is why it is difficult exercise, that is why better to use the existing multi questions, rather than making something on your own. Because many a times, we would think that these four five items that we made to measure a concept they are good. But customers won't see that. The one, respondents won't see that.

They won't interpret things the way you would you are interpreting. Let's say you have one statement that Coca-Cola distribution is adequate. For you, because you are a business student, you would know Coca-Cola distribution Coca-Cola, everybody understands. Distribution, you would understand because you are studying marketing.

It's adequate. So adequate is a common English word, right? Now you go outside. You ask this question to a customer just because Coca-Cola has given you your assignment to find out whether our... The P placement, P is, you know, doing well.

So, you ask a question to a respondent. Your question is, is Coca-Cola distribution adequate? First of all, let us say it is translated also in different languages, right? Now, distribution is a word that only not everybody would know, and even in other departments also, if you ask this question, they would not understand it.

Coca-Cola distribution? Who is distributing? Let's go. Is adequate? Where?

Where is it adequate? Is somebody distributing Coca-Cola? So, you will have to use a more simple question, which is understandable not only by you, but mostly by your customers. So that is the problem that happens when you write the questions, items on your own thinking that you are able to understand, your respondents would be able to understand, but they may not. So which means when you are giving them to answer, they might interpret, you wanted them to interpret this but they might interpret this and answer there.

That is why they would become unreliable or invalid. That will happen, you know, they are very common. In everyday also, your friend is saying something, you interpret it in a different way, and you know both are happy because you know you have communicated, he or she knows okay, he or she has understood. If it is just a normal casual everyday conversation, nothing important. If it is a very serious one, then implications would be there, right?

So, this is it about the multi-question scales and they are very, very important, especially attitude, knowledge, beliefs, feelings, every concept in you that you would see in marketing can be measured through multi-question scales. Psychometrics in the human resources, in psychology and everything, this is all psychometrics. Multi-question scales are about psychometric evaluation. You will have to use them a lot. Now there is an exercise at the back of the worksheet regarding two concepts happiness and self-esteem. So each one of you write the conceptual definition, operational definition. You can find through Google Scholar, but I don't want which is the correct way but I don't want you to do that. You can write some items on your own, but the correct way is you go to Google Scholar and get the items, and write it.

If you have access to your phone, then you can actually, you know, do both. Write the conceptual definition. Either on your own or looking at a paper, and write the operational definition for two concepts. I would be happy if you write the conceptual definition, which means abstract idea on your own, and write the operational definition from the paper. Whatever is your choice, but the idea is the best way is to look at the papers, to look at, go to Google Scholar or some consulting report

where the concept definition, conceptual definition is also given and operational definition is given. The choice is yours, but this is just an exercise. The best one, as I said, you go to the report, see what is the conceptual definition, see what is the measure

and write that. That is the best way. If you have difficulty in getting that, you can try to write the abstract idea conceptual definition on your own and the operational definition also on your own.

Although I have already told you, cautioned you that the multiple questions that you are going to write, they will not be reliable and likely not be reliable and valid. You will have to submit this worksheet to me at the end of the class. Sometime back brand equity did on brand trust. I think a year back you will have a brand equity issue on brand trust where they hire a market research agency and this was a report on India's 100 trusted brands and they measured brand trust, conceptually defined it, put down the items, did the survey across cities and the results were given on brand equity. So, if you happen to work for a media firm and you are given such a task, you know how to do it.

So, happiness in Hindi, in let us say Hindi speaking areas, one could actually measure happiness just with a single phrase. You know, there are different ways to measure. One can write in English. One can, if it is a Hindi speaking area where people understand Hindi, you know this is the right phrase to measure it. Why not?

But this will be one item. And happiness can be, somebody would say it is a short term, then their conceptual definition will be different. Somebody would say long term. What is happiness? Whether it is long term, short term, your conceptual definition should capture it, and operational definition should align with that conceptual definition.

You have to define happiness, first of all it has to be part of the issue you are investigating right? and happiness generally when we say happiness, we talk about stable, you know, long term, so, happiness I am not talking about mood, or the the short term thing, so one can, but again, happiness could be defined in different ways depending upon the objective of your research. Generally the happiness is for a long-term concept yeah some definition that you have to so so that is one issue. Somebody is saying happiness, can I write for the short term? Somebody is saying long term.

One is, we have to see what is our research objective that I did not give you. But if there is no, if there is confusion, go to the literature, go to the scholar consulting reports, Google scholar consulting reports, see how they are defining happiness. Choose that conceptual definition, operational definition so that there is some consistency. Let's say the issue would have, let's say if we are doing for a particular study which says that does this store or does this small atmosphere induce happiness? Then you are not looking at long term.

Then you have to define it short term. Whereas if this is a survey about life happiness or something related to some different objective, then you could define happiness accordingly. Does the mall atmosphere induce happiness? Why we are looking at that? Because the more happy people are in the mall, the more they end up buying.

The more they end up staying at that place. Abstract idea. In conceptual definition, you need to write the abstract idea about the label, the concept that you are going to measure. The measure, the statements, items, questions and the answer options.