
1

CONCEPTS-BY-POSTULATION AND CONCEPTS-BY-INTUITION

In this chapter, we will first discuss the difference between concepts-by-intuition and the concepts-by-postulation. After that we will illustrate the different ways in which concepts-by-postulation can be defined by concepts-by-intuition. In doing so, we will make a distinction between concepts-by-postulation, namely between concepts with reflective and formative indicators. These illustrations make it clear that there are many different ways to define concepts-by-postulation.

The effects that the wording of survey questions can have on their responses have been studied in depth by Sudman and Bradburn (1983), Schuman and Presser (1981), Andrews (1984), Alwin and Krosnick (1991), Molenaar (1986), Költringer (1993), Scherpenzeel and Saris (1997), and Saris and Gallhofer (2007b). In contrast, very little attention has been given to the problem of translating concepts into questions (De Groot and Medendorp 1986; Hox 1997). Blalock (1990) and Northrop (1947) distinguish between concepts-by-intuition and concepts-by-postulation.

1.1 CONCEPTS-BY-INTUITION AND CONCEPTS-BY-POSTULATION

Regarding the differentiation between concepts of intuition and concepts of postulation, Blalock (1990: 34) asserts the following:

Concepts-by-postulation receive their meaning from the deductive theory in which they are embedded. Ideally, such concepts would be taken either as primitive or undefined or

Design, Evaluation, and Analysis of Questionnaires for Survey Research, Second Edition.

Willem E. Saris and Irmtraud N. Gallhofer.

© 2014 John Wiley & Sons, Inc. Published 2014 by John Wiley & Sons, Inc.

as defined by postulation strictly in terms of other concepts that were already understood. Thus, having defined mass and distance, a physicist defines density as mass divided by volume (distance cube). The second kind of concepts distinguished by Northrop are concepts-by-intuition, or concepts that are more or less immediately perceived by our sensory organs (or their extensions) without recourse to a deductively formulated theory. The color “blue,” as perceived by our eyes, would be an example of a concept-by-intuition, whereas “blue” as a wavelength of light would be the corresponding concept-by-postulation.

The distinction he makes between the two follows the logic that concepts-by-intuition are simple concepts, the meaning of which is immediately obvious, while concepts-by-postulation are less obvious concepts that require explicit definitions. Concepts-by-postulation are also called *constructs*. Examples of concepts-by-intuition include judgments, feelings, evaluations, norms, and behaviors. Most of the time, it is quite obvious that a text presents a feeling (x likes y), a norm (people should behave in a certain way), or behavior (x does y). We will return to the classification of these concepts later. Examples of concepts-by-postulation might include “ethnocentrism,” different forms of “racism,” and “attitudes toward different objects.” One item on its own in a survey cannot present an attitude or racism, for example. For such concepts, more items are necessary, and therefore, these concepts need to be defined. This is usually done using a set of items that represent concepts-by-intuition. For example, attitudes were originally defined (Krech et al. 1962) by a combination of cognitive, affective, and action tendency components. In Figure 1.1, an operationalization of the concept-by-postulation “an attitude toward Clinton” is presented in terms of concepts-by-intuition, questions, and assertions representing the possible responses.

Concept-by-postulation:

Attitude toward Clinton

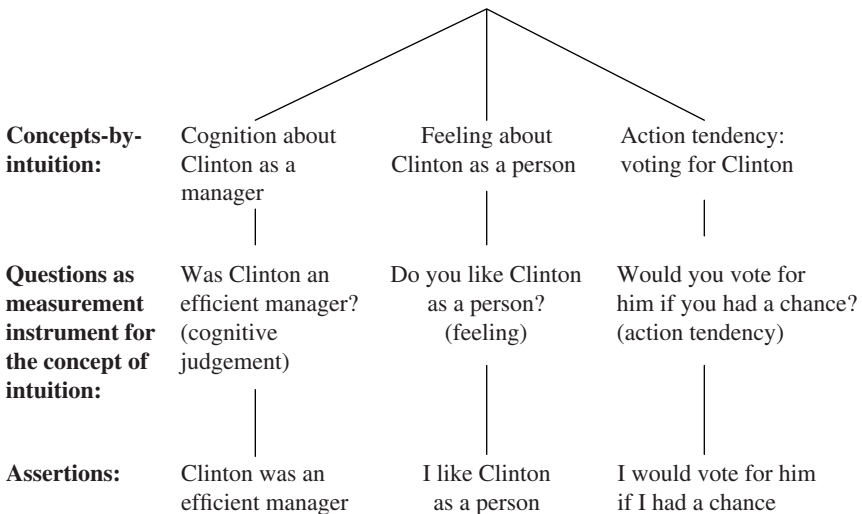


FIGURE 1.1 Operationalization of an attitude toward Clinton.

Three assertions are presented at the bottom of Figure 1.1. There is no doubt that the assertion “Clinton was an efficient manager” represents a cognitive judgment, that the assertion “I like Clinton as a person” represents a feeling, and that the assertion “I would vote for him if I had a chance” represents an action tendency. From this, it follows that the questions connected to such assertions represent measurement instruments for “cognitions,” “feelings,” and “action tendencies,” respectively. Given that there is hardly any doubt about the link between these assertions, questions, and the concepts mentioned, these concepts are called *concepts-by-intuition*. However, the reverse relationship is not necessarily true. There are many different cognitive judgments that can be formulated regarding Clinton, whether as leader of his party or as world leader, for example. On this basis, we can conclude that there are many different possible “cognitions,” “feelings,” and “action tendencies” with respect to Clinton. But normally, after selecting a specific aspect of the topic, one can formulate a question that reflects the “concept-by-intuition.”

In contrast to concepts-by-intuition, concepts-by-postulation are less obvious. In our example in Figure 1.1, the concept-by-postulation “attitude toward Clinton” has been defined according to the attitude concept with the three selected components. However, this choice is debatable. In fact, currently, attitudes are often defined on the basis of “evaluations” (Ajzen and Fishbein 1980) and not on the components mentioned previously. Although these two operationalizations of attitudes differ, both define attitudes on the basis of concepts-by-intuition.

As early as in 1968, Blalock complained about the gap between the language of theory and the language of research (Blalock 1968). More than two decades later, when he raised the same issues again, the gap had not been reduced (Blalock 1990). Although he argues that there is always a gap between theory and observations, he also asserts that not enough attention is given to the proper development of concepts-by-postulation. As an illustration of this, we present measurement instruments for different forms of racism in Table 1.1.

Several researchers have tried to develop instruments for new constructs related to racism. The following constructs are some typical examples: “symbolic racism” (McConahay and Hough 1976; Kinder and Sears 1981), “aversive racism” (Kovel 1971; Gaertner and Dovidio 1986), “laissez-faire racism” (Bobo et al. 1997), “new racism” (Barker 1981), “everyday racism” (Essed 1984), and “subtle racism” (Pettigrew and Meertens 1995). Different combinations of similar statements as well as different interpretations and terms have been employed in all of these instruments. Table 1.1 illustrates this point for the operationalization of symbolic and subtle racism. It demonstrates that five items of the two constructs are the same but that each construct is also connected with some specific items. The reason for including these different statements is unclear; nor is there a theoretical reason given for their operationalization.

The table depicts “subtle racism” as defined by two norms (items 1 and 2), two feelings (items 5 and 6), and four cognitive judgments (items 7a–7d as well as some other items). It is not at all clear why the presented combination of concepts-by-intuition should lead to the concept-by-postulation “subtle racism,” nor is the overlap in the items and the difference between items with respect to subtle and symbolic racism (the two

TABLE 1.1 Operationalization of subtle and symbolic racism

Items	Subtle	Symbolic
1. Os living here should not push themselves where they are not wanted.	+	+
2. Many other groups have come here and overcame prejudice and worked their way up. Os should do the same without demanding special favors.	+	+
3. It is just a matter of some people not trying hard enough. If Os would only try harder, they could be as well off as our people.	+	+
4. Os living here teach their children values and skills different from those required to be successful here.	+	
5. How often have you felt sympathy for Os?	+	+
6. How often have you felt admiration for Os?	+	+
7. How different or similar do you think Os living here are to other people like you:		
a. In the values that they teach their children?	+	
b. In religious beliefs and practices?	+	
c. In their sexual values or practices?	+	
d. In the language that they speak?		+
8. Has there been much real change in the position of Os in the past few years?	+	
9. Generations of slavery and discrimination have created conditions that make it difficult for Os to work their way out of the lower class.		+
10. Over the past few years, Os have gotten less than they deserve		+
11. Do Os get much more attention from the government than they deserve?		+
12. Government officials usually pay less attention to a request or complaint from an O person than from "our" people.		+

"O" stands for member(s) of the out-group, which include "visible minorities" or "immigrants."

"+" indicates that this request for an answer has been used for the definition of the concept by postulation mentioned at the top of the column.

concepts-by-postulation), at all clear or accounted for. Even the distinction between the items assigned to "blatant racism" and the items corresponding to the other two constructs has been criticized (Sniderman and Tetlock 1986; Sniderman et al. 1991).

One of the major problems in the operationalization process of constructs related to racism is that the researchers are not, as Blalock suggested, thinking in terms of concepts-by-intuition, but only in terms of questions. They form new constructs without a clear awareness of the basic concepts-by-intuition being represented by the questions. This observation leads us to suggest that it would be useful to first of all study the definition of concepts-by-postulation through concepts-by-intuition and secondly the link between concepts-by-intuition and questions. In this chapter, therefore, we will concentrate on the definition of concepts-by-postulation through concepts-by-intuition. In the next chapters, we will continue with the relationship between concepts-by-intuition and questions.

1.2 DIFFERENT WAYS OF DEFINING CONCEPTS-BY-POSTULATION THROUGH CONCEPTS-BY-INTUITION

The best way to discuss the definition of concepts-by-postulation through concepts-by-intuition might be to give an example. In this case, however, we will not use the example of measuring racism. We will come back to this concept in the exercises of Chapter 2. Here, let us use a simpler example: the measurement of “job satisfaction.” We define this concept as the feeling a person has about his/her job. We believe that though this feeling exists in people’s minds, it is not possible to observe it directly. We therefore think that an unobserved or *latent variable* exists in the mind, and we denote it as “job satisfaction” or “JS.” Note that we do not always expect that for concepts used in the social sciences, a latent variable exists in people’s minds. For example, for the concept “the nuclear threat of Iran,” there will be no preexisting latent variable for many respondents (Zaller 1992). In such a case, people will make up their minds on the spot when asked about that concept, that is, they will create a latent variable. With respect to job satisfaction, however, we think the case will be different, provided we ask the right question(s).

Many different ways of measuring job satisfaction have been developed. The following is a typical illustration of the confusion that exists around how to measure concepts. A meta-analysis of 120 job satisfaction studies found that the majority use “ad hoc measures never intended for use beyond a particular study or specific population” (Whitman et al. 2010). They found that a mere 5% of studies used a common and directly comparable measure. It will become clear that this can lead to incomparable results across studies (Wanous and Lawler 1972).

At first glance, however, the measurement of job satisfaction may appear straightforward because it can be seen as a concept-by-intuition.

1.2.1 Job Satisfaction as a Concept-by-Intuition

Measuring job satisfaction can appear to be a simple task if one thinks of it as a concept-by-intuition that can be measured with a direct question (see question 1.1):

1.1 *How satisfied or dissatisfied are you with your job?*

1. *Very satisfied*
2. *Satisfied*
3. *Dissatisfied*
4. *Very dissatisfied*

Indeed, many past studies (Blauner 1966; Robinson et al. 1969; NORC 1972) as well as more recent ones (ESS 2012) have relied on this direct question or a variation of it. Such an operationalization assumes that people can express their job satisfaction in the answer to such a simple question. However, we must accept that errors will be made in the process, whether due to mistakes in respondents’ answers or in interviewers’ recordings of them.

In Figure 1.2, we present this process through a path model. This model suggests that people express their job satisfaction directly in their response with the exception

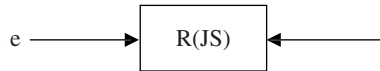


FIGURE 1.2 A measurement model for a direct measure of job satisfaction.

of some errors. The variable of interest is job satisfaction. This *latent* or *unobserved* variable is presented in the circle. The responses to the direct question presented in 1.1 can be observed directly. Such variables are usually presented in squares, while the random errors, inherent in the registration of any response, are normally denoted by an “e.” This model suggests that the verbal report of the question is determined by the unobserved variable job satisfaction and errors. As shown in the model, the response to the JS question is denoted as R(JS). We will use this notation throughout the book.

This approach to measuring job satisfaction with a direct question presupposes that the meaning of job satisfaction is obvious to everyone and that people share a common interpretation of it. In other words, it assumes that when asked about their job satisfaction, all respondents are answering the same question.

The approach discussed here, assuming that the concept of interest is a concept-by-intuition that can be measured by a direct question, can be applied to many concepts, such as “political interest,” “left–right orientation,” “trust in the government,” and many other attitudes. However, it has also been criticized as being oversimplistic.

For example, with respect to the direct measure of job satisfaction, some argue that asking people about their degree of job satisfaction is naïve because such a question requires a frank and simple answer with respect to what may be a complex and vague concept (Blauner 1966; Wilensky 1964, 1966). These researchers deny that job satisfaction can be seen as a concept-by-intuition. Others have said that such a direct question leads to too many errors and offers too low reliability (Robinson et al. 1969). Let us therefore look at the alternatives. We will first discuss the complexity problem and then follow with the reliability issue.

1.2.2 Job Satisfaction as a Concept-by-Postulation

As we have seen earlier, some people say that the use of a direct question is far too simple because job satisfaction is a complex concept. For example, Kahn (1972) suggests that people can be satisfied or dissatisfied with different aspects of their job, such as the work itself, the workplace, the working conditions, and economic rewards.

1.2.2.1 Operationalization Using Formative Indicators

Many scholars have suggested that one’s feelings about one’s job are based on their satisfaction with its different aspects. Clark (1998) mentions that the following aspects are highlighted in the literature: salary and working hours, opportunities for advancement, job security, autonomy in the work, social contacts, and usefulness of the job for society. The simplest operationalization therefore involves defining job satisfaction as the sum or the mean satisfaction with these different aspects of the job.

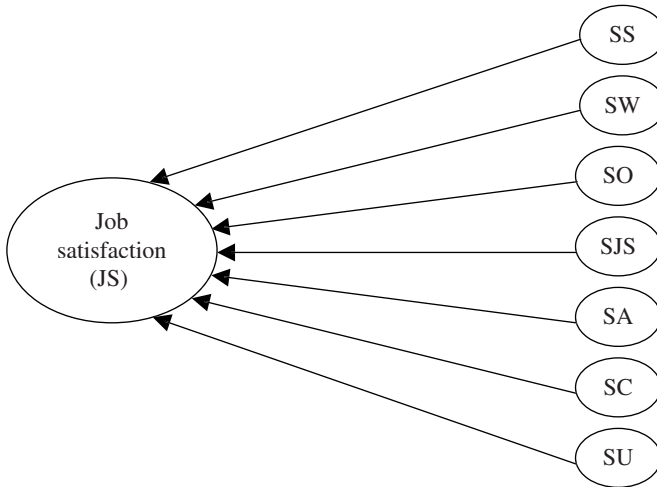


FIGURE 1.3 The operationalization of job satisfaction by a set of formative indicators where SS=satisfaction with the salary, SW=satisfaction with the working hours, SO=satisfaction with opportunities for advancement, SJS=satisfaction with job security, SA=satisfaction with autonomy, SC=satisfaction with contacts, and SU=satisfaction with usefulness of the job.

Note that in this case, we suppose that job satisfaction is based on the combined evaluation of the different aspects (in some way or another). This is different from the situation we depicted in the preceding text. In the previous section, we suggested that an opinion of job satisfaction determines the response, which is the measure for job satisfaction. Here, we are suggesting that it is the level of satisfaction with the different aspects of a job that determines or forms a person's job satisfaction. Therefore, the measures of these aspects are called *formative indicators* for the concept-by-postulation. This leads to a very different picture as shown in Figure 1.3.

So far, we have only defined the concept-by-postulation through other concepts that are causes of job satisfaction. We have done this in order to get from the concept-by-postulation to the concepts-by-intuition. If this theory is correct, then we can ask respondents about their satisfaction with these different aspects and, therefore, obtain information about their job satisfaction. For example, we can ask:

1.2 *How satisfied or dissatisfied are you with the following aspects of your job? Give your judgment in a number from 0 to 10 where 0 means completely dissatisfied and 10 completely satisfied*

Your salary (SS)

Working hours (SW)

Opportunities for advancement (SO)

Job security (SJS)

Autonomy in the work (SA)

Social contacts (SC)

Usefulness of the job for society (SU)

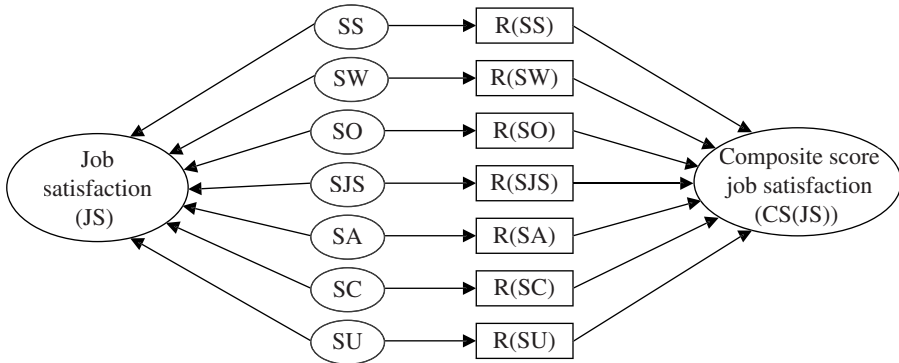


FIGURE 1.4 The complete description of the operationalization of job satisfaction using formative indicators.

The total score for “job satisfaction” can now be obtained as a weighted or an unweighted sum of the scores on all aspects or as a weighted or unweighted mean of the scores over all the aspects. The complete picture of this operationalization is presented in Figure 1.4.

In the case of an unweighted sum, the composite score for job satisfaction (CS(JS)) will have a maximum value of 70, indicating maximal satisfaction, and a minimum value of 0, indicating complete dissatisfaction. The higher the score, the more satisfied a person is, according to this approach. This score is supposed to be a good measure for the latent variable “job satisfaction.” However, this is only true if the basic theory is correct and the observed scores for satisfaction with the different aspects do not contain too many errors.

This procedure is used very often for operationalization of complex concepts or, as we call them, concepts-by-postulation. The idea is to determine the different aspects of the concept-by-postulation and ask questions about these aspects. These so-called indicators can be concepts-by-intuition that can be directly converted into questions as shown for job satisfaction. However, it may be that these aspects are still too complex themselves and need to be decomposed even further before one ends up with concepts-by-intuition.

Although this procedure for the operationalization of concepts-by-postulation with formative indicators seems very logical, it also has some very serious limitations:

1. All important aspects need to be included. If not all important issues are present, the measurement is incomplete and therefore will be *invalid*.
2. The importance given to each aspect can vary from person to person. Scherpenzeel and Saris (1996) have shown that this is the case for the different aspects of job satisfaction. It therefore becomes necessary to ask respondents about how they perceive the importance of each aspect and then to use these importance scores as weights in calculating the total evaluation or “composite score.”

3. Ignoring these differences would mean that the *researcher* determines what job satisfaction is. This definition might be quite different from the latent variable that exists in the mind of the respondent.
4. It is not necessarily true that all aspects affect the latent variable of interest. It has been found that for some people, the latent variable (job satisfaction) determines the satisfaction with a specific aspect (Scherpenzeel and Saris 1996).
5. This approach requires, at minimum, as many questions as there are aspects evaluated. The number of questions may double, however, if we consider that respondents will evaluate the importance of each aspect differently.

As we can see, this approach of measuring concepts-by-postulation using formative indicators encounters significant problems. The last point, for example, suggests that one needs 7 or 14 questions in order to measure the concept of job satisfaction, while in the first approach, only one question is necessary. In the first approach, it is assumed that people make this evaluation automatically in their minds. Given that the costs of the latter procedure are much higher than in the direct question approach, one needs very strong evidence that the complex approach will lead to much better results before deciding to use it. Otherwise, it is best to rely on the direct question approach. The problems mentioned in points 1–4 at the very least suggest our doubts concerning this approach.

1.2.2.2 Operationalization Using Reflective Indicators

Given these problems in operationalization and the possible unreliability of the direct question, we will present an alternative procedure, once again illustrated with the example of job satisfaction. This third procedure echoes the first procedure in that it assumes that an individual's job satisfaction has an effect on their other opinions. In several studies, Kallenberg (1974, 1975, 1977) has suggested that in addition to using the direct question, an indicator that we shall call "other job" be used. The idea is that an individual who is very satisfied with his/her job will want to continue in the same job, whereas someone who is dissatisfied will prefer the possibility of another job. Another indicator he has suggested is denoted as "recommendation." Here, the assumption is that satisfied people will recommend their jobs to friends, while dissatisfied people will not. A third one is called "choose again," which is based on the idea that someone who is satisfied would choose this job again if he had the opportunity to do so, whereas a dissatisfied person would choose a different job. As we can see, all these cases operate on the assumption that job satisfaction determines opinions regarding other indicators, which is also the case of the direct question approach. In other words, such indicators "reflect" an individual's feeling of job satisfaction. For this reason, we shall call them "reflective indicators." In this case, the concept-by-postulation (job satisfaction) affects the different indicators. This is also illustrated in Figure 1.5.

If the different indicators are seen as concepts-by-intuition, then one can develop direct questions for each of them. This possibility has indeed been used in several

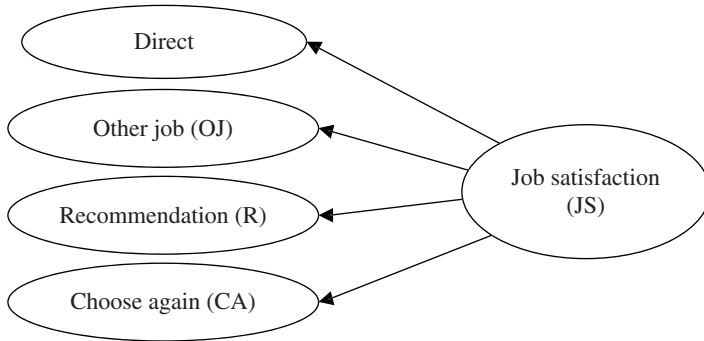


FIGURE 1.5 The measurement model for a concept-by-postulation with reflective indicators.

studies by Kallenberg and others. For example, one could use the following questions to measure the concepts-by-intuition that are used as reflective indicators for job satisfaction:

- 1.3 *Would you say that you strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree with the following statements?*
- Overall, I am satisfied with my job (D).
 - I would like to have a different job (OJ).
 - I would recommend my job to a friend (R).
 - I would choose my job again if I had the opportunity (CA).

Note that the responses to these questions are expected to be a consequence of the opinions about these concepts-by-intuition. This leads us to extend the model in Figure 1.5 by including these effects as well as the possibility of errors (Fig. 1.6).

The reason for which researchers suggest using not only one question, such as the direct question, is that they expect that this question alone will contain too many errors. The idea is therefore that the combination of responses to several questions, which are all observable indicators of the concept of interest, will provide a more reliable measure of that concept. This explains why researchers normally use a weighted or an unweighted sum or mean of the observed scores on the different indicators as the measure for job satisfaction. We present the final model of this measurement process in Figure 1.7.

It will become clear that the same process can be applied for many other concepts-by-postulation. This is therefore also an illustration of a general approach. One can look for different reflective indicators for a specific concept of interest. If these indicators represent concepts-by-intuition, the concepts can be directly transformed into questions. After collecting responses to these questions, the researcher can combine the scores and obtain a composite score for the concept-by-postulation being measured. Of course, the composite score is only as good as the theory used in the model and the size of the measurement errors in the observed variables.

Note that the fundamental difference with the previous approach is that here, the indicators are a consequence of the latent variable of interest: they *reflect* this variable

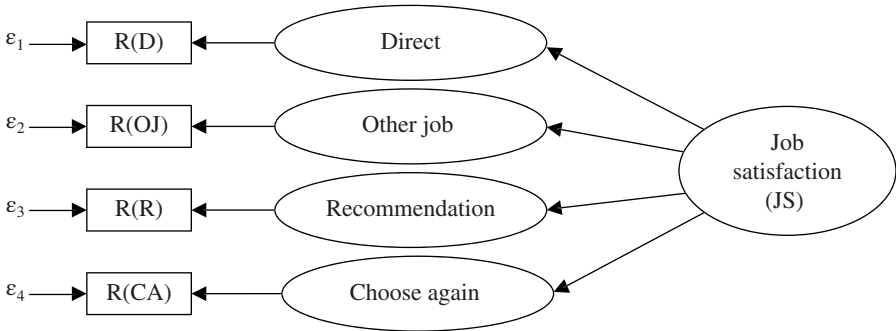


FIGURE 1.6 The measurement model for “job satisfaction” using concepts-by-intuition as reflective indicators.

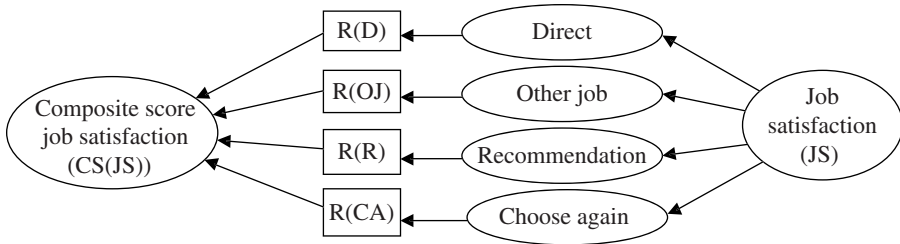


FIGURE 1.7 The complete model for measurement of “job satisfaction” using reflective indicators.

and are not indicators that *form* the latent variable of interest. In these two approaches, the causal direction of the relationships between the indicators and the concept of interest go in the opposite direction as shown in the figures.

The reflective indicators approach seems to make a lot of sense and appears less risky than the formative indicators procedure. The latter example also shows that fewer questions are necessary. In fact, the number of questions needed is determined by the reliability of the questions. The better the questions are, the fewer questions are needed to get a good composite score for the concept of interest. However, this also highlights one of the weak points of this approach. Let us look once more at the suggested questions and ask ourselves if they are really measuring the same concepts.

With respect to the direct question, it is most likely only measuring how a person feels about his job. No other perceptions will influence this response. However, when asked about the attractiveness of having a different job, the respondent will not only consider her level of job satisfaction but also how satisfied she could be in other jobs. Similarly, with respect to the question “recommend to a friend,” the respondent will not only reflect on his personal job satisfaction but also on the capacities of his friend as well as his friend’s own job satisfaction. This is represented as a causal diagram in Figure 1.8.

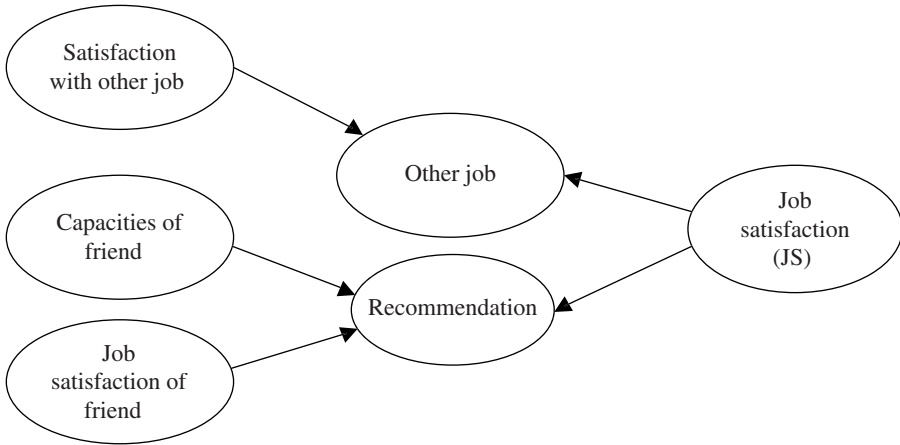


FIGURE 1.8 The systematic and unsystematic effect of other variables in the measurement process.

The effects of other variables are not just random errors that occur due to mistakes. These errors are systematic effects of specific variables. While we wanted to measure job satisfaction, it turns out that some of these reflective indicators are not just influenced by the variable of interest but also by other variables. This leads to systematic errors in the observed responses because they not only represent the variable of interest but also other variables besides random errors. One might expect that when calculating the composite score, the number of random errors decreases because they cancel each other out. But in fact, the systematic errors remain present in the composite score whenever the number of indicators is small, as is the case in survey research.

Saris (1981) has studied this problem and found that the indicators “recommend to a friend” and “choose again” have an overlap of only 70% after correction for random measurement errors. These indicators therefore contain considerable specific components. In psychological tests, this problem is generally less severe because these tests consist of 50 or more questions. In those cases, it may very well be that the systematic effects cancel each other out. In survey research, however, in which only two to four indicators are used, the same cannot be expected. We shall therefore explore an alternative procedure that allows us to avoid this problem.

1.2.2.3 Operationalization Using Reflective Indicators Varying Only by the Method

The logical solution to this problem would be to avoid using different questions and instead use the same direct question repeatedly in order to increase the reliability of the composite scores. While this simple procedure can be used in physics, it leads to problems in the social sciences because of memory effects. Therefore, this solution requires special attention.

To avoid memory effects, researchers should allow for sufficient time between the first presentation of questions and the next. We discuss how much time is needed in Chapter 9, arguing that for a questionnaire with similar questions, a gap of at least 25 minutes is sufficient (Van Meurs and Saris 1990). In order to reduce the time slightly, it is also possible to vary the form of the question so that the content of the question remains the same while ensuring that the respondent cannot rely on the memory of the first answer in responding to the reformulated question. Let us illustrate this point for the direct question, making the plausible assumption that this question measures the concept-by-intuition “job satisfaction.” In this, case we could use two different formulations of the same question as follows:

1.4 *Overall, how satisfied or dissatisfied are you with your job?*

- *Completely dissatisfied*
- *Quite dissatisfied*
- *A bit dissatisfied*
- *A bit satisfied*
- *Quite satisfied*
- *Completely satisfied*

1.5 *Overall, how satisfied or dissatisfied are you with your job?*

*Express your opinion by putting a cross on the following scale.
The more satisfied you are, the more to the right you put the cross.*

<i>Completely dissatisfied</i>	<i>Completely satisfied</i>
------------------------------------	---------------------------------

The advantage of this procedure is that the questions are exactly the same. The only difference lies in the way the respondents have to express their opinions. As such, the two questions are really measuring the same thing. The difference is that one of the formulations may obtain fewer random errors than the other. As we will discuss later, by combining the scores in a composite score, one can even reduce these errors.

1.3 SUMMARY

The first issue we discussed in this chapter was distinguishing between concepts-by-intuition and concepts-by-postulation. We have seen that concepts-by-intuition are easily transformed into questions. Concepts-by-postulation cannot be operationalized directly in survey questions. They are normally defined by some combination of concepts-by-intuition.

Next, we presented different ways of developing measures for concepts of interest. At times, it is possible to see the concept of interest as a concept-by-intuition. When that is the case, a direct question that will measure the concept of interest with a great deal of certainty can be formulated.

However, as an alternative, one can also treat the concept of interest as a concept-by-postulation by specifying its different aspects, asking questions that focus on

these aspects, and combining the scores into a composite score attributed to the concept of interest. This procedure relies on evaluations of each of the aspects and is commonly used by researchers, but as we highlight, it is not without its problems. The most important of these has to do with the fact that respondents can interpret the relative importance of the different aspects differently. In this case, researchers must ask additional questions with respect to the relative importance of each aspect, which results in doubling the number of questions. The list of aspects should also be complete; otherwise, the operationalization is incomplete and therefore invalid, since one is not actually measuring the concept that was intended to be measured.

As another alternative, we can think of indicators for the concept of interest that are a consequence of the latent variable. These so-called reflective indicators have the problem that they can also be affected by other variables to such an extent that the observed responses themselves contain unique components that undermine the measurement of the concept of interest.

The solution to this problem is to use reflective indicators that are measuring exactly the same thing, for example, two forms of the direct question. In this case, we have the problem of repeated observations, but by making the time gap between the measurements large enough, this problem can be overcome.

We have illustrated these alternative procedures for measurement in order to show that there is not just one possibility for measurement but many possibilities. In general, all four of the possibilities we have mentioned here can be used for the development of measures for concepts of interest. This, however, raises the question of how to evaluate the quality of the different possible measures for the concepts of interest.

This book sets out to answer this question. Instead of immediately proceeding to analyze the relationships between concepts and their measures, however, we will concentrate first on the link between concepts-by-intuition and their questions. Only once we understand this relationship and can say something about the quality of a single question can we discuss the quality of the measures for concepts-by-postulation. The idea is that in order to speak of the quality of concepts-by-postulation, the elements on which the concepts-by-postulation are built need to be identified. For example, if we realize that the question about “other job” measures not only job satisfaction, we will be more reluctant to use this indicator as an indicator for job satisfaction. Such prudence is necessary to prevent the construction of concepts-by-postulation that are unclear and likely to produce confusing results in data analysis. Therefore, we will first discuss the link between concepts-by-intuition and questions and return to the construction and the evaluation of concepts-by-postulation in Chapter 14 of this book.

EXERCISES

1. Try to formulate questions that represent concepts-by-intuition and concepts-by-postulation with formative and reflective indicators for the following concepts:
 - a. Life satisfaction
 - b. Happiness
 - c. The importance of the value “honesty”

2. In practice, it is seldom clear whether the questions suggested measure what they are supposed to measure. Some examples follow below.

The following proposal has been made to measure “left–right orientations” in politics. The authors said:

“The left–right orientation contains two components:

- *Egalitarianism: a policy of equality of incomes*
- *Interventionism: a policy of government intervention in the economy by, for example, nationalization”*

Items 1–3 in the following list are supposed to measure the egalitarian element; the next two, interventionism:

How strongly do you agree or disagree with the following items?

Agree completely, agree very much, agree, neither agree nor disagree, disagree, disagree very much, disagree completely

1. *It is not the government’s role to redistribute income from the better off to the worse off.*
 2. *It is the government’s responsibility to provide a job for everyone who wants one.*
 3. *Management will always try to get the better of employees, if it gets a chance.*
 4. *Private enterprise is the best way to solve Britain’s economic problems.*
 5. *Major public services and industries ought to be under state ownership.*
 - a. Check whether these assertions represent the concepts they are supposed to represent.
 - b. Try to improve the assertions that seem incorrect.
3. Let us now look at the questionnaire you have developed yourself:
- a. Do the questions measure what they are supposed to measure?
 - b. Did you use concepts-by-intuition or concepts-by-postulation?
 - c. Is it possible that other variables affect the responses than just the variables you would like to measure?
 - d. If you think that some of your questions are wrong, try to improve them.