Chapter 4
The Education System

4.1 Education: For Whom and in Which Way

According to Luhmann, the understanding of education depends on the understanding of the relationship between social systems and individual psychic systems. In Chap. 3, we have explored the meaning of this relationship as interpenetration and structural coupling based on systems' operational closure and internal formation of structures. In this first section of this chapter, we shall explain why and how this approach is relevant for understanding education.

Since ancient times, education has been linked to the nature of human beings, and the function of education has been understood as reaching human beings' perfection. When it became clear that society requires differentiated training for human beings, reference to their nature was no longer possible, as it appeared that the perfection of all human beings is not compatible with the necessities of society. Against this background, in the eighteenth century, the concept of perfection was replaced by the idea that education can turn human beings into social beings and provide human orientation to social relations.

According to Luhmann, however, the reference to human beings does not give any indication about the society for which they should be educated. Therefore, the perspective on human beings, in particular the reference to their inner incompleteness and perfectibility, is not useful to analyse the function of education in modern society. A clear distinction between human beings and society is necessary to clarify this function.

In the late twentieth century, developments in hard sciences (physics, chemistry, biochemistry, biology, neurophysiology) and psychology led to observe that human beings are instable and that human behaviour is unpredictable. As the empirical meaning of human beings can be studied through a complex set of disciplines, scientific analysis is not intended to predict human behaviours. The scientific problem consists in the lack of a viable interdisciplinary theory explaining the unpredictability of human beings, rather than in the lack of knowledge about them (Luhmann 2002, p. 21ff.). In particular, the unpredictability of human behaviour can be explained through the concept of operational closure (autopoietic

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reproduction) of psychic systems (Sect. 3.3.3). Consciousness can be observed as an autopoietic system, closed at the operational level and stimulated only by self-created states (self-irritation). The humanistic tradition assumed that the nature of human beings is in contrast to animals and other creatures in the cosmic hierarchy of being. The new humanistic approach reformulated this nature in the concept of 'subject' with the 'human being' as a subject underlying itself and everything else, and able to appropriate the world in its inner form. The empirical analysis of the consciousness of human beings breaks these assumptions, as it leads to a description of the operations that produce closed psychic systems and their self-generated indeterminacy. The analysis of autopoiesis of psychic systems does not allow any assumption about the 'essence' of human beings.

Consciousness means highly selective attention for what is perceived as the outside world. This selective attention is allowed by psychic structures, which are produced and updated through internal operations. Psychic structures, therefore, do not form a 'higher' level of essentials or constant properties of psychic systems; they exist only in their use, in orienting the transition from one operation to another. As a consequence, autopoietic operations can produce very different structural formations in psychic systems. Consciousness is based on self-referential operations of thinking that lead to self-generated uncertainty. It is a historical system with a memory, therefore discriminating between forgetting and remembering. Each operation of thinking is also an operation of either forgetting or remembering; in particular, forgetting makes further operations possible, as it prevents accumulation of thoughts from overcrowding the system. Self-generated uncertainty, which is based on forgetting, ensures the selection of further operations.

This implies that an external (e.g. educational) monitoring of consciousness is not possible. For instance, it is not possible to determine whether pupils really care about education or whether or not they stayed focused while listening to teachers. It is only possible to classify pupils' expected behaviours with the help of specific binary schemes (Sect. 3.3.3). In particular, the scheme known/unknown replaces predictability of psychic systems' internal operations; pupils are known by teachers, and although this knowledge cannot lead to predict their behaviours, it can at least facilitate communication with them by providing a social memory about their social identity.

Traditional humanistic approaches fail to deal with these complex issues. Knowledge about self-generated structural indeterminacy has replaced the traditional conceptions of human beings. Human beings are now seen as highly complex systems, continuously reproducing determination and uncertainty through their operational closure. More precisely, (1) all operations of a psychic system open a horizon of indeterminacy, especially about its future; (2) uncertainty cannot be reduced by a psychic system, and this system must therefore be prepared for surprises. Psychic systems put themselves into a state of uncertainty, continuously creating choices and distinguishing between past and future.

Nevertheless, society needs ways of dealing with human beings, who do not depend on its internal operations of communication. Individual psychic systems

are not part of society, rather they are in the environment of society as a specific type of meaning-constituted system (Sect. 3.3.3). Against this background, assumptions on the nature of human beings cannot explain participation in communication, as communication cannot be attributed to either physical or conscious states of individuals; rather, it is developed as a recursive operation in social systems. Relationships between social systems and psychic systems are built as structural coupling, which explains how autopoietic systems, without operational contact with their environment, form structures that adapt to specific environments, restricting their internal degrees of freedom. For instance, through structural coupling, children can learn the language that is spoken in their environment. In particular, education is a specific social system that can simultaneously reproduce determination and uncertainty through structural coupling with psychic systems.

4.2 The Social Relevance of Persons

Generally speaking, structural coupling means that society is relatively insensitive to human beings, as it is engaged in reproducing communication. However, the problems of human beings can be communicated since, without communication, these problems would not exist. In order to explain the sensitivity of society for human beings, Luhmann introduces the concept of *person*. In their operational closure, social systems address individuals as persons by communicating, for instance, on personal intentions, needs, and interests.

Person is not a synonym of either human being or psychic system. It is a social structure indicating the persisting identity of the environmental conditions of communication, i.e. the persisting identity of psychic systems to which social systems are structurally coupled. Person is the *form* which enables the observation of individual identity in communication. Self-identity is a psychic construction, which can be either accepted or rejected and corrected in social systems. In these systems, person is a form that makes it possible to deal with an empirical human being and her/his identity formation. Human being is the other, undetermined (unmarked) side of the form ‘person’.

The social use of the form of person can be understood historically, as person has always been distinguished from physical realisation and consciousness. In ancient Greece, person was the mask of the actor. In ancient Rome, person was used in a more general sense, either to indicate individual characteristics of human beings, or to describe attribution of status, tasks and duties of social life. In the Middle Ages, a more individualised concept of person was proposed; in particular, the legal tradition allowed the observation of legal persons to indicate ownership of rights and obligations. Persons started to be intended as results of participation in communication.

Persons can be identified only in communication systems and for the purposes of communication systems. Persons are conditions for the continuation of

communication, in that they are addressed as points of attribution and often as explanations of interest in communication processes. They are constructs resulting from the recursive operations of communication and indicating who is responsible for utterance, to whom one must ask for clarification or criticism, whom can be hurt if an opinion is contradicted. These causal attributions are schematic simplifications for communication purposes. Persons are constituted in communication systems, based on the fact that operational closure of both psychic and social systems prevents confusion between psychic and social events.

The societal value of persons is made evident in three ways, corresponding to three problems concerning communication: (1) the function of double contingency, (2) the need to assume memory, (3) the need to demand and offer reasons for behaviours through the use of a motivation scheme. All these problems could be interpreted as concerning consciousness, but such an interpretation would lead to the dissolution of the *social* reference to human beings, i.e. to the dissolution of persons. To maintain a social reference to human beings, the social construction of persons is necessary, e.g. by addressing individuals using names ('Hello, John'). Against this background, it is clear that the importance of double contingency, memory and motivation concerns communication systems, and cannot be acknowledged through psychological interpretations.

Firstly, persons are important references for *double contingency* (Sect. 3.2.3). Double contingency means that each individual both acts and assumes that other individuals act in a way that cannot be predetermined. Individual psychic systems are undetermined to each other, and each of them acts in a way that is perceived as contingent by the other. Therefore, each individual can specify her/his actions only if s/he knows how to specify other individuals' actions. In social systems, double contingency means that each selection of action can be made only considering that further selections of actions are necessary and will be conditioned by the first selection. Thus, in social systems double contingency means self-generated uncertainty, as communication is open to whether it will be accepted or rejected. The concept of self-generated structural indeterminacy indicates that in social systems all determinations also produce indeterminacy, as participants react to what happens in communication in unpredictable ways. In the education system, indeterminacy does not depend on the lack of knowledge about pupils, and is not an uncertainty which is independent from the system. Indeterminacy does not result from dependence on the environment, but on double contingency in social systems (Sects. 3.2.3 and 4.2). This self-generated uncertainty cannot be dissolved through the determination of psychic conditions of future actions, as the contingency of actions is constantly renewed in communication. Social systems define the conditions of contingent communication and manage further expected communication through either acceptance or rejection. However, double contingency would not occur as an endogenous problem of social systems if there were not an environment of individual psychic systems binding the production of communication through their consciousness. Contingency of action can thus be seen as a consequence of individual conscious calculations. In fact, individual calculations are based on the existence of social systems which have already reduced the available

options of action. On the basis of this social reduction, persons can exploit the available options of action. Thus, the person is identified as the reference point for the exploitation of available options of action in communication systems.

Secondly, persons are important to assign *memory*. Reproduction of communications presupposes that participants have a memory. It assumes, for example, that the spoken language is known and can be used and understood by participants, that participants remember to a sufficient extent what has just been said, that, in case of failure, a quick reminder is sufficient to restore a common ground of communication. In short, reproduction of communication must assume that the world is not necessarily re-designed as a complete surprise in any moment. If neurophysiological and psychic conditions of memory were not assumed, communication would collapse. One consequence is that individual psychic systems that participate in communication must systematically update their memory. Listening to stories or reading texts bring back memory to participants, and the insight of stories or texts must be extended to participation in the following communication. However, communication is not dependent on what the participants actually remember of their own history. If this were the case, communication would constantly lose itself in the exploration of the endless nuances of individual consciousness. Therefore, the memory of society cannot be intended as a sum of individual memories, i.e. as a 'collective memory'. On the one hand, this would provide too much material with too little order, making it extremely costly to include individual memories in communication. On the other hand, this would not be sufficiently tailored to the needs of communication. Therefore, society must ignore the memory that lead individuals to participate in communication, using communication to renew its own memory. For instance, the economic system must forget by whom and for what reason something has been paid, and the education system must forget the uncertainties that had to be overcome in establishing grading. Against this background, the concept of person is not defined by individual memory, and it does not indicate psychic systems that provide remembering and forgetting as internal activities. Persons are social constructs to which memory *is attributed*, thus allowing the reproduction of communication. Memory is a result of structural coupling between psychic and social systems, assuming the operative closure of the two types of systems. By attributing memory to persons, social systems allow quick operations by ignoring psychic events.

Finally, persons are important to assign *motives*. In psychological research, motives have been usually understood as psychic causes of actions. The question is if it is possible to identify specific motives as causes of specific behaviours. If psychic systems are self-referential, operationally closed systems which constantly deal with self-generated uncertainty, it is pointless to search for the internal causes of their actions. Specifying motives is a highly selective form of self-description, which is always only retrospective, as only when one has already acted, one can tell why s/he has acted. Motives are explanations and justifications of action in communication, i.e. a motive is not a cause, but a presentable reason of action. Motives are prepared for the purpose of describing action in communication. They present actions as non-arbitrary and allow conclusions on further actions,

including unexpected actions. To assign a motive to a participant, action must be presented as person-dependent so that the same motive is not expected from different participants. Therefore, motives are designed as social support for communication and the reference for motives is the person. For this reason, motives are never standardised; rather, standards provide the opportunity to reject motives and provide sanctions.

To sum up, the reference to person allows the social consideration of human beings as having options of action, as motivated to act, and as having memory. This reference is visible in the communication process and can be validated in any communication. Validation does not depend on the control of mental phenomena, as options of action, motives and memory are systematically reproduced as conditions of communication. If individuals indicate that they cannot act contingently, that they have neither memory nor motives, their cases are dealt with as pathological (e.g. as autism) and do not dissolve the reference to persons in communication.

4.3 Socialisation as a Premise for Education

If it is true that human beings are born, persons are produced in communication systems. In social systems, the person is also a point of reference for individual development, which can be observed in any social situation. This reference for development can be understood as a product of both socialisation and education. The understanding of education requires the understanding of its distinction from socialisation.

The traditional concept of socialisation indicates the transmission of culture from one generation to the next. Here, 'transmission' is an unclearly defined concept. The idea of transmission should explain that it is not an accident if social influences support the development of individuals. Firstly, theories of transmission have been criticised for the alleged structural asymmetry between socialisation and being socialised, i.e. between active society and passive individuals. Especially under conditions of dense socialisation, such as families and schools, this asymmetry must be replaced by circularity, taking into account that children can be more socialised than their parents or teachers. Secondly, theories of transmission assume that only successful transmission is socialisation. However, there are also cases of resistance to socialisation, which is particularly attractive as it can provide opportunities to develop individuality. The high evaluation of individual uniqueness is among the most important patterns of the functionally differentiated society. This leads to the question: can society provide individualisation, including denial of conformity, in the process of socialisation?

Parsons observed socialisation as a case of interpenetration (Sect. 3.3.3); the social system and personality interpenetrate in the form of socialisation. According to Parsons, interpenetration shapes psychic systems. If we adopt a theory based on operational closure of psychic and social systems, it is possible to adopt the concept of interpenetration to indicate complex productions on both

sides, taking into account that social processes and psychic processes are in any case separate.

Against this background, socialisation can be defined as 'the process that, by interpenetration, forms the psychic system and the bodily behavior of human beings that it controls' (Luhmann 1984:1995, p. 241). Socialisation is based on individual participation in communication, as either utterance or understanding. It means that the experience of socially reduced complexity contributes to structuring the complexity of psychic systems. On the one hand, socialisation is self-socialisation, as meaningful operations are produced by the psychic system. On the other hand, it is based on the binary schematisations defined in communication. Therefore, it is the difference between the psychic system and its environment, which includes social systems, that makes socialisation possible. Socialisation means that the psychic system can use, in its self-reference, schematisations attributed to the social environment. What is important in socialisation is the binary schematisation, not the specific option that it offers. For example, what is important is the distinction between attraction and aversion, not the choice of either attraction or aversion. Binary schematisations are structural productions in social systems that are successful in providing irritations for psychic systems. Increased structured complexity of social systems changes the conditions of socialisation, without denying the importance of self-socialisation.

Against this background, the concepts of operational closure and structural coupling clarify the meaning of socialisation. Socialisation does not explain how society can continue despite a constant exchange of members. Its problem is how operatively closed psychic systems respond to structural coupling with social systems. The answer is that socialisation leads to a 'structural drift' which brings psychic autopoiesis to select structures that can be tested in society. Language extends into the individual operations something completely different from its communicative function. This is also true for normative rules, causal schemes or other frames or scripts that can be used in structural coupling. As we have seen in Sect. 4.2, in social systems, the person is the symbolic substitute of psychic operations; socialisation can offer personal benefits to psychic systems, as these have to live their lives in social contexts. However, socialisation is always self-socialisation rather than an import of cultural components into psychic systems. Therefore, socialisation can also result in social difficulties and conflicts, as what matters for one individual may not matter for others.

The reformulation of the concept of socialisation in terms of structural coupling and structural drift explains why automatic socialisation and its consequences for personal actions cannot be prevented. Any attempt to limit socialisation would simply reproduce socialisation. This must be considered when analysing the society's efforts of adding education to socialisation.

4.4 The Differentiation of the Education System

Since psychic systems are operationally closed, i.e. they generate their own structures, socialisation produces permanent uncertainty in social systems. This consideration encourages the adoption of social standards to transform psychic systems into persons. These standards, however, cannot be produced through socialisation. Especially in complex societies, transformation from psychic systems to persons cannot be left to socialisation, which does not affect individuals in a sufficiently specific way and is bound to the environment in which it takes place. These limitations require the societal establishment of education.

Education may be observed in all societies. Even in the simplest societies, children are reminded that they must 'leave the hut to pee'. It would be inappropriate to wait for socialisation; on the one hand, it would take too long, and on the other, its effects would be frequently not reproduced in other situations. In these simple societies, socialisation and education are produced together, without any distinction, in small groups. Nevertheless, it is possible to observe the embryonic differentiation of education. Education became more differentiated when the increasing complexity of society led to observe that it was not possible to accept socialisation alone, in particular when children were expected to learn something that their parents did not know. In this situation, apprenticeship was established as an educational institution. After the spread of printing and the increase in the complexity of knowledge, it became evident that life in the house was not enough. Private tutors were hired to provide teaching, under the supervision of fathers. In the sixteenth century, a new system of education in colleges and universities prepared for civil service. The system spread in the late eighteenth century with the virtually completed replacement of domestic education with educational concepts, schools and universities. It was no longer assumed that children were defined by their origins, preparation for a still uncertain future became crucial. This was the starting point for the establishment of an autonomous education system. An important change occurred when educational ambitions led teachers to claim professionalism. Teachers could only rely on their own expertise. This was the starting point for a difficult and lengthy institutional development that assumed the social need for teaching, task-specific training, teachers' salaries, dedicated facilities, teaching material, etc. In this way, the autonomy of education was legitimised, and education could refer to self-discipline, self-organisation, methodology and professional self-consciousness of educators. Although it is not described as the 'pedagogical century' the eighteenth century emphasised the social importance of education.

The importance of education can be explained as a consequence of functional differentiation of society. Although education, as an activity, can be observed in ancient societies, a specific education system can be differentiated only in the modern functionally differentiated society (Sect. 3.4.3). The prerequisite for this differentiation is the recognition that pupils are independent observers of the world, and are therefore different from adults. Against this background, education becomes a problem that requires the differentiation of a subsystem replacing

the educational authority of the family, whose function is reduced to the period of preparation and transition to education that is organised in schools (Luhmann 2002, p. 111).

The differentiation of a subsystem is based on the distinction between system and environment, which is repeated within the system; the system operates a re-entry of the distinction between system and environment in the distinction itself (see Sect. 3.2.2). This leads to the production of too many possibilities, which the system must process through self-organisation by experimenting alternatives and accumulating a memory that allows gradual production and variation of structures. For this reason, the differentiation of a subsystem is an improbable process, which only takes place in particular societal conditions.

Compared to other subsystems of the functionally differentiated society, such as religion, politics and economy, education has been strengthened at a later stage. Therefore, it was not among the systems that promoted sociocultural evolution. Education was not among the factors that changed the form of differentiation of modern society. However, it became an important concern when functional differentiation was established. Interest in education as a functional system arose in the second half of the eighteenth century, when schools were opened to the whole population, relegating family education to the private sphere. Correspondingly, a specific medium for education was formed, i.e. the pupil, which made it possible to define education as different from any other system in society (Sects. 4.7 and 4.8).

The old distinction *educatio/institutio* was melted in the hybrid formula 'educational teaching' (*erziehender Unterricht*), which combined school training and pedagogical needs by highlighting the organisational structures needed for the purpose of this combination. The new need for teachers implied professional training, teaching methods, a common educational background of pupils, and education of same-age pupils.

For a long time, family education had been limited to the correction of behaviour and the development of qualities and habits associated to forms of behaviour which were considered appropriate. Against this background, the evolution of the education system determined pedagogical intentions and needs to clearly define consistent and continuous educational situations. The differentiation of an education system required the establishment of schools and therefore the employment of teachers. This raised the issue of availability of buildings and payment of teachers. In the eighteenth century, a process of expropriation of school buildings belonging to churches and religious orders took place, so that these buildings came under state control.

The autonomy of the education system also required other factors to create sufficient independence from any other functional system and from external decisions. Luhmann (2002, p. 119ff.) argues that the differentiation of a subsystem requires some 'technical' inventions that make it independent and encourage its freedom. Historical examples are the minting of money, after which money can move independently from the households that spend it, or political offices, which administer the power regardless of who occupies them. The equivalent invention,

which led to autonomous educational communication, was the classroom interactional system (Sect. 5.5).

This interactional system introduced in the education system a form of structural indeterminacy, which was combined with the indeterminacy of contents and pedagogical intentions. Classroom interaction cannot be kept under control if it is left to itself. Therefore, communication in the classroom requires decisions that cannot be made in the classroom. This obliges the education system to specify the conditions under which communication can take place in the classroom. These conditions are decisions that are made in the school organisation, as only this organisational level can circumscribe the indeterminacy which would otherwise unavoidably occur in the classroom. Teaching professionalization also reacts to this indeterminacy, for instance by taking care of the style adopted in processing teaching experiences, a style that can then be shared among teachers. The introduction of interaction triggered these developments and outlined the difference between school education and family education, to which pupils can react with effects that cannot be completely controlled. Pupils have to learn how to deal with the sharp difference between classroom interaction and family interaction.

The autonomy of organised interaction in schools is among the factors that has led education to continuously grow. Pupils increasingly stay in schools and colleges. Certificates, qualifications and training are increasingly needed, thus feeding increasing demands and expectations concerning education. An increasing number of personnel and amount of money needed to pay for them are requested. Decisions are increasingly made on the organisational level, although uncertainty and under-determinacy, and thus educational possibilities, are created in classroom interaction systems (see Sect. 6.3 on the educational reform).

These developments confirm the close and circular relationships between differentiation, autonomy and self-organisation of education, which also affects the relationship between the education system and other subsystems of the functionally differentiated society. Differentiation of a social system implies an increase in both the dependency on and the independence from the environment, i.e. both autonomy and heteronomy. Luhmann (2002, p. 129ff.) analyses all the relationships between the education system and the other subsystems in the functionally differentiated society by adopting the same criteria. Let us consider some examples.

The relationship between the education system and the economic system relies on the availability of employment. Economy expects trained and qualified people from education, and operates on the basis of criteria like rationality, cost/benefit calculation, etc. The education system cannot orient to the same criteria, but it requires instead that graduates find a job that is suitable to their training, or reflects the adequacy of training for the labour market. As the dynamics of these two systems are not coordinated, the educational questions remain unanswered. Education reacts to this discrepancy by orienting to specialisation and generalisation of the curricula at the same time, preferring either one depending on the economic trends, and recommending the corresponding reform. This does not solve

the problem, but makes the education system autonomous in its choices, and sensitive to what happens in its environment (e.g. in the economic system).

The relationship between the education system and families highlights one of the clearest indicators of autonomy of the education system. Families try to educate, and this produces a specific socialisation that generates very strong differences between pupils when they start school. Education must ensure equality of opportunity to all pupils, and cannot therefore coordinate with families. The solution is the 'homogenisation of the beginning'. All pupils must go to school at the same age, regardless of previous socialisation differences. This is the point of no return of the differentiation of the education system (Luhmann 1990a), as controlling the complete sequence of educational processes would require a dedifferentiation from the family. The education system treats different pupils in the same way, and by doing so, it ascribes to itself every difference generated in and by the school. Socialisation differences, however, do not become irrelevant in the education system, as every teacher acquires knowledge by observing the pupils (who in their turn observe each other and the teacher). The education system distinguishes between education, which is offered equally to all, and selection, which distributes inequalities (see Sect. 5.4). In this way, education is relieved of the weight of inequalities, which are managed through selection.

The relationship between the education system and the political system relies not so much on the political constraints for the school, as on the decisions that education would want from politics and that the political system does not make. Teachers react on the one hand with resignation or giving up ideas of political support, on the other by putting pressure on political parties and ministries. Autonomy is safeguarded because education is autonomous on the interactional level, and therefore also on the operational level. Whatever decisions politics should make that affects the education system, it is impossible to foresee which differences these decisions will make in the classroom.

The relationship between the education system and the system of science is particularly problematic from the point of view of the possibility to learn (*Lehrbarkeit*). Scientific truth does not guarantee teaching effectiveness, and only didactics, i.e. teaching methods, becomes the educational criterion to select and adapt scientific knowledge to educational needs. This, however, cannot guarantee good coordination between education and science. Hence, it comes as no surprise that the scientific knowledge which is taught in schools is already past in the system of science, and the contents of 'classic authors' are legitimised for teaching. Pupils learn something they should unlearn, and in some cases, such as with Greek and Latin, there is no need to unlearn, as forgetting is enough (Luhmann 2002, p. 134).

The relationship between the education system and the other societal subsystems is therefore based on a systematic paradox, as the education system is dependent and independent at the same time. This paradox has specific versions, namely specialisation and generalisation (economy), equality of the unequal (families), dependent autonomy (politics), teaching ineffectiveness of truth (science). The paradox is the form of the unsolvable problem of the impossible operational

coordination among the subsystems. As the paradox has no solution, the subsystems are free to develop their own structures.

The differentiation of the education system is evidently linked to its autonomy and self-organisation. This condition applies as well to the other subsystems, i.e. to positive law, democratic politics and market-oriented economy. The concept of autonomy does neither mean independence from environmental factors or causes, nor control of environmental dependencies. Autonomy means specification of the operations that reproduce the system, i.e. operational closure of the system (Luhmann 1986a, p. 174) or, differently said, production of the system's unity through the system's operations. Education, like any other social system, is autonomous at a basal level, as it can admit only pedagogically relevant operations. Since it is an autonomous system, it can also specify selective relationships with other functional systems, i.e. accepting legal, political, scientific or economic conditions that the education system cannot control and that stimulate the variation of its structures.

4.5 The Function of Education

In the functionally differentiated society, socialisation is frequently provided in functional systems that primarily explore the success of communication, without any specific interest for individuals. Communication media like truth, love, money and power do not deal with individual psychic systems. They can be sensitive to perception (truth), sexuality (love), actual needs (money) and physical violence (power), but this sensitivity is necessary for the function of dealing with the probability of rejection and acceptance of communication (Sect. 3.4.5). Individual psychic systems are not a primary issue for these media. Nevertheless, in the functionally differentiated society, a general problem of inclusion of individuals arises, and, as we have seen in Sect. 4.2, this problem is dealt with through the social construction of persons.

Inclusion is defined by Luhmann as 'the opportunity for the social consideration of persons' (Luhmann 1997:2013, p. 17). Society assigns persons to positions 'where they can feel at home as individuals' (Ibid., p. 18). Inclusion is the determined side of a distinction: inclusion exists only if exclusion is possible, i.e. if there are persons who cannot be included. This distinction varies in different historical conditions of society. In segmentary and hierarchical societies, inclusion is achieved in the form of membership in one segment or stratum. In functionally differentiated society, the specific subsystems regulate inclusion: individuals need to participate in all functional systems and can participate in all relevant communications according to the criteria established in these systems (e.g. voting in political elections, paying with money, staying with the beloved person). This leads to two important consequences. First, inclusion depends on differentiated opportunities of communication, which cannot be coordinated in a centralised way. Second, exclusion from one functional system (e.g. no work, no legal

protection, no intimate relations, no education) has important repercussions in the other functional systems.

As a consequence of these two conditions, functional differentiation determines a 'totalitarian logic' of inclusion in society based on a generalised provision of opportunities for personal inclusion, with important consequences for individual self-conception. When they lose clear and stable social positions, individuals must explain who they are, and construction of personal identity becomes a problem. Against this background, communicated blame and dissatisfaction for insufficient inclusion become more probable, while individual self-realisation is idealised together with mutual understanding and solidarity. Any form of exclusion becomes problematic not only for psychic systems, but above all for the functionally differentiated society. In this society, the important function of complete inclusion of persons is assigned to the education system.

Generally speaking, the concept of function refers to a problem that has to be solved; as long as the problem persists, a solution is needed, whatever form this solution takes, historically and evolutionarily. In the case of education, the problem is the adequacy and suitability of psychic systems' participation in communication. As we have seen (Sect. 4.1), Luhmann departs from the approaches that consider the 'human being' as object and purpose of education. From Luhmann's point of view, while it is true that education has effects on consciousness, it is also true that it is a social process that does not aim to produce 'better' human beings. The most important concepts to understand the function of education are operational closure and structural coupling (see Sect. 3.3.3). Consciousness is understood as an autopoietic and thus operationally closed system. It coincides with recursivity of self-produced states, as it is based on operations that implement recursive self-reference and produce an operationally closed system. The structures of consciousness can be built and dismantled only by the system's own operations and cannot be either imported from or exported to the environment. These structures exist only in their use, in that they connect each operation to the next one. Moreover, these structures can only be shaped on the basis of structural coupling, which is produced in specific circumstances. Consciousness operates without any direct contact with its environment, therefore building structures that have *more or less* adapted to this environment. What is usually called 'identity' is the construction that can be used by psychic systems to participate in communication processes and that, if necessary, can be corrected through this participation.

The function of education consists in changing the psychic environment of society *intentionally*. Neither does education simply deals with increasing individual abilities, nor does it deal with reaching consensus in communication. Education affects the skills and competences that allow individual human beings to participate in communication without considerable difficulties. This also means that educational outcomes are needed and can be used in other functional systems in society, or, in other words, that education is not an end in itself (Luhmann 1986b:1989, 1987a, Chap. XV; Luhmann and Schorr 1979a/2000, Chap. 1/II). It is in the social dimension that it is necessary to learn reading and writing.

A patient must be able to rely on the fact that the physician is trained as a doctor. Documented training makes this possible.

In other words, the function of education concerns the transformation of human beings into persons. The education system produces the standards for this transformation. It creates the conditions for both personal actions and for dealing with other persons' actions. As we have seen, Luhmann distinguishes between human beings and persons, who are born from socialisation and education (Sect. 4.2). Persons are symbols for communication, and the education system must help ensure that these symbols are not disappointing in their use. The function of education concerns the ways in which human beings become persons when socialisation alone is no longer considered sufficient for this purpose, as it is tied to the context in which it takes place. The education system provides psychic systems with a personal behaviour. As a consequence, it can be taken for granted that persons can read and write, or that physicians have received a medical education. Persons can be 'educated'; therefore, each individual can presuppose that the others have been educated, so that highly improbable behaviours can be normalized (Luhmann and Schorr 1979a:2000, Chap. 1/II). The person is a communicative symbol, and education should ensure that this symbol, when used, does not lead to disappointment. Education has been often criticised because not all individuals turn out to be the best. However, no other forms of effective individualisation have been developed; for instance, early school dropout or running away from the parental home are not considered to lead to any adequate development of persons.

Thus, education can be partly used to supplement and partly used to correct the results of socialisation. The combination of socialisation and education results from the reference to persons, which concerns both processes. The education system seeks to achieve individual change through communication. However, its effect does not consist in overcoming difficulties of acceptance of communication, but in changing individuals, specifically each single individual, and if individuals do not change, then the system has failed. Therefore, it is not surprising that educators pay attention to 'human beings' and that it is difficult for them to renounce a humanistic concept of individuals. Despite that, education deals with individual psychic systems who are not transparent for either themselves or others and do not operate linearly. The question then is: if individual human beings are understood as psychic systems, how can education be possible?

4.6 The Basic Aspects of the Education System

To answer the question of 'how education can be possible', it is important to observe four basic aspects of the functioning of the education system, which describe the solution to the problems that arise in dealing with the change of psychic systems through educational communication.

The first aspect is that education can be described as *conveyance* (*Vermittlung*) of knowledge and skills. This formulation has the double advantage of

(1) renouncing higher educational ambitions (such as 'maturity') and (2) leaving open whether what is taught is appropriate and whether conveyance is in accordance with pedagogical intentions. The concept of conveyance abstracts from the specific situations in which education is conducted; it only indicates the basic operation that must be carried out so that education takes place. Conveyance deals with all expectations in teaching situations.

While conveyance is always possible, it is difficult to check its success or failure. Assessment of pupils' behaviours is left to the teacher. However, while it is possible to observe successful and less successful lessons, it is difficult to understand why this happens. Cognitive psychology suggests to narrow down the area of non-transparent outcome of conveyance through schemes and scripts. Through these forms, the teacher makes memory available. This is not about remembering something past (although this can be helpful in certain circumstances), but about producing familiarity in new situations and, above all, gaining confidence in teaching competence. On the one hand, schemes mobilise memory by generating the impression of awareness of what is happening and by projecting informational redundancies in new situations of conveyance. Schemes make it easier to find a limited number of solutions to problems, although they cannot be applied 'schematically'. For instance, schemes producing causality do not prevent, but encourage the search for other causes and other effects. On the other hand, scripts promote acceptance of students' actions by limiting their variety; teachers cannot prescribe accurate and correct actions, but they can learn to cope with specific ways of dealing with both redundancy and variety. Teachers can proceed from certain schemes and then observe if a script either adapts to the specific situation or must be modified according to it. The teaching experience is not overwhelmed by surprises and negative experiences, as schemes and scripts can make it possible to deal with different situations.

The use of these forms leads to the observation that training for the teaching profession is based on the idea that opportunities of learning cannot be anticipated, but it is possible to prepare for them. Teachers' training cannot deconstruct complex situations in a sequence of simple passages, but it can help to look at the reasons for the lack of transparency of psychic systems and to make it clear if it is possible to create opportunities of learning through schemes and scripts. Teachers can thus observe the outcome of their efforts not as either success or failure of communication, but as success or failure of *each* pupil's development. The question is always whether teaching efforts are rewarded by conveyance of the offered knowledge or skills to each individual. Neither communication nor reference to groups of students can be an 'output' of education. In particular, successful communication and pupils' active participation are not sufficient criteria for determining the function of education, which concerns preparation of a specific individual as a person and her/his possibility to 'resume' this preparation in later phases of her/his life.

The second important aspect of the functioning of education is that education cannot be simply observed on the basis of either its contents or materials. Each choice of contents and materials leads to the question of what is excluded from it

and how this exclusion can be explained. The proposal of contents and materials must be based on the clarification of *intention to educate*. Therefore, the education system includes all communications which show the intention of educating. This explains what is excluded from education, namely unintentional actions, i.e. socialisation. In the form of education, the unmarked side is socialisation. The education system is established to supplement or correct expected results of socialisation. Everything else can be added as a limiting condition for plausible communication of educational intentions.

The intention to educate is the symbol that enables recognition of education in communication; therefore, it is the symbol for the differentiation process leading to the education system. As it should be evident from the discussion of motives (see Sect. 4.2), here intention is not meant as a causal factor produced in the teacher's consciousness. The symbol 'intention to educate' fulfils its function when it is based on a communication system. It makes it possible to describe education as a communication system which is compatible with many different states of consciousness of teachers and pupils. The plausibility of this symbol is based on the experience that educational communication cannot be assessed positively without intention, i.e. when what becomes visible as behaviour simply happens.

The education system must provide structures to ensure that the intention to educate is a plausible claim. The most important structure is an asymmetry that cannot be reversed, in that what must be clarified is who has intentions to educate (the teacher) and who has not these intentions (pupils), thus solving the problem of double contingency. Educators may expect pupils to seek to avoid education, but not to react with counter-education. Moreover, the intention to educate must be a 'good' intention. This does not give indications of the teacher's psychological state, but is a communicative requirement, with far-reaching, almost binding consequences for individuals. Good intentions must be made explicit, i.e. they must be presented as educational goals. Behaviour is assessed accordingly, as either good or bad, from the perspective of educational schemes. The teacher cannot say: 'well this is what is true, but I do not care how you adjust it'.

To sum up, the intention to educate symbolises the unity of the education system. This unity cannot be found in either the system, because otherwise the system would be something else in addition to its unity, i.e. the product of its reflection on it, or in its environment, because otherwise the intention would only be the construction of an external observer. The other side of the form of intention is on the one hand a marked side, namely socialisation, and on the other hand an unmarked side, namely anything else that society permits as communication.

The third important aspect of functioning of education is that education leads to the social *trivialisation* of pupils, to use Heinz von Foerster's distinction between trivial and nontrivial machines (1984). Trivial machines are those that, starting from a particular input and by means of a built-in function (the 'machine'), produce a specified output, while another input would lead to a different output: 2 times 2 is 4; 2 times 3 is 6. The machine can be brought to high complexity of possible inputs and outputs through suitable programming. This, however, does not change its triviality. In trivial machines, it is crucial that repetition of the same

operation leads to the same result. If this does not happen, the machine is broken and must be either repaired or replaced. One must not expect that in trivial machines 2 times 2 is 7 or that they produce a bla bla. Trivial machines are reliable machines. The opposite is true for non-trivial or self-referential machines. They operate by means of a built-in reflective loop aligning all input/output transformations at the condition of the machine, or more precisely to the self-produced historical state of the machine. Since this varies with each operation, the machines produce a virtually infinite repertoire of responses. These machines are unpredictable, therefore unreliable.

Educators may reject the description of their work as trivialisation of psychic systems. However, this is exactly what can be called education. There is certainly an increase in the complexity of possible relationships between input and output when pupils are expected to provide themselves opportunities to respond to questions or, more generally, to demands in practical situations. Pupils may like to learn English, but then they need to speak or understand the language properly. A non-trivial machine might enjoy enriching the English vocabulary with Italian words, be it for rhythmic reasons, or because pupils want to show knowledge of the Italian language. However, this enrichment of English is neither taught nor learned in school. Against this background, one might be tempted to design a counter-model of education to unreliability, surprising creativity, and nonsense production, ironic treatment of situations or permanent deconstruction of the schemes in use. This would not only have few chances of realisation, but it would also show the interest of society in giving predictability to unpredictable outcomes.

Finally, education produces *socialisation effects*, i.e. unintended effects. Individuals remain non-trivial autopoietic systems despite education. When non-trivial systems are exposed to trivialisation, they learn to deal with it through socialisation, which shows the conditions under which it is advisable to behave like a trivial machine. Therefore, acceptance of trivialisation depends on a reversal of the relationship between education and socialisation, education socialising to trivialisation. The socialisation effects of education have also been discussed with reference to the so-called ‘hidden agenda’ (Dreeben 1968). Pupils learn to cope with education, in particular to prepare for performance requirements which they have learned in school, regardless of their specific learning of mathematics, history, English, etc.

This idea has been criticised from the perspective of a critical, emancipatory education, especially because performance requirements reproduce inequality. Luhmann prefers to ask whether the effects of socialisation for education are understood adequately in the perspective of the theory of the hidden agenda. An important problem, which is not considered in this theory, is how to get non-trivial systems on the basis of trivialisation. It has always been observed that students develop their own culture, that they maintain distance from teaching, and seek opportunities for deviant actions from the perspective of education. More generally, education seems to succeed in promoting pupils’ autonomy in choosing among internally available forms of reflection. Education seems to multiply input/

output relations through which trivial machines can update themselves. In other words, education seems to promote the idea that learning requirements could be different from what they actually are. The very fact of learning makes pupils aware that learning concerns contingent schemes. The question is then to what extent education makes variations available.

The complexity of the education system can lead to wonder what the advantages of education are. Luhmann observes that the general answer is that education is necessary in complex societies as it increases the range of individual abilities. This is, however, an individual-related answer. Luhmann suggests that education also increases the ability to imagine how the other participants in communication can act. Education increases the ability of the individual to imagine how other individuals can act in communication, without knowing (or not knowing enough) their perspectives (Luhmann 2002, p. 81). Against this background, communication can be based on a continuous interpretation of behaviours and on a retrospective sense making thereof, rather than on their prediction. This perspective is based on the concept that the mutual non-transparency of psychic systems is the basis of communication (see Sect. 3.3.3), which creates both uncertainty and a sort of 'mock consensus' allowing continuation of the autopoiesis of communication. Socialisation alone cannot achieve these results (see Sect. 4.3). This does not mean that it is possible to gain a true insight in other participants' way of thinking, because what goes on in another individual consciousness remains opaque. What one gains might be a way to form ideas about what it is possible to rely on when choosing actions, even if other participants are unknown. It is important to acknowledge those frames, which further communication does not exclude. While consensus as alignment of different states of consciousness is impossible, 'mock consensus' is essential for the autopoiesis of social systems. This consensus can be achieved through education, which can open up different conditions of action, while socialisation is tied to its specific context.

4.7 The Pupil as Medium in the Education System

Education is improbable (Luhmann 2002, p. 82) in that its intention is to educate closed, self-referential and structurally determined psychic systems; as we have seen (Sect. 3.3.3), individual consciousness cannot be determined by or through communication, and this means that teachers aim to do something that is impossible (Luhmann 1991a, p. 162). Nevertheless, education works, pupils learn, and after being educated they are someone else than they would be if they were not educated.

Education works but it is not possible to know exactly how. It would be useless to look for causal relationships or for input-output relationships allowing the education system to realize what it plans. What is more important is the way in which the education system observes the pupil, seeing something that has not been yet realised. Paradoxical as it may sound, while the child is what it is, for the

education system it is what it is not (yet). Teachers consider pupils as a potential that has to be developed and the central sociological problem is to understand how education can build this potential.

The distinction between medium and form (see Sect. 3.2.2) can help understand this point. This distinction indicates the observation of homogeneous elements which are loosely coupled (medium) but can be combined (tight coupling) in forms. The elements of the medium must be compatible with each other and can be confirmed in the forms that they take, or dissolved and recombined in new ways. The elements must be available in a large number and with a minimum degree of interdependence, to provide the opportunity to imprint forms in the medium. According to Luhmann, in the education system a conglomerate of loosely coupled elements (medium) can be recombined into tightly coupled forms. The medium is the pupil.

The distinction between medium and form is *completely internal* and *exclusively relevant* in the system, without any corresponding difference in its environment (Luhmann 1995a/2000, pp. 103–106). Neither media nor forms indicate some kind of ultimately physical, biological or psychic nature. Similarly, elements are not natural constants (e.g. individuals or minds) that observers could identify as the same ones. No pupil is in itself a medium, being a psychic system that operates based on its own structures. In the education system, 'pupil' is a semantic invention used to draw a distinction with biological organisms and adult human beings. It is a construction in the education system, which turns clear differences, i.e. body size and behaviour of children and adults, in an artificial distinction. Through this distinction, the highly improbable education becomes possible. The pupil is a medium because it allows the education system to observe a sufficiently loose coupling of thoughts, making it available for tight couplings in education.

The medium does not disappear with the use, but it increases the space of combinations as it is used. 'Only forms can destroy forms and only forms can prevent other forms from using the medium. But as forms always confirm their medium they also confirm the potential for using the medium for other couplings' (Luhmann 1992a, p. 6). Forms do not exhaust the medium, rather they regenerate its possibilities. The increasing variety of forms, which is allowed by the medium, increases the elements of the medium and the possibilities of combining them. Forms are unstable and can be preserved only by activating the memory of the system, which permits to recognize them and, if necessary, to confirm them. 'The tight couplings are temporary couplings, they integrate and disintegrate, appear and vanish' (Ibid., p. 6).

Contemporary pedagogy no longer thinks of pupils as a tabula rasa on which to engrave pedagogically correct forms, but rather as a potential that can be actualised though teaching. That is why the pupil is a medium for and in the education system. However, this pedagogical construction hides the fact that the pupil remains a black box. It is impossible to see from the outside what happens in its head or control it. The pupil is non-transparent and self-determined. On the one hand, this lack of transparency allows the education system to construct the pupil as a medium; on the other hand, it clarifies that not all forms which this medium

can accept are also acceptable for education. The question is, therefore, how education can limit what it would be possible as a form of the medium, i.e. how it can prevent the arbitrariness of the educational process. The education system can give a form to the pupil as a medium only in improbable and artificial ways. Throughout its evolution, the education system has developed problems and solutions on both sides of this distinction, on the medium side as pedagogy and on the side of possible forms as didactics. The education system has primarily produced two types of solutions: (1) controlling and coordinating the relationship between teacher's and pupil's choices; (2) checking the material that can be used in teaching.

The first solution concerns a typical problem of the symbolically generalised media of communication (see Sect. 3.4.5), i.e. that communication can be attributed either internally as action, or externally as experience. In the case of education, the teacher acts and the pupil experiences. Teachers cannot attribute their actions to external factors, and whatever they do in the classroom is attributed to their decisions. The pupil's situation is more complex. There is no doubt that the pupil is also acting, but this action does not give any pedagogical directions to the education system. Therefore, the teacher must always look at the experiential world of the pupil, even when the pupil acts. When teachers sanction pupils' actions, they do so either to promote experiential effects or to evaluate these effects. While lovers need to confirm the world of experience of their beloved, teachers must correct the world of experience of their pupils (Luhmann 1991a, p. 174). This attribution to experience enables the education system to define and limit the medium, i.e. the pupil as an educational potential. However, this attribution does not say much about which forms of the medium are pedagogically acceptable.

The second solution employed to limit the possible forms of the medium concerns the conveyance of knowledge. Knowledge is not intended as a peculiar attitude towards the world, for example cognitive rather than normative attitude, or rational rather than emotional attitude. In the education system, knowledge is 'the structure with the help of which the psychic systems continue their autopoiesis' (Ibid., 1991a, p. 175), which can connect thoughts with other thoughts. This is not a matter of mental states or cognitive reserves on which the pupil can draw when s/he thinks and participates in communication. Knowledge is always actual knowledge. The teacher assumes that if the pupil learns correctly, s/he can actualise the knowledge that is needed in any situation, and can use this knowledge properly. Therefore, selected, cultivated and 'true' knowledge is conveyed, guaranteed, and legitimised by scientific criteria. The taught knowledge must be generalised and accepted (or acceptable), as well as different from what the pupils learn through socialisation in their 'normal' life. Nevertheless, pupils' psychic systems use knowledge according to their own patterns; therefore, the discrepancy between the skills requested in everyday life and the skills learned in school is not surprising. The treatment of pupils as trivial machines, although they are not and cannot become trivial machines, allows the conveyance of knowledge. The education system can irritate the pupils (Ibid., 1991a, pp. 168–170) through the structural

coupling between communication and consciousness (Sects. 3.3.3 and 4.2). In the education system, the medium 'pupil' is used to take advantage of this structural coupling, to produce structural changes in psychic systems. These changes are considered educational outcomes, although pupils' internal processes remain unclear, for instance how they learn to play the role of pupils, how they react to concessions and prohibitions, how their know-how and not-yet-known-how is produced. Learning presupposes unlearning and relearning, and a constant reworking of what has been learned. Teachers, however, observe learning possibilities, and the possibility of non-learning, as accumulation of knowledge, and thus simplify their work, observing that they can control its effects. Pedagogy collects knowledge and reflections on this simplification and creates an image of the teaching profession that can motivate teachers to continue working as teachers.

4.8 The Life Course as Medium in the Education System

In Luhmann's theory, this concept of pupil as medium was replaced in 2002, following a discussion between Luhmann and the German pedagogist Karl-Eberhard Schorr (reported in Luhmann 2004, pp. 260–277). Luhmann argued that contemporary education cannot observe the pupil as a medium. The problem stems from both the educational practices and their extension to the whole span of human life. The reference to the pupil presupposes a distinction between adult and pupil. The theory of education is centred on the pupil and not on the adult. However, the developments in contemporary education have gradually shifted educational interventions to the whole human lifetime. This has led to speaking of life-long learning, which goes well beyond school education. This evolution of education questions the centrality of the pupil, as also adults are 'clients' of the education system. Moreover, if learning becomes central in education, education cannot be limited to the pupil. Learning includes anyone who is able to learn, not only children.

These considerations led Luhmann to observe that the education system has changed its medium. The pupil has been replaced by the *life course* (*Lebenslauf*) (Luhmann 2002, p. 93). This concept, which is very close to that of career (see Sect. 5.4), is not a synonym of biography and does not merely indicate what pupils realise during their educational life. The life course is a chain of more or less improbable events, which make a difference for expectations of further events. The life course begins with birth and continues with other events, which give it a form by limiting what could be possible, without determining it. Individuals progressively experience successes and failures, thus shaping expectations about possible future developments. The reduction of what could be possible allows the construction of alternatives and the imagination of more or less probable course of events or situations. According to Luhmann's theory, this means that the reduction of complexity is the condition to increase complexity (Sect. 3.3.5). The education system attempts to limit as much as possible the sanctions for pupils' actions that

are negatively assessed. Therefore, the life course can also include what can be expected as future, which is certainly dependent on the past but still unknown. The life course is therefore a conjecture-biography, according to the definition Luhmann took from Jean Paul, i.e. a narrative (Luhmann 2004, p. 267). It encompasses past and future without any teleological structure, i.e. without the possibility to set any aim.

The life course cannot be described as either the fulfilment of destiny or as a manifestation of innate qualities. However, the life course seems to have some order and to be consequential, i.e. it gives the impression of a tight coupling de-randomising its components. In fact, it is impossible to look for causal relationships, as the complexity would immediately become so high that it would prevent the recognition of any linearity. The combination of events builds a unique sequence regarding the individual, although the components of the medium life course are more or less standardised and apply to everyone (birth, school education, university, etc.). The two ends of the life course's temporal dimension are past and future. The possibilities tend to increase at the beginning of the life course and to decrease with age; however, past and future are neither stable nor constant. This appears rather obvious for the future, but may seem strange for the past, which seems to be irreversible and closed. The point here is that each event in the life course rewrites both the remembered past and future expectations. After a negative outcome of selection in school, one feels like someone who did what s/he wanted (going to that type of school) only to find out that it was not as good as s/he had thought, so that one must rearrange the life course by eliminating the inconsistencies that the experience has produced. The life course is then constantly rewritten by combining continuity and discontinuity of the sequences of events. The description, including the explanation of what has happened, is valid in the present, but not necessarily at a later stage. The life course has neither a pre-fixed direction, nor an ultimate aim; the only natural aim, which cannot appear as such in the life course, is death (Ibid., p. 270).

The education system does not aim to provide each individual with a life course. Rather, the education system aims to manage the forms that are considered particularly important for the life course. According to Luhmann, these forms are 'knowledge', with the meaning that we have introduced above. Knowledge gives a form to the medium of life course, not only as actionable knowledge if and when one needs it, but also in that knowledge creates confidence when tackling new or unfamiliar situations (Ibid., pp. 274–277). Education allows individuals to know that they know, and this helps to avoid uncertainties. Those who learn to swim can swim and know that they can do it; they will have no fear of the water, expanding the range of their choices and possible behaviour.

The knowledge conveyed by education is not used in its scientific or technological meaning. In the education system, knowledge is only what can give form to the medium of life course. Therefore, it is important (1) to experience the learned knowledge continuously, to see if expectations can be confirmed, and (2) to learn from what has been done what else could be done. Learning opens up new possibilities, which in turn are the conditions for further learning, regardless of whether

or not the educational goals are reached. As every teacher knows, both conditions (reaching or not reaching educational goals) are always produced in the classroom.

Against this background, the traditional distinction between education and instruction is no longer suitable to describe the performance of the education system. Is teaching seniors to dance still education? Luhmann argues that, like all other functional systems, the education system combines universalism and specification, i.e. universal competence regarding the function and specification of its mode of operating. In this way, it is possible to observe the unity of the difference between schools and universities, vocational training, adult and senior education. The values and purposes of education can only be constructed autonomously in the system and can change when the system's self-descriptions (Sect. 3.4.6) lose their social plausibility.