

CHAPTER VII

TEACHING AND LEARNING AIDS IN THE LESSON STRUCTURE

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1. INTRODUCTION

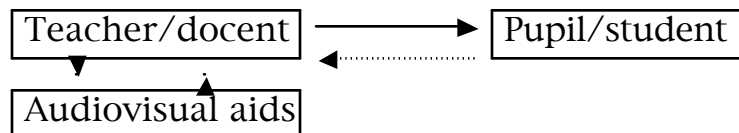
When there is talk of teaching and learning aids in the lesson situation, by no means is there an attempt to plead for their use in teaching. At this stage of teaching, we (ought to) have already advanced far enough so that it no longer is necessary to make a case for the use of media. Research has shown that if used appropriately and in the right place, they contribute to purposeful teaching. A few relevant terms are considered briefly.

2. TERMS

2.1 Audiovisual aids*

Certainly the best-known and most used term is "audiovisual aid". This amounts to the teacher or docent using a number of aids to try to improve his teaching. These aids are directed particularly at the auditory and/or visual senses (separately or together). This is represented as follows:

Figure 1: The use of audiovisual aids



(Hinst, 1971, p 43).

Various authorities agree that this approach is one-sidedly attuned to apparatuses without considering whether they make a real

* Based on Van Zyl, P. J. (1977). Onderwystegnologie in universitere verband. Publication Series of the Rand Afrikaans University, No. A95.

contribution to improving teaching (Hinst, 1971, p 39; Sekerak and McDonald, 1969, p 47; Grayson, 1976, p 121). Janssen (1969, p 54) even talks of "gadgeteers" when referring to advocates of this approach. Hinst (1971, p 39) summarizes this as follows: "The 'gadget' approach of the last 20 years, which was confined to propagating the technical possibilities of media, catering to a minimum of software, in the last analysis, has failed."

Various reasons can be offered as to why this approach has not made much of a contribution to renewing and improving teaching. The most important certainly are the following:

1. The excessive emphasis on apparatus has restrained the meaningful development of programming (Among others see Oettinger, 1969, pp 157-158).
2. The great stress on apparatus has lead to a continual swing of the pendulum from the use of a particular apparatus (e.g., 16 mm moving picture projector) to what has followed (e.g., television). Each new apparatus developed is then presented as the best aid (See among others Sekerak and McDonald, 1969, p 47).
3. The mentioned emphasis on apparatus evoked a negative reaction from very right-thinking teachers and docents because a lot of money was spent on apparatuses that went unused. This negative reaction was stimulated further because proper provision was not made for planning and producing programs.
4. Little resulted directly from a really meaningful integration of media into teaching.
5. Research on the use of aids in teaching continually resulted in no differences between teaching with and without aids (Among others, see Campeau, 1974, p 31; Solomon, 1976, p 25).

An analysis of the situation in South Africa indicates that we are still largely in the stage of using audio-visual aids. A first breakthrough to something **more** than audio-visual aids began to be noticed (See among others Conradie, 1977; Meyer, 1974; Strydom, 1976). The ground breaker of this development was certainly the South African Army's College of Educational Technology.

2.2 Teaching aids

Van der Stoep et al. (1973, pp 130-131) use the term "teaching aid" to summarize instructional and learning aids. Instructional aids are what the teacher uses in presenting a lesson while learning aids are used by the pupils. This is a very fine distinction and it often happens that in one period the same teaching aid can be used both as an instructional and a learning aid (e.g., a chalkboard).

2.3 Media*

There is a wide diversity of standpoints about what is meant by media in teaching. De Cecco (1968, p 527) represents the approach concerning audio-visual aids that is in agreement with the above pronouncements as follows: "The electro-mechanical devices which act as middle conditions between the student and what he is to learn." Here the emphasis is largely on apparatus.

Gerlach and Ely (1971, p 282) define a medium as any person, material or event that creates circumstances that put the pupils in a position to acquire knowledge, skills and dispositions. De Corte et al. (1974, p 189) go further and state that a medium is any means used or presented by a teacher to function in the teaching situation in connection with reaching a particular teaching aim. Thus, here there is mention of an integration of the medium into teaching and in such a way that it is attuned to attaining particular aims.

From the literature it is clear that the use of the term "media" has consequences for the use of the term "audio-visual aids" (See among others Hinst, 1971, p 43). However, some authors such as De Cecco still use the term "media" as a synonym for "audio-visual aids" while De Corte et al., go much further. The views of the latter are entirely acceptable because they mention programs and apparatuses that do not function only as aids but which are integrated into the teaching. The term "media" and "teaching media" will be used in this chapter with this meaning.

2.4 Teaching technology*

As noted, the traditional approach to audio-visual aids has not led to a meaningful renewal of teaching. However, it is possible that the problem can be approached scientifically and thus can lead to a systematic integration of media into instruction. Teaching technology possibly offers a solution.

Since the late 1960's various overseas authors and commissions have attempted to describe the use of teaching technologies (Among others see Bjerstedt, 1969 p 48; Chapman and Unwin, 1969 p 9; Ely, 1972, p 36; Ericksson, 1969, pp 62-63; Filep, 1975, p 14; Gilbert, 1969, p 57; Hawkins, Hitchens and Wallington, 1974, p 85; Hinst, 1971, p 40; Oguri, 1969, p 36; Olson, 1974, p 78; Prigge, 1974, p 18; Silber, 1970, p 24). Since it is not possible to make a complete analysis of all of the different approaches to teaching technologies within the space of this chapter only a few influential works will be considered.

As a point of departure, Janssen's (1969, p 56) view of Teaching technology will be closely looked at. He defines Teaching technology as technical-scientific applications to teaching with a view to the aim and structure of teaching. This application arises through the mutual attunement of the scientific rules and conclusions about teaching (the didactic) and of the technical lawfulness of the apparatus to the desired aim and structure of teaching.

According to this definition there is mention of a technology because it has two components, namely, a science and a technique. However, it is not merely a **technology** but a **teaching technology** because the technical-scientific applications are directed to teaching and indeed are attuned to its aim and structure. If there is only mention of the application of a technique to teaching while the scientific (i.e., didactic) component is missing, this will be in agreement with the view of the so-called "gadgeteers" who are "possessed" by the idea of using different types of apparatuses in teaching.

2.5 Summary

It is possible to talk past each other if we use different terms with various meanings. Whatever terms we use, our ideal is the complete integration of media into teaching and thus also into each lesson. In the following section a closer look is taken of integrating media into teaching.

3. INTEGRATING MEDIA AND TEACHING

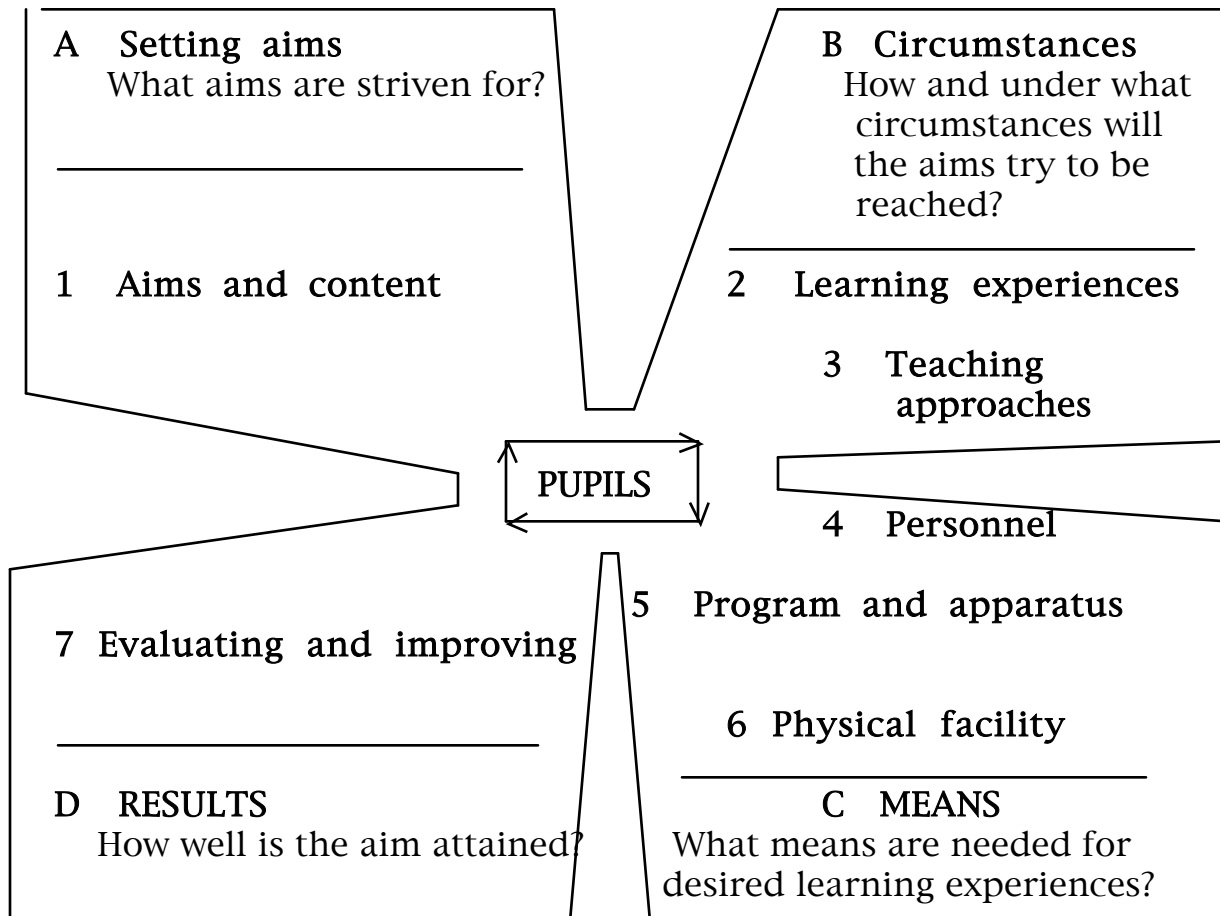
3.1 Introduction

The truly meaningful integration of media into instructing occurs with a whole complex set of theories that cannot be dealt with here. In addition, a number of practical considerations (see section 5) and also knowledge of media selection (see section 4) hold.

One of the most general theoretical points of departure is that choice of Teaching technology amounts to a systems approach to teaching (See among others Chapman and Unwin, 1969, p 9; Filep, 1975, p 14; Grayson, 1975, p 131; Hinst, 1971, p 39; Hitchens, 1973, p 3). Grayson (1976, p 121) briefly sums this up as follows: "Educational technology, therefore, is currently viewed as a total systems approach to education, incorporating hardware, course materials, and instructional and management techniques." A few approaches to integrating media with instructing follow.

3.2 Systems approach in Teaching technology according to Brown, Lewis and Harclroad (1977, p 5)

Figure 2



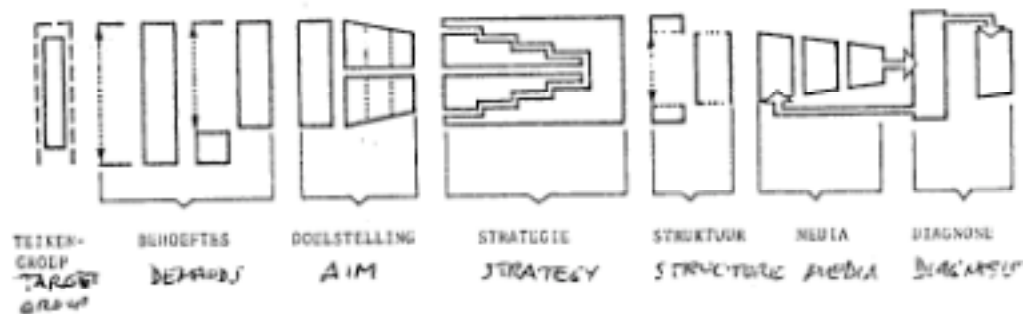
3.3 Systems approach in Teaching technology according to Cavert (1974, pp 8-9)

Figure 3

3.3 Systems approach in Teaching technology according to Cavert (1974, pp 8-9)

Figure 3

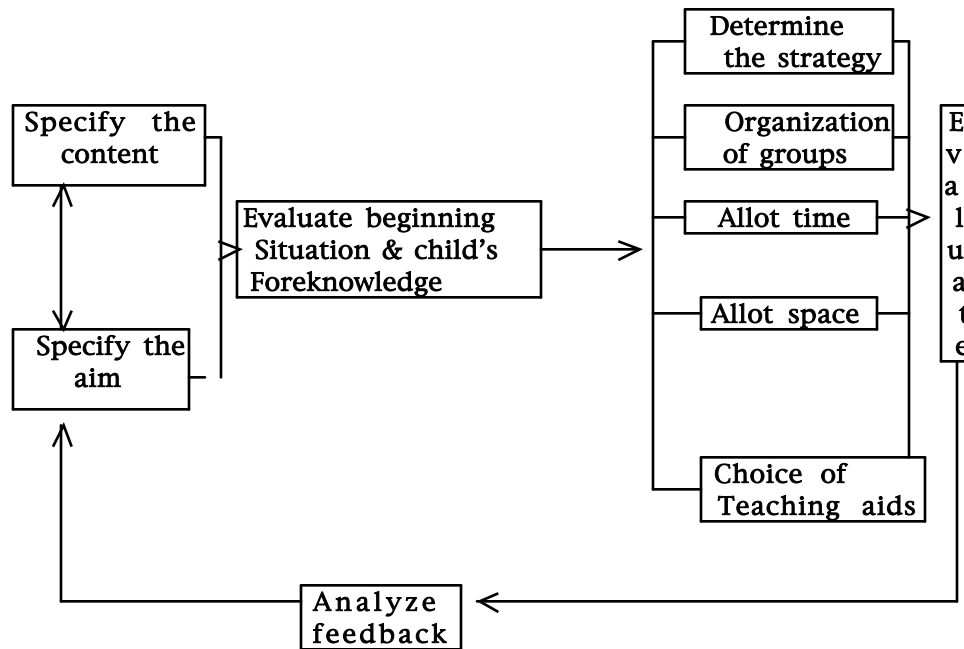
Figuur 3: SISTEMATIESE BENADERING IN ONDERWYSTECHNOLOGIE
VOLGENS CAVERT (1974: 8, 9)
SYSTEMATIC APPROACH IN TEACHING TECHNOLOGY
ACCORDING TO CAVERT



3.4 The elements of a systematic course of teaching according to Gerlach and Ely (1971, p 29)

Figure 4

THE ELEMENTS OF A SYSTEMATIC COURSE OF TEACHING



3.5 Summary

In all three of the mentioned cases media are only one of the components of a total system. They do not function merely as aids but are integrated into the lesson structure. The media that are going to be used in a particular lesson will be determined by the aims, the teaching strategies, etc. Thus, media only are able to be integrated into a particular lesson if that lesson is systematically planned according to the three mentioned systems or other similar ones.

Now, however, the problem is if all of the above is noted, how does one select the most suitable media for a particular aim?

4. SELECTING MEDIA

Authors such as Fourie (1975), Anderson (1976) and Romiszowski (1974) have already contributed greatly to our knowledge of

selecting media. Since the entire problem of media selection is so comprehensive, only a few guidelines from Romiszowski will be discussed. The aim of this overview is mainly to indicate how media selection ought also to be a component of the lesson structure.

According to Romiszowski (1974, pp 56-58) the following factors influence the selection of media for a particular lesson:

1. Learning content;
2. type of learning task;
3. teaching strategies;
4. student/pupil characteristics;
5. practical limitations;
6. preferences of the docent/teacher.

The following two types of media characteristics have to be taken into account in media selection:

1. **Essential media characteristics.** It is these characteristics that will improve the **clarity** of the presentation;
2. **Optional media characteristics.** It is these characteristics that will improve the **quality** of the presentation.

The docent/teach should first reflect on what **essential media characteristics** should be brought up in a particular lesson and then give attention to the **optimal media characteristics** (See Romiszowski, 1974, pp 63-64).

Then a list of appropriate media should be compiled in terms of the essential media characteristics. Now eliminate the media that are impractical, unavailable or can't be used in the limited space. Romiszowski (1974, pp 71-76) gives a whole series of schemes for selecting different media such as visual, verbal, auditory media.

Then, there has to be a choice of the final combination of media for each phase of a particular lesson.

The meaningful integration of media into instructing implies an accountable selection of media and not merely a haphazard choice.

5. SOME PRECONDITIONS FOR INTEGRATING MEDIA AND INSTRUCTING

The following are only a few preconditions that arise when reflecting on integrating media and teaching.

5.1 The docent/teacher should have a positive attitude about the use of media in teaching.

5.2 Media are only one component of the lesson planning that now has to be interwoven with the other components.

5.3 The docent/teacher has to have knowledge of the possibilities and limitations of the various media.

5.4 The docent/teacher has to be skilled in using the media.

5.5 Teaching locations/classrooms must be equipped for media use.

5.6 Apparatuses and programs must be available.

5.7 A support service which among other things provides for apparatuses and programs, their repair and the production of programs is indispensable.

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