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The AVIVA model

*A competence-oriented approach
to teaching and learning*



With a foreword by John Hattie

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Foreword

My major claim in Visible Learning research is that achievement is maximised when teachers see learning through the eyes of the student and when students are taught to become their own teachers. The AVIVA model is an excellent example of how to put these ideas into action. It balances the involvement and direction of the teacher with the opportunities for students to explore, see errors as opportunities for learning and learn to think as teachers. Students learn to know what to do when they do not know what to do.

The model notes the many interpretations of ‘learning’ and specifically asks teachers to consider the cognitive and other strategies needed by students in any lesson, to distinguish between surface and deep strategies and mandates that teachers teach students various strategies alongside the content of the lesson. In our own work, we speak of “teachers are to DIIE for” (Diagnose, Intervene, Implement and Evaluate), and this is mirrored in the AVIVA model. Arriving and engaging highlight the importance of excellent *diagnosis* about what the student brings to the lesson in terms of prior skills, their will and their thrill (motivations) and how it is critical to activate prior knowledge. The critical decisions are to choose high probability *interventions* (informing), attend to the fidelity of *implementation* (processing) and apply skills in *evaluation* as to the impact on student learning. Yes, learning is hard work, requires perseverance and skills (in content, relating ideas and having various learning strategies such that if the first does not work they have alternative strategies) and requires skills to be accomplished alone and in groups with the teacher and with peers.

AVIVA is a way of thinking as well as a method of planning – and thus sits ‘above’ many teaching methods. These methods are used to illustrate this way of thinking throughout this book, inviting educators to focus more on their impact on students than on whether or not their methods are implemented (they may be well implemented but have little impact on learning!). Thus, the focus should be less on ‘how teachers teach’ and more on ‘the impact of their teaching’. We also need more ways of thinking about how students grow, such as understanding the students’ extent and use of various learning strategies, their skills of perseverance, as well as their ability to consolidate knowledge, relate ideas and transfer to near and far new problems and situations. I find it fascinating that many 5-year-olds can do this, but by the age of 8 too many children think their role is to come to

class and watch the teacher work. AVIVA turns this on its head and helps educators see their impact through the eyes of students and enables students to become their own teachers.

AVIVA is also a Hebrew name meaning youthful, so there is much more to come as this model is implemented, grows in its evidence base and refines and enhances its reach. This book is a wonderful start for educators to learn more about the model, to see beyond the methods and to impact in worthwhile ways on the learning lives of students.

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About the book

The AVIVA model of teaching and learning was first presented in a book by Christoph Städeli and his colleagues, published in German in 2010 (Städeli, Grassi, Rhiner, & Obrist, 2010). Since then, the model has received considerable attention from those involved in the field of teacher education and training in Switzerland and other German-speaking countries. Interest has also grown in non-German speaking countries, particularly amongst teacher trainers, policy makers and other experts working in the field of vocational education and training (VET). It is for this reason that we decided to publish this book on AVIVA in English.

We used the original German version as the basis but complemented it with sections on three key topics that we developed for this volume. We also decided to stick to the model's name, "AVIVA", even though the terms which this acronym represents have been changed in the English translation of this book (cf. section 1.2.4).

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1 Introduction

1 Introduction

1.1 Competencies and resources

Today, curricula and teaching models tend to be oriented towards *competencies* that learners are expected to acquire during the course of their training or period of study. These include not just professional competencies but also competencies that applied beyond the professional sphere, including specific personal and social competencies.

Competencies usually apply to actual situations in both professional life and personal, day-to-day experiences. Competent behaviour is only possible in these situations if certain resources are available to the practitioner – specific *knowledge sets*, *skills* and *attitudes*. These resources – some of which are acquired prior to training, but most of which are developed through formal education and training programmes – constitute the basic tools required to master challenging situations.

An example can best illustrate how to imagine the interplay of resources: Consider a hairdresser advising a customer who is wondering whether to have her hair dyed or not:

First, attitude plays a role. It is essential that the hairdresser is interested in providing the customer with the best possible advice and meeting their wishes. At the same time, she also has to develop sound business acumen and be interested in selling services. But, let's stay first with the advising: the hairdresser needs a degree of empathy and intuition; she must feel whether the customer wants to dye her hair fully or whether she wants to leave a few strands of hair white. She must thus put aside her own preferences in favour of those of the customer. She must take responsibility and inform the customer honestly about the consequences of changing her hair colour chemically.

In the end, her responsibilities also include choosing the right means for executing the task and carrying it out correctly and carefully. Thus, her knowledge and skills come into play.

The hairdresser must first know the most varied materials and procedures for colour changes; she must show the customer the possibilities and limits and choose the right material based on their wishes (knowledge).

In order to be able to correctly use the product, the hairdresser must understand the application procedure. She must know the consequences of not adhering to the recommended exposure time but must likewise understand that there are different application techniques for different situations. Therefore, she must consider the actual situation.

Once the hairdresser has decided on an application technique and a product, her skills come into play. When mixing the colour, she considers the exact instructions for use and follows them carefully and correctly. In the end, again, attitudes play a core role when she assumes responsibility for careful execution and adheres to the application time.

1.1.1 Our understanding of competency

Just as in the example above, in this book we use the term *competency* to refer to a given capacity to *activate* certain *resources* – that is, *knowledge*, *skills* and *attitudes* – with respect to a particular practice and to *combine* these resources with one another in a *creative* and *functional way* in order to master *concrete situations* (cf. Figure 1 and Ghisla, Bausch, & Boldrini, 2008, p. 441). We concentrate in particular here on the domain of schools, but note that what is transmitted and learned in school is just one part of the broader process of developing competencies. Conversely, it is very important that the knowledge, skills and attitudes that learners acquire outside school are embedded, used and reflected upon in the classroom. Teaching should always be linked to the experiences of the learners in the best, most productive sense.

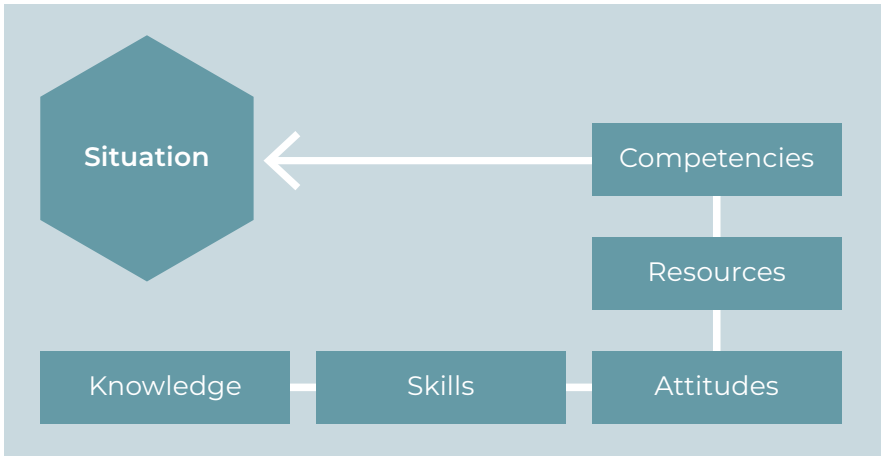


Figure 1 The competencies-resources model

1.1.2 Knowledge, skills, attitudes

A few general notes on the three types of resources

Knowledge: Knowledge can take different forms (cf. e.g. Brühwiler, Holenstein, Affolter, Biedermann, & Oser, 2017, p. 211). One form can usually be conveyed in statements and is therefore referred to as *declarative* knowledge. Learners must, for example, know technical terms, understand their meaning and be able to comprehend and name relationships between them. This type of knowledge, however, is not limited to factual contents. Declarative knowledge is also important in techniques for working and learning: learners gain knowledge about possible procedures and workflows. But even that, of course, is not enough. They also need the “know-how” to *carry out* that action using specific techniques, which we call *procedural* knowledge (cf. Euler & Hahn, 2007, p. 109). And furthermore, they need to know when and under what conditions they can use certain working and learning techniques to gain an advantage. Such expert knowledge, adapted to a concrete situation, is referred to as *conditional* knowledge. Finally, there is also what we call *meta-knowledge*: this includes the knowledge that a learner has about themselves (e.g. learning habits, personal repertoire of learning strategies), about the learning situation (Metzger, 2001, p. 43) and about specific tasks and various types of tasks (Büchel & Büchel, 2010, pp. 33–38).

Skills: Secondly, learners need to be able to apply their knowledge in certain situations. For this they need specific skills, i.e. an observable ability to perform a learned psychomotor action, which, in many cases, is specifically developed through repetitive training (in the form of learning and working techniques), such that over time it becomes second nature.

Attitudes: Thirdly, the values and norms a person holds are important, as they substantially influence *behaviours*. Responsibility, empathy, tolerance and interest in the environment are important attitudes of a competent practitioner.

Based on these definitions of “resources”, we propose the following principles for our book:

1. If a competent practitioner requires the ability to mobilise resources, then these resources must already be to hand, and the function of the school is to develop and systematise them.
2. Competence is always situational – and every situation is different. However, situations can also be typified and simulated, which is a central assumption of school education.

1.2 Core elements of the AVIVA model

The design of the lesson has a substantial influence on the way in which learning goes on in schools. If the teacher *always* controls every single activity in the classroom, learners will never be allowed to manage their own learning. Equally, if the teacher entrusts learners with the responsibility of defining the contents and methods of their own learning process, it is unlikely that the learners will acquire the requisite knowledge and skills, as they will not know how they should proceed in certain situations. Therefore, it is essential to strike a good balance between control and instruction by the teacher, on the one hand, and elements of self-regulated learning by the learners, on the other, according to a clear roadmap of the phases the lesson has to go through. It is this phase model that has given AVIVA its name. To better understand this model, we must consider some further essential elements:

1.2.1 Three-layer model of learning

Learning – be it in school or elsewhere – is a complex process, the important aspects of which (cf. Reinmann-Rothmeier & Mandl, 2006; Reusser & Reusser-Weyeneth, 1994) must always be taken into consideration in the lesson:

1. Learning is an active process. Learners must develop the motivation to learn, with regard to both the specific subject matter they are dealing with and to the general activity of learning.
2. Learning is a self-directed process. Learners use their initiative to control and monitor the process of learning (to varying degrees according to the type of lesson). Learning without some degree of self-direction is inconceivable.
3. Learning is a constructive process and always builds on existing resources. Without a corresponding background of experience and knowledge, and without the learners' own strong contribution to this process of construction, there will not be sustained cognitive engagement.
4. Learning is a situational process that always takes place in specific contexts. Situations provide concrete learning experiences and deliver an interpretative basis for the evaluation of resources.
5. In learning, emotional processes are of great importance. Performance-related and social emotions have a great impact on motivation and competence.
6. Last but not least, learning is also a social process. Learning frequently takes place in a context of social interaction – peers, contemporaries and fellow learners play a role alongside teachers and trainers.

In addition, learning requires the deployment of various strategies: not just cognitive and meta cognitive strategies but of course also motivational strategies. We use the term *strategies* very deliberately; strategies have to do with complex ways of thinking and working and are therefore more than mere “techniques”. Strategies are employed with intention and clear aims; they are monitored as to their effectiveness and are adjusted as necessary. The three strategy components are positioned in layers (cf. Figure 2).



Figure 2 The three-layer model of learning

Cognitive strategies form the core: by *cognitive* strategies we mean all those processes that are directly related to the acquisition, processing and storage of information. We differentiate between *surface strategies* – oriented mainly towards the reproduction of knowledge (a more cumbersome learning process, involving reading a text several times and memorising the content, etc.) – and *deep strategies*, which are used to really understand the content, separate the important from the unimportant and discover connections.

If learners are interested in the content and are able to connect what is being taught with their own experience, then they are likely to go beyond surface level learning and “get right to the heart of the matter” using deep strategies.

With *metacognitive* strategies, learners control the learning process themselves. For example, they formulate goals, independently create a structure, recognise possible obstacles in carrying out the work and assess what is necessary in order to work as economically as possible.

Key to successful learning is the outer layer – *motivation*. By this we mean the readiness of learners to find their own way without giving up in difficult situations. The learners’ level of motivation depends, among other things, on whether they can set realistic goals for themselves, positively influence

their own mood, arouse and maintain their own interest in topics and create a sense of achievement for themselves (Metzger, 2017). Motivation is the will to intensively and persistently engage with an object in a concrete learning situation (cf. Wild, Hofer, & Pekrun, 2006). In the lesson, the need for self-efficacy, autonomy and social unity (sense of belonging, well-being, security and support) is particularly effective. That such needs are satisfied in the lesson is the basic requirement for a productive and meaningful learning experience (Messner, Niggli, & Reusser, 2009).

1.2.2 The external and the internal sides of teaching and learning

Each lesson has an external and an internal side. The *external side* is the visible side, where the organisational and social forms of the teaching process are designed according to a specific method. The external side shows how the lesson is structured and how it achieves a rhythm (cf. Figure 3, circle 1). The internal side refers to the activities of the learners in terms of asking questions, combining contents, goals and procedures and building and applying resources to reach the specified goal; in brief: active learning processes (cf. Figure 3, circle 2). With each method, the learners develop strategies (complex procedures devised to solve a task or process a problem (cf. Wild et al., 2006, p. 245) to help master comparable situations in the future.

The choice of method plays a decisive role in the AVIVA model. Figure 3 shows this with respect to the methods in circle 1. The choice of method is very closely tied to the given content, since you cannot teach about nothing (Terhart, 2009). In other words: form is inherently connected to function.

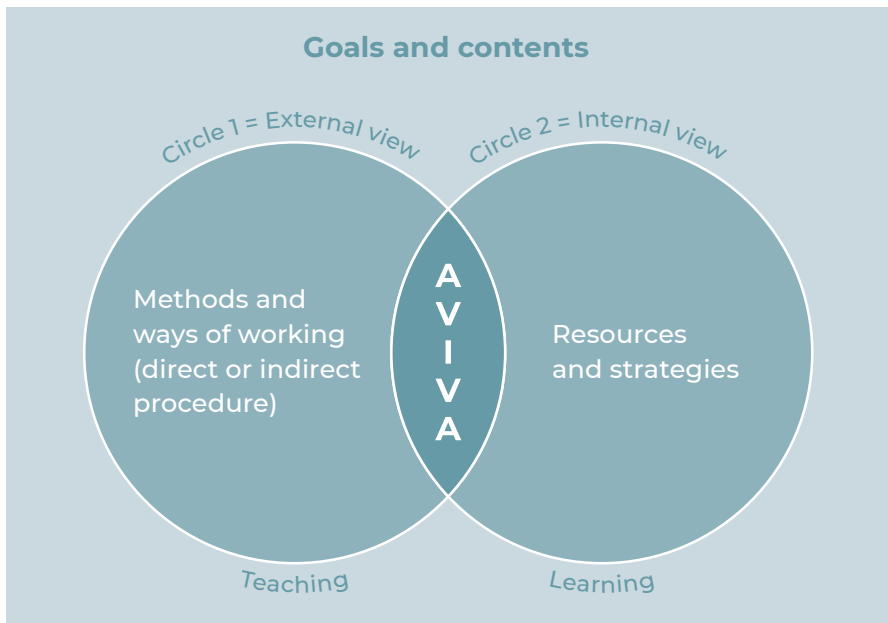


Figure 3 The external and the internal side of teaching and learning

1.2.3 Direct versus indirect procedures

With the *direct* procedure, it is the teacher who specifies the resources required to act in a given situation. Figuratively speaking, the puzzle pieces are presented to the learner one by one, and the teacher shows how the pieces can be fitted together – how they can deploy certain knowledge and skills in order to master the situation. In such settings, the combination of instruction and imitation is an important methodological approach. With the help of teaching aids about “learning to learn”, or concrete work instructions, the learners gain insights into various procedures and purposefully develop key resources. Over time, a whole is created from the individual pieces. Thus, with initial guidance from the teacher, learners gradually arrive in a position where they can approach and master a given situation themselves. Such a step-based, teacher-directed approach makes sense if learners have few resources, or if the training situation requires the use of very specific resources, e.g. for a specific occupation.

With the *indirect* procedure, the learners are confronted with a complex situation. They independently attempt to analyse the situation with the available resources and to find out how a problem can be solved. Based on this analysis, they determine which resources in the domains of “Knowledge”, “Skills” and “Attitudes” must be acquired or honed. Following this initial analysis of the problem, the learners work in teams to determine subsequent steps. Thus, the indirect procedure requires learners to envisage the whole picture from the beginning, associating each subsequent step with the problem to be solved, attempting to master it through their own ingenuity, without methodological guidance from the teacher. Of course, “direct” and “indirect” procedures are not two distinct approaches but rather ends of a spectrum. Moreover, both of these approaches can be modified/supplemented with isolated, embedded or combined training of specific learning techniques and working strategies (Dubs, 2009, p. 261). Isolated training means independent lesson units are employed to support the development of certain techniques and strategies; embedded competency training is based on a curriculum that specifies which competencies are associated with which given content or performance goals. Of course, these various types of training can be combined in the design of actual lessons.

	ADVANTAGES	DISADVANTAGES
Direct procedure	<ul style="list-style-type: none"> - The teacher can show directly how the individual resources can be combined. - Individual resources can be organised consciously and deliberately. - The teacher can provide specific feedback, especially in the first applications of a strategy. 	<ul style="list-style-type: none"> - Learners may use the given resources schematically or mechanically, without having to refer to their individual prior knowledge. - Learners who already have a bundle of well-functioning resources may become unsettled or even bored whilst using the new, explicit resources.
Indirect procedure	<ul style="list-style-type: none"> - Thanks to an in-depth study of the problem, the learners themselves recognise which resources they still need to develop or expand. 	<ul style="list-style-type: none"> - If learners have little prior knowledge, they can only mobilise a few resources.

Table 1 Important advantages and disadvantages of the direct and indirect procedures (according to Dubs, 2009, p. 262)

When is each procedure applicable? In a class of learners who have little prior knowledge, teachers will start with the direct procedure, but always with the aim of transitioning to the indirect procedure as soon as the learners are prepared and motivated for it. The attitude of the teacher is important here. Learners are readier to engage in the purposeful development of competencies when the teacher presents sensible tasks and problems and carefully guides them in this process. In addition, motivational factors determine whether learners are ready to adjust their learning and working habits (see the explanations on page 15).

1.2.4 AVIVA – Five phases of teaching

In Table 2, five elementary phases of the lesson are sketched. Learning requires first of all a certain basic mood, the readiness to engage oneself with new things (“arriving and engaging”). Actual learning (“informing”) starts with what is already available (“activating prior knowledge”) and builds on this. So that the new material can be absorbed (“processing”), there must be an opportunity to use it in practice. The learner is accountable for the path they choose and must take stock of the situation (“evaluation”) before taking the next step.

It is important that school lessons are deliberately constructed around these phases, so that the learning process (whether direct or indirect) is coherent and complete in terms of content and methodology.

These five phases form a base structure for each lesson, and they must be clearly recognisable for both the direct and the indirect procedure. As noted above, the indirect procedure requires learners to work in a self-directed manner; for the direct procedure, the impetus and initiative come primarily from the teacher, who instructs learners how to proceed.

For each phase, the teacher’s lesson preparation will involve choosing suitable methods by which learners can develop the content. We call the interplay of phases and methods the “choreography” of the lesson (Oser & Baeriswyl, 2001). Whilst the learning pathway (phases) is stipulated, the methods are more or less freely selectable (Städli & Caduff, 2019), although not every method is equally suitable for each phase.

PHASES		DIRECT PROCEDURE	INDIRECT PROCEDURE
A	Arriving and engaging In German “A” for “Ankommen”	The learning goals and programme are made known.	The situation and the problem are presented, while the learners determine goals and procedures largely by themselves.
V	Activating prior knowledge In German “V” for “Vorwissen aktivieren”	Learners activate their prior knowledge under the guidance and structure provided by the teacher.	Learners activate their prior knowledge independently.
I	Informing In German “I” for “Informieren”	Resources are developed or expanded jointly; the teacher shows the way.	Learners determine for themselves which resources they still need to acquire and how to proceed.
V	Processing In German “V” for “Vertiefen”	Learners actively handle the given resources: processing, deepening and consolidating them.	Learners actively handle the newly acquired resources: processing, deepening, applying and consolidating them.
A	Evaluating In German “A” for “Auswerten”	Goals, procedures and learning outcomes are reviewed.	Goals, procedures and learning outcomes are reviewed.

Table 2 The AVIVA learning phases

1.2.5 AVIVA – Three advantages

The AVIVA model is not exactly new; however, it brings to the fore the essential elements of a well-structured lesson. For each phase of a lesson, AVIVA identifies exactly which resources teachers can aim to develop, and with which methods. The advantages for all involved are evident:

1. The AVIVA model is a means of analysis and at the same time an orientation grid. It shows us which resources can be meaningfully developed in which phase, with which methods. Thus, resources and competencies are not developed at random; both are directly connected to the contents (determined by each phase) and the way in which the contents are transmitted (determined by the chosen methods/ways of working).
2. AVIVA is at the same time a coordination instrument. A lesson which is planned and carried out using this model can also be observed and described from outside. Precise criteria make it possible for all those involved to analyse the lesson and try to optimise it. Particularly when implementing curricula/syllabi/training plans in VET programmes that involve both schools and companies, precision and systematicity are valuable for facilitating the coordination of education and training modules that take place across the different learning locations.
3. The AVIVA model, ultimately, supports self-directed learning. If the teacher explains the AVIVA model to the learners, they will be better at purposefully developing specific resources and increasingly take control of their own learning.

School learning can easily be structured around these five AVIVA phases, such that the learning process is completed (in terms of content and methodology) independently of whether a teacher chooses the direct or the indirect procedure. To systematically prepare and structure the lessons requires, as Hattie and Zierer (2018) put it, hard work and perseverance, and “one of the most important challenges for teachers consists in not just adopting this attitude to the learning process but also transmitting it to the learners. It is the basis for life-long learning, for an education that lasts for a lifetime.” They furthermore argue that the way to implement this behaviour is through a sensible didactically-oriented articulation of the lesson (p. 67), as is described in the AVIVA model.