The Idea of Phenomenography

In chapters 2, 3, and 4 we described the results of a number of empirical studies into aspects of learning in our meaning of the term, "gaining knowledge about the world," as a background to our arguments about the nature of learning, and in particular the nature of the experience of learning. There you have met the variation in several dimensions of learning pertaining both to aspects of the learners’ experience of learning at large and to the very phenomena they were engaged in learning. We have presented variations in ways people understand the notion of learning, in students’ approaches to their tasks of learning, and in ways they understand the things they have been learning, and we have treated the variation both empirically and more theoretically in terms of experience and awareness. The studies related to different types of learners—school children in Sweden and China, university students of engineering and social sciences, adults learners, and preschoolers—and different educational settings. What the studies indubitably have in common is that they all focused on variation in ways of experiencing things. To depict variation of experience was indeed one of their prime objects.

A lesser commonality is that most of them can be seen in a framework of the research specialization called phenomenography, and "lesser" because they often partly extend outside what we today call phenomenography, either in research approach or in time. The early work on approaches to learning actually preceded and gave rise to phenomenography, whereas studies of number, for instance, arose outside the phenomenographic framework and approached it as providing a sound conceptual platform for continued studies, and in turn contributed to its development.

To cast light on the question, "What is the driving force of phenomenography?" let us carry out a thought experiment. Imagine that there are two students taking an examination, facing the same problem. Let us assume they experience the situation in exactly the same way: They understand the problem in exactly the same way; it is equally important for them to solve the problem; they experience their own capabilities for solving it in exactly the same way; and so on. Their experiences of the problem and the situation are quite simply identical. Can we imagine that one of the two students succeeds with the problem, whereas the other fails? Hardly! We are not able to infer the converse—that two students who succeed with a problem must have understood it in exactly the same way—but we are able to infer that two students dealing with a problem differently must also have experienced it differently. This type of argument gives us grounds to believe that in order to make sense of how people handle problems, situations, the world, we have to understand the way in which they experience the problems, the situations, the world, that they are handling or in relation to which they are acting. Accordingly, a capability for acting in a certain way reflects a capability experiencing something in a certain way. The latter does not cause the former, but they are logically intertwined. You cannot act other than in relation to the world as you experience it.

This chapter discusses the whole idea of phenomenography: The unit of phenomenographic research is a way of experiencing something, in the sense that the term has been elaborated in earlier chapters of this book, and the object of the research is the variation in ways of experiencing phenomena. At the root of phenomenography lies an interest in describing the phenomena in the world as others see them, and in revealing and describing the variation therein, especially in an educational context: "the anatomy of awareness as seen from an educational point of view" (Marton, 1993). This implies an interest in the variation and change in capabilities for experiencing the world, or rather in capabilities for experiencing particular phenomena in the world in certain ways. These capabilities can, as a rule, be hierarchically ordered. Some capabilities can, from a point of view adopted in each case, be seen as more advanced, more complex, or more powerful than other capabilities. Differences between them are educationally critical differences, and changes between them we consider to be the most important kind of learning.

Phenomenography is not a method in itself, although there are methodical elements associated with it, nor is it a theory of experience, although there are theoretical elements to be derived from it. Also, phenomenography is not merely an attempt to solve the problem of understanding the world, for phenomenography is rather a way of—approach to—identifying, formulating, and tackling certain sorts of research questions, a specialization that is particularly aimed at questions of relevance to learning and understanding in an educational setting. In this chapter, its research methods and its research roles are described as subordinate to its nature as a research approach.
This description of phenomenography will take up some of its central features and spread out from those to cover fundamental assumptions, methodological issues, and the way forward.

THE OBJECT OF RESEARCH

The origin of a research specialization is generally to be found in observations that, having been made, reveal something that seems worthwhile to explore further. In our case the first observations date back to the mid-1970s, some of them already having been referred to in this book, especially in chapter 2. The observation was that when people read a text or listen to a presentation or try to solve a problem or reflect upon a phenomenon, that which they encounter appears to them in a limited number of qualitatively different ways. The different ways in which they experience the text, the presentation, the problem, or the phenomenon are observed to be logically related to each other and to form together a complex that we have called the outcome space. Such observations have been replicated in a very large number of studies that have been carried out during the last 20 years.

What, then, is “a way of experiencing something”? That is exactly the question this book—in particular the third section of the previous chapter—is addressing in its quest for an answer to the question of how we gain knowledge about the world. Let us try to pull together some of the key features scattered in different places in our earlier chapters. “A way of experiencing something” is experiencing something as something, experiencing a meaning that is dialectically intertwined with a structure. “A way of experiencing something” is a way of discerning something from, and relating it to, a context. The meaning of something for someone at a particular point in time corresponds to the pattern of parts or aspects that are discerned and are simultaneously objects of focal awareness.

What does it mean that an aspect is discerned and is the object of focal awareness? As we have already pointed out, an aspect that is discerned and held in focus is associated with a dimension of explicit or implicit variation. What is the case is explicitly or implicitly seen against the background of what could be the case. For instance, discerning and being focally aware of the fact that something is moving implies a dimension of variation with two possible states: rest and motion. Discerning and being focally aware that something is in uniform motion implies an awareness of a dimension of variation with two (or possibly more) states: uniform motion (including rest) and nonuniform motion (acceleration or deceleration). When an aspect is not discerned and not held in focal awareness—say, for instance, that something is at rest and we are not particularly conscious that it is so—we can say either that this aspect is absent altogether or that it is taken for granted and no alternatives are being explicitly considered.

The variation between different ways of experiencing something, then, derives from the fact that different aspects or different parts of the whole may or may not be discerned and be objects of focal awareness simultaneously. As we have illustrated in several examples, as a rule not all the relevant aspects of a phenomenon and of the situation in which it is embedded are discerned and present simultaneously in focal awareness. It is generally the case that some of them are abstracted, separated, isolated. Instead of them being objects of focal awareness simultaneously, they may be separated and experienced one after the other, in sequence. This tells us that certain ways of experiencing something are more complex or fuller than others. They spring from the simultaneous awareness of more parts or more aspects of the whole.

Let us return to the unit of phenomenographic research—a way of experiencing something—which, as we have pointed out several times now, is an internal relationship between the experiencer and the experienced. An internal relationship between A and B implies that neither A nor B would be identically the same without the relationship between them. A marriage is an internal relationship: Man and woman are turned into husband and wife by establishing the relationship between them. How can we picture an internal relationship between person and world? The world, or at least some part of it, is present to the person; the world is experienced by the person. Quite obviously, the person could not be the same person without the world she is experiencing, and if the world is understood in terms of the complex of all possible ways of experiencing it (knowing it, sensing it, being in it), and if the person’s biography is unique, and if one’s way of experiencing the world reflects one’s biography, then the world could not possibly be exactly the same world without the person experiencing it.

This is not to say that if humankind disappeared, then the sun, the Hudson river, and wombats would necessarily disappear as well. The point we wish to make strongly is this: We cannot describe a world that is independent of our descriptions or of us as describers. We cannot separate out the describer from description. Our world is a real world, but it is a described world, a world experienced by humans. Quite obviously, humans did not cause the Big Bang, but the way in which it is conceptualized and described is a human way of conceptualizing and describing it. The implication of this is not necessarily that our way of understanding the Big Bang is flawed or distorted, but that it is partial. Furthermore, the human mind can hardly conceive of what it would take to conceive of the Big Bang through means other than the human mind.

Describing experience and ways of experiencing is entirely different from describing mental representations, short- or long-term memory, retrieval processes, and the rest of the conceptual apparatus of the cognitivists. According to that, thoughts and conceptions are things that go on or are located in one’s head, things that are hidden or inferred. We may believe that our speech is preceded by thought, by an ongoing mumbling in the language of thought rapidly translated to a more mundane language such as Swedish or English, and in the same vein we may believe that our acts are guided or caused by conceptions that we bear with us. But if we actually reflect for a moment on how we experience producing speech or acting in some way, we can only conclude that there is no such guidance. When you speak, for instance, you might occasionally reflect or focus in advance on what is to be said, but in general, you experience the words as coming by themselves, without volition. If you say something like “I often think of Piroksa,” you simply mean that
PHENOMENOLOGY IS NOT PSYCHOLOGY

Now, let's elaborate on a point we alluded to above, and at the same time dispose of one of the prevalent, but flawed, assumptions about the nature of experience.

Phenomenology is often confused with psychology, but the two are fundamentally different. Psychology is a scientific discipline that studies the nature of the human mind and behavior, whereas phenomenology is an approach to understanding experience that focuses on the direct, first-person perspective of the experiencing subject.

In psychology, the emphasis is on the objective, measurable aspects of experience, such as physiological and neurological processes. In phenomenology, the focus is on the subjective, subjective aspects of experience, such as the meanings and significations that individuals assign to their experiences.

Phenomenology is a methodological approach, whereas psychology is a theoretical and empirical field. While both disciplines can be used to study the same phenomena, they employ different methods and assumptions.

In psychology, the experimenter is typically an external observer, whereas in phenomenology, the experimenter is an internal participant. In psychology, the data is often collected through objective measures, whereas in phenomenology, the data is collected through subjective reports.

Phenomenology, therefore, is not psychology. It is a methodological framework for understanding the subjective, first-person perspectives of the experiencer, rather than a scientific field that seeks to objective, measurable aspects of experience.

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between the different ways identified and the phenomenon itself. The same is true of a particular person’s experience of political power, on the one hand, and the set of different ways of experiencing political power described in a particular study that have been found, on the other. Again, there is a part–whole relationship between the two. Here we are making statements on the basis of a consideration of the experience of political power, about the nature of political power, another indication that our study of experience is essentially nonpsychological.

Moreover, we do not need to restrict ourselves to the words and deeds of particular persons as data for describing ways of experiencing something. For example, the way school systems are organized, schools are built, and how they are run—highly nonpsychological entities—might tell us a great deal about how particular societies, or those in power, conceive of knowledge. A specific way of experiencing something may thus refer to the structural and referential aspects of a person’s way of making sense of the phenomenon at a specific point in space and time, but it could equally reflect a feature of a culture in the past or the present.

**IS PHENOMENOGRAPHY PHENOMENOLOGY?**

A research specialization, as we spent the second section of this chapter pointing out, should reasonably be defined in terms of its object of research, and phenomenography has human experience as its object, as distinct from human behavior, or mental states, or the nervous system. Now if there were already a well-established science with such an object of research, it would be reasonable to subsume phenomenography under it. The only demand is that this established science would have the object of research as its only defining attribute, and not methods and theories. For example, the field of linguistics has language as its object of research, and any approach to studying language irrespective of methods and theories can be included in the family tree of linguistics. Indeed, there is such a science with experience as its object of research—phenomenology—which is one of the main schools of philosophical thought of this century. Phenomenology does have human experience as its object of research, but with it are inextricably linked a set of methods of going about the study of experience and theories about its nature, which makes its subsumption of phenomenography problematic, to say the least.

From the very beginning phenomenology had the program of developing a single theory of experience by using a particular method, which, befitting a philosophy, is a philosophical method. Philosophers engage in investigating their own experience. Phenomenographers, in contrast, adopt an empirical orientation: they study the experience of others. Thus, although phenomenography and phenomenology both belong to a field of knowledge defined by the criterion of having experience as the subject of study, they differ in the ways they go about that enterprise.

In phenomenology an important dividing line is drawn between the prereflective experience and conceptual thought. Now clearly, phenomenography does not make this distinction: The structure and meaning of a phenomenon as experienced can be found both in prereflective experience and conceptual thought. This is why expressions that might strike the reader as curious, such as “qualitatively different ways of experiencing the second law of thermodynamics,” are to be found in phenomenographic writings.

There is a certain similarity between our program of phenomenography and the program of phenomenology as formulated by the founder of modern phenomenology, the German mathematician and philosopher, Edmund Husserl (see, e.g., Spiegelberg, 1982, pp. 69–165). He saw phenomenology as logically preceding the empirical sciences, aimed at clarifying their experiential foundations. Phenomenography is focused on the ways of experiencing different phenomena, ways of seeing them, knowing about them, and having skills related to them. The aim is, however, not to find the singular essence, but the variation and the architecture of this variation in terms of the different aspects that define the phenomena. The simultaneous awareness of all the critical aspects comes close to the phenomenological notion of essence, although in our case it is temporary and transitional. The set of qualitatively different ways of experiencing a phenomenon is finite but not closed; in particular, scientific discoveries frequently introduce new ways of seeing the phenomenon in question.

Phenomenography and phenomenology differ as to purpose. Phenomenology aims to capture the richness of experience, the fullness of all the ways in which a person experiences and describes the phenomenon of interest. Not for the phenomenologist the sparseness of the category of description or the logical hierarchy of the outcome space that the phenomenographer so analytically derives. The phenomenologist wishes to describe the person’s life-world, the world in which he or she is immersed and which the phenomenological methods bring to light. Whereas the phenomenologist might ask, “How does the person experience her world?” the phenomenographer would ask something more like, “What are the critical aspects of ways of experiencing the world that make people able to handle it in more or less efficient ways?”

Thus, phenomenography and phenomenology share the object of their research, inasmuch as both aim to reveal the nature of human experience and awareness. To the extent that phenomenology is defined through its object of research—human experience and awareness—phenomenography could legitimately be seen as a child of the phenomenology family. To the extent, however, that phenomenology is grounded in a set of particular theories and methods that phenomenography shares only partly, if at all, phenomenography has to be seen as no more than a cousin-by-marriage of phenomenology.

**FIRST-ORDER AND SECOND-ORDER PERSPECTIVES AND DESCRIPTIONS**

In previous chapters we made statements about the defining aspects of various phenomena in the world, reasoning in terms of the limitations of human awareness, differences, and communication between people. Were we making statements about the world or about people?
What we were doing was making statements about the world as experienced by people. Now, in the sciences, as well as in daily life, statements are made about the world, about phenomena, about situations. These statements are made from what we call a first-order perspective. The ways of experiencing the world, the phenomena, the situations, are usually taken for granted by the experiencer; they do not see them, they are not aware of them. In phenomenography, where a second-order perspective is taken, it is these underlying ways of experiencing the world, phenomena, and situations that are made the object of research.

Let us introduce the second-order perspective through the problem of the ball in the train, as reported by Bowden et al. (1992), which we described in Example 5.11 of chapter 5. When we described the problem there, we went to some lengths to elaborate on the alternative ways of describing the movement of the ball that arrived at the physically correct answer. The displacement of the ball in that example can satisfactorily be quantified as 28 m in the direction of the train, but qualitatively there are different ways of seeing it, as discussed earlier. The correct answer can be reached by considering sequentially, first the displacement owing to the movement of the train—30 m—and then the displacement owing to the ball rolling along the floor of the train—2 m—which has to be subtracted, giving 28 m. In that way of reasoning, a component of the displacement in each of two frames of reference is implicitly considered, and they are subsequently combined to give the resultant: The displacement is seen as the sum of its parts. Alternatively, the answer can be seen as the result of considering the two frames of reference both explicitly and simultaneously, so that the 30 m which the train moves with respect to the frame of reference fixed in the ground in one direction and the 2 m that the ball moves in the other direction with respect to a frame of reference fixed in the train amount to the ball moving 28 m with respect to the ground.

Now the physicist, or the physics teacher for that matter, is generally looking for correct answers in the sense of the quantity given—correct figures and units. They are considering the problem from a first-order perspective. For them, 30 m–2 m = 28 m is correct and, 2 m, and 30 m are wrong, as is 28 m/s. They are working with first-order descriptions of the situation, checking answers against a predetermined norm, and their students’ ways of thinking about, or ways of experiencing relative motion is of marginal interest. (In fact, the ability to analyze the motion into two independent components that can be dealt with separately might be highly desirable, but is not relevant to our current argument.)

If, however, a wrong answer is given—2 m, for example, was an answer seen in some interviews in the study—then the physics teacher might join the phenomenographic researcher in asking: "How did you arrive at that answer? How did you think about the problem? What does the problem mean for you?" This is taking a second-order perspective, and when the answers are analyzed, a second-order description of the phenomenon of relative motion is reached. These descriptions are couched in terms of how people understand or experience relative motion and are not in the first place judged to be right or wrong. In the case of the student replying "2 m," the teacher might come to the conclusion that he is taking the perspective of standing in the train, and then go on to investigate other erroneous answers in this light.

The distinction between the first- and second-order perspective is the difference between considering a statement (such as “the displacement of the ball was 2 m during the interval of 3 s”) to be a statement about the physical world or about some specified situation and judging it in the light of other statements about the physical world or about the same situation. In particular, it can be compared with the received wisdom of physics, weighed and found, in this case, wrong. Alternatively we can consider the very same statement as reflecting the learner’s way of experiencing the problem, making sense of it. We can then take this statement as our point of departure for exploring the learner’s understanding of the problem and the phenomenon that it is about.

When we adopt one perspective or the other we may, of course, be perfectly well aware of the alternative, but we have to “bracket” it for the time being. We firmly believe that in good teaching we have to adopt both. On the one hand, we have to find out the extent to which learners have progressed toward the competence that the teaching aims to develop. On the other hand, to be better able to develop that competence through teaching, we have to find out why some learners have been more successful than others in making such progress.

In the research context, the distinction between the first- and second-order perspectives is primarily a distinction between two kinds of objects of research. Admittedly, this gives an outrageously uneven criterion for sorting the objects of research. We have on the one hand, all the scientific research conducted over the centuries that has yielded statements about the world, the physical, the biological, the social, the cultural, which we can all relate to without recourse to a consideration of human experience. On the other hand we have a very, very small number of studies that yield statements about people’s experience of the world. Investigations with a phenomenographic orientation belong to this group, along with, for instance, certain branches of anthropology, history, and philosophy of science.

The physicist, the biologist, the sociologist, the archaeologist all want to develop knowledge and make statements about the world, or rather, about aspects of the world she is investigating. She may believe that she is describing the world as it is, or she may believe that she is simply describing the world as she experiences it, but in neither case will her statements be formulated as statements about her experiences, but rather as statements about aspects of the world she is dealing with. Her statements will be judged in the light of other statements about relevant phenomena. They will be judged as to whether or not they seem to be valid, consistent, and useful statements about those phenomena. Her statements will assuredly not be judged as to whether or not they give a truthful or consistent account of her experiences.

3This might appear to contradict what was said at the end of the previous chapter, that a way of experiencing something can be understood in terms of what the experiencer is focally aware of. The experiencer, however, is focally aware of the object of her experience and not of her way of experiencing it.

4To bracket is a term from phenomenology, meaning to suspend judgment.
experiences without regard to what they say about the object of research. Hence, to whatever degree she is conscious of the fact that the reality she is describing is not a reality as such but a reality conceived of and experienced by her, she has to bracket that consciousness.

If we adopt the alternative, second-order perspective, we focus on people's experiences of the world, whether physical, biological, social, cultural, or whatever. Whereas the people whose experiences we are studying are oriented toward the world they are experiencing, we as researchers are oriented toward the various ways in which they experience some aspect of the world. Here, then, is an obvious asymmetry. They can very well experience the world without our studying their experiences, but we cannot study their experiences without their experiencing the world. Experiences are reflected in statements about the world, in acts carried out, in artifacts produced. Now, in the light of what we know about the world, such statements can appear more or less valid or consistent or useful, the acts more or less skilled, the artifacts more or less functional. Judgments of this kind belong to the first-order perspective. When adopting a second-order perspective, we have to bracket such judgments. We have to look at the statements, acts, and artifacts to find out what ways of experiencing particular aspects of the world they reflect, regardless of their validity, skillfulness, or functionality. Such a search has to be carried out in the light of other things we know about people's ways of experiencing the world.

Two further points add to the complexity of the relationship between the first- and second-order perspectives. From a first-order perspective the researcher's focus is on the object of research, and her experience (i.e., the constitutive acts of her awareness) is bracketed. But even from a second-order perspective the researcher's focus is on the object of research (other people's ways of experiencing something), and again her experience is bracketed. In one case the world is focused on and experience bracketed. In the other case experience (of others) is focused on and experience (the researcher's own) is bracketed. In the second-order perspective adopted in relation to the object of other people's experiences there is embedded a first-order perspective (in relation to the object of the researcher's experience). In phenomenology, as indicated in the previous section, the researcher's own experience is held in focus while judgments about the object of experience are bracketed. We are habitually oriented toward the objects of our experience (as we discuss further in the section on "The Natural Attitude" in the chapter to follow), researchers in general included. In a phenomenological study the phenomenologist's awareness is withdrawn from the object of experience, and the constitutive acts of awareness are reflexively focused (awareness is bent back as it were, focusing on itself), and it is here that the difference between phenomenology and phenomenography lies. In the former the researcher (the philosopher) is exploring her own experience by reflecting on it. In the latter the researcher is exploring other people's experiences by reflecting on them.5

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5It could be thought that there is room for phenomenographic investigations to be complemented by phenomenological clarification of the experiential grounds of the researcher's reflection on other people's experiences, as Sandberg (1994) proposed.

6At least, that subset of the totality that is pertinent and accessible for the sort of neonatal being studied.
THE IDEA OF PHENOMENOLOGY

the famous chess player Emanuel Lasker, *Die Philosophie des Unvollendbaren*, published in 1919, which Marton has quoted elsewhere:

Lasker dedicated himself to drawing a line of demarcation between two kinds of entities; none of them exists in the material world, but one has a conceivable limit and the other has not. Nobody has seen "pure silver" for instance, yet we can think of an infinite series of purer and purer silver. Moreover, we can even register a gradual decreasing in the deviance, even if it can never be total. On the other hand, "the thing-in-itself" for example, is not only inaccessible to our senses, but its limit is inconceivable to our minds. We experience a thing in terms of a series of qualifiers, and we cannot impose any order on this series to make it converge towards a quality free from qualifiers. "The thing-in-itself" is "unvollendbar." It is "incomprehensible." And, of course, what we are talking about is the thing as experienced. Saying that thing is incomprehensible is tantamount to saying that the experience is incomprehensible.

It cannot be fully described. (p. 36)

There is no complete, final description of anything and our descriptions are always driven by our aims.

Because we can never describe experience in its entirety, we are constrained to look for and describe critical differences in people's capabilities for experiencing the phenomena in which we are interested. Now, the totality of our experiences we call awareness, as we discussed at length in the previous chapter, and the critical differences that we are looking for in people's capabilities for experiencing various kinds of phenomena in certain ways can be seen in the light of the nature of awareness.

In this respect, as we have already pointed out, awareness has two most important qualities. One of them is that we cannot be aware of everything at the same time in the same way. If we could, there would not be any differences between individuals as far as their experiences, and hence their acts, are concerned. There would in fact be no world experienced; nothing would be more important than anything else. The other is that we are aware of everything at the same time, albeit not in the same way. Awareness is layered. Some things make up the core; they are objects of focal awareness; they are figural. Other things belong to the field, or fields, surrounding the core. Yet others belong to the fringe that extends indefinitely. Although we are not consciously aware of most things, we are aware enough for them to be pulled into the core if the changing here and now were to make them relevant.

Given this fundamental structure of awareness, we can experience something as something thanks to the two basic capabilities we are equipped with and the constraints which limit the capabilities: (a) we can discern entities and aspects, and (b) we can be focally aware of a few entities or aspects simultaneously. Learning to experience the various phenomena, which is the most fundamental form of learning in our view, means becoming capable of discerning certain entities or aspects and having the capability to be simultaneously and focally aware of these certain entities or aspects. To grasp this very sentence, for instance, boils down to discerning and being focally and simultaneously aware of its aspect of being an

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We draw the reader's attention to our earlier claim in chapter 5 that reality is inexhaustible and that phenomena are experientially inexhaustible; here we emphasize that even one person's experience of one particular phenomenon is inexhaustible.
example of the foregoing principle and of its aspect of being a part of the characterization of the basic unit of description of phenomenography and of its aspect of being a part of an explanation triggered off by a question implicit in this book as a whole and of its aspect of being a part of the sixth chapter named "The Idea of Phenomenography" in the book Learning and Awareness.

INDIVIDUAL AND COLLECTIVE LEVELS
OF DESCRIPTION

A question that the reader might well have posed when reading phenomenographic studies, and which may have been more or less well answered in context, is; "At what level do the descriptions offered, the ways of experience, apply to the subjects of the respective studies? Do they apply to the individuals or to the group of individuals or to a wider population?" The answer lies in the fact that phenomenography focuses on variation. The objective of a study is to reveal the variation, captured in qualitatively distinct categories, of ways of experiencing the phenomenon in question, regardless of whether the differences are differences between individuals or within individuals. In other words, a description of a way of experiencing might apply in some sense across a group, or, there again, might apply to some aspect of an individual. To the extent that the group represents the variation of individuals in a wider population (or is a theoretical sample of that population), the categories of description can also be said to apply to that wider population.

The variation is, of course, distributed across the group, but to some extent even one single way of experiencing something is distributed. Its different appearances can often have complementary relationships with each other, like having fragments of the same whole spread around, the meaning of one bit derived from the meaning of and lending meaning to the rest. Similar variation might even hold across different cultures, as the results and arguments presented in chapter 3 about cross-cultural ways of experiencing learning show. There, the outcome spaces for two different cultures may hold a partly overlapping and partly complementary relationship to each other. Different fragments of the supracultural outcome space (in the case of the variation found in different cultures being described within a common framework) are found distributed among different cultures (Marton et al., in press). The variation within each culture can thus also be described in terms of this supracultural outcome space, the different parts of which come to the fore more clearly, are more emphasized and appear more frequently, in one culture than in another.

CATEGORIES OF DESCRIPTION

The way in which a person experiences a phenomenon does not constitute the phenomenon itself. It rather constitutes one facet of the phenomenon, seen from that person's perspective, with that person's biography as background. In contrast, when the researcher describes the differing ways of experiencing a phenomenon, the researcher is describing the phenomenon, again, no more than partially, from the reports or inferences of the subjects, and it is this partial constitution of the phenomenon that is the researcher's description. The complex of categories of description capturing the different ways of experiencing the phenomenon is the outcome space. In earlier chapters we sometimes used the terms categories of description synonymously with ways of experiencing, constituting a complex called the outcome space. To be more precise, the outcome space is the complex of categories of description comprising distinct groupings of aspects of the phenomenon and the relationships between them.

The qualitatively different ways of experiencing a particular phenomenon, as a rule, form a hierarchy. The hierarchical structure can be defined in terms of increasing complexity, in which the different ways of experiencing the phenomenon in question can be defined as subsets of the component parts and relationships within more inclusive or complex ways of seeing the phenomenon. The different ways of experiencing the phenomenon can even be seen as different layers of individual experiences. People as a rule are not consciously aware of layers of experience of earlier date, but we can assume that they are present as tacit components of more advanced ways of experiencing a phenomenon.8

Inasmuch as a phenomenographic study always derives its descriptions from a smallish number of people chosen from a particular population, whether children starting school or computer engineering students, the system of categories presented can never be claimed to form an exhaustive system. But the goal is that they should be complete in the sense that nothing in the collective experience as manifested in the population under investigation is left unspoken. There are certain criteria for the quality of a set of descriptive categories, that can be seen as methodologically grounded or grounded in the anatomy of awareness as expounded earlier.

The first criterion that can be stated is that the individual categories should each stand in clear relation to the phenomenon of the investigation so that each category tells us something distinct about a particular way of experiencing the phenomenon. The second is that the categories have to stand in a logical relationship with one another, a relationship that is frequently hierarchical. Finally, the third criterion is that the system should be parsimonious, which is to say that as few categories should be explicated as is feasible and reasonable, for capturing the critical variation in the data.

Let us elaborate on these criteria. The first reminds us that a category of description is a complex of aspects of the way that the experience of the phenomenon in question has been expressed, and is thereby logically constrained to stand in clear relation to the phenomenon. From the methodological perspective, the criterion reminds us that phenomenography as presented in this book is essentially an educational research specialization, with an interest in learning, and generally learning of some specific content. In that we are generally looking for educationally

8Curiously enough, this implies that we can understand the anatomy of an individual's awareness by looking at others', less complex, awareness.
critical ways of experiencing things, as discussed at length in chapter 4, an obvious
value of the research effort is that the system of descriptive categories should tell
us clear and distinct things about the experience or capability for experiencing those
things.

The second criterion is grounded in the argument made earlier, that the categories of
description denote a series of increasingly complex subsets of the totality of the
diverse ways of experiencing various phenomena. Educationally, it is a reasonable
assumption that there is a norm, a particular way of experiencing a phenomenon
that is to be preferred over others, and that is what the educational effort is designed
to foster. Some ways of experiencing it are more complex, more inclusive, or more
specific than others, and they coincide to a greater or lesser extent with those
considered to be critical for further educational development. Thus, we seek an
identifiably hierarchical structure of increasing complexity, inclusivity, or specific-
ity in the categories, according to which the quality of each one can be weighed
against that of the others.

The third criterion of parsimony, apart from being a generally desirable property of
research results, relates to the tension between the individual and the group levels,
and to the very nature of awareness as we described it in the previous chapter. That
the worlds we inhabit are recognizable and communicable at all means that the
number of ways of experiencing any phenomenon in the world is limited. As we
have said before, if we were subject to panaesthaesia (capable of total experience
of situations and phenomena) things would look the same for all time and for all of
us.

On what principles do these criteria rest? Naturally, given the thrust of this book,
they rest in the nature of experience and awareness. The idea of carrying out the
thought experiment at the beginning of this chapter was to demonstrate that if
people experience a certain situation in the same way, they will deal with it in the
same way as well. Differences in how they deal with situations and phenomena
imply differences in how they experience them. Moreover, it is certain that we do
not all deal with situations and phenomena in the same way. In contrast, if the
number of potential aspects, the essential aspects that define the phenomenon, had
been infinite, each of us could have experienced every situation and every pheno-
menon differently, and also could have experienced a particular phenomenon
differently each time. We would live in different worlds; we would not be able to
communicate; there would be no permanence. Now, we do not live in different
worlds, and we are able to communicate, and we do experience the sameness of
the world in spite of changes. (In fact changes can only be experienced against the
background of permanence.) We have variation and similarity in our way of
viewing the world. For this to be the case the number of critical aspects that define
the phenomenon must be limited because we learn to experience them by successive
differentiations from each other. Oversimplifying things a bit, the different ways of
experiencing a phenomenon reflect different combinations of the aspects that we are
focally aware of at a particular point in time.

If, for instance, we look once more at the different ways in which children
experience number, we find, as was indicated earlier, that different categories of
description identified by Neuman, and summarized briefly as the first example in
chapter 4, reflect the simultaneous awareness of different aspects of numbers such
as ordinality, cardinality, and object-word, part-part, part-whole relationships.
Experiencing numbers as abstract and structured entities, one on the hand means
to be simultaneously aware of their ordinal aspect, of their cardinal aspect, of the
whole, of the parts and of the singular units. On the other hand experiencing
numbers as "names," for instance, means to be aware of numbers primarily in terms
of part-whole relationships and their ordinal but not their cardinal aspect, while
experiencing numbers as "extents" means to be aware of numbers in terms of
part-whole relationships and their cardinal but not their ordinal aspect. In the case of
"counted numbers" children are aware of both the cardinal and ordinal aspects,
but disjointly rather than simultaneously.

One may raise the question, as Säljö (1994) recently did, "Why should the
distinction be made between ways of experiencing (or conceptions as we generally
used to refer to them) and categories of description?" Indeed, if we look at all the
examples in the book and ask if we can find two things, one of which is "a way of
experiencing something" and the other "a category of description," we are con-
strained to reply, "No, we cannot find two things; we can find only one that we refer
to by two different names." Why then should we have two names for one thing?

Well, the reason is that what looks as though it is one thing is not so clearly one
thing at all. This is indubitably a conclusion we must draw from what has been said
in the previous pages. What might be thought of as one thing can appear very
different when seen from different perspectives. This is very much what this book
is all about. Therefore, when we present a set of different ways of experiencing
something, when we refer to this set, and when we make use of it, we can have in
mind that which is described (ways of experiencing) or the way in which it is
described (categories of description). We cannot separate them, of course. There is
no description without something described, nor can anything be described without
a description. But we can "think apart" the two. Yet, why on earth should we do
that?

The main reason for making the distinction is that when, in an investigation, we
arrive at the conclusion that we have found in a group of learners a number of
qualitatively different ways of experiencing a certain phenomenon, we let two kinds
of statement collapse into one. One kind of statement pertains to the fact of the
qualitatively different ways the particular learners have demonstrated they experi-
ence the phenomenon. The other kind of statement is about what we have found to
be qualitatively different ways of experiencing the phenomenon in question. Now,
even if this seems to be playing with words, it is not.

One way of considering conclusions of this kind is to bring into focus the
question of the truthfulness of the ways of experiencing the phenomenon in
question in relation to the particular individuals, by asking, "Have we really
captured how they experience this phenomenon? Does the research method do them
justice? Would they have done differently under other circumstances? Can the
findings be generalized to other situations at the individual level, or to a population,
or to other populations, at the group level?" Intriguing though these questions may
seem, they are not necessarily our main questions. The point is that even if one
individual or another may have been misrepresented, even if some of the participants may not have functioned at their very best, even if what we have observed of one individual or another in the particular situation is not totally typical of them, and even if the distribution of the different ways of experiencing the phenomenon in question may not easily be generalized to any population, we can still argue that we have identified the variation in how the phenomenon in question might be experienced by people with certain background characteristics. We claim only that an individual has shown a capability for experiencing something in a certain way, and we do not say that she is not capable of experiencing it in some other perhaps more complete or advanced or efficient way. In other words, we may not have identified the most typical or the most advanced way in which a person can experience the phenomenon, and we may not have described a generalizable distribution of the different ways of experiencing it, but we may still very well have identified the variation in terms of which we can characterize the different ways the phenomenon appears to the particular person in different situations or different ways it appears to other similar groups.

In Example 7.7 in the next chapter, for instance, we refer to a study in which Marton, Asplund-Carlsson, and Halász (1992) found four qualitatively different ways in which a group of Hungarian and a group of Swedish secondary school students understood a short story by Franz Kafka. In spite of the fact that there was a striking difference between the two groups, the variation was identical. In the same vein, Marton, Asplund-Carlsson, and Halász (1994) found that while the distribution of ways in which the short story was understood by Hungarian secondary school students before and after Hungary turned into a pluralistic democracy in the early 1990s was strikingly different, the variation in how the story was understood was identical. Therefore, even if the empirical statements about individuals or groups may not be generalizable, the variation itself might very well turn out to be so. The point we are trying to make is that the very identification of the different ways of experiencing a phenomenon and the variation thereby constituted are a legitimate and worthwhile outcome of a research undertaking.

When we talk about “a way of experiencing something” we usually do so in terms of individual awareness. We did so earlier when we discussed what a way of experiencing something is. And we certainly do so in the two chapters to follow when discussing the dynamics of learning in the light of the learner’s and the teacher’s efforts. When we talk about “categories of description” we usually do so in terms of qualitatively different ways a phenomenon may appear to people of one kind or another. Thus, categories of description refer to the collective level. In consequence, although the described (the ways of experiencing something) and the description (the categories of description) are inextricably intertwined, the description is never the whole of what it describes, just as a way of experiencing is never more than part of the phenomenon experienced. The relationship between the way of experiencing and the category of description resembles, then, the relationship between Lewis Carroll’s grinning cat and the essential grin that is left hanging in the tree when the cat slowly fades from sight.

**METHODS OF PHENOMENOGRAPHIC RESEARCH—CONSTITUTING THE OBJECT OF RESEARCH**

In a very important sense, the methods of phenomenographic data collection and data analysis are inseparable. For one thing, during the collection of data, whether through interviews or in some other form, analysis is taking place, and early phases of analysis can influence later data collection. But the dialectic relationship is even stronger than that in terms of constituting the object of research. The researcher from the outset delimits the phenomenon that is central to her interest, be it learning as such, or the nature of matter, or whatever. The researcher has a responsibility to contemplate the phenomenon, to discern its structure against the backgrounds of the situations in which it might be experienced, to distinguish its salient features, to look at it with others’ eyes, and still be open to further developments. There are various ways of going about this. One way is by considering the phenomenon’s treatment in other research traditions: how it appears in literature, in treatises and in textbooks or how it has been handled in the past and in different cultures. If the researcher is to be able to meet the people she is interested in and take part in a discourse that attempts to reach their unreflected experience, then she might herself be aware of many possible starting points they will have, the sorts of situations in which they have met the phenomenon before, and the range of ways in which they might handle it.

**Collecting Data**

The studies we have been dealing with in this book have to do specifically with learning, and by now we have elaborated a conceptual framework for learning in terms of the structure of experience and awareness. When we describe the methods of phenomenographic research, we employ the same framework, because we also see research as a learning experience: The researcher is finding something out, and to one extent or another (elaborated on later) the research subjects are also learning. Remember then that in discussing the phenomenographic research effort we are considering a learner (the researcher) learning about a certain phenomenon (how others experience the phenomenon of interest) in a situation (the research situation) that is of her own molding. That molding or structuring, as in other cases of learning, has an effect on the outcome of the learning, both of the researcher (what she is able to bring out of the research effort) and of the people being studied (what they are able to reflect on in the research situation).

In collecting data the researcher wishes to bring to light the ways in which the people being studied experience the phenomenon of interest. This is the phenomenon that the researcher will be learning about in different ways throughout the study. Let us first discuss a single aspect of one sort of data collection, and work outward from that to look at data collection more generally. The kind of data collection is the interview and the particular aspect is that of the interviewee reflecting over his experience in a state of “meta-awareness,” being aware of his awareness of
something. In chapter 2 we described studies in which the interviewees were asked first to undertake a task (reading a text or solving a problem) and report on it, and then to describe how they had gone about the task. In the first part the researcher had formed a situation, the output of which was of the interviewee’s making (a description or a solution), and in the second part the output was a probing of the interviewee’s own awareness of producing it. Now it is the second part we wish to discuss first, wherein the researcher or interviewer works together with the interviewee to bring forth his awareness of undertaking the task, a state of meta-awareness, something akin to the newly found insight into her own condition that Helen Keller vividly described, and which we quote in chapter 3. Whereas in the first part, the phenomenon that the interviewee is being asked to handle is already brought to awareness by the interviewer in an open and concrete form, in the second part the interviewee herself has to discern the phenomenon and distinguish it from the situation as whole. The difference might be likened to the difference between experiencing a deer on a sunlit lawn and our earlier deer in the forest at dusk. In the first part the phenomenon is anchored in the interview situation, whereas in the second part it transcends the situation.

Sometimes such reflection occurs spontaneously, and sometimes the interviewer and the interviewee have to persist to reach the required state. But in this sort, or part, of an interview it is important that the researcher is mindful of working toward an articulation of the interviewee’s reflections on experience that is as complete as possible. The interviewer is looking forward to the resulting protocol and its viability as data with respect to completeness (Theman, 1983). The interview is now taking place on two levels. On one level there is the situation of interpersonal contact in which the interview resembles a social discourse, in structure if not in content. On the second level, a metalevel, the interview is more like a therapeutic discourse inasmuch as the interviewer is trying to free the interviewee of hitherto unsuspected reflections. Whereas the first level carries with it a relationship that is recognizable in everyday life, the second level is more problematic, and indeed is accompanied by some of the difficulties of a therapeutic situation in which resistance is the most obvious. The second level might be approached through alternative questions, bringing the interviewee repeatedly back to the focus for reflection, or it might be approached through offering interpretations of different things the interviewee has said earlier in the interview. Rejection of such interpretations can occur, when the interviewee sets up a defence structure of denial, reinterpretation, and resistance to further discussion. Such events must be handled carefully, for, as Theman (1983) pointed out, making the interviewee aware of his own thoughts and breaking down or bypassing his defences can be painful, though necessary: “If it is done in the right way, if the interpretation is closely related to explicit or implied statements, then the pain is accepted, even if not at once” (p. 104). In taking the discussion of psychotherapeutic aspects of the interview further, Theman draws lessons from the handling of transference through self-awareness and positioning in the interview situation:

A conscious subjective control of the relation between the two parties demands a certain self-reflection, good enough to enable the interviewee to be conscious of their own questions and interjections as the basis for their answers and reactions... Another important factor is to remain aloof, maintaining a certain consciously calculated distance from the interviewee while aiming at the same time to get as close as possible. (p. 104, our translation)

Now, the consideration of psychotherapeutic aspects of a phenomenographic interview is very relevant at one extreme of a spectrum of data collection, such as Theman’s (1983) study of how the citizens of a city experience political power with reference to a particular political decision. This demanded that interviews be conducted to a large extent at the second level, using the political decision and its field as a concrete reference point (the first level) to reach a deeper consideration of power. At the other extreme lies Lindahl’s study, already referred to in chapter 3, in which none of this appears, for the simple reason that the subjects are 1-year-olds who cannot yet speak, let alone reflect over their awareness or actions (Lindahl, 1996). Her films of toddlers during their early months at a day nursery do not allow the researcher to mold the data collection situation at all. Once the researcher and her camera are familiar, it becomes the natural situation.

One dimension in the spectrum of kinds of interview is the degree of reflection demanded of the interviewees, from wholehearted in the adults of Theman’s study to nonexistent in Lindahl’s toddlers. Another dimension is that of power balance between interviewer and interviewee. As Theman implied earlier, the question of balance in terms of overcoming defenses and the issue of distance versus closeness is ever present in the more reflective parts of an interview, in which the interviewer could easily destroy the relationship by pressing too hard or not hard enough, or by getting too close or not close enough. In contrast, the interviewee always has the power to refuse, to deny the interviewer access to thoughts and reflections, or even to mislead. The interviewer has power of an external kind, being deliberate and calculated, whereas the interviewee has a power that can act from within, being spontaneous and reactive. If the interviewer-interviewee relationship were to break down, then the loss would be to the research effort; avoidance lies in the interviewer’s sensitivity to the potential of the relationship and the interviewee’s ability to prepare and maintain it.

In phenomenographic studies in general, the researcher forms the interview according to the research question. In the studies related in chapter 2, as already indicated, the interviews had two principal parts, one with a situated theme (What did the author mean? What is meant by X?) and one with a theme that demanded reflection (How did you go about reading? How did it feel?). In the studies of chapter 3, the interviews were of a less structured kind, in which the interviewees were asked to reflect over what learning meant for them, often starting from no more than a direct question. In chapter 4, where studies are described of how pupils and students experience the concepts they meet in educational situations, the two aspects are found in different proportions, with greater reliance on more concrete
interviews around specific problems in younger children (with attempts to bring them to reflection) and greater demand for reflection in adults (starting from problems or concrete situations). This draws on differences in the chapters that are central in describing empirical phenomenographic research studies in terms of what characterizes the interviews in which data were collected and reflects the more fundamental difference already taken up in the introduction to chapter 5, concerning whether the primary focus is on experience of the phenomenon or of the situation.

We started this section on phenomenographic data collection by considering one particularly important aspect of an interview, the most common form of data collection, namely the relationship between interviewer and interviewee in bringing the interview to a state of meta-awareness. There are other forms of data collection in which this is less of an issue. The aforementioned study of toddlers is one such, in which long sessions of video filming took place in day nurseries. Other studies have collected written data, such as one in which subjects of varied ages and backgrounds were asked to write on the theme, “When I understood...,” later to be complemented by interviews with some of them (Helmstad & Marton, 1992). In principle, there is no impediment to using published documents as data, or even artifacts of other kinds that in some way serve as an expression of the ways in which people experience some part of their worlds.

Data Analysis

From the outset, then, the researcher has a clear picture of the object of research, which becomes clearer as the situations in which data are to be collected are planned and refined. As the data are collected, a preliminary more or less focused analysis takes place, as a result of which the researcher’s picture inevitably gains details, and finds new structure while new perspectives reveal distant unsuspected figures. As the analysis progresses this picture gains depth as particular facets are brought one by one to the fore. These are all phases in the constitution of the object of research. Although the boundaries are laid at the start, the processes of collecting and analyzing data cast light on the boundaries, shift them, fill them in, and turn the whole thing around.

The researcher’s question has a phenomenon in focus and is interested in certain aspects of it, maybe with other aspects in the background, or maybe with no interest at all in other aspects. In collecting data, then, an attempt has been made to vary the focus of the subjects’ awareness and reflection or meta-awareness around the aspects of interest while taking the rest more or less for granted. For example, in asking students how they understood a particular aspect of a text they have just read, the meaning of the other parts of the text was ignored, and the way they read it was left untouched. When they were being asked about their ways of reading the text, then its meaning was no longer in focus. It was temporarily frozen. Hasselgren (1981) studying the development of student teachers’ understanding of children’s play, gave them three films to watch on three different occasions. The design of the study, in which different students got different films on different occasions, a Latin square design, effectively prevented the revelation of the aspect of the meaning of what they saw. Because the meaning was varying qualitatively across all the material that he pooled, the analysis was effectively focused on the dimension of variation remaining, namely the structure of what happened in the films. He identified four different “ways of apprehending children at play”: fragmentary in which a number of isolated sequences were taken up; partialistic in which focus was on one part of the film, ignoring the rest; chronological in which the sequence of events was retold; and abstracting in which the events of the film were described around some abstract idea that was illustrated. The results of the study were thus constrained to revealing the variation in the structural aspect of the students’ apprehension of children at play.

Now in the analysis of the data a similar process takes place. Remember that the researcher is a learner, seeking the meaning and structure of her phenomenon (how people experience the phenomenon of the research question). The boundaries of the object of research as it has been and is still being constituted form a divide between, the internal structure that is of primary interest, on the one hand, the ground provisionally taken for granted on the other. The main task, then, for our researcher/learner is to discern the internal structure and the intertwined meaning of the object of research.

All of the material that has been collected forms a pool of meaning. It contains all that the researcher can hope to find, and the researcher’s task is simply to find it. This is achieved by applying the principle of focusing on one aspect of the object and seeking its dimension of variation while holding other aspects frozen. The pool contains two sorts of material: that pertaining to individuals and that pertaining to the collective. It is the same stuff, of course, but it can be viewed from two different perspectives to provide different contexts for isolated statements and expressions relevant to aspects of the object of research. The researcher has to establish a perspective with boundaries within which she is maximally open to variation, boundaries derived from her most generous understanding of what might turn out to be relevant to depicting differences in the structure of the pool. The analysis starts by searching for extracts from the data that might be pertinent to the perspective, and inspecting them against the two contexts: now in the context of other extracts drawn from all interviews that touch upon the same and related themes; now in the context of the individual interview.

One particular aspect of the phenomenon can be selected and inspected across all of the subjects, and then another aspect, that to be followed, maybe, by the study of whole interviews to see where these two aspects lie in the pool relative to the other aspects and the background. In a study that involves a number of problems for solution, for instance, the analysis might start by considering just one of the problems as tackled and discussed by all the subjects, and then a selection of whole transcripts that include particularly interesting ways of handling the problem. This process repeated will lead to vaguely spied structure through and across the data that our researcher/learner can develop, sharpen, and return to again and again from first one perspective and then another until there is clarity.

As a result of this analysis we identify a number of qualitatively different ways in which one and the same situation or phenomenon has been experienced but we
also find variation in the different ways in which each of the ways of experiencing are expressed. The latter variation is essential if we are to be able to abstract the way of experiencing from the ways of expressing the experience because a number of identically worded statements amount to one single statement, and such indeterminacy would make the discernment of structure and meaning nigh impossible. This points to the general principle: In order that a phenomenon can be discerned from a particular appearance there must be observable variation.

When we work with transcripts (or equivalent data) we experience that there is a sort of play in them: As we read them again and again they keep changing in appearance. The reason is, of course (in line with our own arguments on the nature of awareness), that we cannot be simultaneously aware of everything with the same degree of acuity all the time. The foreground changes repeatedly, and with each shift other things that are present shift to become functions of the current items of figural awareness. The data shimmers in the intense light of our analysis.

In accordance with what we said earlier about not only categories of description but even their fragments being distributed across individuals, the data at the collective level are particularly robust compared with the data relating to individuals. Even if it is difficult or impossible to draw from the data, or even from the phenomenographic enterprise, the ways in which individual subjects experience a phenomenon, the ways in which idealized individuals do so can be abstracted owing to the overlap of the material seen at the collective level. This relates also to the usual practice of selecting a theoretical sample of subjects to cover the group according to a predetermined plan in order to maximize the variation in critical respects (Glaser & Strauss, 1967). Thus, the categories of description derived from the data have a strength that they could not have if individuals were studied. This is an additional reason for distinguishing between “ways of experiencing” and “categories of description,” an issue discussed at some length earlier in the chapter.

Another principle now demanded of the researcher is the adoption of the second-order stance described earlier in this chapter. Here we can refer to the hermeneutic principle expounded by Smedslund (1970), that understanding and logic are circularly related. When communicating with another person who expresses something contrary to our view, we can either assume that their understanding of the subject is as ours but their logic is not our logic, or vice versa, that they share our logic but they understand the thing differently. He exhorts us to assume that what people say is logical, given their particular way of seeing the world.

Take the case of Jenny who claimed consistently that she had 5 fingers on one hand and 10 fingers on the other hand in one of Neuman’s (1994) studies. It would be very easy to smile at her and dismiss her as untought (first-order perspective). That expression, however, has the potential to give an enormous insight into children’s experience of number when we take the child’s place and ponder on what might lead her to say such a thing (second-order perspective).

When that child’s apparently illogical, or even wrong, statement is juxtaposed with other similarly misinformed statements involving number, alternative interpretations start to be clarified. In the case of Jenny, she could count the fingers on one hand, and they were called “1,” “2,” “3,” “4,” and “5”—she has “5” fingers on that hand. Continuing to the second hand, they were called “6,” “7,” “8,” “9,” and “10”—she has “10” fingers on that hand. Jenny understands that the last number she utters refers to these fingers all taken together. In a similar manner, when she was asked how many marbles were in each of the two boxes, as described in chapter 4, she replied “4” and “9,” or “2” and “9,” or “3” and “9.” Now a picture suddenly emerges, that her logic is our logic. She is interpreting the tasks in a consistent way, but her understanding of number is radically different from ours. Jenny sees number as arrayed on a counting line of some sort, on which the position is the name and the name is the number itself. When other children are found to respond similarly, the idea of a category of ways of experiencing “numbers as names” evolves, and when placed alongside other ways of experiencing number, the critical aspects of cardinality and ordinality, parts and wholes, develop to become a conceptual framework for ways of experiencing numbers in a wider sense, all from assuming that the child shares our logic though not our understanding of the phenomenon in question. Having seen that the child’s understanding differs from ours, we see that the way forward is to try to reveal their understanding and work toward a shared understanding, as we return to discuss in chapter 8.

Now we have, in the late stages of analysis, our researcher/learner with a sharply structured object of research, with clearly related facets, rich in meaning. She is able to bring into focus now one aspect, now another; she is able to see how they fit together like pieces of a multidimensional jigsaw puzzle; she is able to turn it around and see it against the background of the different situations that it now transcends. All that is left to do is to communicate it to others.

THE PATH OF PHENOMENOGRAPHY

Phenomenography has been characterized in the beginning of this chapter as a research approach with a strong educational interest. It does indeed originate from an educational interest and it does aspire to serve it as well. Phenomenography offers a way of describing intended or actual outcomes of learning. It aims at depicting competence in the Chomskian sense of the word (Chomsky, 1957). The competence in question is competence to experience various phenomena in certain ways, a competence that reflects changing person–world relations and that evolves as a function of experience. It is thus born out of learning.

It makes sense, of course, that the question of the most fundamental form of learning and questions of hierarchies of capabilities should be dealt with in an educational context. But we should remember that the link is not one of logical inevitability. The issue should be seen more as one of the driving force and of the field of application. Phenomenography should be seen as a kind of basic research with a certain context of origin and with a potential usefulness of a certain kind. Above all it should be defined in terms of its object of research.

The subject of our research, as we have kept emphasizing throughout this book, is the qualitatively different ways in which people are capable of experiencing
various phenomena. A way of experiencing something springs from a combination of aspects of the phenomenon being both discerned and presented in focal awareness simultaneously. An aspect is (as opposed to being absent or taken for granted) a dimension of variation. Experiencing something is discerning aspects of it and being focally and simultaneously aware of them. Differences in how something is experienced mean that some aspects are focused on and others or not, or that they are seen in a succession rather than simultaneously. The structure of the variation in how a particular phenomenon is experienced can be seen as inherent in the phenomenon as it is constituted in terms of its various aspects.

Phenomenography aims to reveal the qualitatively different ways of experiencing various phenomena. There are two potential questions to figure out: first, which these ways are, and second, whether or not they appear in a certain case at a certain point in time. The question of phenomenography is the first one. It is about identifying the very ways in which something may be experienced. This is the researcher's way of experiencing how other people's ways of experiencing something vary. It is experience, or rather the nature of experience as seen from a particular perspective. We capture it in a category of description; it is a characterization discerned from that which is characterized. The validity claim is made in relation to the data available. Thus we argue the category of description is a reasonable characterization of a possible way of experiencing something given the data at hand. Whether or not a certain person is really capable of experiencing the phenomenon in question in this particular way, or under what conditions she is capable of doing so, is a question that falls outside phenomenography proper. (Although it is highly reasonable to deal with such questions in conjunction with a phenomenographic study.)

Categories of description depicting the different ways in which a certain phenomenon is experienced and the logical relationships between them constitute the outcome space of that phenomenon. Furthermore, there are logical relationships between different phenomena as they are experienced. We could envisage a complex of categories of description depicting the differing ways in which various phenomena are experienced, which has previously called the collective mind (Marton, 1978) and, earlier in this book, was called the collective anatomy of awareness.

To reveal this collective anatomy of awareness is the path of phenomenography. As we indicated earlier, the rather sparse conceptual and methodological apparatus presented in this book points away from itself. It points to this domain of knowledge, parts of which have been explored by others, but which has not been identified as a field of its own.