

procedure consisting of abduction, deduction and induction.

Finding and checking are, in Peirce's opinion, two distinct parts of a *single* process of discovery, or research. If the finding stage is largely a result of a conscious and systematic approach, checking takes place according to operationalizable and rule-governed standards that are controlled by reason.

*Certainty* about the validity of abductive inferences, however, cannot be achieved even if one subjects an abductively developed hypothesis to extensive testing, that is to say, deduces it from its consequences, then seeks to determine these inductively, and then repeats these three steps many times. Verification in the strict sense of the word cannot be done in this way. All that one can achieve, using this procedure, is an intersubjectively constructed and shared 'truth'. In Peirce's opinion even this is only reached if all members of a society have come to the same conviction. Since, in Peirce's work, 'all' includes

even those who were born after us, the process of checking can in principle never be completed. For Peirce, absolute certainty, therefore, can never be achieved, and so 'infallibility in scientific matters seems to me irresistibly comic' (Peirce 1931–35, vol. 1: X 1.9).

#### FURTHER READING

Eco, U. and Sebeok, T. (eds) (1985) *The Sign of Three. Dupin, Holmes, Peirce*. Bloomington, IN: Indiana University Press.

Ketner, K. L. (ed.) (1995) *Peirce and Contemporary Thought*. New York: Fordham University Press.

Ochs, P. (1998) *Peirce, Pragmatism, and the Logic of Scripture*. Cambridge: Cambridge University Press.

## 4.4 Selection Procedures, Sampling, Case Construction

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According to Flick (2002: 62), decisions about selection in the research process are taken at three different levels:

- during data collection (case selection, case-group selection),
- during interpretation (selection of material and selection within material), and
- during the presentation of results (presentation of material).

To ensure the intersubjectivity of research, criteria are essential that guide the decisions, so that other researchers using the same procedure can arrive at a similar result or so that the outcome of case construction can be subjected to rational criticism. For this reason what follows is devoted above all to a discussion of the relevant criteria. Between the three levels there is a high degree of interdependency, which is also an important focus in some selection procedures. In the first section we shall consider selection problems concerned with the case or the case-group. The second section focuses on aspects of the selection of material, and the final section deals with aspects of case interpretation.

### 1 CASE SELECTION

#### *Selection procedure*

A first decision concerns the selection of the particular case: classical qualitative investigations

are interested in what is special. In that sense no special attention was paid to selection procedure, because what was special about a particular case was already determined by the choice of object. This seems to hold true, for example, in ethnology, when a particular tribe is being investigated. But even here there is a need for a research question, as, for instance, Mead (1958) formulated it, which seeks an answer to the problem of whether the distribution of gender roles between man and woman has biological or social causes.

Selection procedures are also needed if one wishes to investigate a problem such as the psychic consequences of unemployment: the consequences of unemployment will most probably be different among the long-term unemployed than among people who have recently become unemployed. One must therefore determine, in respect of unemployment, what features the unemployed in the sample are expected to have: the case of the psychic consequences is constructed before the investigation is started. Problems that arise in this initial construction have been demonstrated by Merrens (1986) in the re-analysis of a field study that was carried out on the subject of 'Turks going shopping'. The difficulty consisted of identifying Turks as Turks, because Turks encountered in the field were supposed to be observed shopping. This required that indicators be set up to identify, amongst the shopping population, those who were Turkish.



Dilthey (1968a,b, 1996) had also formulated criteria for the pre-construction of cases for the humanities, when he declared that, in order to understand a particular era, it was a sound method to use analyses of the biographies of prominent people. This approach was guided by the idea that historical epochs are shaped by culture and that culture is shaped by its leading representatives. Here there was a need to identify witnesses.

### Accessibility

In the same way as in quantitative studies, significance is attached to the accessibility of the events, activities or individuals that form the object of the investigation (Burgess 1991; see 5.1). With individuals this problem can be characterized by their willingness to be reached: it is often the case that groups of people who are to be investigated, or individual members of these groups, refuse to cooperate. If this aspect is not dealt with – was it possible to include all the desired events, activities or individuals in the investigation? – it becomes impossible for an outsider to judge the extent to which the case has been investigated. Refusals or obstacles become important because they are often of a systematic nature. If this should be the case, then not including them distorts the results in a particular direction in relation to the totality of the case. In qualitative studies the stimulus for empirical data collection often consists of guaranteeing accessibility to a particular case or a particular group or institution. Then it is not particular selection procedures that are in the foreground, but rather that the selection is constituted by accessibility.

In this context *gatekeepers* play a particular role in qualitative studies. In the investigation of organizations (see 3.11) there is often no reference to who the gatekeeper was and what additional gatekeepers within the organization had to be or could be won over. Normally, for instance, in the investigation of an enterprise one of the top managers has to be won over as a gatekeeper. But in addition the company board also plays a central role when it comes to selection of more interview partners. Information about the gatekeepers is important for evaluating the results achieved and the question of transferability, because gatekeepers often link an

element of self-interest with their willingness to open one or more doors.

Morse (1994) has divided the importance of accessibility into primary selection – where the cases in the investigation are selected in a targeted way – and secondary selection from some other perspective. The latter occurs when, in a particular investigation, the ‘cases’ are invited to apply by means of an advertisement or some other appeal. In the second case accessibility is subject to certain restrictions: the participants in the investigation must activate themselves. The first type always occurs when individuals, events or activities are deliberately included in a sample. Since the researchers must often choose a personal means of access to the field, some aspects of the secondary type of selection will frequently play a role.

In qualitative studies attention is often directed to another point that tends to be of interest as a validity problem (see 4.7): by virtue of the fact that the investigator is the reporter of events, activities or individuals, his information seems to be authentic. Authenticity is therefore claimed as a feature of such studies. This has a tradition that may be traced back to Dilthey (1968a), who claimed that it was an essential feature of the humanities that they were based on experience. Experience, however, is authentic for the one who experiences. The claim to authenticity allows one to overlook the fact that the selection of events, activities or individuals must meet certain criteria if it is to succeed in producing findings that are not only true for the case being investigated.

These problems may be illustrated with a fictitious example: in the social sciences at present investigations of right-wing extremism are a popular subject. For qualitative investigations at least three problems arise in this connection.

- 1 Are the persons involved in the present study right-wing extremists?
- 2 Is the spectrum of right-wing extremism appropriately depicted, or are there types of right-wing extremist of which those being investigated are not typical?
- 3 Are the activities, events and persons that may be encountered in right-wing extremism appropriately represented by the individuals included in the investigation?

Here a circle suggests itself: the selection of the group takes place according to the aspect

of accessibility and is not independent of the prejudices of the investigator. The conduct of the investigation remains influenced, within certain limits, by the investigator's prior knowledge and the accessibility of the case. Case construction takes place within the limits fixed in this way. An extension would require a larger sample, but this – on the basis of the particular investigation – would yield no great advantage, because similar members of the group would be included. For this reason a study set up in this way can only give glimpses of the attitudes and activities of right-wing extremists. It requires supplementation by means of further investigations, but these would probably be under similar restrictions. Comparability of results cannot be the object of studies of this sort. It is rather the case that further studies must be selected like supplements to a puzzle: a sample of investigations is needed. The case is expanded into a case-group.

### Case-groups

Case-groups may be composed and selected for at least two different reasons. In the first place, it may be a matter of attempting to supplement or complete one's knowledge in the way just described. And in the second place, it may be a question of an attempt at replication (Bourgeois and Eisenhart 1988: 818). This type requires a certain homogeneity of cases on which the general applicability of the evidence obtained may be tested. The selection criteria are characterized by assumptions about the similarity of the cases under investigation.

## 2 SAMPLING

### Sampling techniques

To achieve a systematic approach to data in qualitative studies, two conditions must be fulfilled: first there must be a clear idea of the case to be investigated, and secondly there must be documentation of feasible techniques in the taking of samples of individuals, events or activities. Patton (1990: 169ff.) provides an overview of this. It is surprising that even the most recent handbooks on qualitative methods include no articles on this problem, but merely contain the observation that little value is attached, in qualitative studies, to determining the framework of

a particular sample (cf., for example, Denzin and Lincoln 1994c: 200).

In quantitative methods the totality is known, if findings are to be made there about the distribution of features. The sample is normally made before data collection begins, or else it is completed during the collection process using identical criteria. With qualitative methods the totality, represented by the case or case-group under investigation, can often only be described at the end of the investigation. From this difference there derive differing goals to be pursued both in the investigation and also in the sampling procedure. Whereas in many quantitative studies it is statistical representativity that is sought, with qualitative studies generalizability of results is frequently the target, and this can be achieved when the sample, in terms of content, represents the case being investigated (Merkens 1997: 200). It is not a question of representing the distribution of features in totalities, but rather of determining what is typical of the object under investigation and thereby ensuring its transferability to other, similar objects (Hartley 1994: 225).

What is a problem with quantitative investigations – sampling – is transformed in qualitative investigations into a problem of content and interpretation: the definition of the totality for the case. With this, criteria for sampling become visible (Merkens 1997: 102): it must be guaranteed that the case is represented with as many facets as possible. Patton (1990) proposes for this particular techniques covering sampling of extreme cases (169f.), sampling of typical cases (173f.) and sampling of critical cases (174ff.). For example, in organizations not all of those interviewed should come from the same level in the hierarchy or belong to a single department, if the culture of an organization is being investigated (Morgan 1988: 42). In addition, the investigation should involve not only favourable cases that confirm the existing state of our knowledge, but also unfavourable or critical cases, and apart from the management perhaps also the board, or the parents and pupils as well as the teachers in a school, to give but two examples. In sampling the maximal possible variation should be sought (Patton 1990: 172f.).

In sampling there are two different modes of procedure: on the one hand the sample, before the start of the investigation, can be set up with reference to particular features, that is to say, every element in the sample is included on the



basis of a set of criteria. On the other hand the samples can be extended and supplemented on the basis of the particular level of knowledge achieved (theoretical sampling). The concrete technique of sampling in the latter case may therefore be modified during the investigation in line with considerations of relevance (Flick 2002; Wiedemann 1995).

Johnson (1990: 21ff.) undertakes, for the first case, an assessment of the advantages and disadvantages of particular methods of sampling by comparing random sampling – even with qualitative methods he sees the possibility of representative sampling – with sampling where different criteria have been applied, such as the fact that informants in ethnographic studies should occupy key positions in social networks (cf. Bernard 1988). Samples of this sort are often taken purposefully and not according to the principle of randomness (Miles and Huberman 1994: 36). Flick (1996), in an investigation of the social representation of technological change, took a stratified sample in which profession, gender and nationality were used as defining features of the layers. Similarly, Blank (1997: 37f.), with 60 selected interviewees, initially used the demographic variables of 'gender', 'age' and 'old versus new (German) federal states', and for 22 subjects interviewed later he used the additional variable of 'social commitment'. Samples can also be differently stratified according to functions, when investigations within organizations are involved.

In the investigation of an organization at least different samples must be taken: one of employees and one of events, because in organizations employees take part in events. Meetings are examples of such events. For this reason a different rationale applies in the taking of samples: the researcher asks about events and expects from this that the relevant information about a suitable selection of events can be obtained (Hornby and Symon 1994). Here the different activities that are to be encountered in an organization should be included. The differentiation according to activities, events and individuals should not be understood in an either/or sense: it is rather a matter of different aspects that must be borne in mind in taking the sample. If, in respect of events, one were to combine participant observation (event sample) and interrogation of participants (sample of individuals), then there would be an intersection between the two varieties of sample. This is a special case

of triangulation (see 4.6), which has hitherto rarely been presented in this way. In the sense of research economy and the validity of results such combinations of samples are desirable. Huberman and Miles (1994: 440) require that, in addition, processes, events, locations and times are adequately represented in the sample. From a technical point of view we are dealing in such cases with stratified samples.

Apart from features that help in the description of the sample, procedures and criteria can also be formulated which guide the taking of a sample and describe the quality of the content of the sample. For the taking of the sample itself, in many cases where, at the outset of the investigation, there is no fixed sampling plan, there is a procedure based on the snowball method (Burgess 1982; Hornby and Symon 1994: 169f.; Patton 1990: 176f.): those who have been interviewed are asked who else they could recommend for an interview (cf. also Herwartz-Emden 1986). This procedure leads to clustered samples, because nominations take place, as a rule, within a circle of acquaintances.

At different hierarchical levels in the field of investigation a decision has to be taken, according to what is possible, for either a 'bottom-up' or a 'top-down' procedure. In the last few years studies of this type have been carried out with the aim of describing organizational cultures. Here, in the first phase of the investigations, the process has been limited to the involvement of 'top management' in the research. It was clearly a leading assumption that cultures are influenced by managers. In small and medium-sized companies it was possible to include all the managers. More precise investigations of enterprise culture also had to incorporate employees from lower levels in the hierarchy. To achieve this two different procedures are available: on the one hand it must be guaranteed that the different areas within the organization are represented. For this purpose a sample is taken according to the organigram (Johnson 1990: 40ff.). On the other hand it must be guaranteed that different viewpoints are represented and that the informants show themselves to be well informed (Bergs-Winkels 1998). With the techniques outlined above the question must be asked, 'When is a sample large enough?' Kvale (1996: 102) proposes a rule whereby one can cease to conduct further interviews when no new information would be obtained from new interview partners (theoretical saturation).

In taking a sample other criteria may also play a part, such as the quality of informants (Spradley 1979). Hornby and Symon (1994), for example, concentrate on key informants in their investigations of information flows in organizations. In Morse (1994: 228) we find a characterization of this kind of informant:

- they have available the knowledge and experience that the investigators need;
- they are capable of reflection;
- they are articulate;
- they have time to be interviewed;
- they are willing to take part in the investigation.

In addition, selection takes place according to one further criterion: on the one hand information is related to function and the knowledge associated with it; and on the other hand it may be obtained in a particular dense fashion from individuals who occupy a key position in networks. The requirement to select particularly those informants who are especially knowledgeable presupposes that the researcher has some prior knowledge of the case to be investigated.

### Single-case

The single-case may be an individual, a group or an organization. In a single-case study, with regard to selection, there must be a justification of why this particular case was chosen. Here a valid reason might be either the special case – the artist whose life-story is being prepared because it seems to contain something typical – or the general case – the steel-worker whose daily routine is being pursued to present what it contains that is typical of a situation. Frequently a series of single-cases are presented, such as those of the Shell Studies (Jugendwerk der Deutschen Shell 1981, 1985, 1991, 1997). The aim here is to look at what is typical of a life-situation of the youth in Germany. For this reason criteria for the selection must be set up.

With a single-case, in addition to selecting the case, a framework of criteria for the selection of events must also be developed, which will guide the collection of data and the description of the case. If, for example, a daily routine is to be represented it would not be possible, either through outsider-observation or by means of a self-report, to achieve a complete account of the

events (Kirchhöfer 1998). It is through selected sections and segments that we can construct what is typical in a particular case. In this way it becomes apparent that there must be some basic understanding of the case before the events are selected. Here a kind of circle becomes clear that is typical of this sort of sampling. The selection of events for description takes place on the basis of prior knowledge. Then the case is reconstructed.

### Theoretical sampling

At this point a further distinction must be added. According to Blumer (1969), a distinction can be made, in empirical investigations, between the phases of inspection and exploration. In principle only procedures for investigations with the goal of inspection have so far been outlined. With these a certain level of knowledge of the case is already present, and this makes it possible to undertake a provisional construction at the start of the investigation. Many qualitative studies are carried out in this tradition. But when sampling has been reported, in principle only a single method has been presented, which is oriented, in Blumer's (1969) sense, to an exploratory procedure, because it has only been established in the course of the investigation what individuals, events and activities are to be included in the investigation. Compared to the procedure so far described, the order has been inverted.

Exploratory studies are a special case, because what is characteristic of them is that the case is not yet known but is only constructed in the course of the investigation. A procedure is recommended that is oriented to the premises of grounded theory (Glaser and Strauss 1967; see 2.1, 5.13, 6.6). Johnson (1990) describes this type as having a framework that only emerges in the course of the investigation. Schatzmann and Strauss (1973: 38f.) had called it 'selective sampling' and justified this description on the grounds that choices have to be made during the taking of samples. These choices are made in the tradition described here in the sense of deliberate selection. They have distinguished between the dimensions of *time*, *place*, *individuals*, *events* and *activities*, and have thereby pointed to a multi-perspectivity that should be borne in mind in sampling in this tradition. Strauss (1987: 16ff.) refers to this method as *theoretical sampling* (cf. Glaser and Strauss 1967). In this he



distinguished three stages: data collection, coding and the formulation of theoretical memos. On the basis of both coding and the formulation of memos it may become necessary to collect new data. On the one hand this can be caused by the fact that one needs confirmation of what has been discovered, and on the other hand it can assist the researcher to check what has already been discovered by means of a broadening of the database with reference to the general applicability of the result. In theoretical sampling a decision is taken on the basis of previous analysis as to what groups or subgroups of populations, events and activities should next be included in the investigation. Strauss and Corbin (1990: 181) even go so far as to say that only events should be selected; in other words individuals should be included in relation to events. Events are what constitute the basis of the investigations.

Eisenhardt (1995: 72) points out, in addition, that the selection of individual cases in the tradition of this theory might well be possible according to the principle of chance, but that this would make no sense. Here, with reference to a further aspect, he again underlines the significance attached to the goal-directed selection that must be applied not only in sampling but also in the selection of cases.

On this basis we find another type of sequence in an investigation: after a first phase of data collection hypotheses are formulated, which are then tested with the aid of further data, and further cycles may follow this. With each of the interim stages it must be considered what a supplementary sample would have to look like, given the present state of our knowledge, in order to check or support the level of knowledge so far attained. It must therefore be decided in every case what new or supplementary sample would be of greatest value. Schwartz and Jacobs (1979) add that a promising way forward would be to include in the investigation totally different groups, who go through the same process, in order to test what is right or wrong in respect of ideas about structural uniformity. In a similar vein, Miles and Huberman (1994: 37) describe the research process in qualitative studies as contrast, compare, repeat, catalogue and classify. This makes it clear that with *theoretical sampling* the critical testing of the case is already part of its construction. This is an essential difference from the other techniques of sampling described here. But because such great

importance is attached to these aspects, an exact description of all the additional parts of the sampling procedure, and of the expectations associated with this expansion, becomes very important.

With *theoretical sampling* one of the decisive differences compared to other sampling techniques lies in the fact that the ideas about the case at the beginning of the investigation are still vague and only crystallize in the course of the investigation. In that sense no case can be constructed at the beginning: the construction of the case is shifted to the research process itself.

### 3 CASE CONSTRUCTION

Ragin and Becker (1992) ask provocatively in the title of their book: 'What is a Case?' In the course of the above, some indication has already been given of what a case is, but some additional clarification is needed. A first variant is provided by the example already mentioned, of the investigation of right-wing extremists – cases are simply found (Harper 1992). The case is discovered as a particular empirical entity (Ragin 1992: 9). From this we must distinguish other empirical examples in which this natural quality cannot be assumed. Cases may also be seen as objects; they are discovered on the basis of studies of the literature (Vaughan 1992). In this variant we are dealing with empirical entities that represent general concepts (Ragin 1992: 9f.). In a third variant cases are constructions (Wieviorka 1992). Theoretical constructions are produced on the basis of these cases (Ragin 1992: 10). With a fourth type cases are related to conventions (Platt 1992). General assumptions about the cases are constructed in this fashion (Ragin 1992: 10f.). In spite of these differences general rules may be formulated, except in the fourth type. At the end of an investigation the case in question must be constructed. As a first step in this process there must be a formulation of preliminary assumptions that led to the selection of the particular case and guided the sampling during the investigation. Through the preliminary assumptions and these criteria intersubjectivity can be established in respect of these steps. As a second step there should be a description of whether the samples were based on primary or secondary selection. Thirdly, the role of the *gatekeepers* should be assessed; and

fourthly, the quality of the samples should be described. At the same time – if the sampling criteria were established before the start of the investigation – a distinction should be made between representative, stratified and clustered samples. If only occasional sampling is used, this should also be characterized.

In the further course of the investigation there must be a description of the stages where the case took on a particular form and of the particular methods of sampling used in response to this. Here it is a matter of including cases that support the currently held view, in the sense of a replication of individual cases, but it also concerns the search for critical cases that might serve to contradict this view. Lastly, the database of the investigation must be described, and it must be shown how this relates to the results that have been achieved. In this way both the particular and the general features of the case can be elaborated. On the one hand this process exposes the verifiability of the case construction, which is an important precondition for the

intersubjectivity of scientific knowledge. On the other hand it makes it possible to verify the case in further investigations. By means of describing the framework that has been set up in this fashion the generalizability of the results can also be ensured, because the setting of the case or case-group, and from these the case context, become clear. But we can only generalize within the particular context.

### FURTHER READING

- Flick, U. (2002) *An Introduction to Qualitative Research*, 2nd edn. Thousand Oaks, CA: Sage.
- Patton, M. Q. (1990) *Qualitative Evaluation and Research Methods*. Newbury Park, CA: Sage.
- Strauss, A. and Corbin, J. (1990) *Basics of Qualitative Research*. Newbury Park, CA: Sage.