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[PREFACE]

This training handbook inaugurates a series dedicated to self-regulated learning for school students. Volume one, the result of which you are holding in your hand or see before you on your screen, opens the series with an introduction to self-regulated learning. The last twenty years have witnessed a growing recognition of the importance of self-regulated learning for children's academic outcomes. In 2008, for example, the Melbourne Declaration on Educational Goals for Young Australians (MCEETYA, 2008) specified the skills that would be needed by learners in the twenty-first century. These skills form the basis of the general capabilities that complement the curriculum content of the learning areas in the Australian National Curriculum (ACARA, 2012a). The seven general capabilities include the following: Literacy; Numeracy; Information and Communication Technology (ICT) capability; Critical and creative thinking; Personal and social capability; Ethical behaviour; and Intercultural understanding (ACARA, 2012a). The Australian Curriculum Specific Learning Area documents have each been written to explicitly embed each of these capabilities and signal to teachers some of the ways they can be developed in student learning.

Self-regulated learning sits squarely within the 'Personal and Social Capability' and should be embedded across all learning areas, although ACARA (2012) has identified that this capability aligns most closely with the content of the Health and Physical Education and the English learning areas. For example, in the English Curriculum, attention is drawn to the role of language in developing this capability: "Using English to develop communication skills and self-expression assists students' personal and social development as they become effective communicators able to articulate their own opinions and beliefs and to interact and collaborate with others" (ACARA, 2012b).

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The personal and social capability is fundamental to all learning areas in the Australian Curriculum. ACARA (2012a, pp. 68–69) has depicted this capability as being composed of four organising elements, namely self-awareness, self-management, social awareness and self-management. The focus of this book on self-regulated learning reflects the elements of self-awareness and self-management. Self-awareness entails an understanding of one's emotions, abilities, attributes, values, motivations and so on. ACARA (2012a) summarises its components as follows:

- recognition of emotions
- self-knowledge
- self-perception
- self-worth
- reflective practice. (p. 68)

Self-management, as the term suggests, builds on self-awareness and entails control of one's emotions and actions. Persistence, resilience, goal-directedness and taking responsibility for one's learning, are just some of the characteristics involved in self-management or self-regulation. ACARA (2012a) summarises its components as follows:

- appropriate expression of emotions
- self-discipline
- goal setting and tracking
- working independently and showing initiative
- confidence, resilience and adaptability. (p. 69)

We examine these ideas in more depth in the first chapter of this book. To develop these ideas in practical terms, we then start with an example taken from so-called ecological learning strategies. The book aims at improving students' homework and studying efficiency. The target audience consists of students in around year four or the middle years of their primary schooling (not counting preschool/kindergarten); the subject focused on in the training program is the mathematics subject matter traditionally taught during this period of school in many Western countries.

The training program can be carried out both by teachers during instruction or by parents at home. It is also appropriate for younger children in gifted education as well as for children in year five and, in some cases, also children in year six with remedial mathematical needs. In the latter case, it is important to make sure that the work on each of the identified learning deficits is evenly spread across the training unit.

The State-wide Advisory and Research Council on Giftedness at Ulm University originally administered the training program. The program was developed at Ulm University according to preliminary work completed

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by Zimmerman, Bonner and Kovach (1996). The efficacy of the training program has been systematically tested by research studies involving more than one thousand participants, and the results have been presented at international conferences and in scholarly journals.

A project of these dimensions reflects the contributions of numerous individuals. We express our gratitude to our colleagues around the world for an enriching exchange of ideas: Dr Markus Dresel and Dr Monika Finsterwald (Ulm University), Prof. Brian Zimmerman (New York State University), Prof. Judy Lupart (University of Alberta), Prof. Marion Porath (University of British Columbia), Prof. Jiannong Shi (Academy of Sciences, China), Prof. Maria McCann (Flinders University, Australia) and Dr Brigitte Thewalt (State-wide Advisory and Research Council on Giftedness, Ulm).

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– Albert Ziegler, Heidrun Stoeger and Wilma Vialle



[INTRODUCTION]

Scholars of communication science have estimated that a single Sunday edition of the *New York Times* contains more information than a person living in the sixteenth century would collect in the course of their life. And yet this considerable amount of information is only a small fraction of what an individual living in our modern information-based society needs to learn.

The demands of knowledge acquisition placed upon individuals by contemporary societies render traditional approaches to studying and learning inadequate. The same applies to schools as an institution. Individually, schools are also no longer capable of ensuring a successful process of knowledge transfer. Schools increasingly depend on the cooperation of their learners in three respects. First, when instructional materials are made more challenging, they set the bar higher for the amount of active learning behaviour required of each student. Research confirms that a passive approach to knowledge acquisition tends to prevent successful individual learning (Edelmann, 2000). Our everyday experiences suggest as much. Anyone who has experienced being both a driver and a passenger in a car should have an inkling of this: the passenger often has trouble recalling the directions from one place to another, but once one has actually driven a route from behind the steering wheel, remembering the route becomes easier.

Second, additionally a considerable amount of learning happens outside of school, such as when learners are doing homework and studying for tests. Whereas classroom instruction has been increasingly professionalised in recent years, only comparatively few attempts have been made to teach students to be more independent and efficient when studying and doing homework.

“ Just as managers need special training and experiences to prepare them for effectively heading a company, learners need to be prepared for effective studying and learning. ”

Third, as the amount of mandatory subject matter often requires more study time than is available when school is in session, independent learning at home becomes essential. An individual learning career reaches far beyond the hours of mandatory classroom instruction. Calls for lifelong learning are based on the realisation that, in modern societies, knowledge often quickly becomes out-dated as new ideas continuously come to the fore and supersede older ones. Children who are entering school as you read this will still need to learn things fifty years from now in 2063. Examples abound of what this all means. One need only think of the fact that, fifty years ago, milestones such as humans visiting the moon, heart transplants and laptop computers were only the dreams of a few brave science-fiction authors.

1.1 Learners as Personal CEOs of Learning

A consensus exists within educational psychology and within classroom research that the learning that children do in school needs to help prepare them for the modern knowledge-based societies in which they live. Learners must be taught how to learn. In other words, individuals need to be educated in a manner that enables them to deal effectively with the ever-increasing amount of data produced within their societies. They need to be able to creatively process, organise and retain information as well as apply synthesised information in a learning-goal-oriented manner. Traditional forms of learning and studying are no longer adequate for achieving this sort of educational outcome. During the past twenty years, considerable effort has been invested in exploring new approaches to learning. The results of these efforts leave no doubt about the necessity of a radical revision of the way we think about learning. A currently popular newer conceptualisation of learning can be summed up with the metaphor of learners as the managers of their own learning. The vision is one of a learner who takes responsibility for their learning, is well informed about what this entails and interested in optimising their own learning skills.

The behaviour of learners who accept more responsibility for their own “learning enterprise” resembles that of a high-level executive who shoulders responsibility for an entire company. Such learners are no longer passive recipients of instructions. Instead they make crucial strategic decisions themselves, such as determining the goals they will pursue when learning or the learning strategies they will use. They need a profound understanding of the nature of their own learning enterprise – just as the CEO of a company knows what is going on in the company they run. These learners know, for instance, where their strengths lie and where they still have knowledge deficits. Just as the manager of a company refuses to be satisfied with the status quo and is always working to optimise operations, learners need to do the same within their learning enterprise. For instance, CEO-like learners work to perfect their learning strategies and remain open to new methods of learning. Finally,

corporate leaders recommend themselves for leadership positions with their exceptional capabilities. Without these, others would not be willing to entrust them with the responsibility of running a large business. In an analogous sense, we should ask which competencies learners must possess to be able to assume responsibility for their own learning enterprise. Just as managers need special training and experiences to prepare them for effectively heading a company, learners need to be prepared for effective studying and learning.

1.2 Program Goals

This book presents a program focused on teaching young people how to study and learn. The program's central element is teaching individuals how to be effective at self-regulated learning. In this context, learning strategies and mathematics subject matter appropriate to mid-primary classes will be introduced. Furthermore, the program is designed to effect positive long-term changes in the areas of motivation and self-confidence. The program's ability to achieve these effects has been documented by accompanying studies conducted according to rigorous standards of scientific inquiry.

We use the term self-regulated to describe this sort of learning because the training program shows each learner how to assess a number of factors essential to understanding one's own learning processes. First, the program helps individual learners to grasp what they already know and to understand just how they are actually learning things. Second, they will learn to independently identify and set learning goals. Third, they learn to plan the use of learning strategies in order to attain the goals they have set. Fourth, they will implement these learning strategies. Fifth, they will monitor the success of their strategic learning efforts. Sixth, they will be instructed on how to adapt and correct the implementation of their plans. Seventh and finally, participants will evaluate the outcome of their learning efforts and think about the relationship between this outcome and the way they learned. At this point learners will have been introduced to the complete cycle of self-regulated learning. Then they will work through the entire process anew: they will, again, assess their current level of understanding and set an appropriate learning goal. Each progression through the steps of the learning cycle not only affords participants a chance to acquire new knowledge about a classic area of scholastic learning; it also makes a substantial contribution to improving their learning competency.

This book systematically introduces learning strategies from the field of learning ecology. Such strategies are an essential part of successful home learning behaviours. Learning ecology negotiates issues such as distractions and homework time management. Three reasons justify beginning with these learning strategies. First, their use can be practised

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independently and, unlike other learning strategies, their introduction does not require a special phase of implementation. If one is introducing the learning strategy of “underlining the central ideas within a text”, for instance, it is necessary to monitor whether or not the learners have actually identified central ideas. Second, learning at home is an individual process and is thus well suited to learning how to learn independently. Third, the ideal point in time for implementing this training program is mid-primary school because at this time, children should be doing most of their homework and learning on their own. Further, as children continue through their schooling, it is expected they would complete more independent study at home.

The training program’s subject matter repeats the mathematics content taught during year four of primary school in German schools. The content may be taught in later year levels in other countries around the world. Longitudinal studies conducted in the states of Baden-Wuerttemberg and Bavaria indicate that the training program presented here is more efficacious than normal instruction for achieving the stated goals. Thus the program recommends itself not only for private use by parents as a supplemental measure of support but also for use by teachers during classroom instruction.

Evidence confirms that the training regimen also makes a contribution to improving various personality characteristics. In its original form the program aimed to achieve improvements in learning encouragement and support as well as improvements in self-confidence and motivation. However, various other positive effects have been attributed to the training program, such as a reduction of test anxiety, an increase in levels of success expectations and a reduction of feelings of helplessness with regard to scholastic demands.

1.3 A Lifelong Training Program

Learning and its optimisation are open-ended processes. Our learning is never completed. It is no longer acceptable to speak of “having learned everything”. The same holds for learning about self-regulated learning. Our training regimen can only be the beginning of a lifelong process of self-regulated learning. The very act of self-regulated learning needs to be permanently practised, and for this reason educators need to be mindful that students continue to apply the strategic approach they discover in this training program after its conclusion. Experience shows that students will do so of their own volition for a limited amount of time. Support and encouragement from parents and teachers will greatly increase the likelihood that students will succeed at securing these skills within their repertoire of permanently available learning strategies.

Two simple ways of supporting this process should be mentioned. First, the weekly “Self-Evaluation Worksheet”, which is provided in the instructional materials section (see p. 87), is designed for students to fill out without supervision. It should be noted, however, that a student’s repertoire of learning strategies should be gradually expanded. Besides strategies pertaining to learning ecology, other strategies such as those designed to improve reading comprehension or exam preparation should also be practised in a self-regulated fashion. Second, parents and teachers can discuss the individual steps of the cycle of self-regulated learning with their children. If parents are guiding their children through the training program, any other subject can replace the maths subject matter.

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