

CHAPTER 2

THEORETICAL PENETRATION OF THE CONCEPT “REDUCTION OF LEARNING MATERIAL”

2.1 INTRODUCTION

In this chapter there is a theoretical penetration of the concept “reduction of learning material”. To disclose the essence of the concept “reduction of learning material”, first, “learning material” and “reduction” are dealt with separately, and then together. As a supplement, the concept “learning material”, and the choice of appropriate “learning content” are broached. There also is a search for an answer to the question: What is reduction?

To arrive at the fundamental meaning of the word reduction, the phenomenological method, and some findings of Husserl and others are enlisted. However, since a theoretical pronouncement can never be complete, attention also is given to the sense and meaning of the concept “reduction” as a didactic category, as elaborated by Van der Stoep⁶, and its implications for didactic practice.

2.2 WHAT IS LEARNING MATERIAL?

The sense of the activities justified by the concept “didaskēin”⁷ is that there is always “something” to be taught. This implies an imperative that there is content which must be presented or unlocked. “Didache”⁸, the concept derived from the Greek root word “didaskēin”, refers directly to content. This act of teaching or introducing content is not limited to the formal school situation, but begins at home. Before a child goes to school, he/she has already experienced a variety of cultural content.

Although this first, spontaneous, natural lived experiencing, and pre-scientific knowing of a child are often going to be unsystematic,

⁶ Van der Stoep, F., *Didaktiese grondvorme*, p. 30.

⁷ Van der Stoep, F. and O. A., *Didaktiese Orientasie*, p. 36c.

⁸ Van der Stoep, F. and O. A., *Didaktiese Orientasie*, p. 37a.

vague, inaccurate, and incomplete, essentially, they are the original experiences of many of the concepts which, later in school, he/she again becomes acquainted with. In school, a child “encounters” the learning material as it has been delimited and ordered (organized) in the syllabi of various subject areas. Instead of the spontaneous, naïve, and natural confrontation of the learning material, such as in the family, in school, this is changed to a formalized, systematized, and scientific confrontation.

The learning content presented in school syllabi, however, remain the same reality (culture), but now in new cloth.

Bevelander, Fokkema, and Nieuwenhuis summarize these ideas as follows: “In all cases, it is the ‘material’ which the older generation wants to transfer to the following one for their use: the heritage of experience, culture, and religious conviction”.⁹

Because learning material is only a slice of the cultural content of a people, it changes from country to country, and from time to time. In other words, learning material is always specific. The quantity of content which must be acquired by a child as cultural content is continually expanding, while their quality is reflected in the results of years of refinement to which the most gifted thinkers in each area of knowledge have contributed. The learning material taken up in the school syllabi represent the choice of the compilers after they have teased them out from the broad field of cultural content, to avoid flooding and, at the same time, by reducing the areas of reality to be able to compare the formative quality of the themes. Because the choice and ordering of learning content reflects the attribution of value by the syllabi compilers, it is necessary to investigate this topic further.

2.3 THE CHOICE OF LEARNING MATERIAL

From the above, the choice of learning material is not arbitrary, but occurs in terms of principles or criteria. Mommers supports this with the following observation: “A well-considered choice of learning material is consciously or unconsciously guided by

⁹ Bevelander, C. et al, *Algemene Didactiek*, Part V, p. 1c.

particular principles.”¹⁰ Although Aarts still distinguishes between the material and formal formative value of learning material, he places a didactician under the imperative of the category of forming, in choosing content, i.e., when he talks of “the universality regarding the material and totality regarding the formative.”¹¹

Therefore, content must be chosen because of its formative quality. A child’s change, then, is seen in the extent to which his/her field of vision on reality is increased. A child’s mental grasp and level of readiness in a cultural situation also makes demands which influence the delimitation and choice of learning material. Therefore, there is always the danger that a teacher, as the interpreter of the syllabus, does not penetrate to the essence of the learning aim included in the prescribed subject, theme, or method with the result that he/she teaches over the heads of the pupils, or he/she descends to such a low level that he/she bores them.

Thus, it is the task of the teacher to isolate or redisclose the formative quality of a matter by reducing the learning material (reduction of the prescribed curriculum themes) for a group of pupils. However, to unlock this content for the pupils, he/she must acquire one or more suitable examples which inherently include the essence of the matter, as disclosed in his/her reduction, and which is uncovered by his/her teaching. Because the concept “reduction of learning material” not only figures prominently in choosing and ordering cultural content, but in every phase of the lesson, it is meaningful to describe the meaning of “reduction” as a concept.

2.4 WHAT IS REDUCTION?

Reduction is derived from the Latin word, *reducere*, which means to lead back or be traceable to. *Reducere* is derived from *ducere*, which means to lead or transport. *Reductio* (Latin), *reduction* (French), and *reduccion* (Middle English) are cognate words which mean: to lead back, or to recover.

¹⁰ Mommers, C., *De plaats en de betekenis van het exemplarisch onderwijs in die didactiek*, p. 141c.

¹¹ Aarts, J., *Beknopte leerboek der algemene didactiek*. P. 102a.

In the various facets of everyday life, such as business, arithmetic, music, the textile industry, biological sciences, psychology, and philology, the word reduction is used in many variations of its original meaning. However, most of these perspectives preserve a constant meaning of its content of referring to a leading back, or tracing to something within a relationship. For example, in arithmetic, reduction refers to simplifying ratios. In chemistry, there is mention of reduction (refining, purifying) when a *pure* metal is extracted from its ore or tracing the pure metal from its compounds.

Because the concept reduction refers to an event where there is a leading back from a situation, condition, or compilation to an earlier state or elementary component(s), in each case, this amounts to a form being maintained, or a way which must be followed.

Leading back, and reducing are important concepts for a scientist because, through a reduction, he/she comes closer to the original, first, or *primordial*, i.e., to placing the essence of the matter in the spotlight. This immediately brings us to the phenomenological method.

2.5 THE PHENOMENOLOGICAL METHOD

The phenomenological method aims at the honest description of the *essential characteristics* of the phenomenon as it appears. Its point of departure is the “subject-object relationship, or the person-world relationship”.¹²

It is the way which is followed to express the essentials of a phenomenon as it really is. Landman and Gous¹³ say: “Phenomenological description is a thinking, intuitive viewing, and describing of the essentials, disclosing what remains the same, unchangeable, and always valid for a phenomenon.” The phenomenological method is a return to the thing itself; there is a search for the essences, what remains the same, the invariant, valid characteristics of the phenomenon. The phenomenon “triangle” is

¹² Landman, W. A., and Gous, S. J., *Inleiding tot die fundamentele Pedagogiek*, p. 28b.

¹³ Landman, W. A. and Gous, S. J., *Inleiding tot die fundamentele Pedagogiek*, p. 25b.

taken as an example to clarify these always valid, unchanging characteristics. The essence of this geometric figure is that it always is a closed, two-dimensional figure with three sides. Other characteristics, such as its size, length of its sides, and magnitude of the angles are all nonessential or accidental characteristics. The essence refers to the general *form* of the triangle, and the nonessentials refer to the characteristics of the contents of a specific triangle. Thus, the general form is universal, while the contents are specific.

To see essences, a phenomenologist seeks the constants, universals, or forms, while he/she provisionally brackets the contents, specifics, and what varies. The essential characteristics can only be critically and accountably described after they are disclosed. On the one hand, these essential characteristics are always tested against reality by applying the method of free variation. The question posed is: Can the phenomenon still exist if these essential characteristics are thought away? On the other hand, the phenomenon must be viewed from a variety of standpoints and perspectives to see the commonalities and invariants.

Edmund Husserl (1859-1938) is viewed as the central figure in the development of the phenomenological method. His pronouncements about his eidetic, phenomenological, and transcendental reductions, given the nature of the matter, cannot be ignored here. They have clear relevance for each attempt to reduce learning contents. Similarly, the views of Martin Heidegger (1889-1976), and especially his findings with the hermeneutic (disclosing) method of the “concealment” of the essences of phenomena are necessarily relevant.

2.6 HUSSERL AND THE CONCEPT “REDUCTION”

Reduction, as Husserl sees it, remains directed to arriving at a complete, clear presence to one’s *experiences*. Indeed, it is the case that the meaning a person gives to the things he/she perceives and speculates about, embrace more than what he/she originally was confronted with. Each perceiving is the point of origin of a large series of implicit hypotheses of which he/she is not always aware. What he/she is later going to describe as “reality” rests on these

hypotheses. Thus, if he/she wants to see what there really is to see, he/she must first place each opinion, hypothesis, etc. between brackets.

In his/her daily experiencing, he/she is always involved in *understanding* things within reality. Where many cannot free themselves from this, Husserl says of them that they cannot arrive at “hygienic” thinking. Thus, there are psychologists who equate human emotions into neurophysiological states.

With his/her concept of reduction, Husserl tries to free himself from everyday opinions, and assumed attitudes, and by intuiting a matter, to arrive at original (first-hand) evidence. As the first form of reduction, Husserl distinguishes the so-called eidetic reduction.

a) *Eidetic reduction*

This is the operation or event where *insight* is acquired into the essence when one proceeds from specific examples. To disclose the essential characteristics and relations, there must be a free involvement with varied examples.

From the total image of earlier experiences with and foreknowledge of the matter, direct perception, as well as what is added speculatively, there must be an attempt to draw out what is constant, permanent, and common to the phenomenon as essential, and which cannot be thought away. With the method of *free variation*,¹⁴ the unchangeable commonalities come to the fore. The invariants, as it were, are passively discernible because the objects of the various presentations shift in front of each other and cover each other partially. Thus, it is an abstraction from specific facts to general essences. Spiegelberg¹⁵ summarizes Husserl’s eidetic reduction thus: “Obviously the main point is to drop all reference to the individual and particular.”

Hence, to arrive at an intuiting of essences of reality, when one proceeds from specific examples, there must be a free involvement

¹⁴ Kockelmans, A., *Edmund Husserl*, p. 62c.

¹⁵ Spiegelberg, H., *The Phenomenological Movement*, p. 134a.

with varied examples. Perhaps this can be made more understandable with the following example. If a person visits a city only on Sundays, he/she never really arrives at an insight of the essential characteristics of how a city appears broadly. What is seen is true, but it is one-sided and gives insight only into partial aspects of the general concept “city”. Thus, to acquire an intuition of the essences of the concept “city”, his/her experiences must be built up from more varied situations and, from them, the constants and commonalities are delimited.

In his following form of reduction, Husserl distinguishes the so-called phenomenological reduction.

b) *Phenomenological reduction*

With this concept, there is a stripping and divesting perceptions, viewings, and opinions about a phenomenon of all “trans-phenomenal” aspects or meanings. Spiegelberg¹⁶ summarizes this so: “Its main function is to free the phenomena from all trans-phenomenal elements, notably from all beliefs in trans-phenomenal existence, thus, leaving us with what is indubitably or ‘absolutely’ given”. There must be an attempt to “suspend” the essence or to place in brackets (*einklammern*) each belief about the object. That is, in a preliminary way, we must not accept, and must question anew, what we already know about a matter, or what we ascribe to it from our experience, and even our speculations about it.

Spiegelberg¹⁸ says: “The first and basic instruction for this operation is simple enough: inhibit or suspend (put out of action, “turn off”) all belief of existence which accompanies our everyday life and even our scientific thinking. Instead, concentrate on the concrete phenomenon in all its aspects and varieties, intuit its essence (*Sosein*), analyze, and describe it without any consideration of its reality.”

The second reduction step in this operation is to analyze and describe the phenomenon in its *Sosein* (as it is). This is the only

¹⁶ Spiegelberg, H., *The Phenomenological Movement*, p. 134c.

¹⁸ Spiegelberg, H., *The Phenomenological Movement*, p. 134c.

way to arrive at an honest attitude toward and naming of what is being experienced. A phenomenologist is continually busy dismantling the phenomenon with the aim of obtaining a residue which resists all further reduction, and which will show invariance.

Husserl distinguishes an additional form of reduction, i.e., the so-called transcendental reduction.

c) *Transcendental reduction*

To go *back to the matter itself*¹⁹, there must be a return from the cultural world to the original lifeworld (*Lebenswelt*)²⁰, to the surrounding world of immediate experience. Access to the *Lebenswelt* is acquired by a supplementary method of reduction, i.e., the transcendental. Here, there is a giving up of all culture, civilization and science have taught us about the world. The matter itself, and nothing more than this, must be brought to expression. This has to do with how the things have originally shown themselves and are formed by consciousness.

By the transcendental reduction, the subject is released from all objective attribution of meaning with respect to the phenomenon. In his/her reduction, a phenomenologist directs him/herself to what is imminent. Thus, he/she remains stimulated after this, and his/her directedness enables him/her to now *leave out* existing pronouncements and beliefs, and to constitute reality anew.

2.7 SUMMARY OF HUSSERL'S PRONOUNCEMENTS

The essence of a matter is observable by applying free variation, and by provisionally disengaging all theoretical aspects and traditions. Only what is given must be put into words by surpassing everything which has been said about the matter, and by being objectively directed to it. In communicating with the world by experiencing, perceiving, remembering, thinking, judging, and valuing, the invariants become observable because the objects of the various examples shift in front of each other and cover each other

¹⁹ Kockelmans, A., *Edmund Husserl*, p. 64a.

²⁰ Kockelmans, A., *Edmund Husserl*, p. 64a.

partially. The intersection of this is the general essence(s) of the specific facts. For Husserl, reduction means a leading back to the origin of our knowing [something], which we have lost sight of in our hurried everyday thinking.

At this stage, it also is desirable to consider some of the views of Heidegger.

2.8 PRONOUNCEMENTS OF MARTIN HEIDEGGER

Heidegger does not merely take accepted scientific findings as his point of departure. However, he searches behind the things—also the person who is in relationship with them—for their meaning. Thus, his search is a search for the *Sein des Seienden (being of what is)*.²¹ In terms of the hermeneutic method, Heidegger goes further than giving a mere description of what is manifested. By anticipating designs, he tries to disclose concealed meanings.

For him, the phenomenon is not the appearance as it comes *directly* to us, or as it is perceived by the senses. Thus, Heidegger does not begin with the pronouncements of the sciences, but he “searches” the matter itself. He searches for the meaning of the matter behind the things and persons which are in relationship. According to Heidegger, the essence of the phenomenon is mostly concealed. For him, the appearance is “*that which does not show itself*”.²² Its meaning, therefore, is initially indistinct, since a person can only perceive what he/she, in his/her searching is intentionally directed to. Although each appearance can make certain claims to a greater or lesser degree of sense, according to Heidegger, for a perceiving person, its meaning remains mostly indistinct and concealed. According to him, this blurring, concealing, or obscuring of the essences must be attributed to three factors, i.e.:

a) *An intrinsic, inner concealment*

Intrinsic concealment means that the essences, e.g., of a text, from the beginning are already obscure or difficult to understand. The essentials are difficult to disclose.

²¹ Spiegelberg, H., *The Phenomenological Movement*, p. 280b.

²² Heidegger, M., *Sein und Zeit*, p. 29b.

b) *A covered concealment*

This is where the essentials are covered up or obscured by “something” else. Because of one’s own erroneous interpretation, or inaccurate representation by someone else, what was initially clear, now becomes obscure.

c) *A deliberately altered concealment*

This is when a deliberate alteration has occurred. The essence itself would not be so difficult to be noticed if it were not deliberately altered. For example, here we think of examples which generally are found in cryptography, forgery, and in some (mathematics) problems. Such deliberate alterations must first be broken open before the essence can be disclosed.

Thus, where Heidegger searches for the sense of a matter, or the being of its being, this implies that what initially was concealed, now becomes unlocked or disclosed. The matter first acquires sense when a learning person has brought to light the being of its being. Giving meaning is parallel to self-actualizing. In other words, to arrive at the sense of a matter implies the existence of an intentional directedness to a specific “something”. To experience this “something” as meaningful means that it must already evoke a degree of “acquaintance”. To be able to interpret a slice of reality, presumes an understanding of it. In general, an interpretation or representation of a matter is only possible because of lived experiences and insights connected with earlier experiences. Thus, giving meaning is always an activity of *Dasein* and, thus, is a unique constituting. Each person, thus, can follow his/her own way, and this is equally as accidental as two persons interpreting their experiences.

Insight into and understanding of a human situation, or phenomenon of nature, partially implies a design. To be able to understand something requires that a person him/herself must have given structure to it. Consequently, persons entering reality show varied attributions of meaning.

2.9 SUMMARY

These pronouncements of Heidegger have significance for unlocking (contents) by a mathematics teacher. In his/her preparing and planning a lesson situation, a teacher must subsequently strive to make sure that the sense and meaning which the pupils give to a concept agree with his/her representation of the essential as disclosed by the act of reduction. Heidegger's pronouncements about the concealment of the essence of a phenomenon has direct value in designing a mathematics lesson, in the sense that, in mathematics, there are many problems which are deliberately obscured.

Now, to acquire an additional perspective, the steps of reduction, as proposed by Spiegelberg, are dealt with.

2.10 THE STEPS OF REDUCTION AS PROPOSED BY SPIEGELBERG

He distinguishes the following steps.

2.10.1 DISCLOSING PARTICULAR PHENOMENA

Here, Spiegelber distinguishes three operations: the *intuitive* grasp of the phenomena; their *analytic* examination, and their *description*.

a) *The intuitive operation*

Here, a person is fully focusing on what is given as it ordinarily appears. He now opens him/herself to the phenomenon, i.e., he/she is going to view the phenomenon more closely. However, the phenomenon also is allowed to have its say.

b) *The analytic operation*

This does not mean a syntactic analysis is made of the linguistic naming of a matter, but the structure of the *designated* must be seen. This mainly involves tracking down the essences (elementals) and the structure of the phenomenon by intuitive operations and, therefore, is not identical with an analysis of its separate parts. The acts of analysis culminate in a person remaining directed to disclosing the constitutive essences and relationships of the structure or complex phenomenon.

c) *The descriptive operation*

A descriptive operation implies the introduction and allocation of classification signs to phenomena because of their correspondence with other phenomena. When a word cannot be found to name such newly unveiled types or sorts, contrasting limits (similarities and differences) are pointed out. New terms used to name a matter need not always fully express the essence of the concept, relationship, or method. The naming (word) also can serve as a guide for a deeper or complementary analysis of the matter being communicated.

2.10.2 DISCLOSING GENERAL ESSENCES (EIDETIC INTUITING)

To arrive at the essence of a matter, a series of examples of the phenomenon are imaginatively evoked, or some examples of it are investigated. From several cases, the common and constant aspects, which repeatedly emerge, are identified and described. In the future, these common aspects are accepted as essential or fundamental to the matter. Through this varied penetration of the phenomenon, the essentials and the nonessentials are distinguished and separated. Now, the essences are considered and described.

2.10.3 DISCLOSING RELATIONS AMONG THE REVEALED ESSENCES

As an additional task, a phenomenologist looks for the internal relationships of the comprehensive structure. Here, the method of “free variation” can be used fruitfully to see the internal relationships. A question which can surface here is: To what extent is insight into these constitutive parts of a structure important? Here, one thinks of the example of a triangle already mentioned.

2.10.4 DISCLOSING THE WAYS (MODES) THE PHENOMENON SHOWS ITSELF

The *way* the essence of a phenomenon is disclosed also is important because to arrive at a view of the essence, implies that one works from a variety and variation of perspectives.

A reducing exploration of the essence of a phenomenon is more than merely the importance of disclosure. It also broaches a way of acting and is a question of method. Thus, direct, and indirect

questions about the authenticity of the phenomenon possibly become clarified by referring to when, where, in what situations and in what ways the phenomenon shows itself.

2.10.5 DISCLOSING THE CONSTITUTION OF PHENOMENA IN CONSCIOUSNESS

With this aspect of reduction, Spiegelberg aims to determine in what ways the phenomenon constitutes itself and takes shape in our consciousness. Investigating the stages of such “crystallization” does not mean a psychological or factual case study of what happens to concrete individuals. The aim of such a study is to determine the typical structure of a constitution in consciousness by an interpretation of the essential sequence of its course. For example, the way form is given in consciousness to the image of someone you have encountered. Beginning with the first sensing, the subsequent perceiving of separate movements and hearing his voice, all are contributing activities which, in thinking are united into a total image. Spiegelberg²³ says the following about this: “The fact that this constitution is normally ‘spontaneous’ and ‘passive’ does not preclude the possibility of an active constitution in the wake of explicit reflections and attempts to integrate unrelated phenomena.”

2.10.6 ALL FOREKNOWLEDGE REGARDING THE PHENOMENON MUST PROVISIONALLY BE SUSPENDED

All available and transmitted knowledge with respect to the phenomenon in focus must provisionally be placed between brackets or suspended. This reduction step does not mean eliminating the knowledge but is an attempt to disclose the phenomenon anew as part of reality. A readiness for objectivity and being free of all prejudgments regarding the phenomenon must be striven for. Therefore, provisionally just as much value is attributed to all experiences without giving earlier lived experiences fixed values and meanings.

²³ Spiegelberg, H., *The Phenomenological Movement*, p. 689a.

2.10.7 THE MEANING OF THE PHENOMENON MUST BE INTERPRETED

Finally, the reduction implies that what is considered essential now must be interpreted and expounded further. The interpreter, thus, must go further than naming only what is directly given. There must be a striving to try to disclose what initially was concealed.

With his steps of reduction, Spiegelberg seeks the essentials, or as he says: “A leading back to the origins of which our all too hasty everyday thought has lost sight.”²⁴

At this stage, it is desirable to broach reduction, as a didactic category, so the concept “reduction of learning material” can be put in a proper perspective.

2.11 THE DIDACTIC CATEGORY “REDUCTION”

a) *What is a didactic category?*

According to Van der Stoep, in a didactic sense, the concept “didactic category” is more correct and accountable than the concept “characteristics of the didactic situation”. Didactic categories imply that there is a *viewing of the essences* of the primordial phenomenon by which truisms are disclosed. Many aspects which are described as characteristics of the didactic situation are not necessarily also didactic categories. A didactic category discloses an essence of the teaching phenomenon as this shows itself in the primordial [parent-child educative] relationship and as a truism of this primary event and is not limited to a formal school situation.

To disclose the essential of the didactic structure, therefore, one must make use of didactic categories which necessarily are truisms from the life world of persons, and not from a formally constituted school situation. The didactic categories also carry authority in each school situation, because this second order and constituted event in school is a *reconstitution* of the original event which already occurs daily in the life of a child in a family situation.

²⁴ Spiegelberg, H., *The Phenomenological Movement*, p. 133b.

Following Van der Stoep's definition, a situation is the totality of circumstances with respect to which a person must act. This implies that the didactic categories, as descriptions of such a situation, must make this totality of circumstances observable or known. They must serve as guidelines by which the activities they describe can be properly understood and anticipated.

b) *The meaning of the didactic category "reduction" for practice*
Van der Stoep²⁵ makes a practical pronouncement about reduction when he says: "In the primordial situation, the didactic course is not one of particularities but of essences. Initially, an adult does not involve him/herself with a child with respect to life details. Rather, he/she attunes his/her activities much more to life contents for a child, also to reduce to what is most important, necessary, proper to life, and life-stylizing, which, in fact, give rise to themes of his/her interventions." In the spontaneous lifeworld, it is conspicuous that an adult, in his/her explanations and description is continually involved in stripping concepts of all superfluous, and less important particulars. This help from an adult involves him/her trying, with the essentials or core learning materials, as point of departure, to constitute a framework within which a child, with a relative degree of security and safety, can meaningfully construct the theme jointly with him/her, and later by him/herself. By his/her acts of reduction, an adult can choose for the unlocking of complex structures or difficult concepts, simple examples or, where possible, appropriate models which facilitate their mastery, and to insert them between a child and reality. In terms of such a good example, or model, which already inherently includes the essence of the matter, a child learns to know reality, and, in the future, he/she explores his/her surrounding world with greater *security*. This reducing activity forces an adult to justify what he/she is going to present as a lesson aim for a child; at the same time, this constitutes the contents which must serve as beacons and fixed points in terms of which a child is going to orient him/herself. A solid orientation prevents a child from easily becoming lost in less important details, and becoming blocked by all kinds of particulars.

2.12 REDUCTION OF LEARNING MATERIAL IN GENERAL

²⁵ Van der Stoep, F., *Didactiese Grondvormen*, p. 30c.

For many centuries, scientists have asked questions and provided answers about reality. School curricula are particularly meaningful attempts by didacticians, or curriculum compilers to express reality in words. Although cultural contents are already taken up and ordered in the syllabi, still this does not guarantee that the concepts are going to be part of a child's lifeworld. A child's controlling and making the syllabus subjects his/her own remains a task of teaching. Thus, it is the primary task of a teacher, by way of a reduction, to penetrate to the essentials of the syllabus subject. Only when he/she succeeds in clearly delimiting the lesson aim for him/herself, and refines it to its essence, can he/she succeed in placing the matter as a problem within the questioning horizon of a child. In doing so, he/she makes sure that his/her interpretation discloses the essentials of the matter and that, accordingly, a child arrives at his/her own insight.

In reducing the learning material, it is important to search for the "elementals" and the fundamentals, i.e., for the simple which, indeed, is not so simple because such contents make insight into the structure and mutual relationships more easily observable.

For Pestalozzi, the "elemental" is a very important concept, as is evidenced in the following quotation: "It was a central aim of Pestalozzi to analyze all educational material, to reduce it to its simplest elements, and then to present it gradually to the child in such a way that the level of difficulty always corresponded to the child's capacity to comprehend it."²⁶

A teacher, as interpreter of the syllabus contents, however, sometimes finds him/herself in a difficult position. Describing an area of reality, as taken up in the syllabus, often lends itself to a factual, as well as a symbolic interpretation. Over the years, some words have acquired so-called "refined" meanings, and under various circumstances, and in successive situations varied meanings are given to the same word.

²⁶ Heafford, M., *Pestalozzi, His thought and its relevance today*, p. 86a.

Mommers says it thusly: “Fundamental experiences are the ‘Funktionziele’ [functional aim] of teaching. This is, in a certain sense, in contrast to its ‘stofflichen Zielen’ [material aims]. But, if the teaching is directed to the ‘Funktionziele’ then, by this, the learning material also is necessarily done justice.”²⁷

Depending on the structure of the phenomenon, in reducing the learning material, there can be a search for essences, as reflected in the matter itself. On the other hand, with more complex structures, there also is a search for supplementary coherence, and good methods unique to the matter.

Reducing the learning material is preparatory work, in the sense that, in his/her preparation, a teacher must already search for its essences, coherence, and good methods by which he/she can design his/her lesson structure.

It is first necessary to indicate the place and meaning of reducing the learning material in the lesson structure.

²⁷ Mommers, F., *De plaats en de betekenis van het exemplarisch onderwijs in de didactiek*, p. 15b.