

D. C. DUVENAGE

TO THE STUDENT

After studying this chapter you ought to be able to:

- *understand the connection that teaching aids have with you as a person as well as the child;
 - *place teaching aids within the perspective of designing a lesson;
 - *show the relation between teaching aids and aspects of designing a lesson such as the unique nature of the content, the reduction of the content, teaching aims, aims of the phases of a lesson and lesson modalities;
 - *design and plan a lesson implementing teaching aids in light of the above.
-

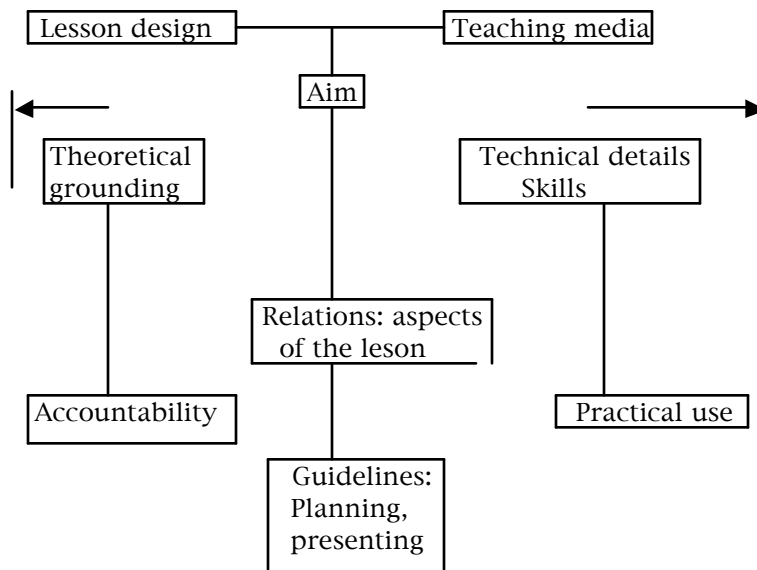
1. INTRODUCTION

In the teaching situation in school the teacher is busy **unlocking** one or another slice of reality in a particular subject for the pupils with the aim that they will **learn** something from this. In this teaching event (instructing and learning) the teacher in our contemporary schools most of the time is busy doing this by means of the word. Language is the most general medium by which reality is presented and by which the pupils interpret it. To attain this aim, the teacher often makes use of a variety of media such as prints, maps, models, films, and tape recorders.

2. DELIMITATION AND AIM OF THE TOPIC

The topics of designing lessons and teaching aids easily lend themselves to verbosity and disconnected discourse. Therefore, it is necessary to delimit clearly specific aims and further describe them in terms of the following structural model.

Delimitation of and aim of the topic



(Compare each of the above representations with the descriptions that follow).

2.1 Theoretical foundation

At one extreme the topic can be approached by providing a thorough theoretical foundation for the use of teaching aids. On this basis the student teacher ought himself to be able to account for his use of teaching aids in designing and presenting his lesson. For the purpose of this chapter, we will not take this approach although its importance cannot be emphasized enough. Here it is sufficient to refer to a few examples:

Illustrating: In didactic theory, Van der Stoep and Louw (1982: 58), e.g., refer to illustration as a particular didactic principle. The connection that this has with teaching aids is obvious because "illustration is a means for doing justice to perceptual phenomena in the didactic situation" and "this means that the content has to be made available for the child's perceiving, especially because of the very important role that the latter plays in learning".

Van Dyk (1973: 74) deals with illustration and perception in detail along with their importance for schooling. To be aware of this means that the student teacher can implement teaching aids with greater confidence because he can account for them theoretically to

himself. Consequently, although they will not be considered, there are a variety of theoretical aspects that are relevant to teaching aids.

2.2 Practical use and technical details

At the other extreme, full technical details about certain teaching aids as well as hints regarding their practical use could be provided. However, these considerations should belong, rather, in a course of study where their use can be practiced before they are implemented in a lesson situation in the school.

Information on these aspects generally appears in the literature. It is extremely important to be aware of this and to examine the possibilities of using aids. One example of such a general guide to using teaching aids is "From teaching aids to systematic instruction" (Conradie and Du Plessis, 1980). Another source, "Overhead projections and reprographics" (Rossouw and Van Laer, 1978), provides very particular technical details on the use of overhead projectors and constructing programs to use with them.

2.3 The aim of delimiting this topic

In contrast to the two approaches mentioned, in this chapter teaching aids are more closely considered only as a focal point within designing a lesson. That is, the aim is to clarify the relationships among teaching aids and other aspects of designing a lesson. The significance of this is that if the student teacher notices the relationships that the teaching aids have with other aspects of planning a lesson, this will give him a better perspective and allow him to integrate in meaningful ways the teaching aids into the total lesson design.

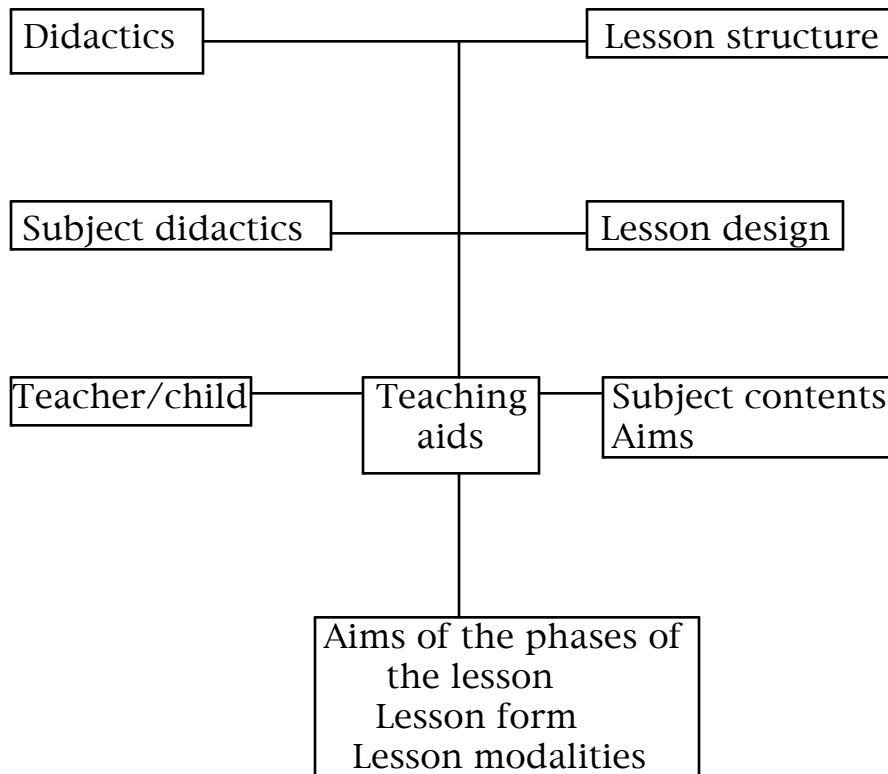
The few aspects that are going to be indicated are mainly those referred to in the lesson structure and general subject didactic theory and that were treated in the previous chapters. It is these aspects that the student has to keep in mind when he designs a lesson.

According to Van der Stoep and Van Dyk (1977), the task and terrain of subject didactics is the explanation and coherence of teaching a **particular** subject by a **particular** teacher to **particular** children in a **particular** situation, namely, the formal school situation. The conspicuously repeated use of the word

particular and the deduction that can be made from this is that teaching aids also have to be placed in this **particular** perspective.

The following representation gives a synoptic view of the aspects that are going to be indicated.

Aspects of the lesson design and teaching aids



3. TEACHING AIDS AND THE PARTICULAR TEACHER

Each teacher is a unique person who in instructing manifests his own typically personal style. Van der Stoep and Van Dyk (1977: 273) describe this so: "In so far as there is mention of a teaching style, this means that a teacher turns himself to his practice in a particular way and form".

If the student thinks back on his own school career, he will remember well how particular teachers taught. Further, particular teachers, each with a unique style, make use of teaching aids in a particular manner. One is an outstanding storyteller and another isn't. Consequently, the one who isn't might use a teaching aid such

as a tape recording of a good narrative. The one with a particular talent in language might give a magnificent description of something and the other might rather show a (microscopic) slide of it.

Many examples can be mentioned where a teacher does or doesn't implement teaching aids on the basis of personal abilities and limitations. Such choices are codetermined by the teacher's own person and style. Even so, it is important that he always take into account his pupils' potentialities so the teaching aids provide them with the best support for achieving the learning aim. Each student teacher needs to become clear about this for himself because this also will influence how he is going to implement his teaching aids in his own particular manner of teaching.

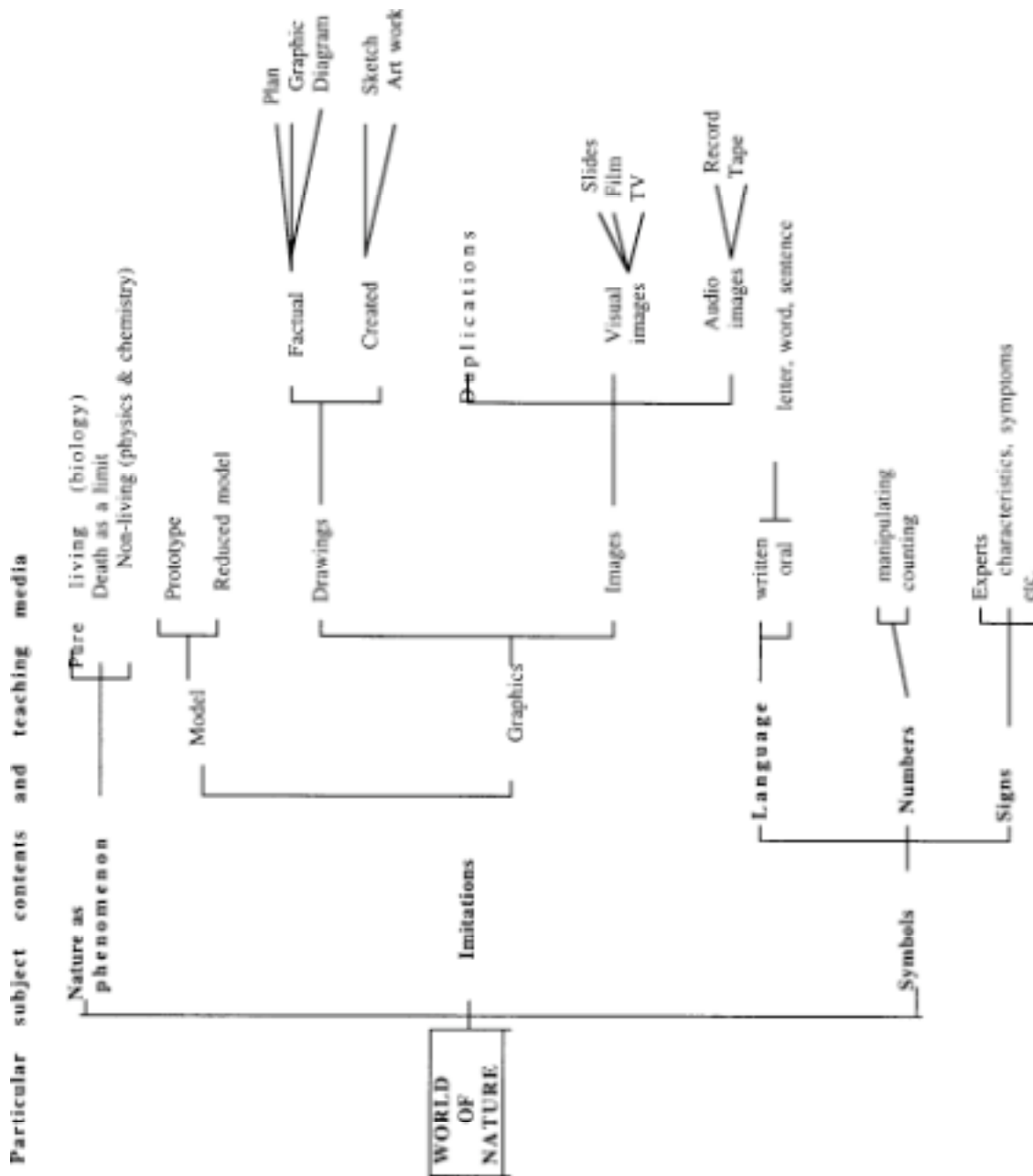
4. TEACHING AIDS AND THE PARTICULAR CHILD

Just as the teacher in the teaching situation has particular preferences, attitudes, manners of acting, etc., so do the pupils. In designing a lesson, in general, and teaching aids, in particular, the teacher plans for a particular class of particular pupils. Consequently, in light of the particular learning aim that he wants to achieve, the teacher also has to take into consideration the pupils' abilities and limitations. For example, one aspect is the **age** (grade) of the pupils. Certain teaching media are preferably used with younger pupils and others with older ones. Certain teaching aids should be used differently with younger than with older pupils. Also, the particular learning aim that pupils have to achieve necessarily will influence the choice of a particular learning aid. From these few examples it is clear that in choosing teaching aids, the teacher needs to keep in mind the particular child/class for whom this choice is made.

5. TEACHING AIDS AND THE PARTICULAR SUBJECT CONTENT

In Chapter 1, Section 4.1, the issue of the unique nature of school subject matter content is addressed. It is obvious that each subject has a unique, specific nature. This has significance for the use of teaching aids in a particular subject.

Certain subjects deal especially with subject-object relationships, e.g., the natural sciences, geography and professional-technical subjects. Here, the pupil has to deal with a natural phenomenon, object, etc. In teaching this content, it certainly is obvious that the



teacher will make use of real examples, models, replicas, representations, etc. as teaching aids. Thus, because of the unique nature of the content, it is possible to choose specific teaching aids to effectively present the content. The example on the previous page was selected from the natural sciences (Basson, 1978: 119).

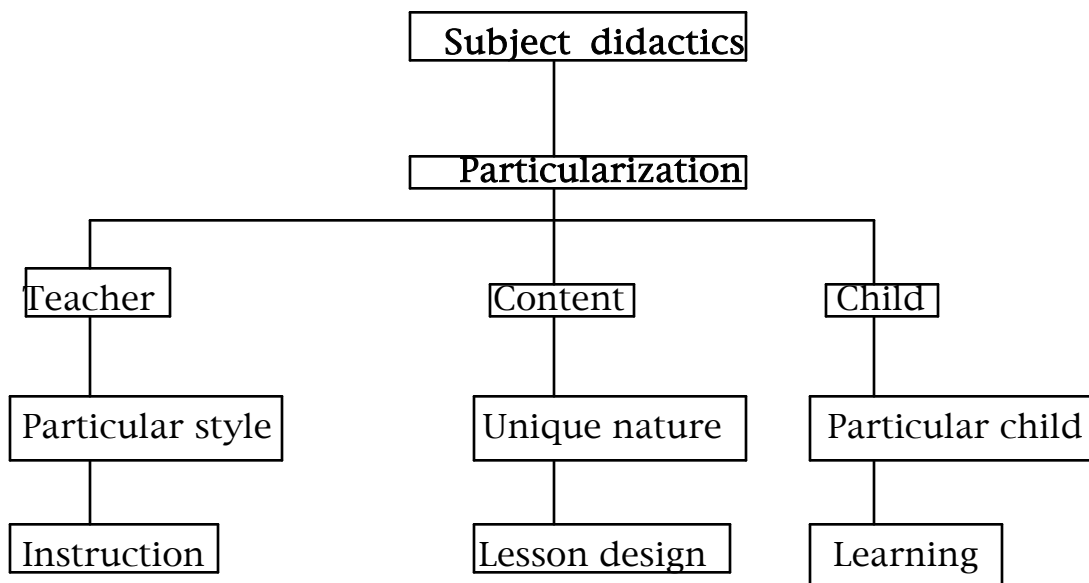
The example shows clearly that on the basis of the nature of the content of the subject and also the particular lesson (lesson design) the teacher makes a choice of the ways in which he, with the help of a specific teaching aid, is going to present the learning content. The

flowchart shows different possibilities. Take the structure of a flower as an example. From the flowchart it is clear that there are various teaching aids that can be chosen to present (unlock) this topic.

A classification of teaching aids also can be constituted in other subject areas to try to indicate the possible choices that exist on the basis of the unique nature of the subject. Briel's (1980) model for the choice of teaching aids is shown on the following page.

From the above, the planning of teaching aids for a lesson is represented in summary as follows:

Particularization and teaching aids

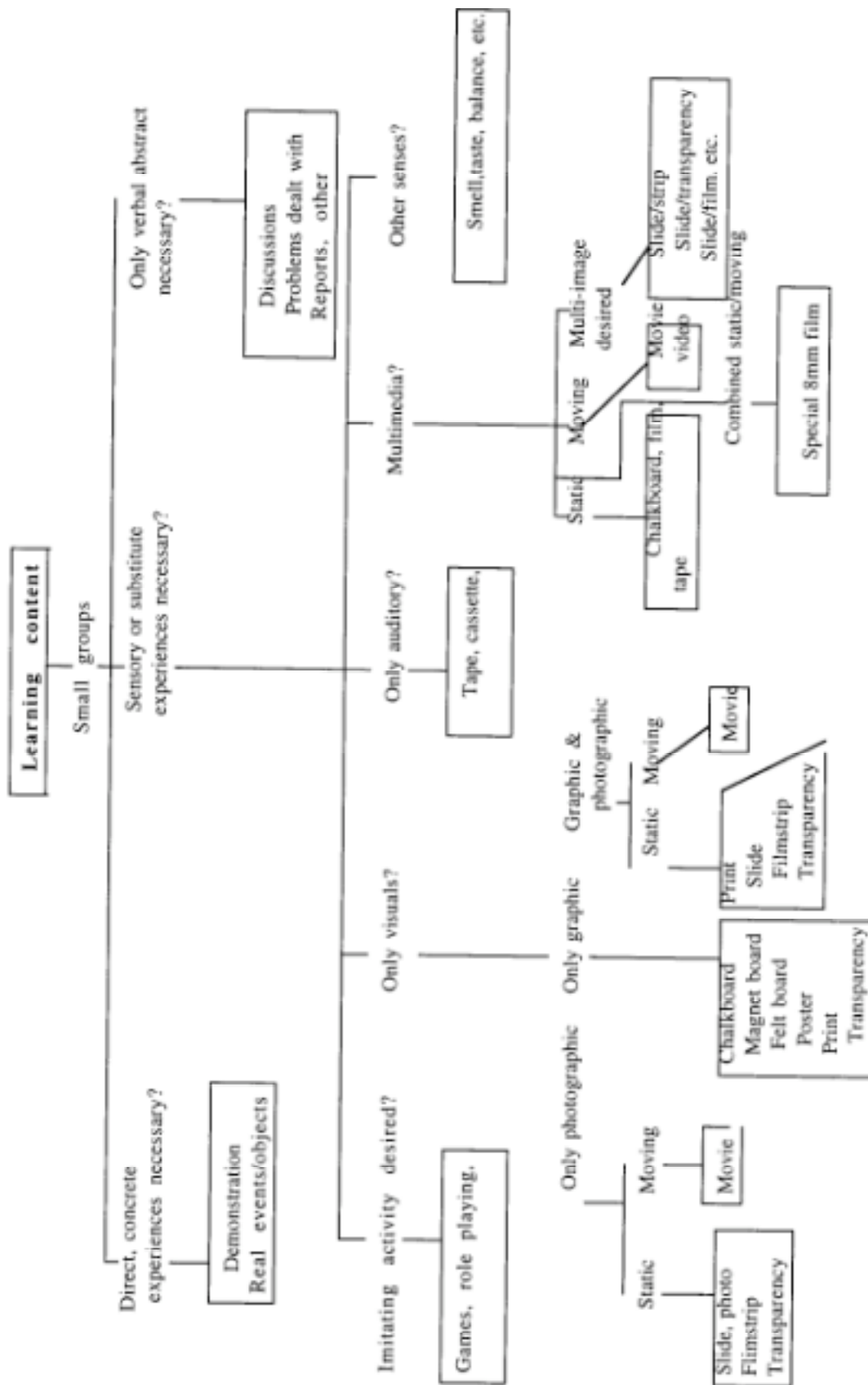


Since the aspect now being considered regards the unique nature of the subject (and thus the content), it is necessary briefly to refer again to the reduction of the content and teaching aids.

6. Teaching aids and reducing the learning contents

When a teacher is busy preparing (reducing) the content in designing his lesson, it is important to remember that at this stage he already has in mind teaching aids that possibly can be effectively used. The aim of reducing the learning content is to reveal what is

Briel's model for choosing teaching aids



essential about the particular lesson topic as well as their relationships (structure). See again analyzing and classifying (i.e., reducing) the content (Chapter 2, Section 2).

For each of the aspects, i.e., subject nomenclature, relationships, and skills, the teacher now considers in which ways he can use a teaching aid or aids to unlock or present the particular subject content. Reducing the content leads to formulating the teaching aim.

7. Teaching aids and teaching aims

The use of teaching aids should take into account the aims of teaching the subject and the parts out of which these aims are constructed. Thus, it is necessary that a thorough analysis of these aims be made and then in that light determine how the use of different teaching aids can contribute to attaining the overall and the component aims.

Here attention is limited to the teaching aim of a specific lesson. It is known that there is a distinction between a teaching and a learning aim. Later, the teaching aim, as the role of the teacher, will be considered when reference is made to the lesson form and modalities. But first, reference is only to the learning aim, as the role of the pupil in attaining the learning effect or outcome after the course of the lesson.

Suppose that after a lesson, a ninth grade language class in Afrikaans has to be able to identify an adjective on the basis of its function and form. In light of this partial learning aim, the teacher ought to plan the ways he is going to implement the teaching aid (aids) to attain the stated learning aim in the most effective ways: is he going to take a piece from a prescribed work in literature and require that the adjectives on a given page be underlined, require that the function be deduced from a number of examples, compare certain differences in form with each other and classify them on the chalkboard, etc. Thus, it is clear that what is aimed at (learning aim) has to be planned in order to implement the teaching aids (e.g., textbook, chalkboard).

Another striking matter is that there is mention of **sequence** (first the function and then the form of the adjective) as well as a

particular **operation** expected of the pupils (identify: recognize and name). This necessarily means that the teacher has to plan how the teaching aids will be implemented successively and also how this is going to help the pupil perform the particular operation (learning aim). Hence, it is important that the teacher keep in mind the instructional and learning aims of the lesson in choosing teaching aids.

Yet another matter of relevance to the aims and the choice of teaching aids that only is referred to is the different aspects of lived experience (affective, cognitive, and normative) as described by Sonnekus (1973) and the cognitive and affective domains as differentiated by Bloom (1956). Conacher (1980; 26) refers to Bloom's domains and provides a synthesis in connection with teaching aids. (See next page).

From this it is concluded that a teacher with a specific aim chooses a particular teaching aid to be implemented in a particular area or combination of areas. Now one chooses a particular topic from the subject area. Next, one determines in which area(s) certain operations have to be carried out and which teaching aids can be used along with them.

In this connection, it is important to distinguish three aspects of a pupil's learning:

- *an external impression that makes a particular impression through the senses on the perceiving person;
- *the inner "elaboration" of this impression into a unique representation of the matter in relation to the pupil's existing possessed experience;
- *the expressions or creations by the person in language, art, formulations, designs, etc.

TEACHING AIDS AND LEARNING AIDS (CONACHER, 1980)
(Onderwysmedia en Leerdoelwitte)

		CLASSES OF LEARNING OBJECTIVES		
		COGNITIVE	AFFECTIVE	PSYCHOMOTOR
1	RADIO			
	GRAMAPHONE			
	TAPE RECORDER			
2	LINE DRAWINGS			
	STILL PICTURES			
	OVERHEAD TRANSPARENCIES			
3	MODELS			
	LARGE 3-DIMENSIONAL MODELS			
	MODELS			
4	FILMS			
	TELEVISION			
	LOOP FILMS			
5	SIMULATION			
	AUDIO-VISUAL LABORATORIES			
	SIMULATION			
6	FIELD TRIPS			
	PRACTICAL WORK			
	PRACTICAL WORK			

Adapted from I. K. Davies. *The management of learning*, p. 27

For a complete discussion, see Van Dyk (1980: 229). Teaching aids that are used effectively and purposefully can elevate tremendously the quality of the external impression.

8. Teaching aids and the aims of the phases of the lesson

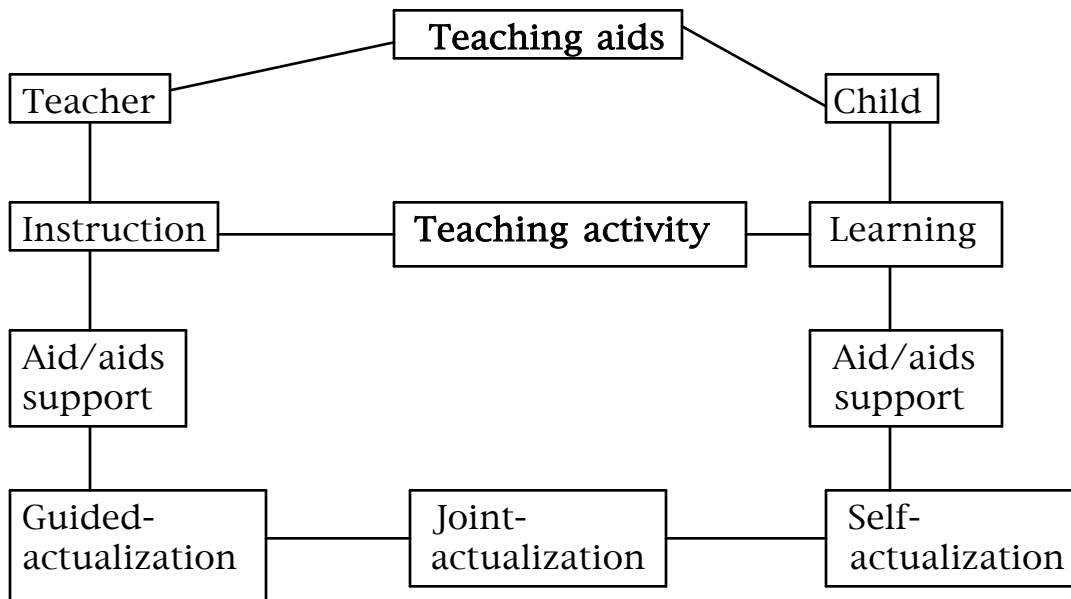
It is by now known that the lesson has a particular sequence or course. Each of the phases in the sequence is directed to attaining particular aims (See Chapter 2).

Teaching aids can make a special contribution if the teacher implements them in light of these aims of the phases of the lesson. As an example, take the phase **functionalizing**. After the phases dealing with content as aim, one proceeds to the further application and practice of the newly acquired content (content as means). Functions such as practicing, applying, creating, and testing enter the foreground. Subject specific knowledge, skills and techniques now have to be practiced. Here it also can happen that these particular functions need to be carried out with the help of a teaching aid; for example, computing with the use of a hand calculator, interpreting a text with reference to a commentary on it; determining direction with a compass; sketching with water colors.

Thus, each aim during the course of the lesson can be taken up and the teacher can plan how the teaching aid can contribute to effectively attaining each specific aim.

Previously reference was made to the roles of both the teacher and the child (See once again Chapter 3, Section 2.3). It is necessary that the teacher in his design determine in what ways a teaching aid will support him in his instructional function (guided-actualization) and the pupil in his learning function (self-actualization) or during joint-actualization.

Teaching aids and the teaching activity



Examples of the support of instructional activities are:

- *clarification with the help of a model;
- *demonstration with the help of an experiment.

Examples where teaching aids support the learning activity:

- *calculate with the aid of a hand calculator;
- *perceive with the help of a microscope.

With the concept **task division** (functional division), Van Dyk (1976: 25) makes an additionally important distinction that makes it possible to ease/facilitate the instructional and learning activities of the teacher and pupil, respectively, or even to take them over (in part or entirely). For example, the teacher can record information and use the tape-recording. Then, the aid takes over his instructional activity. Also, consider the above example of the hand calculator. The aid takes over the learning activity of the pupil, i.e., computing (e.g., multiplication). One thinks here especially of the use of a calculator to support and direct arithmetic teaching.

Basson (1980: 46) indicates clear relationships among aims, functions and choices of teaching aids in the following scheme.

Summarized classification of principles for choosing teaching aids for a lesson

Learning aim (achievement aim)

1. Pupils must revise certain concepts with which they are familiar.
2. Acquire insight into two specific concepts.
3. Acquire insight into a specific concept.

Instructional aim

1. Orient the pupils, direct their insights into concepts.
2. Unlock (present) the new concepts.
3. Unlock (present) the new concept.

Function of instructor

1. He must initiate, motivate through purposeful questions.
2. By himself systematically and purposefully clarifying (dominant-subjective).
3. To clarify with the help of a teaching aid (dominant-objective).

Function of pupil

1. Active participation in the class or group discussion.
2. Is dependent on instructor and must observe accurately.
3. Is dependent on the instructor's interpretation as well as the content reflect in the teaching aid.

Choice of teaching aids

1. Systematize and order concepts on chalkboard or overhead projector or a number of appropriate slides.
2. The teacher still must interpret, clarify media that in themselves do not reflect the concepts; e.g., slides, prints, models, chalkboard.
3. Real examples, models, audio-visual aids, etc. The media must show (reflect) certain concepts or relationships that the pupil himself can observe.

Consequently, it is the responsibility of the teacher in his design to execute purposeful choices with the aim of attaining the optimal effect via his and his pupils' particular activities.

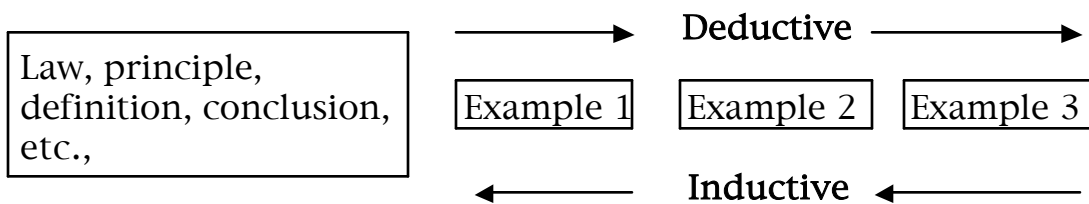
9. Teaching aids and the forms of a lesson

With respect to the lesson form, reference is made here only to the methodological principles (inductive and deductive) and to the principles of ordering the content. Then, in Section 10, the ground forms and the methods are treated because they are closely related to the lesson modalities and especially to the modes of learning.

9.1 Inductive and deductive approaches

A summary overview of the approaches follows:

Methodological principles



The deductive approach departs from a generalization (law, rule, etc.) and applies this to tests, illustrations, etc. in terms of particular **examples**. The inductive is the opposite: from a number of **examples**, the generalization (characteristic, principle, etc.) is inferred or discovered. In his design, the teacher plans how he is going to present his **examples**:

- (a) **Real phenomena.** The phenomena of some subject areas can themselves be shown in class, e.g., samples of material, kinds of wood;
- (b) **Three-dimensional imitations of phenomena.** This includes all models: enlarged, reduced, moving, static, etc.
- (c) **Copies of the reality.** Visual: print, poster, slide, etc. Audio: record, tape recording, etc. Audio-visual: sound film, video film.
- (d) **Language-symbolic production.** This includes all letters, words, signs, symbols, etc. that represent reality.

From the above, the teacher chooses the teaching aids that, according to his view, are the best **examples** to use for attaining the best effect.

9.2 Principles of ordering

The principles for ordering the content are the symbiotic, linear, chronological, etc.

As a variant of ordered content, reference usually is made to the **chalkboard organization (scheme)**. This immediately brings up the teaching aid (i.e., the chalkboard). Here a variety of teaching aids can be used, e.g., transparencies, flash cards. However, these need not only be linguistic presentations even though they generally prevail. What is of importance is that the essentials of the phenomenon as well as its structure be reflected in the aid(s).

10. Teaching aids, form of the lesson (continued) and lesson modalities

The grouping of these aspects certainly indicates that there is a mutual relationship between the form of the lesson and the lesson modalities of any lesson. (See Chapters 3 and 4).

Swart (1977: 132) refers to the particular correlations between modes of instructing and learning. For each ground form, with its nuances, the correlated modes of learning are indicated. Basson (1978: 86) also indicates their reciprocity.

Modes of instructing	Modes of learning	
Talk	hear	
Say (meaningful talk--semantic)	listen (meaningful hearing)	
Read-talk-say (symbolic-phonetic-semantic)	hear	listen
Write	look	see
Draw (indicate)	look	see
Point out	look	see
Fixate	look	see
	hear	listen

However, he goes further and indicates their relationships with teaching aids.

Modes of teaching	Teaching/learning aids	Modes of learning
Narrates	microphone chalkboard	<u>hear</u> <u>listen</u>
Explains		hear listen <u>look</u> <u>see</u>
Communicates	prints	hear listen <u>look</u> <u>see</u>
Dictates	sound recording textbook	<u>hear</u> <u>listen</u>
Reads		hear listen <u>look</u> <u>see</u>
Demonstrates	apparatus	hear listen look see touch feel <u>sniff</u> <u>smell</u>
Presents	model	hear listen look see <u>touch</u> <u>feel</u>
Shows	real example	hear listen look see touch feel <u>sniff</u> <u>smell</u>
Constructs	chalkboard	hear listen look see

On the basis of **repetition** of the correlated teaching and learning activities, supported by instructional and learning media, **patterns** or forms become discernible. Once again, this shows the close connection among lesson modalities, lesson form, and the use of teaching aids.

What is of particular importance, however, is that the modes of learning also have particular relevance for choosing teaching aids. If the teacher has knowledge of the modes of learning, he can plan for specific teaching aids. (For a description of the modes of learning see Sonnekus (1973: 67).

Example: perceiving

"Perception is the ordered, actual, factual, objective perceiving of the perceivable. Perceiving can occur across the entire range of the senses (vision, hearing, taste, touch, smell)." This means that many teaching aids can be used for one or more of the senses with which we perceive. (See once again the classification in Section 5 of this chapter).

Van Dyk (1973: 134) provides a detailed exposition of other modes of learning and particular teaching aids. He emphasizes that each particular mode of learning provides a good guideline for what the teacher has to keep in mind and that can help him in choosing teaching aids.

11. Conclusion

In the foregoing, teaching aids were put in the perspective of designing a lesson. A synopsis was provided of the aspects that are of particular concern for designing a lesson and for choosing teaching aids, e.g., the teacher, the child, the content, the forms of the lesson, the lesson modalities, and the aims of the course of the lesson. All of these aspects of planning a lesson have relevance for choosing teaching aids and the teacher has to take them into account in his design.