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Learning in Times of Crisis
EoL – developed for Caritas Switzerland

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Essence of Learning – Learning support in crisis contexts

A practical approach to education in emergencies

Imprint

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Foreword

Fig. 2

Beatrice Rutishauser Ramm

I have worked with children growing up in the context of social or humanitarian crisis for over 15 years. During this time, I have constantly been amazed by the resilience and adaptability demonstrated by these children. However, I have also realized that traumatic experiences result in factors which impede their learning and restrict their natural development and learning behavior. But what is the best way to provide a child with support in a situation such as this? How can children learn when they are basically attempting to avoid memories in order to prevent themselves from being thrown back to a past rife with negative imagery? How can children be prepared for school, when traumatic experiences lead to chronic psychosocial disorders and a severely limited ability to learn and absorb information?

In my work, I have noticed that many children in crisis regions tend to temporarily revert to an earlier childhood "developmental / learning stage" — a stage which, according to their age, they should have already completed. At the same time, local teachers and parents repeatedly report on the difficulties many children face in dealing with what is being taught in school in an age-appropriate manner and controlling their emotions as well as their body.

These practical observations, in combination with basic theoretical principles on the developmental steps of children and my long-standing practical experience as a trained Rudolf Steiner teacher, have led me to the hypothesis that, after deeply traumatizing events, children need to receive the opportunity to "repeat" previously completed developmental steps in a stress-free manner so that they can reacquire their original learning abilities.

I have conducted more in-depth testing of this hypothesis among different age groups in various countries affected by crisis, such as Kosovo, Chechnya, Moldova, Romania, and Gaza. During the course of my investigation, I noticed that the emotional and cognitive development of the children was faltering due to their special life circumstances and experiences, and that their learning capacity was limited, even when their physical development was appropriate for their age. With each new pedagogical assignment in a crisis context, the clues pointed increasingly toward the fact that the aforementioned findings constituted an extremely valuable basis for successful pedagogical work in the context of crises. The aim of this work is to capitalize on the children's positive resources and make it possible for them to utilize the resilience they have already built by means of positive coping strategies for learning and living. A didactic approach which we call "Essence of Learning" (EoL) emerged based on these observations. This approach provides teachers with a flexible instrument which they can use to help children overcome their learning hurdles by means of short, practical training units.

Over the years, the EoL approach has been implemented and its effectiveness assessed in numerous projects. The pool of slightly different tools, schemes, and documentation on EoL which had been generated as a result of the repeated adaptation of the approach to the various contexts needed to be reviewed and consolidated, so that the effectiveness of EoL could be made accessible to a broader community. This practical manual was chosen as a presentation format, so that it can be utilized for the emergency education approach in crisis regions and situations after training has been received.

The development of the approach would not have been possible without the support and involvement of many people. First, I would like to thank the children I have been able to work with over the past 15 years. They allowed me to obtain a deeper glimpse into their living environment and provided me with important clues for my practical research through their comments and schoolwork. Their openness and trust encouraged me in my mission. I received an equally generous amount of support from many local teachers who have implemented the approach with a great deal of interest and enthusiasm in practical contexts. I am also grateful for the great amount of trust from Caritas, in particular Peter Staudacher, Patrick Koop, Berry Kralj, Salome Stäuble and Nicole Stolz, who provided me with unwavering support in my work with children affected by crises. In addition, I would like to thank Erika Masina who continued the educational work in Kosovo and has proven that EoL builds a bridge to normalcy. The kindergartens now follow the specifications set by the state. Ultimately, it is thanks to her efforts that there is now a practical EoL training course for graduates licensed by the Kosovo Ministry of Education. Prof. Dr. Wiltrud Weidinger from the Zurich University of Teacher Education was kind enough to offer to review this practical manual and provided a number of valuable notes. Peter Raab not only took care of the layout and proofreading but has always been available to me for active discussions. My heartfelt thanks to all of you!

A particular word of thanks also goes out to the Humanitarian Education Accelerator (HEA). Every year, three innovative projects for improving learning for children in crisis situations are chosen to receive funding from the HEA, an initiative of the British Government's Department for International Development (DFID), UNHCR, and UNICEF. In 2017, EoL was among the submitted projects that were chosen. This funding has helped to finance this publication and thereby make it accessible to other pedagogical circles.

Dear readers, I thank you for your interest in Essence of Learning and hope that this approach will also inspire you in your personal work.

Summer 2018, Beatrice Rutishauser Ramm

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Introduction

1 What is education in emergencies?

Education is a basic human right. The issue of education is particularly critical for millions of children and adolescents affected by conflicts and disasters. According to UNICEF, the education of 75 million children has been interrupted; over 17 million children have had to leave their homelands, and only half of those are attending primary school, and a quarter of them are attending secondary school (cf. unicef https://www.unicef.org/education/bege_70640.html, last accessed 1/1/2018).

It is precisely in situations such as these that students should not be denied the transformative effects of a high-quality education. The Inter-Agency Network for Education in Emergencies (INEE http://www.ineesite.org/en/minimum-standards) promotes learning opportunities for all age groups and has developed minimum standards, so that emergency education is able to live up to its potential. Emergency educational opportunities from the UN and non-governmental organizations are available from early childhood development to primary and secondary education to non-formal, technical, vocational, and higher education to adult education. In crisis situations, high-quality education provides psychosocial and cognitive protection which can preserve and save lives until normalization occurs. It safeguards dignity and is an important source of empowerment for both children and adults.

Educational institutions can save lives. In a crisis environment, they are often one of the few places that offer physical protection from dangers and exploitation. Participation in learning opportunities and institutions often also opens up a moratorium on other societal obligations and reduces risks such as forced marriage, recruitment in the armed forces or armed groups, and organized crime. Apart from this, education can also convey life-saving information for activating essential survival skills and coping mechanisms, for example, information on how to avoid land mines, protect oneself from sexual abuse, avoid HIV infection, and how to obtain access to healthcare and food.

Educational opportunities also alleviate the psychosocial effects of conflicts and disasters by providing a feeling of routine, stability, structure, and hope for the future. With the help of suitable problem-solving and coping strategies, students find it easier to make well-founded decisions which safeguard their own survival and assist them with taking care of themselves and others. The critical assessment of political messages or contradictory sources of information can, in certain cases, be highly useful to people.

Apart from educational opportunities, schools and other learning spaces also provide access to public services such as food, water, sanitation, and healthcare. In this sense they are safe, learning-friendly spaces which also help compensate for other crisis-induced deficits.

Lastly, in emergency education institutions, affected parties who require additional aid can also be identified and referred.

1.1 What is Essence of Learning (EoL)?

The “Essence of Learning” (EoL) approach is a specific approach to emergency education used by Caritas Switzerland. It is based on over 15 years of work and practical research by Beatrice Rutishauser Ramm, who is actively involved with Caritas Switzerland projects in various social and humanitarian crisis contexts in Europe and Asia.

In the context of social or humanitarian crises such as natural disasters, wars, violence, the sudden death of a relative, or separation from the family environment or a guardian, many children are exposed to shocking experiences which impact their development and learning abilities. Children are particularly vulnerable, as they are facing the challenge of such radical experiences in the midst of their development. If no suitable care and support is provided, there is the danger of a “lost generation” adopting negative coping strategies, such as dropping out of school or aggressive behavior.

The point of departure for the development of EoL was the observation that children’s learning abilities are often blocked in crisis contexts, and their behavior no longer corresponds to an age-appropriate developmental state.

The following typical characteristics of crisis-induced learning difficulties can be observed at various stages:

- The child’s expressiveness is severely limited, and may extend to the loss of speech.
- The child has completely forgotten what s/he has learned at school or is no longer able to recall material s/he previously learned.
- The child reverts to an earlier level of learning and displays learning behavior that does not correspond to his or her age.
- The child regresses developmentally in individual areas such as language or mathematics, while age-appropriate development is observed in other areas.
- The child’s developmental state is age-appropriate, but s/he is unable to take the next developmental step. His or her development has stagnated or is inhibited.

These observations have far-reaching consequences for learning success. Children with the aforementioned limitations are not able to keep up with the curriculum at a regular school which assumes an age-appropriate developmental status.

Therefore, working with affected children requires a special approach which is tailored to their current needs and which is able to individually support and further their learning. This is both the objective and the distinguishing feature of the EoL approach.

EoL

- Is tailored to educational work with children in regions affected by social and humanitarian crises.
- Caters to the developmental status of the child as well as the corresponding thinking abilities and crisis-induced behavioral changes without pathologizing them.
- Assists children in the elimination of learning difficulties by repeating previously completed learning steps and helping them (re)acquire their own learning abilities.
- Enables children to rejoin the official curriculum and reintegrate into a regular school.
- Reinforces children’s ability to exploit their own resilience and promotes early child development.
- Offers didactic methods to let children discover their own world of life in a sensual and playful way and to encourage them in their action-oriented self-activity. Among other things, EoL works with learning aids that are made from local recycled materials, which were created commonly as well as natural materials. The children use them independently.

1.2 When and where is EoL utilized?

EoL cannot permanently replace the regular school system, but it can supplement it. The method is either utilized by teachers during lessons in a supplementary fashion, or it is applied in the form of extra-curricular activities, thereby providing additional support. To a certain extent, EoL provides a bridge that connects general pedagogy to emergency education. Even when there is no explicit war or disaster situation, children constantly experience crises which affect their learning. EoL can also help these children to reintegrate into the regular school system.

1.3 How does EoL work?

EoL respects the official curriculum, but takes the individual developmental status of each child into account, so that his or her learning abilities can be reactivated.

The key to this is repeating learning and development steps which the children affected by crisis have completed previously. For this purpose, EoL utilizes a methodology which appeals to all of the child's senses. In this manner, old and new experiences can be (re) connected and the learning gap bridged. If this takes place in a reduced-stress environment and with an individually tailored learning pace, the age-appropriate developmental state and thereby reintegration into the learning requirements at a regular school can, in many cases, be (re)achieved in a relatively short period.

1.4 For which age ranges and developmental stages is EoL suitable?

EoL is suitable for children of all ages. In programs which have already been carried out, work has been done with preschoolers and schoolchildren up to 12 years of age. There has also been a preliminary application with refugee children up to 18 years of age in Switzerland. Experiences with early intervention demonstrate that EoL has a positive influence on the development of children during this stage of life.

The programs are carried out in mixed-age groups, whereby children of the same concurrent developmental stage are placed in the same group (approx. children from 1-4, 5-6, 7-9, 10-12 and 13-16 years of age). This age-relevant heterogeneity of the groups offers several advantages: For one, the children learn from each other, in that those who are already further along are able to act as role models for the others. For another, the mixture allows each child to complete the next developmental steps at his own pace. During this process, it can be observed that the repetition of previously completed developmental steps requires less time than the completion of entirely new ones. Participation in the EoL program is voluntary, and the opportunity should be available to all children, regardless of how deeply they have been affected.

1.5 How long does an EoL program last?

Depending on the crisis and school context, EoL may take different forms and last for various lengths of time. To date, the supporting lessons have been organized as intensive 10-week programs. Year-round learning support programs which are strongly oriented toward the official curriculum are often used for a supplementary approach.

1.6 Who can teach EoL?

Adults can be trained to become EoL teachers regardless of their educational background, as there is no unified, worldwide regulation of this. The teacher training takes place in the form of a compact four-day

training session. This is then reinforced with two additional “reflection on practice” modules, each lasting two days, which are to take place within the course of a year. What is important is that the teachers observe each other at work and learn from each other. The training is designed to accompany real-world practice and is oriented toward the respective context and living situation of the children and teachers. A more detailed description of this can be found in Section 17.

1.7 What is the goal of this practical manual?

Volume 2 is aimed at teachers who find themselves confronted with children affected by crisis, and the relevant accompanying problems, in their daily work. The EoL approach should be understood as a pedagogical concept which provides these children with a solution for overcoming difficulties and re-acquiring their learning abilities, thereby making it possible to integrate into a regular school routine. If regular school activities cannot be maintained under the given circumstances, EoL can also temporarily replace them over a longer period of time.

This volume provides practical suggestions and case studies. It is not possible to offer a tailor-made solution for every problem. However, once the underlying principle of EoL has been understood, the examples provided can easily be converted and applied to any situation and region with a little imagination and creativity.

This guide for teachers and other specialists will describe the key elements of EoL in detail, introduce work and learning materials for practical implementation, and present individual activities for promoting learning. Photographs showing examples of authentic situations in which EoL is applied will facilitate understanding and should help simplify adaptation and implementation.

Links for further references can also be found at the end of this volume.

Fig. 3: Child with burns in a hospital: Learning is combined with therapeutic activities

Fig. 4: A child walks through rubble on his way to school

Module: Initial situation and basics

The “Essence of Learning” (EoL) approach was developed in postwar and social crisis situations. During this process, it was determined that many children of all age groups displayed significant learning difficulties or even developmental deficits, to the extent that they were unable to return to a normal school routine without additional support. In order to overcome these learning difficulties and trigger the corresponding developmental steps, they require age-appropriate and crisis-sensitive stimuli. Caritas Switzerland has summed up this support in the form of the EoL approach.

It is based on basic principles of child development and pedagogy (see volume on “Pedagogical basics for professionals”) as well as elements of modern brain research and findings on the impact crises have on sensory perception in children. The learning opportunities are directly related to age-dependent brain development. At the same time, learning determines their ability to perceive and process the environment, their own body, themselves, and others by means of the senses and to further differentiate them through constant practice.

Therefore, these additional basic principles which EoL works with will be introduced in this module:

1. **Brain development and awareness of consequences**
2. **The senses and crisis-induced impairment of sensory perception**

2 Crisis situations and their impact on children, teachers, and parents

War and natural disasters are “humanitarian crises” that often lead to the collapse of the school system and trigger waves of refugees. Caritas Switzerland speaks of «social crises» in the case of the problems of marginalised groups, ethnic or religious minorities, but also in the case of extreme poverty, illness or imprisonment. Children who grow up in social crisis situations are often kept away from the school system or, for economic reasons, are unable to attend school or secondary school. Humanitarian crises almost always also trigger social crises, so that the consequences for those affected coincide.

2.1 Examples of crisis situations and their impact on:

Children:

- After natural disasters or in war situations, many children are no longer able to attend school due to severely damaged infrastructure. Classes are either completely canceled, or teaching is done “in shifts” with extremely large school classes. Overfilled classes and a poor teacher-to-student ratio make high-quality, child-centric educational approaches impossible.

- Children who need to work to support their families are unable to tap into their learning potential. They are physically and mentally exhausted.
- Children who are severely affected by poverty and those who belong to a minority sometimes have no access to education, or their access is severely limited and/or they are not nurtured according to their individual aptitudes. In certain countries, their own cultural identity is even intentionally negated and "overwritten" with the majority culture being taught at school.
- Malnutrition or undernourishment has a negative impact on brain development and can lead to lasting damage in early childhood. In some cases, malnourished children are intellectually unable to keep up with school lessons or do not possess the necessary concentration to focus on what is taught in school.
- Traumatic experiences and continuous toxic stress, which often accompanies crisis situations, lead to children having difficulties with concentration and experiencing unrest, so that they are not able to keep up with lessons insufficiently.
- The loss of homeland or parents and family members due to flight or destruction leads to a feeling of being "uprooted" and can trigger identity crises which impact sensory perception and consequently normal learning.
- Children of various ages experience injuries such as burns. They are dependent on receiving support with learning, even when they are unable to go to school and, for example, need to stay in the hospital for extended periods. Other children need to stay in hospitals, because they suffer from infectious diseases such as HIV or tuberculosis and need to be treated. The medication often leads to limitations due to lack of concentration.
- There are no reliable statistics on this issue, but a significant number of children in various age groups live in prisons. Small children are often imprisoned with their convicted mothers or adolescents before or after a conviction. In certain countries, child refugees are also detained in prisons. In 2015, it was estimated that there are a million children in jail who have not been convicted of any crime.

Fig. 5: Children suffer in crisis situations — but they come to terms with them

Teachers:

- Teachers in crisis areas are just as affected by the severe difficulties in living conditions, face existential threats, and are confronted with large, highly heterogeneous school classes.
- The necessary school materials are often in severely short supply. In addition, the content of the teaching materials is often completely inconsistent with the current living situation.
- They are also under pressure to perform due to prescribed performance goals which are often not adapted to the crisis situation but need to be fulfilled regardless of the conditions. However, this is hardly feasible given the circumstances.
- For economic reasons, the teachers sometimes need to work part time outside of school in order to earn money, so they have no time to prepare for classes and do follow-up work.

Parents:

- Many parents suffer from not being able to offer their children what they would like to provide them with and/or what they think their children expect of them. This results in their having a constantly guilty conscience when it comes to their children, who in turn notice this.
- They suffer from a lack of time, as the organization of their daily routine is extremely complicated. Often, there is a shortage of everything, and living conditions are uncertain. All this results in irregular daily routines, and it is the children suffer most as a result.
- Parents suffer from having to assign work to their children, as they are entirely unable to cope with the workload alone.
- Many parents need to leave their families to work overseas, as they would otherwise be unable to provide for them.
- Parents struggle to provide their children with sufficient care. This can stem from various causes including the general living situation, illness, or for example, the loss of a spouse.

The listing of crisis-induced challenges from the three different perspectives (children, teachers, and parents) will now also be illustrated using an example with mutually exacerbating problems:

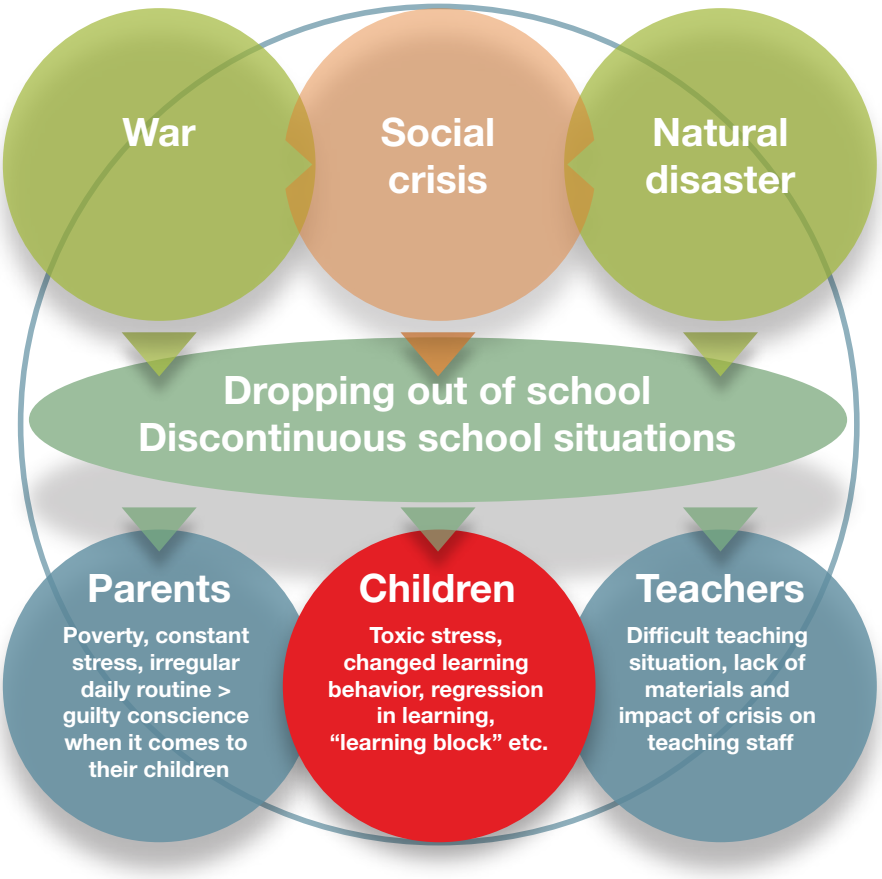


Diagram 1: Humanitarian and social crises and their impact on the school system

As the result of an earthquake, most buildings have been destroyed, including the schools. The children attend classes in a school building that was left standing. Teaching is done in shifts in overfilled classes with 90 children to one teacher. Housed in emergency accommodation, they miss their homes. They are stressed, somewhat traumatized, and are barely able to concentrate on learning. The parents have very little time for their children, as they are fully occupied with the organization of their daily tasks under these adverse circumstances. On top of this, they also suffer from guilt-ridden consciences, because they are aware of their neglect. The teachers are equally affected by the disaster. Privately, they suffer the same exigencies as everyone else. In addition, they have lost the teaching materials and they are scarcely able to cope with the large classes. Despite adverse circumstances, the curriculum has not been adjusted and now even needs to be completed within a shortened school year.

EoL

- is designed as an emergency pedagogical approach to support the learning of children in crisis situations.
- Its goal is to activate autonomous learning strategies in order to relieve the strain on the entire "children-parents-teacher system."

3 Basic principles of brain development relevant to education in emergencies

At birth, the only structures in the human brain that are almost completely developed are those responsible for the functions that maintain life. The brain develops as a child grows. This explains why children "feed" their thought processes in a manner that corresponds to their age. Infants do this through their actions, while primary school children do it through experiences. In the next developmental step, they are able to process abstract content as well.

- Only the brain stem, which controls vital functions such as the heartbeat and breathing, is completely wired at birth. Up to the third year of life, the exchange of information between the two brain hemispheres improves, enabling language development and the coordination of the right and left halves of the body.
- In children aged three to six, those areas of the brain which control the planning and organization of actions as well as the ability to concentrate on certain tasks become particularly developed.
- In children aged six to twelve, the brain develops more strongly in those regions which are significant for spatial sense and abstract thinking.
- Up to puberty, the same areas of the brain which were significant in the phase between three and six years of age are once again reinforced.
- During and after puberty, a restructuring phase begins which is essentially determined by the rule, "use it or lose it."

All this means that not only early childhood, but the entire childhood and adolescent phase is decisive to brain development. The extent and type of networking of neural connections depends, to a crucial extent, on the areas in which children and adolescents engage with particular intensity, and which type of brain usage is stimulated for them during the course of their educational and socialization process. This is because "there are certain actions which we will only ever be able to interpret when we have performed them ourselves" (cf. Parianen 2017, p. 37). A child's natural play development on the one hand, and awareness of form on the other, constitute a body of experiences which makes innumerable connections possible, even when the child grows up without additional stimuli.

One of the most important findings in brain research is that the brain is always learning and continues to undergo lifelong development. Adolescents are best at learning what helps them get along in their environment and solving those problems which crop up on their journey towards that goal. “Therefore, the brain is not optimized to learn facts by rote, but rather to solve problems” (cf. Hüther 2012). Almost everything which an adolescent human learns takes place within a social structure. Knowledge is obtained, directly or indirectly, from other persons and, in turn, serves to shape relationships with other people. Therefore, the brain is used primarily not as a “thinking organ” but rather as a “social organ” and is correspondingly structured (loc. cit.).

Diagram 2: Development of the two brain hemispheres up to the 9th year of life

1. Up to the age of approximately 3.5, the two brain hemispheres behave as one. The corpus callosum, which connects the two halves, is only rudimentarily developed.
2. In the next step, from approx. 3.5 to 6 years of age, the two hemispheres take shape, and the connection develops slowly.
3. By the 9th year of life, the corpus callosum is fully formed, and the two hemispheres re-network.

Naturally, this is a continuous process, and not one that takes place in defined steps.

3.1 Impact of toxic stress on brain development

Traumatic experiences from growing up in crisis situations or prolonged toxic stress can disrupt brain development. Uncertainty and fear force children to make swift decisions, and this means that they have to utilize previously internalized, older coping strategies (loc. cit.). However, the crisis situation cannot be processed and managed using pre-existing means. Rather, they must be able to link the new impressions to previous experiences — a body of experience which children cannot fall back on. “A state in which a person is assaulted with too many unordered perceptions creates fear and, to a certain extent, disables everything which the brain normally needs to perform, but due to the existing chaos is unable to deliver” (loc. cit.)

In adults, the complex connections have been developed in the brain and continue to exist even when they are temporarily unable to use them due to an overload. In children, these connections first need to be formed and strengthened. They are built up by means of networked thinking, which is employed in problem-solving and can then be utilized to deal with new challenges. “For this purpose, each child requires protection from overstimulation (in the form of secure emotional relationships) and orientation aids (in the form of competent teachers and teaching aids such as rituals, stories, fairy tales, and games) — the younger the child, the greater this necessity. If a child, even later on, is unable to find someone to help him or her overcome this deficit, s/he will be unable to respond to being overwhelmed or with fear or stress in any other way than through volatile shifts in attention and occasional outbursts of rage, even after s/he has grown up. Unable to concentrate on a given task for longer periods of time, s/he encounters serious problems at the very latest when beginning school” (cf. Hüther, 2012).

EoL

- Based on insights into the development and functioning of the human brain and the relevant abilities which children display in the respective age ranges and what can be expected from them.
- Provides children with a safe, stress-reduced context and an ordered structure.
- Does not overwhelm children, but instead gives them solvable tasks so that learning is a positive experience.
- Utilizes learning and educational aids, rituals, and stories.
- Helps children to overcome deficits caused by their traumas or negative stress, to develop in an age-appropriate manner, and to reintegrate into the curriculum.

3.2 Positive and negative learning: What happens in the brain?

Acute emotional excitement such as fear causes rapid learning, "but is not conducive to cognitive processes and prevents that which is to be learned from being linked to content with which the person is already familiar. Authoritarian school systems generally work with sanctions and capitalize on the mechanism of "quick learning." But what many people do not realize is that this causes the shortchanging of networked thinking, and thereby dealing with things ranging from the simple to the complex. Humans store things they have learned in different parts of their memory depending on their emotional content (cf. Spitzer 202, p. 161). Learning occurs best when motivation is involved. Motivation, curiosity, and rewards release the hormone dopamine, a substance similar to opiates. "Every time an organism has a particular expectation, and the result of the behavior is better than the expectation, learning takes place" (loc. cit.). A kind word or a friendly glance can also activate the reward system. This knowledge can be used in pedagogy. But learning while permanently in crisis is the exact opposite of motivated learning in a safe environment. Sequences of accelerated, stressed learning lead to incoherent bits of knowledge. If these bits cannot be mentally networked, this leads to a negative impact on reading ability, and/or the solving of more complex mathematical problems remains impossible despite the efforts made to learn. Therefore, a safe and stress-reduced environment guarantees the best learning success over the medium term.

3.3 Cherished relationships

The preceding section demonstrates the importance of a motivational and fear-free climate for learning success. This illustrates that the relationship between the teacher and the child, as well as among children themselves, is an essential component of learning. Even in this age of ICT, personal relationships to other children, parents, and above all, to the teacher are significant for learning success. Children require both the positive and negative feedback which reflect their efforts. And they must be able to repeat learning content which they have not understood the first time upon request. Compared to learning content taught via ICT, teachers have the advantage, in that they are able to convey the learning content in various ways and in a manner tailored to the child. Stress reduced learning, so that the contents are stored "in the right place", requires a pleasant and supportive atmosphere in the learning group – both among the children and between the teacher and the child.

At EoL, the promotion of individual expression and encouragement to self-active, independent learning inevitably leads to teachers having to consult with the children. In this manner, they deal with the intellectual world of children at a deeper level. This interest and the accompanying appreciation of the children reinforce both their relationship with the teacher their self-esteem.

In order to strengthen the child-teacher relationship, EoL focuses on ensuring that

- the groups of children are not too large, allowing the teacher to perceive each individual child.
- during their training, the teachers are taught to pay attention to positive body language in order to give the children positive signals even without words. This is particularly important when children have experienced the teachers as being particularly strict, or if corporal punishment is part of school routine.
- teachers ask open-ended questions, allowing the children to experience that more than one answer can be correct, and giving them the courage to ask questions themselves.
- teachers convey that the aim is not to avoid mistakes, but rather to learn from them.
- teachers have the attitude that they too can learn from the children, and encourage the children to learn from each other.

Good child-teacher relationships mean that children are appreciated for their efforts, even if they are not yet able to deliver the required performance.

A relationship is a mutual give and take and active "back and forth." More than anything, it is strengthened by follow-up questions and reactions such as, "Why did you do it that way?", "Why don't you try it this way?" or "You did it totally differently from how I would have done it, but that is a good idea, I would never have thought of that." This is much more important than just being able to distinguish right answers from wrong ones.

3.4 Punishment and reward in practical school situations

In many countries, corporal punishment and, even more so, verbal abuse are culturally acceptable; i.e. the previously mentioned "principle of fear" is utilized. Specifying conditions and giving promises in the context of demands made on performance influence behavior in the short term, i.e. when they lead to a feeling of stress and fear, they can even block networked learning. This comes from the fact that children come to terms with these types of measures and, whether consciously or unconsciously, take advantage of it, as it is a reward system which suppresses independent and active behavior.

Many children are punished for behavior for which they are not responsible. One very widespread phenomenon is that they are unable to sit still and need to move constantly due to their frayed nerves and are then punished for that. In particular, traumatized children often find it extremely difficult to sit still during school lessons, but this is what is expected of them. Giving children are given the opportunity to move or engage in discussions as part of their tasks contributes to positive discipline and promotes the learning success.

Physical and emotional limitations often lead to incorrect interpretations on the part of the teachers or to children are not being addressed in an age-appropriate manner and being given tasks that they are unable to cope with on their own. As a result, they do not fulfill what is expected of them and are punished for it.

At many schools, applause is given for correct answers. This results in children only raising their hand when they are truly certain that they have the right answer. This behavior is not conducive to learning, as no interaction takes place at all, and the clapping constantly disturbs concentration. In this manner, the children's own voices are not reinforced, nor do they learn that mistakes are part of the learning process.

In summary, it can be said that punishments which utilize the principle of fear and rewards which undermine autonomous learning contribute little to long-term learning success.

How are discipline and punishment defined?
For many people, the terms "discipline" and "punishment" are interchangeable. But they are not synonyms. Discipline and punishment are not the same thing.

Discipline is the practice of guiding someone to behave according to rules or a code of conduct. The word discipline comes from the Latin words disciplina (teaching, learning, or instructing) and discipulus (disciple,

student). To discipline means to teach. Teaching means showing and explaining how something is to be done. It focuses on conveying desirable future behavior.

Unlike discipline, punishment always refers to behavior from the past. Punishment does not promote learning, but discipline definitely does.

Positive discipline compared to punishment
Every child, regardless of age, must learn to deal with limits. If he experiences freedom, it is easier for him to comply with limits. He has the option of incorporating his individuality as well. When these factors interact in an age-appropriate manner, disciplinary problems are reduced. Positive discipline therefore does not utilize punishment that reacts to something from the past, but rather works with an eye toward the future, so that such punishment does not have to be meted out in the first place.

Autonomous learning and movement are reinforced in EoL; both are core elements of positive discipline. Moreover, children are taught learning strategies that do not necessarily have to be performed sitting at a table, but can, instead, be done where it is comfortable for them. Knowledge of age-appropriate thinking when dealing with actions and consequences contributes to defining the required freedoms and not punishing children for desired behavior which it may not even be reasonable to expect.

EoL
- Works with positive discipline in that sequence-solving exercises alternate with exercises requiring concentration.
- Makes it possible to reflect on experiences and encourages discussion of the negative and positive aspects of the experience.
- Reduces disciplinary problems as well as the aggressions of children, as autonomous learning and movement are reinforced.
- Teaches children learning strategies that do not necessarily have to be performed sitting at a table, but can, instead, be done where it is comfortable for them.
- Promotes a fear-free relationship between teachers and children
- Offers movable learning aids as pedagogical assistance. They can be used both in school and at home.
- Takes age-appropriate thinking into consideration when dealing with actions and consequences, which contributes to defining the required freedoms.

3.5 Awareness of consequences

The development of an awareness of consequences in children and adolescents is directly linked to brain development. Knowing this, in turn, is an important piece of the puzzle for helping teachers eliminate inappropriate punishments and thereby reduce fear and stress. The following table shows how this awareness develops with age and helps in gauging what can be expected of children.

Age	Awareness of consequences
0 - 3	**Children have no experience available to them yet. They must be given the opportunity to gather experiences via sensory perceptions and play within a safe context.** Safety must come from the outside. Children experience consequences bodily; e.g. a child touches a burner on the stove and notices that it is hot.

3 - 6	**Experiential learning makes it possible to develop individual discipline and proactive actions.** Consequences become cognitively apparent in the moment: The child knows that the burner is hot, because s/he sees it; therefore, s/he does not touch it.
6 - 9	**Children can recognize consequences in advance.** Thanks to the ability to think reflectively, the child knows that s/he should not touch the burner, because it is hot, even though s/he does not see it.
9 - 12	**Children can use both foresight and hindsight to recognize consequences.** The child can recognize the consequences of an action in advance, assess them, and draw conclusions. S/he can assess that a burn from the stovetop will subside later on and that there are various degrees of burns.
12 - 16	**With foresight and hindsight with a personal reference.** The child always relates the consequence to him or herself: What does it mean for me? The temporal focus is also expanded and he develops the ability to estimate the extent of the consequences — considering all the positive and negative aspects. The child knows that s/he is more or less sensitive to heat and whether s/he is able to touch a (not yet too hot) burner for a longer or shorter period of time.

These findings are incorporated by the teachers in the introduction, discussion and design. It is obvious that the groups in the different age groups are stimulatingly working together.

4 Basic education in emergencies principles for sensory perception

Our senses make it possible for us to comprehensively perceive our very selves and the environment via the nervous system. The processing of these stimuli leads to further insight and forms the basis for learning. As findings from work with children in crisis regions demonstrate, the nervous system and the senses are particularly susceptible to toxic stress.

The recent past has seen the refinement of a comprehensive understanding of sensory perception which is closely linked to brain development. Whereas, in the past, only the classical senses which possess a sensory organ were accepted as such, now those which do not possess an organ are also recognized as senses. These senses are categorized in various ways. EoL builds on the understanding of the senses which was described back in 1919 by Rudolf Steiner and further expanded in 2007 by Wolfgang M. Auer. A distinction is made between three sensory categories: According to Steiner, senses which send a signal “inside” are called corporeal senses; the guard senses perceive the external world, and the communicative senses serve to communicate with others.

The corporeal senses (sense of coherence, sense of touch, sense of motion, and sense of balance):
These facilitate basic competencies which are required for formal cognitive learning, and in particular remain the focus until tooth transition. Experience with EoL clearly demonstrates that older children who have insufficiently experienced their corporeal senses due to trauma or chronic toxic stress need to reacquire them in order to regain the full extent of their learning abilities. “The relationship between basic senses and learning success is increasingly being corroborated in brain research” (cf. Hüther 2001, p. 21, Eliot 2001, p. 43ff in Auer 2007, p.73).

Guard senses (smell, taste, and sense of temperature):
These senses protect us and make us aware. It is apparent that they are closely related to estimation and comparison. The difference between them and the corporeal senses is clear, as they mediate between the outside and the inside. In certain cases, traumatized children can experience re-traumatization, for example, when they perceive certain smells which are directly linked to what they have suffered, and they have no defense against this.

Environmental / communicative senses (hearing, sight, language, sense of thought, and sense of self):
These senses make it possible to demonstrate understanding for other persons, to empathize with them, and to understand their speech. The correct use of the communicative senses is difficult when different cultures come into contact. Actions in crisis situations often lead to such strong uncertainty, that people no longer want to utilize these senses.

Senses	Explanation	Competencies
Vital sense	I have an understanding of myself, because only I know if I am tired, hungry, or happy. I am at home in my body. This condition can be expressed. In salutogenesis, this sense is called: "sense of coherence". (For salutogenesis, see the module Methodology/Didactics.)	I know what I require. I can provide for myself. It is like balancing a set of scales. Well-being is somewhere between shortage and satisfaction or between too much and too little. "If a child learns to endure the shortage, the exertion, the tiredness and exhaustion, this will cause him to discover, step by step, the potential of his body and his stress and performance limits, from which he will develop self-confidence." (cf. Auer: p. 34)
Sense of movement (proprioception / depth sensibility)	I can sense my body in space and know where each body part is located. Proprioception consists of a sense of location, sense of strength (flexing of muscles) and direction of movement.	I feel my body. I can orient myself spatially. I notice when someone comes too close to me.
Sense of balance	The organ for balance is a curved organ consisting of three small tubes located near the inner ear. Its sensitive hair cells react to all movements. "Like many senses, the sense of balance can develop only if it is exposed to many and varied perceptions, and this can only occur when movements are performed." (cf. Auer p. 60)	The sense of balance provides inner stability. I can perceive distances and speed. "Attention and directed activity can only be summoned when the focus of calm and reference point supported by the sense of balance has been formed." (cf. Auer p. 66)
Perception of warmth and cold	Not every point on our skin can perceive warmth or cold. Our body must generate and maintain its own heat. When the body is ill, it exhibits a fever.	I can protect myself from cold and heat. My body reacts to illness and heals it.

Senses	Explanation	Competencies
Taste	Variety of tastes, differentiating between the qualities of tastes.	I can identify the variety of different tastes. It promotes differentiation.
Hearing	Everything makes a sound; something is moving and makes a noise. Sounds are rhythmic and have a melody.	I can listen to someone. I can orient myself. I am warned of danger.
Sense of touch (haptic perception)	With the help of our skin, "the organ of touch," as tactile perception is possible at every point on the skin. This sense of touch is a "basis both for the development of independence and for the development of social skills" (cf. Auer p. 26)	I can avoid pain and experience well-being. I grasp something (both literally and figuratively).
Seeing	To see, we need movement. The eye scans shapes; it perceives composition. Shades of color and their contrasts can be identified, as can a variety of shapes. The eye can also perform a survey and is able to fill in the blanks.	I can see the world. I can estimate risks. Sight enables a sense of design, which leads to aesthetics and the development of the sense of meaning, which can also be observed in sign language. Pictographs and symbols are language in the form of imagery and make perception and communication possible.
Sense of language or meaning	Many of the properties described with respect to seeing and hearing are considered part of the sense of language by Rudolf Steiner. Modern literature calls it the sense of meaning, as its aim is to perceive the meaning of language.	Some find it easier than others to discern what another person is actually trying to say "between the lines." Therefore, it is not only about being better able to learn a language but also social gestures, and to generally understand the other party.
Sense of thought or meaning	Rudolf Steiner described the identification of thought processes as the sense of thought. Today, it is subsumed under the sense of meaning together with the sense of language. This sense can be perceived when observing oneself and noticing that seeing something immediately causes associations and images to arise which are then interpreted.	This anticipatory behavior, namely "What is he getting at?", "What are his motivations for this?" also points toward the fact that these two senses involve a translational or transformational process

Senses	Explanation	Competencies
Ego-sense / self-sense,	Rudolf Steiner also described this sense for perceiving other persons. It is empathy which makes it possible to put oneself in another person›s shoes.	I can put myself in someone else's shoes and understand what is going on in his head. I can experience the feelings of others along with them and understand them. With our current knowledge of mirror neurons, it becomes clear that this has a lot to do with empathy and being able to identify with another person.

Fig. 6:
Haptic memory game for sharpening sensory perception

Fig. 7:
Sensory perception game combined with counting exercises

4.1 Impact of the crisis on the senses and child development

Practical experience from working with children in crisis regions shows that approximately 90% of children who are exposed to crisis situations complain of learning difficulties. They suffer from toxic stress which directly affects their nervous system. Due to this, they find it extremely difficult to control their motor functions, as these are primarily dependent on the vegetative nervous system and can only be intentionally controlled to a certain extent. For example, children can then often not sit still, which in turn results in sanctions from the teacher, increasing their stress even further which achieves the opposite of what is intended. Experience from working with EoL has shown that children "dull" their senses so that they do not have to deal with the negative effects of the crisis. They hear nothing, feel nothing, and see nothing, and are no longer able to put themselves in someone else's shoes and understand their thoughts. This means that their ability to receive learning stimuli is drastically limited.

4.2 How do children of different age groups protect themselves against this stress?

Tooth transition (approx. 0-6 years):

- The most crucial age group is from "birth to the defiant age." Up to approximately three and a half years of age, a child unconsciously shuts his nervous system down when in a permanent stress situation. This is manifested by the entire sensory perception being thrown out of balance. For example, they appear to be deaf, stare off into space, do not learn how to speak or stop speaking, or no longer react to hot and cold. Similar reactions are observed after the defiant age at approximately three and a half years until tooth transition which begins at approximately six years of age. However, these children can utilize "pre-logical thinking" to cope with this situation to a certain degree, and it is possible to reach them.

Tooth transition to puberty (approx. 6-12 years):

- Children in the ages between tooth transition and rubicon (i.e. six to nine years) approach crisis situations with the best natural protection mechanisms. This age group is characterized by a great degree of curiosity coupled with the ability to reflect and a natural urge to move about. However, they are not yet able to assess consequences for themselves personally with foresight and hindsight. Despite this natural protection, this age group also displays stress-induced learning difficulties, but they are more rapidly overcome than children in other age groups. Between rubicon and puberty (nine and 12 years), they also gain the ability to judge consequences and recognize them in hindsight. With this ability, they are able to grasp the implications of the effects of a crisis situation. However, these are perceived as dangerous, because after all, they are children and have not yet been able to develop coping strategies for them based on prior experience. Where their learning behavior is concerned, they can be observed to show disinterest; rules are not complied with out of understanding, but only under pressure, and a lack of prospects and exhaustion block their natural curiosity for learning abstract concepts, even though this is scheduled for in the curricula for this age group.

Beginning to the end of puberty (approx. 12-16 years):

- As puberty begins, the consequences of the crisis situation and its personal impact are recognized. Just as with earlier age groups, toxic stress impacts the nervous system and sensory perception, which in turn affects motor functions. A distinction between boys and girls becomes increasingly necessary. To generalize, it can be said that girls retreat more into themselves and boys react in a more extroverted manner. Particularly for adolescents, impeded access to one's own corporeal perception due to "defective" sensory perception is a hindrance to development. Boys and girls have one thing in common: When they are not offered forward-looking goals and/or they do not see any prospects for themselves, they are in danger of being unable to manage the crisis situation on their own.

It should also be noted that many children and adolescents are exposed to permanent or recurring crisis situations over the course of many years. This means that they do not just react to the resulting stress at a certain point in time, but rather are impeded in their development over a long period.

EoL

- Includes these findings in the methodology/didactics and consciously stimulates the various senses.
- Helps children sharpen their sensory perception via movement.
- Makes it possible for children to develop their own individuality, which is seen as an important prerequisite for social competency, by freely expressing themselves through drawing and individual freedoms.

It is obvious that crises, stress, and trauma impact the senses and their interaction. EoL takes this into account in its methodology/didactics and offers solutions for bringing the sensory perception of the affected children and adolescents back into balance.

Rubicon: An explanation

The Rubicon is a small Italian river which Caesar crossed, despite being explicitly ordered not to by the senate, in order to march towards Rome, where he founded his glorious empire. This is also where the famous quote “the die is cast” is purported to have been uttered. Rudolf Steiner borrowed the name to describe the special mental situation of a 9- to 10-year-old child.

Symptoms:
The child becomes estranged and keeps his or her distance. Criticism of the adult world arises and authority is questioned. The child becomes generally more critical and no longer accepts a large number of things as being self-evident and even questions the learning content from the teacher.

Background:
The child is in pre-puberty, which entails hormonal changes, even if s/he does not exhibit any external changes. This stage involves an important step in terms of brain development; the connection of the right and left brain hemispheres by the corpus callosum is now fully developed. The child loses his or her child-like view of things, as the ability for abstract and analytic thinking now asserts itself.

Consequences:
This developmental step is the reason why 7 and 10-year-olds should not be taught together. Children who are in the rubicon stage are in particular need of stability and structure in order to get through this phase, which is also difficult for them.

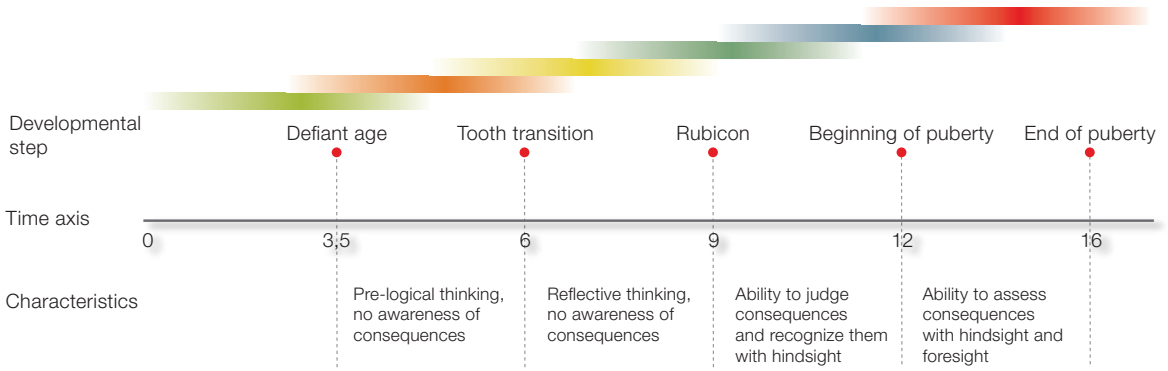


Diagram 3: The developmental steps from birth to the end of puberty always overlap to a certain extent

Module: Methodology / Didactics

This section is about the "how," i.e. the methodology, and the "what" or the didactics which the EoL approach is based on. All this is based on knowledge of the opportunities which need to be available to a child at the respective developmental step and how they are limited or blocked due to the impact of crises or stress. So how can we help children who have experienced toxic stress to find their way back to an age-appropriate developmental stage, and what practical steps need to be taken?

As part of the work done with EoL, comprehensive practical knowledge was gathered on how children react to crisis situations in the respective age groups and which coping strategies they can utilize. These coping strategies are expanded on, and they are combined with psychological, pedagogical, and health-promoting findings from salutogenesis and resilience to create a specific methodology/didactics. EoL works with the natural "learning pathways" which children create autonomously, but on which they can no longer continue, particularly during crises. One other central element is the "learning flow" which refers to a particular sequence of learning steps in the areas of play development, mathematics, language, and drawing. Finally, implementation of the weekly topic which weaves a common thread through the individual elements rounds off the elements of the methodology/didactics. Sample exercises for the developmental steps in the learning flows for drawing, mathematics, and language are provided in the module entitled, "Learning steps in the learning flow and learning aids."

5 Coping strategies

Each person possesses coping strategies — both positive and negative. Children acquire these strategies according to their individual needs and exigencies as well as their mental abilities. To some extent, the body also uses subconscious coping strategies to protect itself, e.g. a state of shock, blushing, or the "shutting down" of sensory perception.

Pedagogy capitalizes on positive coping strategies, which it builds on to find solutions for the future which contribute both to salutogenesis and resistance. These are conscious strategies.

5.1 Coping strategies in the respective age groups

Birth – tooth transition (0-6 years):

- Small children are not able to acquire conscious coping strategies due to their pre-logical mental abilities; however, they can internalize the strategies with the help of routines and pictorial descriptions or imagery. Through the rhythmic repetition of activities such as regular hand-washing before a meal, children acquire this routine, thereby avoiding infectious diseases. This is practiced in the nursery and at kindergarten, and the children then perform it independently at home as well. 3 to 6-year-olds find it particularly easy to acquire coping strategies when a behavior is presented by means of body language or pictorial descriptions. For example, if a child does not want to sit, it will be quite impossible to get him or her to do so using logical explanations. However, if s/he is given an image such as "Sit like a king," s/he will do so.

External reactions and the child's own positive perception of the situation initiate internal comparison and therewith, the learning process as well.

Children in this age group who grow up in earthquake-prone areas will not leave their home under their own initiative if an earthquake occurs. If these children are given a vivid description that the earth sometimes coughs strongly and causes everything to shake, and they then have to leave the house, they develop an "internal image" of this, and will leave the house when an earthquake occurs. This is why fairy tales are internalized so well by children in this age group, because they correspond precisely to their learning and mental abilities. They always have only one line of action, the story is always described extremely vividly, the main protagonist is always good, and secondary protagonists are either evil or provide help. The main protagonist usually undergoes changes and, for him, the story comes to a good end, while the bad guy's story comes to a bad ending. A fairy tale never explains; it only describes. But it is important that children hear the fairy tale and not see it. Only then are the "internal images" generated in their imagination, which they themselves can control. After that, they are played out again, retold, and redrawn — that is the learning process.

Tooth transition to rubicon (6-9 years):

- Emotional experiences are the driving force for the actions of children in this age group. They come up with their own coping strategies which are presumably good for them. Therefore, the goal is to offer them strategies which take advantage of this behavioral pattern. These children are not yet able to foresee consequences; they can only be understood in hindsight, so they will utilize coping strategies which have proven to be positive in hindsight. But the consequences of an action can also be described to them in advance with imagery.

  For example, it has been observed that children in crisis situations throw stones. It should be noted that the reason for this is often a physical need to relieve stress on the nervous system — stress and the alleviation of stress. For this reason, throwing stones is perceived as being enjoyable and is repeated. Or the smaller children imitate the adolescents. However, because this behavior cannot be tolerated, the children must be offered a positive coping strategy. One such example is as follows: The consequence that the person hit by the stone suffers pain, perhaps bleeds, and needs to go to the hospital is described with vivid imagery. However, the child's needs are also taken seriously and an alternative is offered which offers him the necessary stress relief. Together, the children make balls out of paper, as normal balls are generally not available. They then use these paper balls for throwing or to play bowling. The next time a child feels a need to throw a stone, s/he will think of this story and have the option to make a decision and correct him or herself. In this way, a negative coping strategy — throwing stones — can be transformed into a positive one — throwing balls — with the help of reflective thinking.

Rubicon to puberty (9-12 years):

- Children in this age group are able to assess consequences. Their actions are linked to intent. They need to be taught "anticipatory decision-making competency."
  Many children of this age are sick of school, because the lessons do not correspond to their needs, and they are no longer able to see the meaning of it. Therefore, many of these children no longer go to school, even though they are aware of the consequences. In this case, they make a conscious decision. These children should be given the opportunity to talk about how they feel; their subjective feelings should be taken seriously, and they need to be offered positive alternatives so that they, in turn, can make an independent decision.

Beginning to the end of puberty (12-16 years):

- In this age group, children no longer see themselves as children; they are on their way to becoming adolescents. The feeling of being caught between two extremes often leads to mood swings. Children in this age group can assess consequences, but they still want to test their limits. Their minds know about the consequences, but their hearts want to challenge them. It is as if a new, individual relationship for dealing with the challenges of their own environment needed to be found — even with regard to independence, responsibility, and accepting consequences. Extracurricular activities increase in significance, and children often prefer them over school activities. The path that leads to these consequences, with all their complex relationships, is the focus of the child's interest. This means that highly individual, cultural,

and gender-specific coping strategies also come to light and are consolidated to give decision-making competency. The ability for abstract thought and the grasping of space and perspective also arise within this developmental stage. An interest in scenes from ancient cultures and stories from the past is also awakened during this phase, as they have developed the ability to view them from the outside and place them in context with regard to themselves. These types of stories can be used to foster understanding of the complex paths which lead to various consequences. Biographies of persons with different origins suggest that the achievement of a goal is always linked to consequences.

5.2 Why are coping strategies experienced in an age-dependent manner?

The application of these coping strategies and the ways in which they can be made to come alive is different within each of these age groups. From 0 – tooth transition, this is done via the experience of action. From tooth transition to rubicon, the consequences of actions play a more important role. From rubicon to the beginning of puberty, this is accomplished with decision-making competency, and from the beginning to the end of puberty, it is accomplished through the conscious linking of that decision-making competency and the consequences of actions. These different coping strategies are closely linked to brain development and awareness of consequences, as described in Module: Initial situations and basics.

It becomes clear that this learning takes place not only at school, but even more so during the course of daily routines, whereby peer groups become increasingly important. This knowledge of the different coping strategies is capitalized on in the promotion of learning. This also explains why each age group can be provided with the same learning material, because they interact with it differently and/or it is received in the appropriate manner. But this also means that the teachers need to prepare themselves appropriately for the different age groups and need to “package” the learning content differently.

EoL

- Always begins with the experience of “doing” for students of all age groups.
- Makes it possible for children to take the upcoming steps in an individually tailored manner — all the way to the consequences of actions and decision-making competency.
- Strives to link the consequences of actions and decision-making competency within the oldest group in order to reinforce the experiencing of these two areas. In all age groups, this succeeds best when the tasks given are based directly on daily routines. This link to reality is usually missing in the regular schoolbooks of many developing countries; therefore no meaningful networking with daily experiences can take place.

Fig. 8: Motivation as a coping strategy: “I can make it, I can do it”

Negative and positive coping strategies lead to the same goal. Positive coping strategies are often more taxing than negative ones, but they are the only type that ultimately lead to resilience. Negative coping strategies are defined by the fact that they can only be successful at the cost of resources or development potential. EoL consciously promotes resilience-building coping strategies.

6 Aspects in methodology / didactics aimed at promoting health

6.1 Salutogenesis

Salutogenesis comes from salus "health,"/"well-being" and genesis (Ancient Greek genesis = creation, generation, or birth), and therefore translates to "generation of health." The term was coined as a complement to the term pathogenesis (Gr. páthos = pain, suffering). Aaron Antonovsky, who wanted to uncover the secret of how health is created in humans, used this term. Salutogenesis involves finding out how an organism manages, "despite the physical law of entropy, to grow, develop, and reproduce healthily, i.e. create a dynamic, mutually complementary order (= coherence)." As the central factor for their health, Antonovsky found the "sense of coherence," which is usually translated in the German literature as "Kohärenzgefühl," "Urvertrauen," or "Vitalsinn," and which, according to Antonovsky, consists of three components:

1. Comprehensibility
2. Meaningfulness (feeling of significance or meaning)
3. Manageability

The EoL perception of salutogenesis and the consequences for methodology / didactics:
The EoL approach aims to anchor these properties in the school system and references salutogenesis in its methodology/didactics. **Comprehension** is enabled by beginning with simple tasks, through reflective work in projects, and by means of the structured clarity of the learning pathway and learning flow (see below under Module: Methodology/Didactics). Experience shows that learning progress is, in fact, achieved as a result of being given easy tasks. The "I can do it" feeling motivates children to take the next learning step and successfully complete tasks. Child-centric work in manageable groups increases the feeling of **meaningfulness**. Finally, the numerous learning aids also enable better **manageability** (see Section16).

EoL
- Employs easy tasks across all age groups, and it is the children themselves who increase the level of difficulty.
- Is practiced in a group size which enables personal relationships with the teacher. The child is perceived as an independent person.
- Chooses tasks in such a way that they are experienced as being personally meaningful.
- Allows children to tackle tasks independently, thereby promoting the prevalence of a positive learning environment.

6.2 Resilience

Definition: Resilience (from Latin resilire “to spring back” or “to bounce off”) or mental hardiness is the ability to deal with crises and to use them as motivation for development by falling back on personal and socially conveyed resources. Related to resilience are the development of health (salutogenesis), hardiness, coping strategies, and autopoiesis (self-preservation). The opposite of resilience is vulnerability. EoL has translated this approach, so that it can be applied pedagogically.

The EoL perception of resilience and the consequences for methodology / didactics:
Generally, mental resistance can only be built up autonomously. As the body’s immune system already shows us, it is precisely the negative effect of a fever after an immunization which shows us that the body is building up antibodies. The “emotional immune system” is also stimulated by negative experiences, and overcoming them strengthens emotional resilience. What this means is that a negative experience does not create resilience per se; it is how it is dealt with that allows strength to be summoned for overcoming difficulties.

What does a child require in order to build resilience?
EoL uses the definition and theory of resilience by Michael Ungar. Ungar has identified nine factors which are fundamental for building resilience in children:

1. Structure
2. Consistency
3. Parent-child relationship
4. Many strong relationships
5. A strong experiencing of one’s own individuality
6. The feeling of being in control
7. The feeling of belonging, spirituality, and meaningfulness
8. The awareness of having rights and obligations
9. Safety and support

This means that resilience is always built up via a combination of factors and not a single measure. Both in the child’s environment and during lessons, s/he must be provided with thematic and methodological offerings which make it possible for him or her to gather experiences which s/he can convert into resilience. In this manner, the child continuously works on building up resilience and is able to utilize these experiences to deal with difficulties and achieve balance. Just as with the physical immune system, the emotional immune system is highly individual in nature, as it needs to process personal experiences and transform them into a protective shield.

Life provides every single person with these salutogenetic and resilience-building factors, and every child is also able to access this “pool.” In particular, children who grow up in crisis regions possess a great deal of resilience, but they are unaware of this. They utilize it primarily for physical survival, which also means employing negative coping strategies under certain circumstances. The younger the child is, the more unconsciously s/he utilizes them. Similar to the human senses, the disappearance of one of the resilience-building factors is compensated for with another.

EoL
- Enables the formation of relationships through group work.
- Allows to experience one›s own individuality through self-active learning.
- Imposes obligations upon children — e.g. cleaning up the classroom.
- Creates a protected space where fear-free learning should be possible.
- Involves parents and the children’s homes.
- Increases control based on a clear structure (learning path).
- Creates a relaxed learning environment where the child tackles the challenge.

What is important is that the child does, in fact, need to take up a challenge. The effort expended in doing so is essential, as this is the only thing that can lead to the experience of success, which in turn is important so that the child can enter a state of "flow" and the experience or learning process. A "state of flow" is when a child forgets time and space and is completely engrossed in the experimentation and trials for arriving at the solution to a learning task. The comprehensibility of the learning content in conjunction with the sensory processing of the solution path lead to the child learning to link contexts and think in a networked fashion — always in accordance with his or her own individual mental abilities.

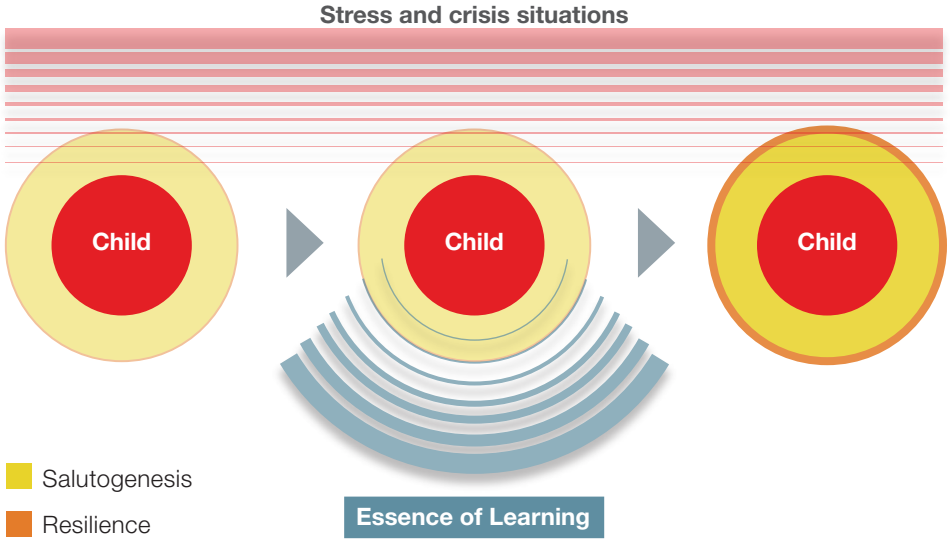


Diagram 4: Resilience and salutogenesis as protection from stress and crisis situations

EoL

- Encourages children to become active themselves
- Offers positive coping strategies
- Activates resilience
- Teachers make children aware of their resilience
- Works with findings from salutogenesis

7 Learning pathway, learning flow, and weekly topic: EoL-specific methodology and didactics

7.1 The natural learning pathway when completing a task

The learning pathway is always oriented toward the natural, age-appropriate development of the child. It is subdivided into individual steps which are performed in a sequence on this path and which correspond to the respective abilities. During a child's play development, it is already very clearly apparent that s/he is autonomously creating a natural learning pathway. The associated activities are primal needs of the child which s/he – whenever possible – performs individually and further develops on his own or with other children. Development always takes place in a sequence. The child first acquires the tools which s/he then goes on to use in performing the learning steps. This natural learning pathway is used in a didactic methodology for learning mathematics and language. Because many children affected by crisis do not know any learning strategies and are also unfamiliar with the natural learning pathway, it is offered at every stage of learning in EoL programs.

The structure of the learning path

Steps	Description
From uniformness to differentiation • Sensory activities • Orientation	These two activities are generally covered by the learning aids or with the help of artistic presentation, for example through drawing or theater skits.
Imitation and discovery	This is the activity which lets children try things out. How can I use something? What can I do with it? Working with flexible materials gives the child the feeling of being free to try things out.
Finding my own solution	This is the culmination of something that has been understood. Children equate "understanding" with the work done in schoolbooks. But this is not the case, as individual presentation means varying the work done with the schoolbooks or teaching something to other children.
Obtaining an overview of tasks and rules	This usually takes place later in the process, after new tasks have been added. At some point, the children say, "Now I understand the contexts!" It is as if they were able to conceptualize an overview of a task and to see it as a whole. At this point, they can also explain the task to someone else.

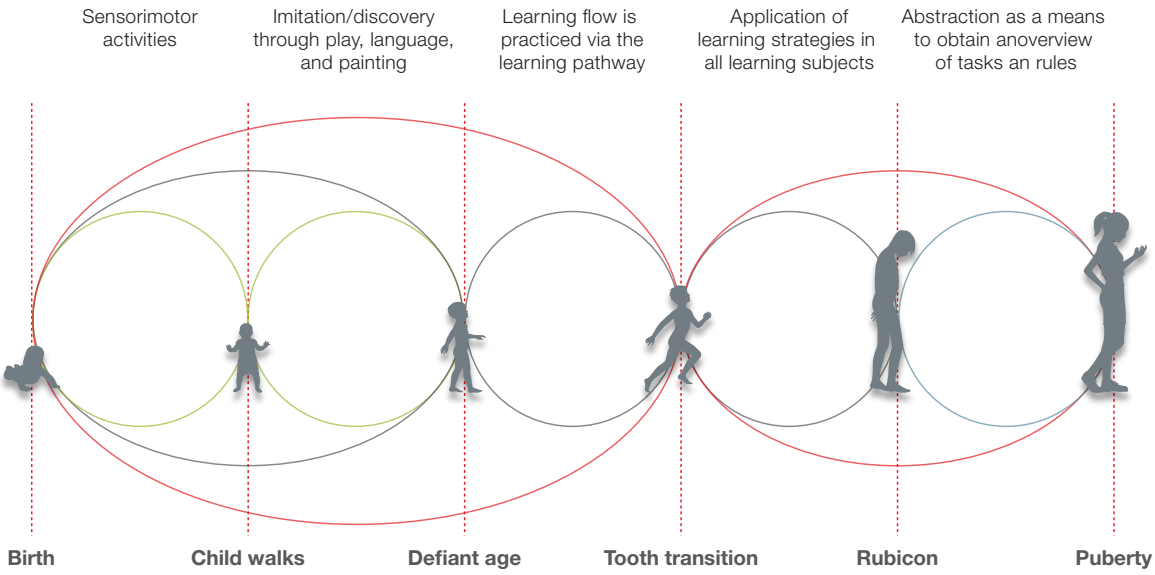


Diagram 5: While the learning flow constitutes a general orientation aid with regard to methodology / didactics, it also as a guideline for the learning content. Everything which a child has come up with independently is picked up on and implemented in the next developmental step.

Developmental steps are performed in succession, as can be seen in the diagram above, but each developmental step is prepared in such a way that it overlaps with the previous step.

In classic school lessons in crisis regions, child-centric learning methods are often not considered. In essence, all that is done is imitation and the tasks from the schoolbooks. The learning content is only summarized theoretically with no practical application. Therefore, the children do not end the learning step with the

experience of having internalized the knowledge acquired to the extent that they can also apply it and teach it to others. But it is precisely this experience that makes children aware of the learning process.

The steps of the learning pathway up to puberty
All the steps of the learning pathway which the child naturally develops independently within the first three years of its play development – as long as it is not prevented from doing so (which is often the case in crises for safety reasons) – serve as a methodical / didactic basis for coping with later mathematical and writing tasks.

The ability to think reflectively is well-pronounced after tooth transition. Therefore, learning strategies which the child has acquired on the basis of the learning pathway and the experiences gathered can be consciously applied.

Upon crossing the rubicon, learned material "sinks into the unconscious," in a manner of speaking, and now needs to be intentionally retrieved. When learning blocks now occur due to stress or trauma, it is doubly difficult for children to tap into these resources. But everything which a child has acquired up to that point is now required for abstraction — which means nothing other than repeating the knowledge previously acquired in a new form. It is a time where the teacher should spend increasingly less time "teaching," and instead provide more leeway for the independent solving of the task. However, this presupposes the ability to utilize everything from the past — e.g. learning pathway and content — in order to ultimately achieve abstraction.

EoL
- Provides all age groups with the "natural" learning pathway for dealing with a task, and provides aids for this purpose.
- Also makes use of sensorimotor aspects in older children to tackle learning blocks.
- Views learning generally as a dynamic and non-linear process.

7.2 The learning flow as a guiding path

EoL assumes that children go through a certain sequence of learning steps in each of the central dimensions of play development, mathematics, language, and drawing, called the learning flow. This learning flow is subdivided according to the developmental stages of the child: the defiant age, tooth transition, rubicon, and puberty. These stages are associated with certain learning styles or mental abilities, which also influence how the lessons of the respective age groups are presented in terms of methodology and didactics. Therefore, with the EoL approach, the learning content is conveyed in an age-appropriate manner, and attention is paid to allowing the children to take their natural learning pathway. This approach makes it possible for older children not to feel dumb, even though they are dealing with easy tasks in the learning flow. This is important for a great many children.

In an environment that promotes development, children experience these learning flows step by step and practically simultaneously in all dimensions. With sufficient nutrition and stimulation, they also experience the various developmental stages in a certain age range and acquire new learning approaches and mental abilities in each phase.

Disruption of the learning flow in crisis and stress situations
However, the learning flow of children exposed to crisis situations or severe stress is disrupted. The child falls behind in one or more dimensions and is no longer able to complete age-appropriate tasks. Malnutrition or growing up without the necessary stimuli result in the deceleration of their progress through these developmental stages. If this deficiency is already present in the early childhood stage, certain developments in the brain are unable to take place, and lasting damage occurs.

Essence of Learning – learning flow diagram

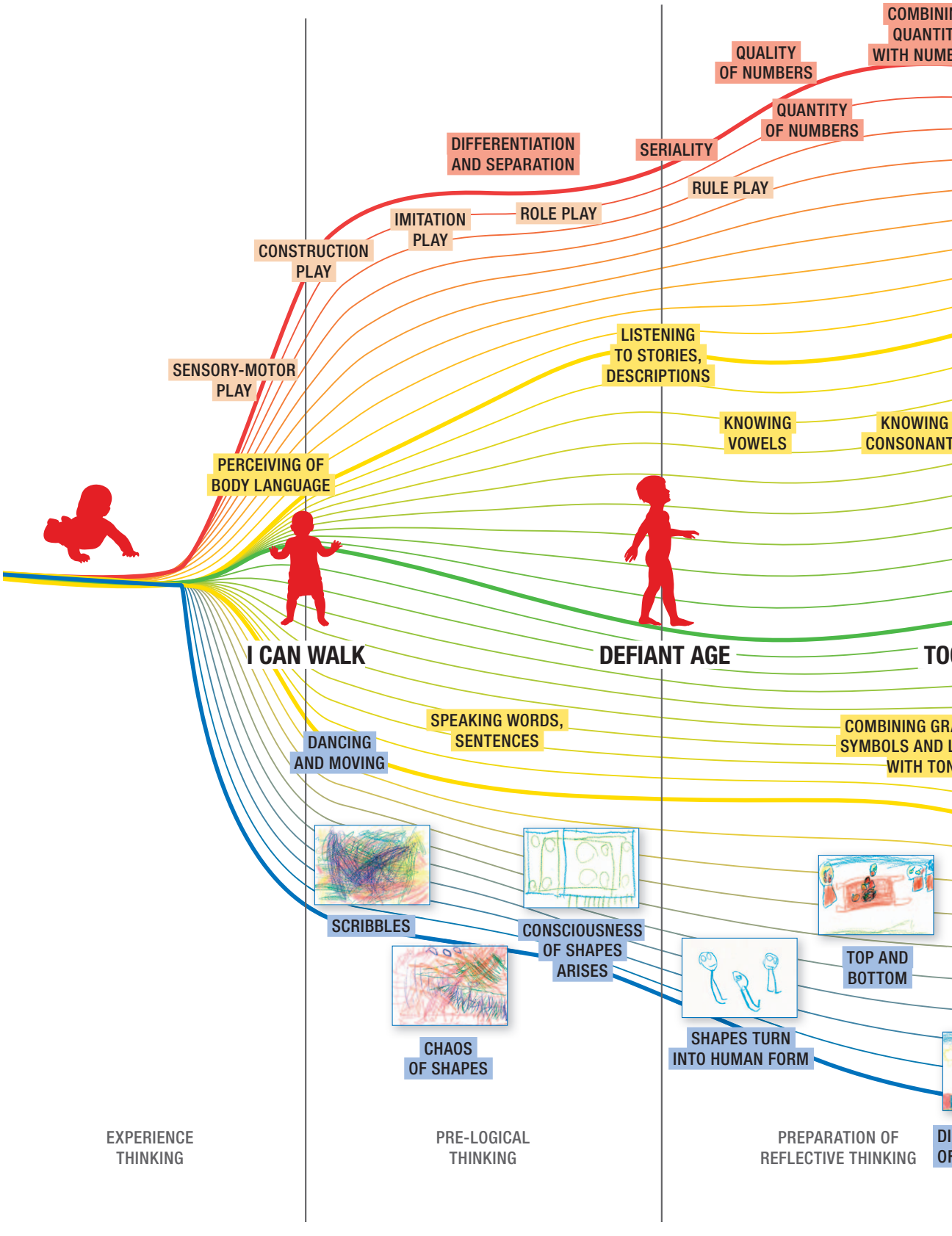
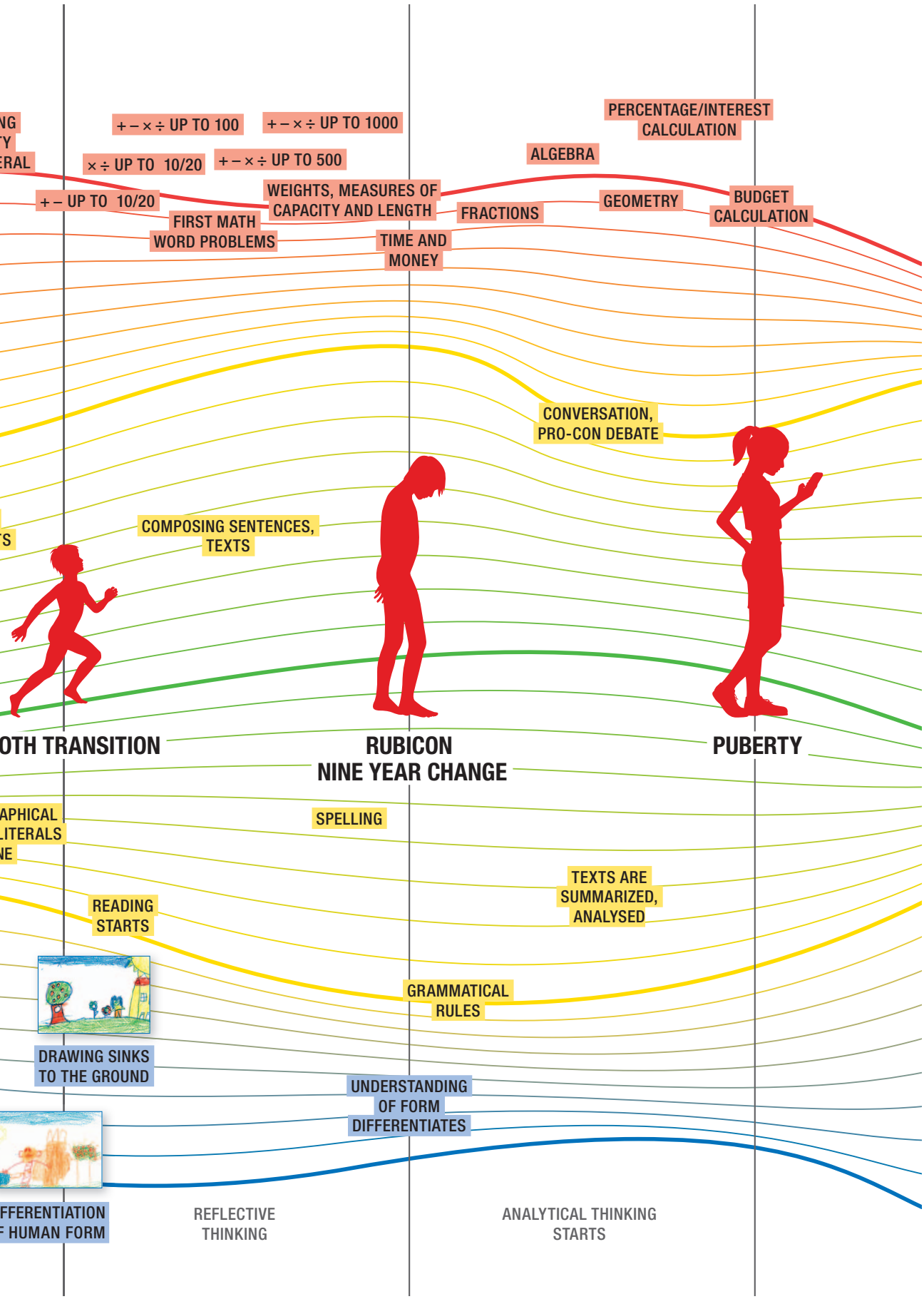


Diagram 6: Overview diagram for Essence of Learning: The learning flows for mathematics (red), language (yellow), and drawing (blue) are shown in connection with childhood developmental stages


+ – × ÷ UP TO 100
+ – × ÷ UP TO 1000
× ÷ UP TO 10/20
+ – × ÷ UP TO 500
+ – UP TO 10/20
WEIGHTS, MEASURES OF CAPACITY AND LENGTH
FIRST MATH WORD PROBLEMS
TIME AND MONEY
FRACTIONS
ALGEBRA
PERCENTAGE/INTEREST CALCULATION
GEOMETRY
BUDGET CALCULATION
CONVERSATION, PRO-CON DEBATE
COMPOSING SENTENCES, TEXTS
RUBICON
NINE YEAR CHANGE
PUBERTY
SPELLING
TEXTS ARE SUMMARIZED, ANALYSED
READING STARTS
GRAMMATICAL RULES
DRAWING SINKS TO THE GROUND
UNDERSTANDING OF FORM DIFFERENTIATES
REFLECTIVE THINKING
ANALYTICAL THINKING STARTS

Explanations of the learning flow diagram

The following diagram summarizes the various learning flows in the dimensions of play development or mathematics, language, and drawing with their respective learning steps. The various developmental stages which determine the respective mental abilities can also be seen here. With the help of this illustration, we can easily discern the stage the child is in or the dimension in which a particular child needs to catch up on learning steps, as well as the existence of any imbalance in developmental flows. Moreover, the selected presentation format serves to remind teachers that interventions in individual dimensions can never take place in isolation; each didactic intervention also affects the other dimensions. The categorization into the respective developmental stage aims to show teachers which mental abilities are open to the child and how content can be conveyed in a manner appropriate for each phase.

The figure shows that sensory perception along with movement and corporeal orientation, which are connected to the former, come right at the beginning of a child's development. The differentiation of sensory perception occurs across all stages. Sensory perception and the associated sensorimotor play are central elements of EoL (cf. Section 10.4). They frequently constitute the starting point for getting back into the learning flow. The first mathematical thinking tasks are linked to play development, which is why both topics are shown in the same learning flow.

The diagram clearly shows the point at which a child begins to be ready to think in a certain way and solve associated tasks. The specification of ages is intentionally omitted from the diagram. Teachers should categorize children into the respective stage based on their experience and provide the corresponding learning steps. If children are overwhelmed by the task, they should fall back on earlier learning steps, and if necessary, thinking abilities. In order to provide a clear graphical representation, the areas of mathematics/play, language, and drawing are shown separately. However, in practical implementation, work is always done simultaneously in multiple dimensions. For example, the understanding of numbers is linked to a story which simultaneously promotes language development, or children draw a picture for a poem in order to practice reading comprehension.

Sample exercises for the learning steps in the learning flows for drawing, mathematics, and language are provided in the module entitled, "Learning steps in the learning flow and learning aids."

7.3 Weekly topic

The weekly topic is always general and relevant to everyday life, but philosophical aspects can also be integrated. The reason for this is that this makes it easy to adapt to the respective age groups and the interests of the children. The weekly topic increases the significance and meaningfulness of learning.

Every topic is multi-layered and incorporates aspects, contexts, and consequences. On the one hand, there are entirely obvious and more general aspects, and on the other hand, there are social and highly specific aspects. The weekly topic offers general stimuli, but can also always be linked to school subjects such as language or mathematics.

Moreover, when the topics are linked from week to week, the children succeed at truly expanding their horizons, and they experience the interrelation between various things. In addition, they are always learning through their inner imagination, which also facilitates the process for them.

Along with the learning pathway and the learning flow, the weekly topic can be understood as an additional methodological / didactic aid which structures and simplifies preparation and follow-up.

Fig. 9: Weekly topic: “Harvest:” Working in groups, the children turn apples into compote, which keeps longer. During this process they weigh, count, learn, and nibble.

Thematic area: Humans, the environment, and transformation:

Weekly topic	3 - 6	6 - 9	9 - 12
Cow – milk	Cows give milk. I drink milk every day. I know when I am thirsty. I can provide for myself.	Cows live together with other animals which support us. Cows give milk which is turned into yogurt. They live together with the chickens that lay the eggs we use for cooking. I know that food is valuable.	Cows eat a lot. They have not just one stomach, but four. These turn the feed into milk. A farmer has lots of cows, because that’s how he makes his living. (…because he earns money from that.) I know that milk is perishable and needs to be cooled or processed so that it keeps.
Wheat – bread	Wheat is used to make bread. The wheat needs to grow in summer, so that it can be harvested in the fall and turned into flour.	Flour is the main ingredient for baking bread. I know that plants need water in order to grow. What else do we need to bake bread? Part of a baker’s life is having to wake up early in the morning.	The mill is an important operation for obtaining flour after the harvest. It is only when the harvest is good that we get lots of flour. For a good harvest, it is important to take care of the plants. The prices for wheat are different during the different seasons.

Weekly topic	3 - 6	6 - 9	9 - 12
Sheep – wool	Sheep give us wool. My sweater is made of wool. I can feel wool. It is soft and warm. I know when I feel warm or cold. I can also say where I am cold or hot. Sheep are glad when the farmers shave their coat in summer. They are also glad that the wool is used to keep out the cold in winter.	The wool needs to be processed, washed, and spun, so that it can be used for knitting. I can tell wool apart from other textile fibers. Do sheep feel the same things we do? Sheep are friendly animals who like living together in the herd. A dog keeps watch so that no wolf steals the sheep.	From the sheep to wool to the color of the wool to the design of the sweater. Which sweaters fetch which prices on the market? What is fashion? What do I like to wear, and why?

These topics can also be covered with 12 to 16-year-olds. If this is done, sub-aspects also need to be gone into in detail. The adolescents are given the task of ascertaining the relationships independently. This means viewing the big picture with the details as a starting point.

Thematic area: Habitats

The teacher can select an appropriate habitat depending on the respective location. One goal is to recognize contexts which are seldom covered in schoolbooks in this manner. The topic is delved into deeper and supplemented each day. Getting to know habitats and recognizing contexts helps to strengthen the children's relationship with the environment. For example, when poaching is seen as a matter of course, children can be sensitized in this manner to what the various living creatures mean for the habitat, how animals and plants keep each other in balance, and how humans benefit from this, as well as the fact that animals also have a soul and feel pain. Knowledge of habitats also contributes to environmental education and disaster risk reduction.

Many different habitats can be covered as part of the weekly topic with children from different age groups. Two examples are shown below:

Weekly topic	3 - 6	6 - 9	9 - 12
Forest	A forest has different types of trees. We require wood for cooking. I know stories about fire and can tell you about the damage they can do.	Which trees do I know? Lumberjack tools and what they can be used for. I know that fire is hot and can protect myself.	When the forest is cleared, it can no longer fulfill its function as a provider of food. The lumberjack must fell trees carefully, so that he does not injure himself, and so that the forest continues to exist, but he must also still be able to earn an income.

Weekly topic	3 - 6	6 - 9	9 - 12
Rice-fields	Rice grows in a rice paddy. The rice paddy belongs to my family and we eat rice every day. I know when I am hungry.	Rice requires a lot of water to grow. During which times of the year do the farmers perform which tasks on the rice field? Which tools do they require? I can distinguish between the sound of rice grains and gravel.	When it rains too little or the monsoon does not come on time, the harvest is small. What is a drought and how can farmers deal with it? During harvest time, additional workers need to be hired. How much are they paid? What do they do during the other seasons?

Thematic area: Occupations

Gender-specific aspects can be touched on by viewing an occupation from various perspectives. It is clear that the aspects and jobs to be discussed with the children will depend on the region and/or culture.

Weekly topic	3 - 6	6 - 9	9 - 12
Mechanic • Ventilation mechanic • Watchmaker • Car mechanic **Salesperson:** • At the market • In the supermarket **Manager:** • At home • On the farm • In a store **Healthcare:** • Doctor • Dentist • Nurse • Dental assistant **And many other occupations**	Children want to know what people in each occupation do. This can be made visible through body language and movement. Children also want to get to know the corresponding tools	Discussion of occupations can include gender-specific aspects. Discovering the properties of the tools. Who has which tools? Are expensive tools shared?	In this age group, occupations are viewed with personal interest.

Additional suggestions for weekly topics:
Living together and the child's own behavior, or the elements fire, water, and earth can be used as weekly topics. Similarly, behavioral patterns can be covered with foresight or hindsight. In particular, the topic of camouflage can be covered in conjunction with the problem of mines. In this case, both positive and negative aspects of camouflage are covered, along with the associated coping strategies.

Weekly topic	3 - 6	6 - 9	9 - 12
Pairs Partnerships	What kinds of pairs are there? Siblings, twins, mother and father, flower and insect	Why are pairs necessary? • Symbiosis: Bee – pollen • Parasites: Predators • Humans and animal • Animals and the environment	Friendship. Recognizing or making something possible through the other party. Something new arises.
Plants, growing, blooming, harvesting, withering, holding seeds in their hands.	Getting to know life processes	Referring to themselves and applying concepts to work. If I do not practice, my knowledge cannot grow. The ideas are my flowers. What are my seeds?	Experiencing the consequences of life contexts.
Camouflage **Transformation** **Coping strategies** **Signals**	Animals have camouflage, coping strategies, and they emit signals. The animals should be chosen according to the respective region.	Which strategies do we have? Which of them are good and which are bad?	We require coping strategies. How can I use them for learning, for homework, for my friendships and family?

These examples clearly show that the weekly topic is a particularly great opportunity to cover and teach almost any important topic. For one, curriculum requirements such as the topics of "Humans and the environment" and "Life skills" are also generally covered. In this manner, the children experience and develop the respective topics for themselves and become conscious of the relationships and consequences. Children do not want to be taught; they want to experience in order to be able to act, as they themselves know best what they want to do. The tasks in the learning flow should also be grouped around the weekly topic, i.e. mathematical problems and language exercises.

The preparation of the weekly topic by the teacher should include:
- Describing a situation from personal experience which is appropriate to the weekly topic.
- Take into account a different aspect on each day of the week (overall context, emotional aspects down to the last detail).
- Practicing free conversation (talking).

The following should always be considered:
- Can a child make comparisons? Is there a common thread? Can s/he make conclusions him or herself?
- Does the modality relate to the lives of the children in such a way that they contemplate the situation, develop feelings about it, and are able to reflect on it?
- Can the children link the topic with the current tasks in mathematics and language in a manner corre-

sponding to the learning flow?

- Is the story appropriate for the task and age?
- Am I working with stereotypes or am I expanding the children's horizons?
- Have I considered that the younger children have just begun to think reflectively, and the older ones are already able to assess specific facts in order to relate them to their own lives and use this to make independent conclusions?

Only when the three components, the learning pathway, learning flow, and weekly topic, have been implemented can we speak of EoL. All these are tools that allow one to determine why a particular approach was chosen during the preparation and follow-up phase.

EoL functional diagram

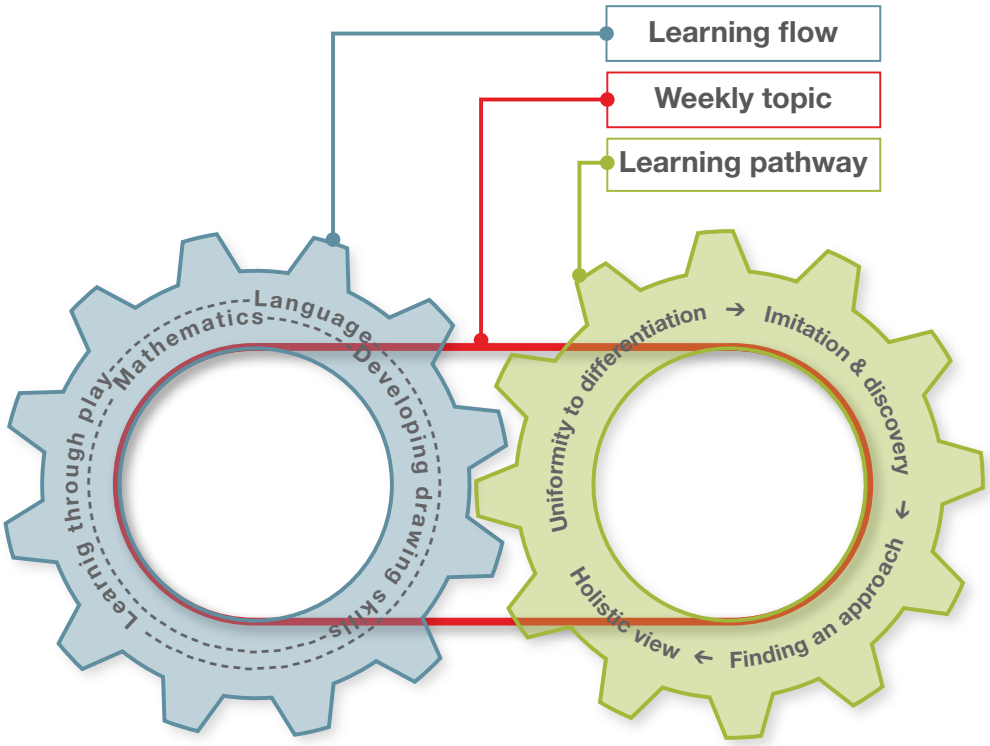


Diagram 6: The developmental steps in the learning flow follow the learning pathway, whereby the weekly topic constitutes the element that links everything together.

7.4 Project work

In addition to the basic didactics/methodology such as the learning pathway, learning flow, and weekly topic, it is helpful when children can also work on projects. The word "project" already suggests the leeway which causes the children to be so elated. Because this work is usually done in groups, the fear of failure is low, and a positive challenge can be accepted.

Schools in crisis regions very seldom or never undertake projects. Nor are they part of the curriculum. Therefore, they can only be used to promote learning in extra-curricular institutions such as in EoL lessons.

Kindergarten phase

When small children play, we do not call it a project, even though this play does indeed exhibit characteristics similar to a project. Every action during play is a procedural action; it has a beginning and an end, although these are not determined in advance. It is structured in "ongoing planning," so to speak, and remains within the boundaries of creative space without the child knowing where the process will end.

During play, children imitate, discover, add additional material, and create on their own or with others.

Primary school phase

While project work is, in a manner of speaking, naturally elicited through play in order to follow a course of action, as well as to plan it with foresight, this type of planning and execution is not really scheduled in primary school. Nor is there any nurturing of hindsight, which is certainly possible through reflective thinking at this developmental stage. Learning activities are derived solely from schoolbook tasks. Only the obligation of having to submit homework at the end of the week enables the experience of how an assignment needs to be planned in order to finish on time.

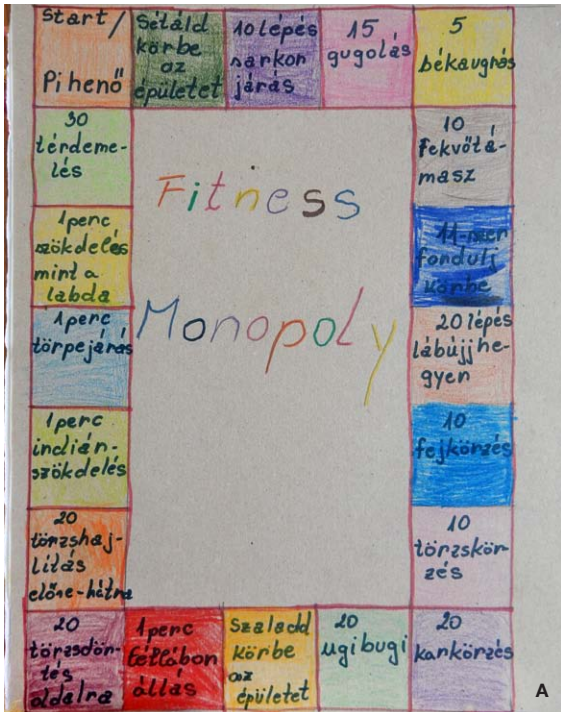
Project planning, execution, and review are important forms of learning which promote activity-oriented, proactive thinking, particularly when children are being ushered into abstract thinking. This is often neglected in “normal” schools due to time and material constraints.

Adolescents

Adolescents are prepared to carry out projects, even those which do not primarily serve to satisfy their egos. Every project always includes the unforeseen and creates freedom which can be used differently by individuals or groups.

Experience with projects shows that the children feel that their independence, a trait which they usually already possess due to their difficult living circumstances, but has never been seen as a competency, has been noticed. This form of work promotes the development of coping strategies and generates various approaches to developing solutions, both positive and negative. What is important is a joint review of the project work, whereby the various strategies should be compared and discussed with regard to their advantages and disadvantages.

Here too, the simpler the project, the more a positive result is guaranteed. Therefore, the duration and difficulty of the project can also be experimented with, i.e. the degree of difficulty can be increased.



A


B


C

A) Fig. 10: Inventing a rule-based game
B) Fig. 11: Long-term project: “Sowing and harvesting”
C) Fig. 12: Project work: “Baking cookies” in kindergarten

Module: Learning environment and structure

8 Organizing the learning space

8.1 The learning space

EoL can generally be practiced anywhere, for example under a tree, in the schoolyard, or in a room. The tasks are then adapted depending on the timeframe, space, and group of children. When small children learn out in the open in nature, the limits of the space should be made visible and clear to them by placing sticks in the ground tied together with a string. Such a boundary helps the child to focus and sense the safety zone. The same goal can also be achieved with the use of a carpet or folded banana leaves, for example.

8.2 Decorating the walls

The environment contributes to learning success. The more stimulating the decoration is, the more attention children pay to it. Therefore, a space should be designed to meet children's needs, which are to be respected. For example, if the cartoon character "SpongeBob" is pinned to the wall to delight the children, this neither stimulates their imagination nor awakens long-term interest. And if the poster is also placed amongst a wild mess of things to note and rules, it is understandable if the children do not pay any attention to the wall.

Changing the wall display, the unexpected, and of course their own work on a particular topic are what grab the children's attention. This gives them the confirmation that their work is noticed. This holds true despite the fact that the younger children are, the more they are interested in their own activity and less in the end result. However, it grows increasingly important with age. The primary aim is to give children attention and not to judge them. Therefore, when presenting their work, it is important to choose a cross-section, when it is not possible to put up all their work. The pictures should be hung at a level appropriate for the children's heights.

Fig. 13: Wall design for the weekly topic on "Health" in kindergarten

Fig. 14: Wall design for the weekly topic on "Water" in primary school

When EoL is taught separately as a supplement to regular school, the children begin working in an empty room and get to see it being filled with their work. This experience of growth is felt to be motivational. They then recognize that they, themselves, are constantly improving, and their work is becoming increasingly beautiful and accurate.

In a one-year learning promotion program, the wall displays are also switched out and changed according to the seasons. This too connects their consciousness with the outside world and promotes satisfaction.

Fig. 15: Room decoration in primary school. The objects are pinned onto a styrofoam board, allowing them to be replaced as necessary.

Fig. 16: Room design in kindergarten / primary school created by teachers

8.3 Cleaning the learning space

This is also a task that can be performed together with the children in an age-appropriate manner. In this case, it is important to alternate the groups of children performing the cleaning along with the teacher, so that the value of this work is made visible. The aim is to experience regularity and to convey the feeling that "we can do it." The children are given responsibility, and the work done is appreciated and noticed.

Unfortunately, this work is often delegated to children who have behaved in an inappropriate manner, and this important task is used to discipline them negatively. As a result, the child's self-esteem is not nurtured; rather, s/he has the feeling of being ignored and shunned.

9 Materials

Learning is easier when it can be done with materials. In EoL programs, as much material is provided as possible, so that the children can choose from a wide range of offerings. In crisis regions and generally in times during which education ministries have limited budgets, recycled materials are an ideal choice. They are available everywhere and can be independently collected by the children. Moreover, they also immediately realize that these materials are available at home and can be utilized. In this manner, children experience the topic of sustainability first-hand, environmental issues can be covered, and school comes one step closer to their daily lives. Not only do all materials need to be clean, but they should also be reviewed to determine if they are appropriate for the respective age group and task. Small children naturally put things in their mouth. Therefore, only pieces that cannot be swallowed should be chosen. A rule of thumb is: The smaller the hands, the larger the materials need to be.

0 to tooth transition
Preschool children love materials and require them as stimuli for play. The ratio of 80% multi-functional materials and 20% defined materials, such as puppets or toy cars, has proven itself in EoL lessons (see examples at the end of this module).

Tooth transition to puberty
Many children also appreciate having access to defined materials. However, it is often the case that schools now only work with multi-functional materials; the older the child, the less versatile the materials. The use of plastic bottle caps is a popular choice across all age groups.

When promoting reading, storybooks now have a different significance than in kindergarten, where listening and the vivid imagination of stories are reinforced as the antithesis to television.

Early to late puberty
Children lose interest in working with materials as adolescents. In contrast, their interest in electronic gadgets such as cellphones is extremely strong. However, when thought-provoking stimuli are necessary for solving a task, they use extremely small materials which are invisible to others.

Fig. 17: Multi-functional recycled materials such as PET bottle caps

Fig. 18: No matter where children grow up, they have a basic need for “key” toys such as cars and puppets

9.1 Multi-functional, “flexible” materials / recycled materials

In many crisis regions, particularly after natural disasters and wars, paper, pens and pencils and chalk are in short supply. Therefore, there is often insufficient material for practicing and repeating the tasks. Combining different materials and having the feeling of being able to change and shape something gives the children a special learning experience.

Water
In hot countries, exercises can easily be done by using water to write on the ground, after which the sun “licks” the writing away. Children find this amusing, and it motivates them to work quickly so that the sun doesn’t erase their work faster than they can write it.

Plastic bottle caps

Plastic bottle caps are great for creating materials in groups and e.g. practicing mathematics problems. Plastic bottle caps can be used anywhere — whether outside or in the classroom. They require almost no preparation and are easy to put away. The children also love exchanging the caps with each other. Many children pick up on this technique and use it at home as well.

Tetra Pak packaging

Tetra Pak cartons can be cut open; on the inside is a waterproof silver foil that can easily be worked on. Tetra Pak cartons can also be easily cleaned and cut into all conceivable shapes.

Natural materials

Natural materials can also be used in the same way as bottle caps. However, this poses a higher level of difficulty, as the unique colors are missing. But natural materials can be better distinguished, because there are e.g. small and large, or pointed and round seeds. Some countries or regions have leaves which children can draw on and which can be used in a manner similar to paper. Natural materials are great for use in lessons and for creating patterns and series. Long grass, sticks, or a string can be shaped or laid out into letters and numbers.

Natural materials can also be used as learning aids in all subjects. They are also great for playing with during interim activities and can be utilized in group work. Children are encouraged to experiment and practice; these activities are often experienced as calming or relaxing.

When filling in schoolbooks or coloring in coloring books, children frequently feel stressed and limited, because mistakes are more obvious. Often, they do not even have an eraser they can use for correcting mistakes. Moreover, when working with flexible materials, a greater number of options exist for performing work, which is particularly important for children who are limited by disabilities. This causes them to experience significantly less stress.

Fig. 19: Painting on tiles with water

Fig. 20: Puppets made of corn cobs

Fig. 21: Construction game with seed pods

Fig. 22: Toy cars made of medicine boxes

9.2 Materials that are easy to make

Clay, plasticine / salt dough

With clay, even small hands can give creativity free rein, and children experience how a hefty piece of clay can be compressed. In addition, the child experiences how drying the malleable material turns it into a hard, immutable object.

Plasticine and salt dough are ideal materials for constructive and supplementary tasks. While salt dough eventually hardens, plasticine always remains soft and malleable.

When children form small objects such as fruit out of salt dough, they are ideal for training the mathematical understanding of addition and subtraction, for example by role-playing a day at the market. The elastic plasticine is also ideal for practicing multiplication and division and can be used for the transformation of shapes and materials, as they change from malleable to static. These are important experiences which promote networked thinking.

Recipe for salt dough:

Ingredients: 2 cups of flour, 1 cup of salt, 1 cup of water, and a spoonful of oil (if possible).

Directions: First, mix the dry ingredients; then knead in the water and oil. If the dough is too sticky, work in some more flour. After that, let the dough rest for 1 hour in a place that is as cool as possible. After the children have shaped the dough into various shapes, leave it to harden. First, let it air-dry until the next day; then let it harden in the oven for approx. 1-3 hours at a maximum of 150 degrees C if possible, or let it air-dry for a long period of time (one day of drying time per half centimeter).

When dried, the salt dough can be painted with different colors.

Fig. 23: Figures and objects made of clay

Making paint and glue

Many children never get the opportunity to experience chemical processes in school, despite the fact that they are obviously always excited, for example, to make paint and glue from existing base materials, and in doing so, experience a transformation. With the help of simple techniques, red beets can be used to make a deep red paint, for example, or yellow flowers or a yellow-colored spice such as turmeric can be used to make a yellow paint which they can use.

Adhesives can also easily be made together with the children, or older children can make them for the younger ones.

For the children, it is like experiencing a miracle to see that what they themselves have made really sticks things together. These are process experiences which they are unable to have in school for various reasons. Most of the older students have never been in a chemistry or physics laboratory where they could have experienced chemical experiments.

Many children also say that their grandfathers in particular still possess knowledge about ancient cultural technologies. This is always linked to the aspect of materials which are taken from nature in the surrounding area.

Recipe for glue:
Ingredients: Flour, 1 cooking pot, 1 cup, water, 1 tablespoon, sugar, 1 whisk
Directions: Whisk 2 heaped tablespoons of flour with half a cup of water in the pot. Pour in 1 cup of hot water. Heat the liquid while stirring constantly until it thickens. Add 1 tablespoon of sugar and let the glue cool. Flour glue is great for gluing things.

Recipe for paints
The following table gives an overview of which materials can be used to make which colors and hues.

Color	Natural materials	Instructions
Yellow	Turmeric (curcuma) powder, curry powder	Bring 1 spoonful of the spice to a boil with water.
Orange, brown	Carrot juice Onions	Grate carrots finely and press them out lightly through a tea sieve (raw). Crumble the dry outer skins of several onions. Boil two handfuls of them in half a cup of water for approx. 10 minutes. The longer the boiling time, the darker the color. If the skins are soaked overnight before cooking, the color becomes even darker.
Red	Hibiscus flowers, Cherries	Bring flowers to a boil and strain. Press out berries with a fork. Press through a sieve.
Green	Raspberry, blackberry, stinging nettle leaves; spinach	Cut leaves into small pieces. Boil for 10 minutes with half a cup of water and strain.
Brown	Used coffee powder, or black tea.	For intense colors, make extremely strong tea or press the coffee grounds through a sieve.
Black	Coal, charcoal	Boil and strain.

The intensity of the color can be controlled through the quantity of water. The children can apply the paints with their fingers or with a makeshift brush consisting of a feather or a fine twig with soft material on the tip. Natural colors fade much faster than commercially available ones.

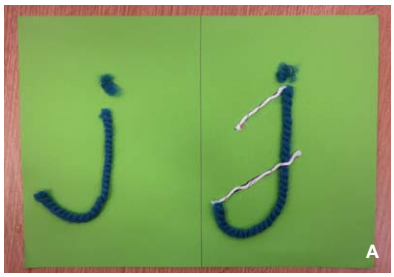
Fig. 24: No brushes? No problem.

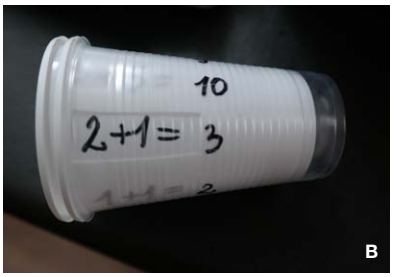
Recycled and natural materials, their properties, and using them as teaching materials

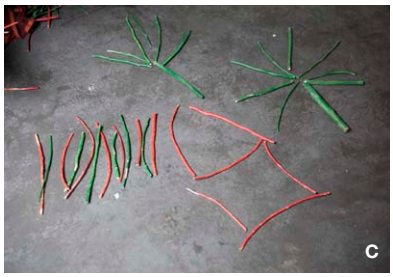
Recycled material	Characteristics	Uses
Plastic bottles	Plastic bottles	Can be cut up or filled with various objects, so that various sounds are emitted when the bottles are shaken.
Plastic bottle caps	• Colored • Various sizes • Easy to wash	Available everywhere. Children love exchanging different colors with each other. They are suitable for orienting activities.
Natural materials	Some are easily perishable (need to be replaced regularly)	Every location offers different natural materials (stones, leaves, nuts, seeds etc.). They can be used to carry out activities similar to those with Plastic bottle caps.

A) Fig. 25: Plastic bottles with various contents for different sensory experiences
B) Fig. 26: Plastic bottle caps for a variety of activities
C) Fig. 27: Natural materials such as leaves or seed pods for playing and learning

Recycled material	Characteristics	Uses
Strings / wool threads	• Easy to shape • Can be cut up or separated	Used for the understanding of shapes and the placement of symbols in mathematics.
Cups (e.g. from yogurt)	• Hollow on the inside	Ideal for creating a calculating machine
Pieces of wood / straws (e.g. popsicle sticks)	• Sturdy	deal for writing in sand or with water. Sticks can be used for writing and for modifying numbers, or for placing addition, subtraction, and multiplication symbols.







A) Fig. 28: Wool threads are used to create alphabet cards
B) Fig. 29: Mathematical learning aid made of plastic cups
C) Fig. 30: Colorful wooden sticks for laying out images, ornaments, or mathematical tasks

Drink cartons	• Silver foil on the inside	The silver foil in drink cartons is attractive to children, which is why such packaging material is often used to cut out shapes and letters which can also be painted on.
Boxes	• Different sizes/shapes • Hollow on the inside	Ideal for building and creating things and great for construction games.
Cardboard	• Suitable for older children (younger children put it in their mouths))	It serves as construction material or a neutral base.

A) Fig. 31: There should always be plenty of boxes, especially for children under the age of two.
B) Fig. 32: Construction play with cartons.
C) Fig. 33: Toy cars made of beverage cartons.

Recycled material	Characteristics	Uses
Polystyrene / foam material	• Difficult to cut (can be separated using scissors or a knife)	It is ideal for creating special shapes, but can also be used for cutting out numbers or letters.
Newspaper	• Easy to shape, can be torn or cut	Newspaper balls can be used for throwing games and haptic activities. Newspaper is also ideal as a base or filler material. The newspaper balls can also be filled with crinkly potato crisps bags so that they make noises.
Fabrics	• Decorative, colorful	Fabrics from old clothing can be used in a variety of ways for creating and decorating things; often, children use the fabrics to create puppets.
Clay / plasticine	• Easy to shape	Clay, which is also used as a building material in many regions, is suitable for creating shapes and symbols as well as for experiencing the transformation from soft to hard.

Fig. 34: Letters made of foam

Fig. 35: Balls made of newspaper

Fig. 36: Puppets made of leftover cloth

Fig. 37: Natural materials are connected with plasticine

10 Creativity, games, and sensory exercises

10.1 Creative techniques

A certain amount of freedom is a prerequisite for the creative process.

Each of the transformation techniques applied, for example for craft work, requires a different materials and motor skills. The level of difficulty can be modified primarily via the material and the complexity of the task. However, the technique used remains the same. Many of these techniques can be used to support language development or mathematics. For example, folding tasks help with visualizing fractions. Even though execution can vary in each individual case, the children have a clear structure and a task which is always based on the weekly topic. Many of these sensory techniques are also “ancient techniques” that are used in various cultures. Therefore, there is something “universal” that links them.

Technique	Activities
Separating / putting together	Tearing, cutting, gluing, sewing
Changes in shape	Folding of paper and textiles, from easy to difficult
Weaving/braiding	Up / down movement in a rhythmic form
Printing techniques	Creating a stamp and printing it (negative/positive print)
Cutting out	Inside and outside/shape and counter-form

It has been observed that this type of creativity is not used in school for learning mathematics or to help with language. Craft work is used in EoL to create learning aids. While folding and weaving tasks are mostly concentration techniques, the tearing of materials tends to bring about relief (relaxing/de-stressing).

A) Fig. 38: Simple weaving technique with cardboard and threads / strings
B) Fig. 39: Braiding and weaving with banana leaves (higher level of difficulty)
C) Fig. 40: Printing technique with plastic bottle caps and curry powder: Training the awareness of shapes

10.2 Painting

Drawing with chalk and later on with colored pencils must be distinguished from painting. Natural colors are particularly suitable. Painting makes it possible to experience the paint and colors, which are the focus here, less so the details. For expression, it is also important what is being used to paint: fingers, teabags, cloth or cotton wound around a stick, foam, feathers etc. Small children prefer to paint with their fingers rather than with thin brushes. Older children utilize different materials for their creations and like to differentiate

depending on material thicknesses. It is obvious that painting can also be done when no classic brushes are available. Working with paint and mixing them to create a different hue or a completely new color is also an experience for older children in crisis regions, and encourages their creative drive.

10.3 Forms of play

Each type of game can be adapted for different learning goals. The use of dice introduces an unpredictable aspect, which children like. The game can also be monitored, as the results need to be checked and the winner determined.

Games	Effect
Throwing/bowling games with newspaper balls **Marble games with small round clay balls**	Throwing relieves stress in the nervous system by tensing and subsequently relaxing the musculature.
Jumping games / elastic rope	Like throwing games, the movement relieves stress after children have been sitting down for long periods.
Balancing, **Walking backwards** **Dancing/playing an instrument / following a rhythm** **Smelling/tasting** **Haptic games** **Telling jokes or puzzling over riddles can be categorized as language-meaning games**	These games are highly suitable for activating the senses, and therefore have a positive effect on learning behavior. Consequently, they are often also found in various psychosocial approaches. Many of these games can be offered with various levels of difficulty, with or without blindfolding. The children should never have the feeling that they are not living up to expectations; therefore, it is always the child who is to select the level of difficulty.
Games in circles **Singing and clapping games**	Children like these games, because they can look at each other. They are ideal for training the sense of meaning, because e.g. during singing and clapping games, children need to think about their partners with foresight. Every culture has different circle, singing, and clapping games.
Guessing games, matching games, card, and board games	These promote concentration. Children also love creating their own games and independently changing the level of difficulty and rules.

Fig. 41: Singing game in a circle

Practical notes

- All forms of play can be linked to a specific learning task. Depending on the type of play, the teacher knows if it is more of a game that requires concentration (e.g. a matching game) or I it requires solving (e.g. throwing games).
- Many forms of play can also be adapted depending on whether they are played outside in nature, in the schoolyard during recess, or in the classroom. Playgrounds continue to be rare in crisis regions or cannot be built at all in slums, because there is no space for them.
- If the child is in a hospital, it must be ensured that the materials used are either disinfected or can be thrown away or replaced with new ones. But this too can be done, as e.g. the medicine boxes offer a great deal of possibilities. Plastic bottle caps can be disinfected both chemically and with heat. Plastic bottles used for bowling games can subsequently be disposed of.

10.4 Sensory exercises

In-depth work with the senses makes it clear that the senses are particularly “on alert” during times of crisis. Small children try to suppress them, while older children need to work on an entirely new approach to dealing with them. Sensory perception is taken into account when working with the learning aids. The senses can also be stimulated with the exercises described below. All of these are exercises which depict the children’s natural playing behavior and let them practice experiencing nature. However, in crisis regions this is either impossible or only barely possible, which is why they need to be consciously integrated into daily learning routines. Extreme caution is particularly required in regions overrun with land mines and cluster munitions! In refugee camps, it is also difficult to offer children an environment that stimulates the senses with plants, animals, and a wide range of opportunities for observation and exercises. In these cases, the focus should be on designing the schoolyard, which can often be easily enhanced with simple objects with the teachers making suggestions to the children. Playgrounds are extraordinarily important for all children, particularly in crisis regions. However, they are regarded as luxuries in these areas and are not awarded funding.

With the help of the weekly topic, aspects which are of particular significance in times of crisis, such as disaster prevention, the dangers of unexploded bombs and mines or hygiene, can easily be covered. By actively dealing with these problems, they are internalized and integrated into daily life.

Fig. 42: Learning hygiene for survival through play

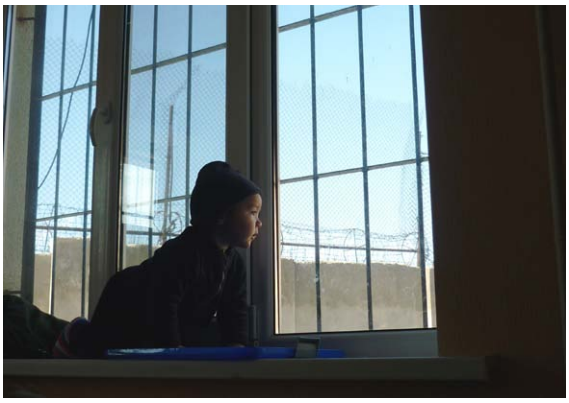


Fig. 43: Child grows up in prison

Such conditions as hunger or the absence of clothing caused by shortages result in children, particularly the younger ones, unconsciously reducing their sensory perception. Traumatized children exhibit weak corporeal perception and corporeal orientation. Various perception games should be offered to reactivate and reinforce their sensory perception — and not just during lessons. The use of learning aids is also important in this respect, as they help in reinforcing the child’s natural motivation to learn.

Listed below are practical examples which provide suggestions for sensory perception in class. With this broadened view, class organization can be adapted even better to the needs of the children.

Activation of sensory perception

Senses	What children in crisis exhibit	Exercises
Vital sense	I can no longer feel.	The teacher describes the environment, the activities taking place in the surroundings, and the different feelings, thereby sending the child on a journey of experiences in order to re-establish the link. Images and feelings are to be experienced together once again.
Sense of movement	"I cannot feel where individual parts of my body are located". Want to constantly be moving about. Walking backwards is often no longer possible and needs to be re-trained.	Children are to close their eyes and sense their hands, feet, and head. Children let other children "place" themselves in a position which represents an activity or an animal. After that, work exclusively with oral instructions. Children who have to constantly move about benefit from seating options other than chairs with backrests. Dancing, moving about, tensing and relaxing in order to exercise muscle tone.
Sense of balance	Exhibit difficulties with balance. "Practical observations definitely indicate a relationship between balance and arithmetic." (Auer p. 66) This statement can be confirmed and is corroborated by experiences in crisis regions.	Balancing, swinging, hanging, climbing, jumping, walking on stilts, jumping games etc. Outfit the schoolyards with balancing beams and other play equipment. The child learns to re-establish a relationship with what s/he has experienced, to assess commensurability, and to place everything in context.
Sense of temperature	Children lose the ability to sense cold and warmth when they constantly have to withstand the cold and do not have adequate clothing. Every sense can be reawakened. However, if their lack of access to adequate clothing continues, awakening a sense can also have negative consequences.	Among other things, well-being is also triggered by the right body temperature. Situations are also described as "cozy and warm" or "cold." The environment in a classroom also contributes to learning success. Exercises for consciously sensing warmth and cold, and touch on the skin. What triggers the warmth and the cold?

Senses	What children in crisis exhibit	Exercises
Smell	Extremely sensitive to smell, as the scent directly triggers memories.	Trigger a variety of smells by making them conscious of scents or by describing them. Fill bottles with substances with different smells, e.g. spices.
Taste	Many children are glad to have something to eat, and unfortunately do not experience any variety in their meals. This has a negative impact on their sense of taste.	Sweets and sweet drinks are often linked to “good.” Artificial aromas are also widespread and suppress the taste of fresh vegetables and fruits. Therefore, food and eating habits are often a topic to be worked on with parents
Hearing	War is loud! Loud noises make people jumpy and spread fear. Small children unconsciously turn off their sense of hearing to protect themselves.	The sense of hearing is awakened by: • Body language and gestures. • Listening to stories • Presenting stories • Presenting stories and expressing them with language • Creating sounds • Distinguishing sounds • Experiencing rhythm and melody; singing, dancing. • Closing their eyes and experiencing where the sound is coming from. • Reciting poems with corresponding body movements • Presenting poems entirely with body movements, but silently thinking of the text at the same time. • Clap-stamp exercises during arithmetic • Solving riddles, telling jokes. • Composing sound poems, making up new languages and using them to converse.

Fig. 44: A story that was heard is played out

Senses	What children in crisis exhibit	Exercises
Seeing	Many children do not notice their environment. They do not picture it as an inner image within their minds. Many children say that they have never drawn freely before. Experiencing colors and expressing themselves with them is also new for them. Looking at photographs of real plants and animals in order to describe the colors of flowers and the shape of the leaves, their appearance, the pattern of a coat of fur etc. is something the children often do not experience in school. Therefore, a distinction must be made between perception exercises and knowledge (What kind of a plant is this? What kind of an animal is this?). Perception should always be the starting point.	Drawing, depending on the age of the children, also tracing or copying. Experiencing colors, distinguishing between light and dark, linking feelings to colors. Describing photos. Comparing, estimating, describing differences. Using body language in theater skits. Using pictographs, symbols, and emojis as language. Looking at art prints. Combining language and imagery.
Sense of language – Sense of meaning	Many children affected by a crisis find it hard to concentrate. This makes it hard to listen to the teacher and, above all, to internally follow the teacher in their minds to predict what s/he is trying to say.	Many of the aforementioned exercises promote the sense of language Describing an observed event generates an image which is then condensed over the course of centuries to create a vivid idiomatic phrase (metaphor): “Pulling someone’s chestnuts out of the fire.” So, every culture has its very own idioms. Discussing the origins and meanings of metaphors — are they still applicable? Presenting metaphors as theater and pantomime.
Sense of thought — Sense of meaning	Activities and processes cannot truly be perceived, because games, as complex free activities are too short, and no project work is performed.	Developing decision-making competency which enables the anticipatory action-taking. Planning — execution, reviewing, and objectively reflecting on what was good, what was bad, and what could be improved etc.

Senses	What children in crisis exhibit	Exercises
Sense of self / Ego	Empathy is experienced by means of attention. “In order to perceive the other person, I also need to know myself.” Many children cannot sense their own individuality, because they do not have an empty exercise book and have no opportunity to express themselves individually either through drawing or writing.	Using stories to describe the feelings of others. What is the other person thinking; what does the other person experience when I do this? How do I feel when I assume the role of the other person? Making not only links and relationships, but also shared and divisive aspects visible. Being able to express themselves individually in a variety of ways.

t is clear that hearing and sight particularly complement each other. They are interdependent, like breathing, which comes about by inhaling (tensing) and exhaling (relaxing). At the same time, these senses are clearly of elementary importance for learning success. But it is interesting that the body’s senses form the basis for differentiation and therefore for learning. In particular, the senses of movement and balance which, in a manner of speaking, are the elements for moving and weighing things against each other, are important for building a foundation for learning.

Senses always work in conjunction and always lead to a feeling (positive or negative) and an insight. The methodological/didactic instructions make it possible for the children to gain experience with self-perception and self-restriction and transform sensory insight into decision-making competency.

Joy and humor are also two resources which provide complementary aid for keeping the will to learn alive — despite any deficits in perception.

11 Daily and weekly structures in EoL programs

11.1 Structure as a “secure framework” for free development

Children growing up in crisis situations are not the only ones who require a fixed structure and a rhythmic daily routine to be able to orient themselves. In uncertain life situations which are characterized by unreliability and non-rhythmic routines, children are particularly reliant on a “secure framework” to once again be able to develop freely and find their way back to the natural developmental pathway for learning. EoL programs provide this framework in the form of a fixed structure which enables children to undergo natural development through play and to satisfy their need for learning with joy, by means of a balanced rhythm of concentration and relaxation.

The ways in which days and weeks are structured in the fields of early childhood and infant education are shown below in tabular form.

11.2 Daily routine for children in nursery (0-3 years)

It is very important for the young child to be able to practice the learning steps individually and according to their age. Children who can already walk need a lot of movement. For those who are not yet able to walk, there must be a place to lie down or sit in order to give them the feeling of being there.

Structural element	Activity	Explanations
Arrival	Free activity	Children arrive at the program with their parents.
Morning circle	Greeting ritual	Circles allow all children to see each other. The ritual also helps children to separate themselves from their mothers and provides them with a secure framework. Hearing names, being addressed, and moving about together at the same time are things which children like.
Mealtime	Taking meals together	The smaller the children, the more requirements there are on mealtime arrangements. At the same time, the ability of children to eat on their own should be respected wherever possible.
Learning time	Activities are offered according to age: • Treasure box • Construction game • Imitation game • Role-playing game Sand painting and finger painting are offered. Small children also like using their fingers to paint with finger paints they have made themselves or drawing on the street with chalk. As soon as children can hold a pencil, they are given paper.	The game changes depending on the materials available. Children like sitting next to “older” children and imitating them. In this way, even small children are involved as “co-educators.” Rule-based games are not yet offered at this age, as children only play these games starting from the defiant age.
Sensory perception play	Relaxation: Small children rest or sleep. Older ones will be glad to be outdoors or watch other children or adults.	Various forms of sensory perception playing are being offered inside and, where possible, outside (cf. Module entitled, “Learning steps in the learning flow and learning aids“). They should be used for relaxation wherever possible.

Structural element	Activity	Explanations
Fairy tales	Even very young children love to hear stories. They follow the lip movements and listen to the words with rapt attention, even though they are not yet able to understand the context. The better the kindergarten teacher tells the fairy tale, the better the child experiences suspense and relaxation and gets used to the sound of the language.	For small children, it is not the content of the fairy tale that is important, but active listening and observation.
Mealtime	Small children eat before going back to sleep.	The rhythmic organization of the morning spent in the company of the other children offers the children the opportunity to alternate between movement and activity, observation, and relaxation
Break		
Afternoon program: Free play	Free play in the daycare or outdoors. Many children also want to paint and create.	

When planning schedules for this age group, it is important to remember that the children will need to "go potty." Weaning children off diapers varies between cultural circles — in some cultures children do not wear any diapers at all.

Fig. 45: Eating together

Fig. 46: Example of a morning circle

11.3 Daily and weekly routines for children in kindergarten

Starting from this age group, children have already developed the learning pathway which now becomes the methodology/didactics for acquiring learning flows in mathematics, the understanding of shapes, and language. Their consciousness is now directed toward the learning content and not the path to it; the latter is a means to an end. After the defiant age and until they start school, children are not yet able to think reflectively. They learn best by means of complex and procedural experiential learning. Now the weekly topic, which is reflected in all activities, in such a way that the child is able to recognize relationships, also increases in importance.

The programs are of different durations — from two to four hours to a daycare arrangement with alternating sequences for relaxation and concentration.

Structural element	Activity	Explanations
Arrival	Free play	Children are brought to the program by their parents. The arrival time is between 15 and 30 minutes. The children know that they are permitted to freely play with a certain number of toys during this time (which are usually located in a special box). Once the morning circle begins, the children put the toys away independently. The advantage of this arrival phase is that the teachers also have time to speak to the parents.
Morning circle	Begins with a greeting ritual. Singing, moving about, learning stories or table theater, journey into the topic, ritual conclusion.	Circles allow all the children to see each other. Thanks to the ritual, explanations do not have to be given each morning. The learning story is developed further each day so that new aspects are made accessible to the children. Discussion is encouraged, so that the children learn to speak in full sentences. The descriptive journey into the topic is an important element, as the children can express all persons, animals, and the outside world by using their bodies and therefore learn to actively sense their bodies. In this manner, the children experience the "inside" of the learning story. A ritual conclusion tells the children that it is time to eat.
Mealtime	Eating together is important for social learning. Children who finish their food first can play freely if they have not been given a task.	The children are involved in the preparations. Usually, this begins with the washing of hands and distributing the food. Children also know where they are to bring the used plates. Children love to help and experience responsibility. Children need lots of time for these tasks. Therefore, the teachers must ensure that the children do not have to wait long, but rather organize the routine such that many children can be involved.

Structural element	Activity	Explanations
Learning time: Monday: Construction game	On the first two days, the children are given an orientation into the weekly topic. Monday: Sensory perception	The construction game promotes group work.
Tuesday: Drawing	Tuesday: Imaginative and individual	Painting and drawing about the weekly topic or freely.
Wednesday: Craft work	Wednesday: Craft work teaches the children a process and a transformation. In this case, the children also train their motor skills.	Simple craft work with various materials is a treat for the children. This can also take place in groups, while the others engage in free play.
Thursday: Mathematics	Mathematical activities are experienced experimentally in a manner that suits the learning flow by gradually offering the children more difficult materials. The mathematical topic is introduced with a role-playing game.	Mathematical and language activities are designed to suit the learning flow.
Friday: Language	The children must be provided with the same for language. Here too, the role-playing game is a form of play which allows the children to assume various roles and to try out speaking to others or language within a thematic framework. This can initially be just body language, after which it is combined with verbal language. When listening has been experienced, children can begin drawing and writing the shapes. The fact that language is scheduled toward the end of the week also makes it possible to summarize the week. If craft work is omitted, the remainder of the day is used for repetition and summarization. This is also done if children can attend kindergarten 6 days a week.	At the end of the year, the children can create a learning book composed of their drawings, numbers, sheets, words, and letter symbols. If children finish the tasks earlier, activities can once again lead back to free play
Sensory perception playing / rule-based games	Games are planned regardless of whether the children play in the classroom or whether they can be outside in nature.	If the morning kindergarten session is too short, this section is left out. However, the parents are encouraged to let their children play outside.

Structural element	Activity	Explanations
Fairy tales	After the children have engaged in physical exercise, they once again gather in a circle to listen to a fairy tale.	The fairy tale can be chosen to fit the time of year or the weekly topic. The fairy tale is told over the course of the entire week. It is told in the standard language and not in a dialect. Children who are not taught in their native language will hear the fairy tale in both languages in order to get used to hearing the «foreign language."
Saying goodbye / mealtime	Children who go home earlier do this after mealtime.	Children who eat in kindergarten do so before they hear the story which is then usually told when the children are already resting. Children who need to wait for their parents to pick them up can once again play with toys from the special toy chest which they were previously permitted to play with before the morning circle.
Break		
Afternoon program: Free play	Free play in the kindergarten or outside. Many children also want to paint and create.	

The schedule allows the children to practice learning steps in kindergarten so that they are well-prepared for more advanced learning in primary school. Children who attend the program for a period of two years do not find this boring despite the repetition. Due to their mental development, their consciousness is constantly developing, and they experience the repetition in an entirely different way.

Children who have practiced experiential learning in an age-appropriate manner are glad to receive their first schoolbooks. Socialization is the key focus, and competitive behavior is ushered into the age group where it belongs. Infant education is the age group in which learning and play are naturally linked to each other and visibly developed via a corresponding timetable.

Fig. 47

11.4 Daily and weekly routines for children of schooling age

10-week program

Unlike in kindergarten, methodology / didactics are applied in a manner that complements the learning pathway in the individual subjects. This means they are not practiced in succession as they are in kindergarten. The EoL programs for children of school age are frequently limited to two-hour sessions three to five times a week, and are either distributed across the year during school lessons, or intensively scheduled for a period of 10 weeks.

Duration	Activity	Explanation
1 to 2 weeks: Introduction	During this phase, the children are familiarized with the different method of working Children prepare the learning aids. It is also a time to get to know each other.	Structuring of lesson periods: • Ritual • Sensory perception exercises • Introduction/in-depth work through the description of a new aspect in conjunction with the weekly topic • In discussions/ • Via specific practical exercises • Stories • Ritual conclusion • Relaxation (where applicable))
8 to 9 weeks		1st day: mathematics Exercises which complement the learning flow 2nd day: language Exercises which complement the learning flow 3rd day: language (conclusion) In this phase, in-depth work is done on English, but children are also given time to work in their learning book or draw or paint
Concluding week: Summary	The children know at the beginning of the program that it is limited to 12 weeks. The goals are jointly defined and discussed again at the end.	All children have a learning box and a personal exercise book which they can take home.

It has become customary for teachers, parents, and children to speak of a 10-week program, even though the introduction and conclusion week are also part of it, but are not seen as «work," particularly by the children.

Fig. 48

Year-round promotion of learning
The children come to receive assistance with learning throughout the year. This means that they come to the center before or after school lessons, where they also eat together.

Duration	Activity	Explanation
Arrival	Mealtime Free activity	During free activities, children can be observed playing, painting or reading together. There is also an opportunity to get physical exercise in the garden and on the playground.
1st period	Monday, Tuesday: Mathematics Wednesday, Thursday: Language Friday: Project work, craft work, summary	Period structure similar to 10-week program
2nd period	Homework Free activity	When the homework has been completed (as independently as possible), the children can return to their project work or, just as during the arrival phase, engage in free activity.

The older children do their homework during the first period and are then assisted by the teacher during the second period, or they help the younger children with their homework. The children do the straightening up.

Fig. 49: As part of the year-round learning promotion scheme, children complete their homework on their own in the center

During school lessons
The teacher works along the learning flow and, at the beginning of the school period, creates practical activities with flexible materials that can easily be put away. The children can do the work, which underpins the learning topic of the day, either on the floor or at their desks. The entry in their workbooks constitutes the summary of the lesson for the children. Because the learning flow activity is always introduced with the help of the weekly topic, the children can link it to the workbook tasks. This can easily be integrated into the timetable for mathematics, language, and foreign languages, in a manner appropriate for the class's needs.

The children also engage in free painting — the duration depends on the workload — either during or at the end of the school period.

While the children form mixed-age groups during the 10-week program for learning support and in multi-grade schools, in normal lessons the teachers work with only one class level for an entire year. This allows learning steps to be repeated during the year if they have not been understood.

12 Preparatory and follow-up work for lessons

In crisis situations, teachers generally have very little time for preparatory and follow-up work. Regardless of the crisis, however, the government-mandated curriculum continues to remain in force in many countries. Therefore, teachers need to achieve the same results despite the difficult situation and, in some cases, less time for learning. Most teachers equate the requirements of the curriculum with working out of the schoolbooks, so they try to get the students to complete the tasks in the books even faster, but this is counterproductive and reinforces the feeling of difficulty associated with learning. Orientation toward the learning flow provides additional assistance in this context: Based on this, the teachers can determine which learning steps should be repeated. It also facilitates the identification of blocks and learning gaps after a short-term or long-term interruption of schooling. In such cases, the children often no longer understand their schoolbooks, or are unable to link the content with previous material. The learning flow can be used to analyze the work with the schoolbooks in order to provide supplements, e.g. the combination of "plus" and "minus," multiplication and division or text and images, thereby complementing the schoolbook.

With the learning flow and the methodological pointers oriented toward the learning pathway, EoL therefore offers valuable assistance for preparation, as the learning flow conveys the essential learning content per level, just as it is specified in the curricula.

When children reach the orientation stage and move on to experimentation, the teacher should let them progress independently through the learning flow. They then learn independently, allowing a reduction in the effort required for preparations and follow-up work for the lessons while still fulfilling the curriculum. The initial phase always consists of work performed along the learning pathway with the help of learning materials and learning aids. In a school setting, these are often used at the beginning and can be omitted as learning progresses. The schoolbook tasks can now be completed independently.

As an additional element, the weekly topic represents the foundation that everything stands on and, in combination with the few methodological instructions, constitutes the basis for preparation. Starting and ending the school period with a song or poem, i.e. as a ritual before the introduction and after the summary, also simplifies lesson preparations.

In this manner, not only are teachers able to design their lessons with regard to the workflow and child-centric learning, but they can also give their lessons a unique "signature," as it is clear what needs to be strengthened and supplemented.

Fig. 50: In the follow-up phase, the teacher presents her innovation: A calculating machine made of pallets for yogurt cups

However, the prerequisite is that the children can be perceived individually; i.e. the child-to-teacher ratio should not be too large. A rule of thumb is 30 children per teacher. However, this number also depends on the size of the space. Children need to be able to move freely in the room and also have space to lay out the flexible materials, e.g. on the ground.

During the follow-up, it should be noted how the children responded to the learning aids, so that these notes can be used later on the program as well. In this way, the children are also "co-authors" of the lessons. But the teacher is the one responsible for foresighted design, because s/he needs to achieve a learning goal and fulfill the curriculum objectives.

13 Involving parents and families

13.1 Initial situation in crisis

In a crisis region, work with parents takes a back burner or is performed as a formality, in that parents are informed of what will be happening in school and what they, as parents, can contribute. Experience shows that parental involvement is taken on almost entirely by the mothers, as they are usually the ones taking care of the children. The school is frequently not an open place that is accessible at all times. Many parents realize that they are not welcome there, and that the gates to the school — with a few exceptions — are closed for them. The school is the sovereign territory of the children and teachers.

Many parents are overwhelmed by the requirements that their children are expected to fulfill. Depending on the location of the crisis, the parents and grandparents involved in the children's education may themselves only have rudimentary schooling or be illiterate. The statement, "school is always stressful for me and I have children in various class levels" can be heard in various crisis regions and situations. Furthermore, particularly in crisis regions or in locations where terrorist attacks can be expected, the school bears more resemblance to a prison than a location that welcomes people with open arms. This has a direct impact on work with parents.

Teachers must get used to the fact that parents usually feel uncomfortable in the school. They think it is their fault that their children have learning difficulties and do not even consider the fact that neither they nor the teachers are responsible for the situation. The burdensome topic of homework is a weight on their shoulders, because the shorter the lesson units are, the more work the children take home. Added to that, the reality is that many children help their parents out with work. As a result, parents feel double the guilt, because they would like to have more to offer their children.

13.2 How can parents and families be involved even in crisis situations?

Good parental work includes:

- Creating an atmosphere where parents feel recognized as partners.
- Conveying information that goes beyond just what the child needs to do.
- Accepting the child's current realities of life.
- Showing how the children can be assisted with their current difficulties

Parents appreciate it when they learn something during parent-teacher conferences and can bring their small children along. This assumes that a suitable arrangement can be made.

A few hours are all that is required to explain to parents, using practical experiences, how their children are taught in the various age groups, and at the same time help them gain an understanding of why playing and creative expression are so important.

Parents also find it very pleasant when they can simply talk, drink a glass of tea, and share their concerns with others, a circumstance that is very rare in many crisis regions. These discussions can also be enriched with simple instructions and practical demonstrations of how they can assist their children with their learning needs. Parents then understand why their children are collecting recycled materials and beginning to draw or paint with old teabags at home. This knowledge reduces their stress, because they realize that they are still able to support their children's needs despite the difficult situation.

13.3 Dealing with traumatized parents

Parents who are traumatized or suffer from chronic toxic stress often express themselves in images which characterize their life situation without mentioning the specific problem. They use symbolic language, because fear and stress would otherwise overwhelm them. “Verbal symbolic language is used by older children, adolescents, and adults of various ages who are simply afraid of dying.”1 This can also be observed in parents and adolescents who are struggling with complex and stress-laden life situations. They live in very humble situations, and a lack of electricity and water are part of daily life, not to mention the challenge of providing all their children with enough to eat. Therefore, speaking directly about problems is often the wrong way to bring about an improvement for the children. “I’m sick of hearing it; it’s not like I can do anything about it,” is a statement often heard from parents which shows resignation. For them, the problems seem like an insurmountable mountain. In cases such as these, the aim is to find solutions and approaches that can be implemented directly. Sometimes, it can also be sufficient to symbolize their situation using an image, metaphor, idiom or fable. In this manner, the parents are made aware that the teacher understands that they would do anything for their children, but feel totally helpless. This expression of understanding triggers a positive feeling in them and strengthens their willingness to cooperate. Discussions often do not help.

Fig. 51: Weekly topic: “Harvest;” mothers show their children how the grains of corn are separated from the cob

Fig. 52: Parents in refugee camps are taught how to provide their children with developmental support using simple means

Fig. 53: Material collection plan with pictures for parents who cannot read or write

Module: Learning steps in the learning flow and learning aids

14 Learning flow for drawing and the understanding of shapes

The importance of drawing for the children and the particular focus placed on free drawing and painting during early childhood development is conveyed to parents during the parent-teacher conferences. The parents come to understand that the children can utilize the understanding they have acquired with regard to shapes and apply it to writing and reading.

Many older children have never freely drawn or painted. The development of their drawing skills has been more or less blocked through the use of coloring books. However, an understanding of shapes, spatial cognition, and a feeling for orders of scale, which can only be acquired through free drawing, are of greater importance for reading and writing, as well as for the internal imagination of quantities and proportions. One reason that many children have never drawn freely is that the school schedule is tight, and there is a lot of content to cover. In addition, pencils and paper are often in short supply. Artistic creativity is generally neglected, or the children never even get to experience it. The principal aim of the artistic process is to transform materials into a new statement. Just as with craft work, this allows linguistic and mathematical processes to be supported, for example by linking folding tasks with fractions, allowing them to serve as orientation.

14.1 Drawing development takes place in three stages

It has been shown that even older children repeat these drawing stages in a manner analogous to early childhood drawing development. Like the early childhood version, it involves three aspects:

- Spatial representation and positioning in the picture
- The human figure
- Expression

Particularly children who have experienced trauma and possess weak corporeal orientation are sometimes unable to define the sky and the ground as above and below on paper, and therefore initially represent them next to each other in their drawings. This deficit is rapidly remedied, and their spatial imagination also changes with increasing age. This is apparent from the fact that they, for example, take a bird's eye view or draw indoor and outdoor spaces.

Human figures also change from stick figures to a representation of humans that accurately reflects proportions. Human figures are often shown without arms at first, but these «grow back out" over the course of the process, initially as "wing arms" and later on as arms and legs which have feet and hands, so they become "normalized." This process has been observed and documented countless times in crisis regions.

Only during the initial months after a traumatic experience do children draw symbols of war which look like orientation drawings. After that, they return to other motifs which they no longer draw from memory and which correspond to their current daily life. It is as if the experiences had disappeared into the background and been overlain by the current living circumstances. This phenomenon was documented in EoL classes in Gaza and corroborated by observations from other researchers.

14.2 Painting / drawing as an universal learning tool

Free painting and, wherever possible, creative work is always offered in the context of the weekly topic. Painting can be seen as a universal learning instrument. In particular, it makes the processing of the children's "inner world" perceptible and is also augmented by storytelling and a description of the weekly topic. At the same time, this supports the reading process, which involves the mechanics of reading while challenging the children to imagine what is being read in their mind's eye.

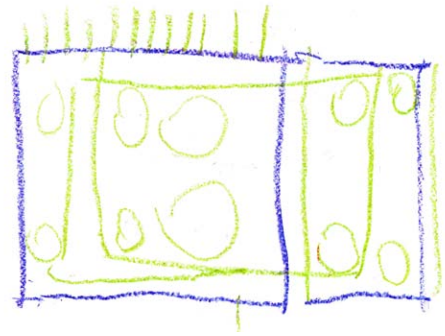
If they are not permitted to paint freely, this has a great impact on learning, as their understanding of shapes and feeling for proportions are practiced independently in this process — and this practice is essential. The prescribed schoolbooks and coloring books do not allow for this.

In contrast to the learning flow for mathematics and language, no attempt should be made to achieve or induce a next stage for drawing and painting. Where drawing is concerned, development takes place entirely autonomously (or not). EoL utilizes drawing to provide freedom and to reinforce inner images, which in turn are very important for the other learning flows.

A) Fig.54, B) Fig. 55, C) Fig. 56: Exercises and examples of awareness of shapes from kindergarten to primary school

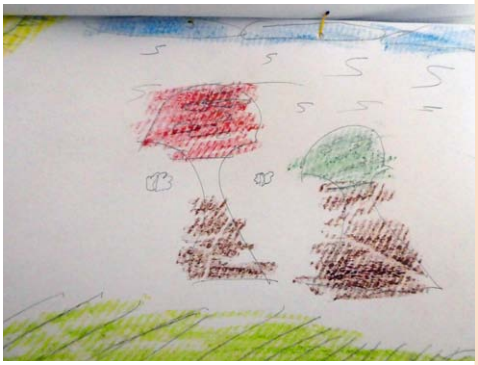
14.3 Learning flow for drawing with its learning steps and corresponding means of expression

Example	Learning step	Means of expression
	Scribbles	A chaos of lines and shapes appears.
	Shapes in chaos	Shapes are recognizable in the scribbles.

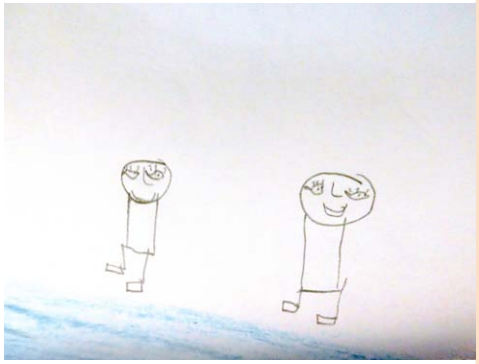
Example	Learning step	Means of expression
	Awareness of shapes awakens	Shapes are represented separately.
	Shapes become human figures	A variety of “head and feet” (head-feeters) figures appears.
	Up and down	Up and down or sky and ground are separated, and the drawing is placed between them (but not yet on the ground).
	Differentiating human figures	The human figure is differentiated, whereby the part of the body, which is considered important by the child, can also be highlighted.
	The earth	The drawing moves down to the ground.

14.4 Process-oriented observation of children's drawings in primary school children

In addition to other criteria, knowledge of how drawings develop is an important indicator which allows us to categorize how far along a child currently is. Particularly among older children, we can monitor how rapidly they catch up on developmental steps until they finally paint in an age-appropriate manner.

Example	Control criteria: Position within the drawing	Comments
	Up and down are not discernible	he child positions various elements next to each other. *The child depicts various shapes and elements and positions them on paper.*
	Up and down are discernible.	Most of the time, either the sky or the ground is drawn, but it is clear that the child can distinguish between "up" and "down." *In this drawing, we see the "up," but the "down" is missing.*
	The motif floats between the sky and the ground.	We speak of this when the main elements of the drawing do not touch the ground.
	The drawing touches the ground (the earth)	*The trees and/or the people are placed on the ground. Usually, houses and trees are placed on the ground at an earlier stage than the people.* *The houses are rooted to the ground; the people will soon also reach this state.*

Example	Control criteria: Position within the drawing	Comments
	Various levels exist.	The child tells a multi-layered/ multi-dimensional story. *The various levels are visible.*
	The child is aware of “inside” and “outside.”	The child draws people who are located inside and outside a house. It is as if we could simultaneously see what is happening inside and outside a house/car etc. *This drawing shows a person in a house.*
	Human being	
	Head and feet figures (head-feeters)	Der Kopffüssler befindet sich in einem frühen Entwicklungs-stadium. *Hier wurden zwei verschiede-ne Formen von Kopffüsslern gezeichnet.*
	Stick figures	Humans are represented in an abstract form. . *Even though the children are “only” drawing stick figures, they are highly nuanced and shown with individual expres-sions.*

Example	Control criteria: Human being	Comments
	People with “wing” arms	This is usually observed when the representations of people already possess a proper body. *The figures look happy, one is already on the ground, the other has not reached it yet.*
	People without arms	Usually, these figures have a body, but do not possess arms or legs. *Both figures have a body but neither arms nor hands.*
	People with arms and legs	This characterizes the next stage. *The persons have arms and legs but neither hands nor feet.*
	People without feet	When arms and legs are present, the child usually does not draw hands and feet simultaneously, but only one or the other.
	People without hands	Some children first concentrate on the hands, others on the feet. *Here, the feet are shown, but not the hands.*

Example	Control criteria: Human being	Comments
	People with hands and feet	Hands and feet are already drawn differently: Hands with fingers and feet with toes. Some children simply just draw circles. *Here, we see hands and feet — some of which are still "wing-like.*
	Various representations of humans (stick figures mixed with other representations)	This distinction is very good, because the children are very creative and are working on their expression by making a distinction. (Parents and children, important/less important etc.) *The differences between the persons are obvious.*
	The proportions within the respective figures are coherent	The proportions of the body are mutually coherent; i.e. the ratio of body size to the size of the head, length of the arms and legs is balanced. *The image shows a person with balanced body proportions.*
	The representation improves with regard to proportions and details.	The children require time in order to achieve balanced proportions in their drawings, but they are constantly improving. The people are shown with a torso, hands, and feet.

Example	Control criteria: Expression	Comments
 	Colors match the facial expressions, the picture or topic. The expression of the drawing shows increasing variety.	Children use all colors for their drawings — even black when it fits the topic. Many children only ever see their mothers dressed in black. *When the faces show different expressions, it is safe to say that the expression shows a lot of variety, even when the picture tells a story.* *Even though the sky is shown here in black, it matches the content. Was rain spoken about recently? Is rain desired? We can only find out by speaking with the children.* *The second picture tells a story and the child was able to represent various expressions. Here too, the color choice matches the story.*
	The expression of the picture is determined by stereotypes.	All children use stereotypes sometimes. It is not good when they use them exclusively. *Here, a tree in particular can be identified as a stereotype, but the picture also exhibits a great deal of varied individuality.*

Fig. 57

Example	Control criteria: Expression	Comments
	The proportions of the elements drawn are in the correct ratio to each other.	Even when children do not show the persons with the right body proportions, they are in the right ratio to the other elements of the picture. When the teachers know what the topic of the children's drawing is, it becomes clear what is important for them, as this is then shown in a larger size. *The house is big; the tree is bigger than the two persons.*
	The individual expression of the child becomes apparent.	When children are given the opportunity to paint a lot, it can be observed that they repeatedly draw the same motif, variations on one topic, or repeatedly use a specific color. *They draw faces with highly nuanced expressions.*

Learning pathway

Before introducing the individual learning steps in the learning flows for mathematics and, the learning pathway discussed in Module: Methodology/Didactics should be mentioned once again. The sequence of the learning pathway applies for each child's progress in play development, for the learning pathway overall as well as for each individual learning step.

Even though it is frequently not defined in detail, this sequence is important for the full understanding of an individual step. When a child has difficulty with a learning step, it may be expedient to explicitly and consciously examine the learning pathway. This means beginning with sensorimotor tasks, getting oriented, imitating, and experimenting in order to ultimately be able to freely apply what has been learned. Learning aids frequently serve to enable sensorimotor assistance which is entirely absent in normal classes. When s/he has completely mastered a learning step, a child should also be able to understandably explain the learned material to another child.

15 Learning flows for mathematics and language

15.1 Exercise examples: Learning steps in the learning flow for mathematics

Practical experience shows that the mathematical and language activities need to correspond to the learning flow, and in early childhood, they need to be repeated in various forms for as long as possible. The older the child, the faster s/he goes through the learning steps. While children in kindergarten practice differentiating and separating (a general perception activity) in various ways for two months, older children succeed in completing this learning step in one or two days with the help of reflective thinking and a knack for being able to categorize things. This temporal dimension should be taken into account when the mathematical learning flow is reactivated in EoL through repetition. With EoL, addition and subtraction as well as multiplication and division are presented to the children at the same time.

This is where EoL differs from popular teaching strategies and schoolbooks which plan for the four arithmetic operations to be learned in succession. Conventional school practices do not enable children to identify the common features and understand the principles. Even if children of kindergarten age are not really able to understand the concept of multiplication and division, they are able to organize materials into identical quantities, form groups, and count them. This creates the foundation for making it easier to introduce these arithmetical operations in primary school. Unfortunately, in most countries this only takes place from the second grade onwards, and even then children are still finding it difficult. However, if they are given the opportunity to visualize the task using multi-functional materials, they are also able to deduce how to do the tasks in their schoolbooks.

Learning flow activity	Exercise examples	Implementation in the various age groups
Differentiation and separation	Getting to know properties such as heavy/light, long/short, big/small etc. of various materials via sensory perception (touching, smelling, tasting, seeing). Sorting materials according to weight, length, size, smell etc.	**ECE:** Worked out with various materials. **6-9:** Worked out with various materials. Levels of difficulty are constantly increased by e.g. reducing the sense of sight or leaving out the colors. Children learn to estimate things. **9-12:** Differentiation is perceived as abstraction and a starting point and immediately linked to arithmetic.

Fig. 58: Distinguishing by color

Fig. 59: Distinguishing and separating by type and shape

Learning flow activity	Exercise examples	Implementation in the various age groups
Recognizing and designing seriality	Laying out series using various materials such as plastic bottle caps, natural materials (seeds, leaves, twigs, shells and stones). Recognizing larger quantities as well as performing (solving) estimation tasks. In these tasks, the children start counting on their own.	**ECE:** Laying out of simple series with various materials; making a necklace during craft work. **6-9:** Laying out of simple and complicated series with various materials. Series are laid out as mirror images. Patterns are created during craft work, e.g. with printing techniques. **9 -12:** Series are laid out as mirror images and end up as ornaments. Patterns and aesthetic aspects are weighed together with the children. Various techniques from craft work support the topic.

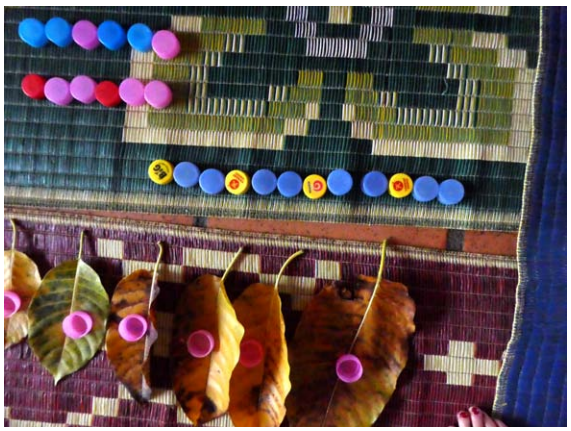


Fig. 60: Example of simple seriality

Fig. 61: Laying out ornaments

Learning flow activity	Exercise examples	Implementation in the various age groups
Quality of numbers	Getting to know the numbers without a focus on counting (e.g.: 1 = one of a kind, 2 = opposites such as good/bad, 3 = father, mother, child or sun, moon, and stars, 4 = four corners, four seasons, four points of the compass, 5 = a “human” number (five fingers, toes) etc. The quality of numbers is described using stories or covered in free discussion.	**ECE:** Are told as stories so that the children develop an emotional relationship with the numbers. **6-9:** Short stories take away the children›s fear of numbers by establishing a new relationship and facilitating their entry into the world of numbers. **9-12:** The philosophical aspects of numbers are covered in more detail in a joint discussion with the children. 1= Every person is an individual, etc. 2= Good and bad. Yin and yang – is there also good in things that are bad? etc.
Quantity of numbers	Counting is practiced with various materials.	**ECE:** Already preparing for counting with seriality. **6-9:** Counting is repeated with seriality. Larger steps are taken between numbers in increments of 1, 10, and 100 so that, in particular, larger numbers can be experienced. Counting is e.g. practiced by throwing a ball. **9-12:** Can count, but have no concept of the size of the numbers. Therefore, this is immediately made perceptible with colorful plastic bottle caps.

Fig. 62: Matching quantity and number

Learning flow activity	Exercise examples	Implementation in the various age groups
Linking quantities to number symbols	Laying out materials in certain quantities and assigning the corresponding number symbol (number symbol can e.g. be formed with a piece of string).	**ECE:** Various games with quantities and numbers are offered. **6-9:** Quantity and number are put together and above all the transition to 10s is made to come alive for the children. **9-12:** The quantities and numbers are repeated and immediately expanded to include larger numbers by using the differently colored plastic bottle caps as ones, tens, and hundreds.

Fig. 63: Matching the number symbol to a quantity

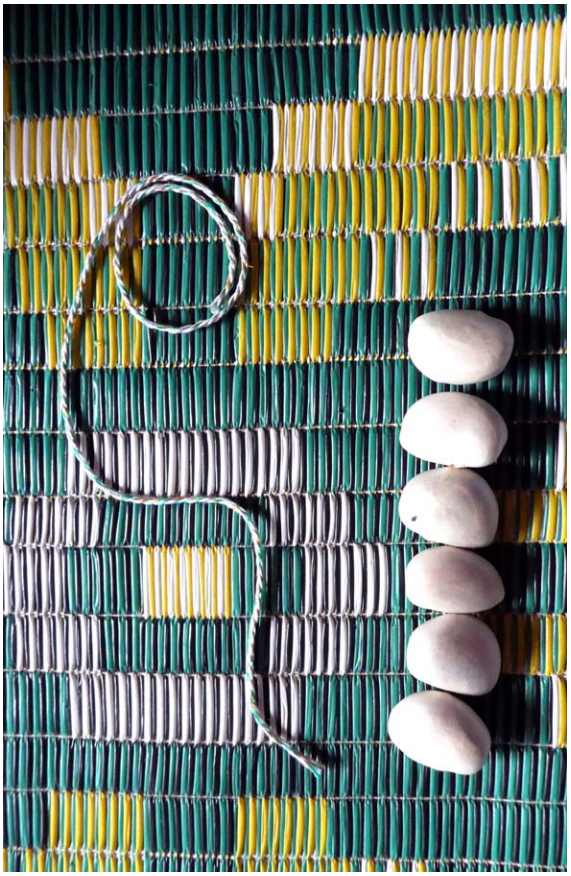


Fig. 64: Number symbol is laid out with string

Learning flow activity	Exercise examples	Implementation in the various age groups
Addition / subtraction up to 10 and 20	Addition and subtraction are first experienced in a (role-playing) game (e.g. buying and selling), and subsequently via sensory perception with various materials (e.g. plastic bottle caps) and later represented with number symbols. Addition and subtraction initially in the range of numbers from 0-10, then 0-20, then 0-100 Addition and subtraction are presented to the child simultaneously.	**ECE:** Children experience arithmetic with multiples of 10 by first performing the calculations with quantities, and then as symbols. The calculating machine is also used. **6-9:** The role-playing game simplifies their introduction to addition and subtraction. Children work with the various colored bottle caps. They also work with calculating machines and create arithmetic problems for other children. One aspect of these tasks is to correct each other. **9 -12:** No longer require the role-playing game. Instead, they work intensively on addition and subtraction with plastic bottle caps. They also repeat “written arithmetic” — a different form of representation. Compose arithmetic problems for each other and exchange them with each other. Depending on the weekly topic, arithmetic tasks that correspond to the topic are solved.

Fig. 65: Practicing multiplication with plastic bottle caps

Fig. 66: Practicing multiplication with a learning aid

Learning flow activity	Exercise examples	Implementation in the various age groups
Multiplication / division up to 10 and 20	Initially in a role-playing game, then with the calculating machine, and then with number symbols. Multiplication/division initially in the range of numbers from 0-10, then 0-20, then 0-100 Multiplication and division are presented to the child simultaneously.	**ECE:** Is also regularly demonstrated when dividing into groups, handing out food etc. **6-9:** Are experienced as rhythms, represented with plastic bottle caps, clapping, and finally recited with throwing games as rows. The table of multiples of 100 helps with solving the tasks. Division is also covered "in passing," as it is suddenly experienced as a reversal that can easily and clearly be understood with a table. **9-12:** As part of calculating fractions, multiplication and division are repeated analogously to the first group. Soon after, work is also done on conversions (1/2 is also 2/4), which in turn is represented visually with fraction cards. The multiplication table of the 9 to 12-year-olds is made significantly smaller (pocket format) than those of the younger children (plastic bottle cap table with multiples of 100).
Addition / subtraction; multiplication / division up to 500 and 1,000	Addition / subtraction and multiplication / division are performed in larger number spaces. In order to be able to perform written calculations, the children must be given neat, clean presentations. This is not self-evident either and can be practiced using flexible materials.	**6-9:** Children practice written calculations. Initially, the objective is orientation and representation. Once this has been achieved, progress is made step by step. It is noticeable that children who have practiced with multifunctional materials can certainly master the tasks in the very small printed booklet. Other than that, the principle that number columns need to be kept strictly aligned under each other is not really understood. The numbers are printed much too small. **9 -12:** Older children also lack this systematic logic. Once it is understood after it has been introduced using the materials, the children are able to manage with the small numbers which need to be written exactly under each other in order to get a correct result. This also means that their pencils need to be sharpened.

Learning flow activity	Exercise examples	Implementation in the various age groups
Word problems	Word problems are presented with the aid of role-playing games or drawings that provide orientation; it is only after this that the calculation is documented. Through this "physical experience," children orient themselves toward the task given, grasp it, and are then able to solve it. Most of the time, the children solve the tasks in groups, so that they perceive the solution as group work, while the younger children skip these tasks. Here too, the primary focus is on teaching the children a learning technique enabling them to solve the (usually) simple calculation.	**8-9:** First, the problem needs to be comprehended in its entirety; then the calculation can be performed. **9 -12:** The tasks are challenging from a purely linguistic standpoint and require a great deal of concentration. For example: Yousef has 13 apples and eats three. He distributes the remaining apples to his three siblings Johanna, Paul, and Yasmin. How many does Yousef still have to eat himself so that this works out? And how many more apples has he eaten than his siblings? What was there first, what came after? A drawing can simplify a lot in this case and contribute to clarification. These tasks need to be analyzed in the correct fashion, so that the individual steps can then be connected.
Units of measure (capacity, length, weight)	All units of measure are perceived through the senses. The first few conversions can be experienced with the help of learning aids. Conversions and transformations are also practiced with visible, descriptive, and specific examples.	**6-9:** 1 quart of water is distributed into containers holding 1 cup each. The room is measured with a tape measure they have made themselves. 1 pound is made perceptible, and is experienced through weighing etc. **9-12:** Units of measure are repeated, and conversion is also practiced with the units. This prepares them for more complex tasks as well as fractions. Measuring the length of their own stride in inches and converting it to yards or feet.

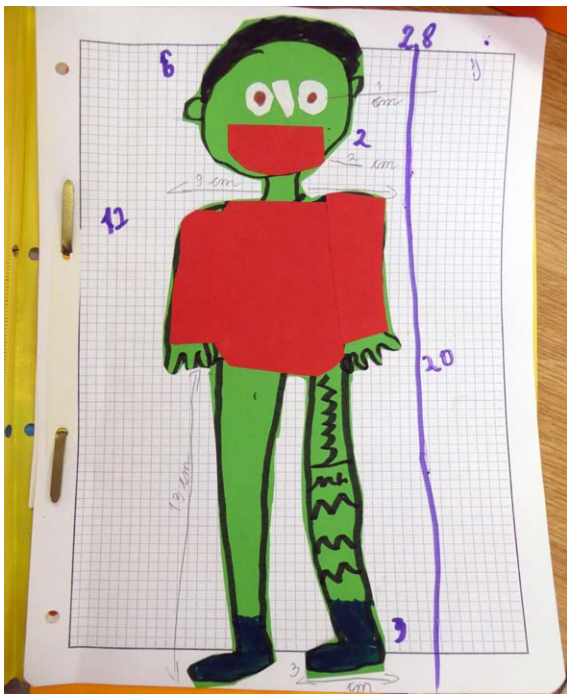


Fig. 67: Custom-designed measuring task in learning book

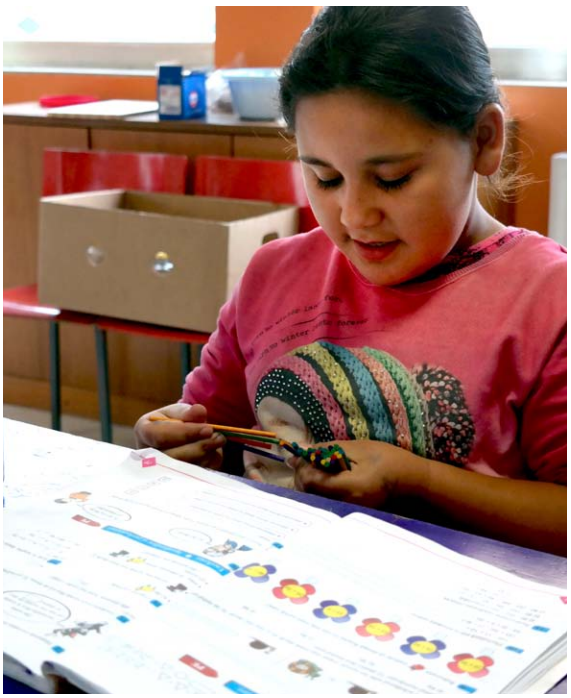


Fig. 68: A girl solves word problems with a learning aid

Learning flow activity	Exercise examples	Implementation in the various age groups
Time and money	Handling time and money is practiced using everyday examples. This is also frequently focused on in the word problems.	**6-9** Generally getting to know units of time, learning to tell time. Also discuss monetary currency in the context of a lot of and little money. **9-12** Time and money are linked to purchasing power.
Fractions	Visual representation of a whole as a fraction using a cut-out circle and a piece of string or e.g. cutting fruit into sections (children can comprehend the fraction with this learning aid). When children find out, in this manner, that fractions are actually very simple, they are often astonished. What is important here is that the children are guided along the learning pathway and are also allowed to use the calculating machine and/or multiplication table (see section on learning aids).	**9-12:** Calculating fractions is prepared for in a variety of ways: Fractions are visualized, e.g. with folding tasks. With the help of the visual representation, children are able to bring their inner visualization in line with the abstract calculation. The conversions are then performed with the help of the table so that the children are able to first concentrate on working with fractions. It is only in the second step that fractions and multiplication are practiced without a table.

Fig. 69: Preparing learning aids for fractions

Fig. 70: Creating a menu and calculating the costs

Learning flow activity	Exercise examples	Implementation in the various age groups
Algebra	Experience shows that the teachers themselves have problems with algebra, which is why they attempt to circumvent the topic.	**9-12:** Here too, the calculating task is not the primary problem, but rather the transformation of letters into numbers. As soon as children have acquired the ability to make this transformation, they begin to become interested in algebra. If this ability has not yet awoken or has been awakened only weakly, the child will resist algebra.
Geometry	Cutting out geometric shapes precisely and clearly establishing the differences between rectangles and squares, equilateral and other triangles, and being able to visualize trapeziums, circles, and ellipses is the prerequisite before calculations can be performed.	**9-12** The geometric shapes are first laid out using a string or other objects in order to internalize the shape. After that, the shapes are cut out in order to recognize and verify the shape, and perform initial calculations. Once again, the multifunctional material is helpful. Practical research shows that children who were unable to experience free painting in early childhood development experience particularly great difficulty.

Fig. 71: Awareness of shapes as the basis / foundation for geometry

Learning flow activity	Exercise examples	Implementation in the various age groups
Percentages	Getting to know the meaning of percentages with specific examples from daily life (What does it mean when a pound of rice is 20% cheaper? What does it mean when I have to pay 20% interest?).	**9-12** Using specific grocery shopping examples from the supermarket, percentage and cross-multiplication tasks are practiced. Once again, fractions are also relevant, because half or one quarter are now easy to calculate. 20% however needs to first be converted into the fraction 1/5 in order to achieve the right result. It is this flexibility that most children lack; this comes from the fact that in school, the arithmetic methods are taught in succession and not together.
Percentage and interest calculations	Many children experience their parents borrowing money. In this case, they need to experience that money that is borrowed needs to be paid back, or that the person who lends money makes a profit..	**9-12** The problem of percentage and interest calculations is summarized as a role-playing game: Money is lent, and a detailed calculation is made to see how much more needs to be paid back. This then results in realizations and discussions. What do I do if I want to start a business? How would I need to proceed? Is a microcredit a good thing? What happens if you are unable to pay the money back? Particularly children affected by poverty are very interested in the topic.
Budget calculations	Performing calculations with a particular budget using specific examples (e.g. grocery shopping for lunch). Once again, various options are offered, first without any restrictions, and then with a limited amount of money. This once again teaches children to approach the task flexibly.	**9-12** Children love the task of putting menus together (for example cut out of a supermarket catalog and pasted onto the menu). Based on the prices, they then need to calculate how much rice is required e.g. for 5 persons and how much that will cost. The complexity of the task requires a systematic approach; in addition, they are also talking about food. Budget calculations are time-intensive, but can also be performed as group work.

15.2 Sample exercises: Learning steps in the learning flow for language

Many children are not good at reading and writing, because they have never really been able to freely cultivate reading and writing. In practice, it is observed that children have often learned to read incorrectly: They are certainly familiar with the letters and are able to put them together to form words. However, because they have never learned to create an internal visualization of the written word at the same time, reading remains a mechanical act without content. This leads to older children in particular having difficulty with summarizing a text they have read. Books are a luxury in crisis regions and there are also no libraries, which is why children rarely read outside of school.

With oral communications before children learn to read and write, they can interpret body language and deal with it in a playful manner. The actual language learning flow, in the sense of words and writing, should begin with the telling of fairy tales, fables, or legends as appropriate to the respective age group. This sequence has proven to be successful and corresponds to the mental abilities of the various age groups. Fairy tales describe a story line with all the consequences from the hero's point of view. Fables, which follow the fairy tales, observe an occurrence which is based on an emotional situation and which vividly reveal a form of behavior or trait. The characters exhibiting the trait are usually animals. They can only be understood when the listener is able to transfer the "moral" of the fable from the animal world to the human world, i.e. perform a transformation. Finally comes the legend or myth, a short story based on oral tradition which combines fantasy with true occurrences. Just like myths, legends have a grain of truth to them.

Learning flow activity	Exercise examples	Implementation in the various age groups
Perceiving body language	Interpreting various forms of body language and facial expressions. Of humans Of animals	**1-6** All children love imitating animals as well as occupations or other activities. **6-9** Facial expressions and composure can be practiced here. What do I express when I do this? **12-16** Can I actively underline my message with my body language?

Fig. 72: The child in the middle imitates an adult's telephone conversation

Learning flow activity	Exercise examples	Implementation in the various age groups
Telling stories	Dialect / standard language Apart from introductory, descriptive facts with various aspects, attention is paid to ensuring that the standard language is spoken and a richer vocabulary is used. The three steps from fairy tales to fables and legends make the different types of transformation clear. Hearing stories triggers the children's need to write for themselves.	**1-6** Fairy tales **6-9** Fairy tales and fables Simple story books (conceived for preschool) are used as reading books after the story has been heard and individually presented. **9-12** Legends, biographies **12-16** (Refugee) adolescents are not used to listening to a story. However, listening is a learning prerequisite for getting the new language heard and is therefore more important than the actual content of a story.
Speaking words and sentences (free conversation))	Is always introduced with an actual description by the teacher in an age-appropriate manner. The teacher moderates the conversation. There is no right or wrong, only individual experiences and thoughts which contribute to the conversation. The expression also improves the sense of language and imagination.	**4-6** Announce their observations. **6-9** Announce observations and opinions. **9-12** Are often inhibited to express their opinions and to stand by them. (For many children, this is the first time they have been asked for their personal observation outside their home!)
Hearing vowels and consonants	This is a differentiation task. Various sensory perception exercises (In some languages, the same letters may sound differently depending on the context.)	**4-6, 6-9** Vowels are represented as feelings with the help of body language. All consonants are accompanied by a vowel. **9-12** Listening to slowly spoken texts and clapping to certain vowels and consonants. Reciting texts that swap one vowel with another helps to listen carefully. Much more difficult but also feasible is the exchange of a consonant. Many children have problems with spelling because they do not really consciously perform this differentiation in their hearing.

Learning flow activity	Exercise examples	Implementation in the various age groups
Image – Word – Letter	Learning the alphabet Children usually learn the letter with a picture of something that begins with the letter. The word as a whole is not perceived, which means that the children do not learn to link what is read with an image. Every language has its own rules, sound changes, and accentuations. These need to be worked out by the teachers so that the children do not just link one sound to a written symbol, but relate it with an image instead. This is particularly important when various alphabets need to be worked out for different languages: e.g. English and Arabic or Bengali, or an indigenous dialect and English. Often, the pace is too fast as well; this more or less leads to a complete overload! However, once the beginning has been achieved with the images and words, the joy of learning returns. Freely chosen words, and then short sentences are first written phonetically.	**4-6, 6-9** The connection of images and words to individual letters must be experienced. Stories lead to simple images and words. A letter is only a symbol, but life needs to be breathed into it. This succeeds when entire words are learned, even though the focus is simply on a new letter. **DAN DANCE** The **C** and **E** are bonuses, so to speak, but now the child is able to comprehend the word and to link it in its entirety to the image painted. They paint **DAN LIKES TO DANCE** If the image is integrated into the learning process, older children also imagine what is being read and are able to analyze and summarize. **9-12 / 12-16** When older children and adolescents need to learn the alphabet, the approach must be appropriate. Humor or rap, for example, can be used to make the introduction easier.
Reading	Reading sentences, reading texts with short sentences (up to 5-6 words). Then presenting it Increasing the quantity of text At the same time, the child increases his free written text design.	**6-9, 9-12** Learning to read short sentences; creating a text using short sentences (practice texts) which are highly illustrated. Marking diacritical marks and omitted letters in the text. Having them read out loud. Always have them recount what was read: What did I read? What does it tell me? Read sentences with blanks and let them fill in the words. Have them draw what they have read.

Fig. 73: A child paints and writes “Tree and Anna”

Fig. 74: Words and images are connected

Fig. 75: Alphabet cards

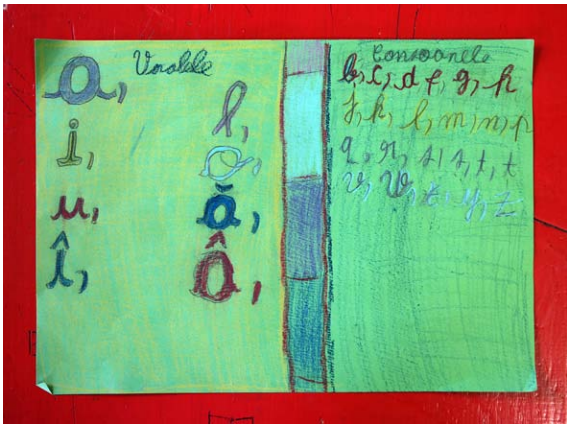


Fig. 76: Distinguishing vowels from consonants

Learning flow activity	Exercise examples	Implementation in the various age groups
Orthography	Dictation exercises are not performed, but a learning technique is taught: Have the text read out loud; read; read out loud. It is important for the children to be able to relate to the content.	**8-9** Games that involve hearing. **9-12 / 12-16** Create vocabulary cards with words that they have difficulty remembering. Use texts written by the adolescents.
Grammar	Words: - Experience the sentence. Exclamation, question, “When does the sentence stop and end with a period?” - Who plays the main role: Noun: What does it do?;Verb: what does it look like? …etc. Tenses: - Becoming conscious of tenses by first playing out a simple story line and then (re)telling it.	**9-12** Displaying sentences visually in a variety of ways! Paint the story line as it happens over time.

Fig. 77: A boy writes words in the notebook after having practiced with multifunctional materials

Fig. 78: A child represents the tenses with pictures

Learning flow activity	Exercise examples	Implementation in the various age groups
Point of view in a conversation / discussion (pros / cons)	Conduct discussions and debates. Taking a certain point of view and arguing in favor of it.	**9-12** Conduct discussions about ordinary, everyday things. The learning group is divided up into teams that are “for” and “against.” The adolescents then need to argue for the point of view they are assigned (e.g. pros and cons of washing machines vs. washing by hand). After that, they change their point of view and the discussion is practiced with other topics.
Analyzing and summarizing a text	Reading texts and writing or drawing a summary, or implementing it as a theater skit. What are the central aspects? What is the focus?	**11-12, 12-16** Use texts that are related to everyday life and which are derived from the weekly topic. Have the summary presented orally.

It is clear that a lot depends on having the right learning strategy in these cases as well. These are coping strategies which need to be used for learning in order to keep the learning flow active through the joy of learning. The simplicity of learning means that creativity is allowed to shine through and networked thinking is encouraged. The end result is realization, and in a child this is always to be equated with the joy of learning, which can also be encouraged through improvisation.

15.3 Crises have a huge negative impact on the reading abilities of children

Many children find it very difficult to learn to read and write. They are adept at doing it mechanically, but have no idea what they have read. Children who are plagued by fear try desperately to perform this process mechanically. They fail when they are unable to simultaneously capture the word in its entirety, visually and as a shape, and to vividly imagine the content of what they have read.

Reading has a lot to do with sensory perception — perhaps much more than is apparent at first glance. Sight and the sense of language need to interact and form a single unit. Therefore, it is no wonder that many children in crisis regions have difficulty with it, and the teachers are unable to explain why this is the case.

Further complicating the situation is the fact that many children have learned to read without creating "word images." They first internalize the letters in isolation, usually as the first letter of an animal. After that, these same letters are put together to enable reading. Later, individual words are not equated to images. In this way, the word WALKED becomes WolfAntLlamaKangarooElephantDuck, and children do not establish an emotional relationship to the words, so it is difficult for them to imagine the "right" image.

Most people have no problem understanding what they have heard, transforming the words into inner images, and re-telling the story as a summary. But only those who have succeeded at transitioning from orality to literality succeed at doing the same for a textual representation of the same content.

This transition needs to be led in order to help the children develop a relationship to the written word as well. Otherwise, children will not really understand what they are reading. When guiding the children, it helps to stick to the following sequence:

- Experiencing the letters by hearing them.
- Experiencing words from an image.
- Writing words as word images so that the eyes can recognize them — in their entirety.
- Recognizing and writing letters — both at the beginning and in the middle of a word.

Texts should first be heard, then played out, then read, then repeated and painted. This corresponds to the natural learning pathway and leads from uniformity to diversity, with the experience of being able to reconstruct something.

15.4 The way back to reading and writing: Metaphors, proverbs, and riddles as the key to the transformation process

Unlike with mathematics, the older children have usually already given up on really learning to read. They have already acquired other coping strategies in order to get through their daily lives.

With language, the primary objective is to rediscover the joy of expression. This process is quickly re-acquired when children create sketch-like drawings when reading and writing (which are never to be criticized) so that they are able to understand a text. Initially, they will serve as orientation aids. Later on, they will be experimented with until the pictures are no longer required and the sentences stand on their own.

Working with riddles and proverbs also often helps with finding a start. In order to solve a riddle or understand a proverb, it is also absolutely necessary to undergo a transformation process which can only function by visually imagining things. Riddles are highly popular with small children. 9 to 12-year-olds prefer to work with proverbs. After the younger children have trained their transformation abilities with the aid of riddles and fables, they too will also find it easier to start working on proverbs or metaphors.

Working with linguistic metaphors which exist as "spoken images" ("falling out of the clouds") and can only be understood when they are transformed helps with practicing the transformation process necessary for reading.

An additional challenge for refugee children is the fact that, in addition to their own native language, which is already problematic for them, they need to learn a foreign language — that of their host country. In most cases, this means learning a new alphabet, which is often underestimated as a challenge. All of the following examples can be used both for the native language and the foreign language.

Topic	Examples	Comments / remarks
Riddles	hey encourage listening, because every child would like to understand (and solve) them. When the riddle is linked to a story, the joy of solving it is twice as rewarding. Greek legend tells of a monster that swallowed up anyone who could not solve the following riddle: It walks on four legs in the morning, two legs at noon, and three legs in the evening. What is it? The monster had the head of a woman, the body of a lion, and was called the Sphinx. The solution is: man (crawls as a baby, walks on two legs as an adult, and with a walking stick when old.)	Solving riddles prepares children to be able to understand word problems in mathematics. They need to listen very carefully and understand the image which needs to be linked to other elements in their mind. Because riddles can be easy or difficult, they are suitable for both age groups. *Examples of riddles can be found on the internet.*
Proverbs	• Kull dik ala mazbalatu sayyah • On his dung heap, every rooster is a town crier • Kull hulla fiha illa • Every piece of clothing has a mistake • Nothing is perfect • Man hafara hufratan li akhihi waaqa a fiha • Who digs a pit for others will fall in himself • Baydat al jaum ahhan min dik bukra • Today's egg is better than tomorrow's rooster • A bird in the hand is worth two in the bush • Hajar fi dukkan as sajjai • A stone in the store of a glass merchant • Like a bull in a china shop	Proverbs are universal, as they exist in every country and in every language. They are ideal for teaching languages. Metaphors (linguistic pictures) open up a multitude of possible interpretations — including in creative ways. They can be drawn, reenacted etc. Many children know of proverbs from their own culture. *Examples of proverbs can be found on the internet. The teachers can discuss the various points of view during the teacher training sessions.*

Fig. 79: Playful use of language

Fig. 80: Creating texts out of individual words

16 Learning aids

In addition to the individual exercises, the use of learning aids is expressly desired for EoL. Learning aids are coping aids in material form which provide a jump start for children with learning difficulties and help them overcome difficulties. That is why learning aids are used not only for small children, but for every age group and for as long as they are required. Learning aids can be perceived by the senses and help with getting oriented on the learning pathway.

Every child creates his own personal learning aids using the recycled and natural materials available. During this process, he receives support from the teacher. The raw materials, which are available for free and in sufficient amounts, also allow the children to replicate the learning aids for themselves at home and use them to play and learn. This aspect is particularly important for children affected by poverty, because they would otherwise be denied access to materials with which to play and draw due to the scarcity of resources. For parents, these learning aids are a great relief, because the children know how to occupy themselves meaningfully at home.

16.1 The learning booklet

Many children have never worked with an empty booklet during their time at school! Textbooks are used for learning, because this saves on the costs for paper. Moreover, the books are often used not just by one child, but several. The answers are erased, but are still visible. Therefore, a workbook that the children can create for themselves using leftover cardboard or paper is something extremely special for them. For some children, it is so valuable that they do not want to show it to others. Finally, they can create and note down things that they fear they will forget. It is a learning aid that supports them as individuals. As part of an EoL program, teachers are never to write in the students' learning booklets or make corrections.

The content of the workbook is left entirely up to the children. Everything that appears important can be entered in the form of text or drawings, so the children can use it as a "diary" and write down their own thoughts and feelings, or as a notebook to quickly jot down a mathematical task. At the end of the week, the children are encouraged to review their workbooks and note down what they have learned and how.

Fig. 81: A boy proudly shows his learning booklet

Fig. 82: Lovingly drawn pages in a learning book

16.2 Learning box (learning / treasure chest)

The idea of the treasure chest came from pedagogue Elinor Goldschmied and was born out of necessity in the post-war period, while she was working with young orphans in 1946. She recognized how important it is to stimulate the children's senses with the help of various everyday materials and thereby enable them to experience various sensory perceptions. Therefore, it is helpful to have the treasure chest constantly filled with new things by parents or teachers. EoL has adapted the learning box for older children and developed it from the treasure chest approach. It is a (cardboard) box which is individually designed and decorated. The children store their learning aids and other objects in it. The learning box with its learning aids is of fundamental importance, as the children are often unable to recall the basic knowledge they have learned in language and mathematics classes. The knowledge of this personalized learning aid is a relief for the children and reduces their (learning) stress. As a result, they are secure in the knowledge that they can refer back to the core learning content or reconstruct it themselves with their own learning aids and will also be able to begin understanding complex tasks with these materials.

Interestingly, various stages can also be identified in this option for small children to occupy themselves:

1. The sensory perception of the materials: The children feel the materials and examine their consistency (hard, soft, long, short, round, angular etc.). In order to obtain additional information, they place the objects in their mouths and move them about physically.
2. Children check the reactions of the other parties by giving objects and taking them away again.
3. They use the objects for various purposes and attempt to connect them.

This approach indicates an increasing amount of complexity. Moreover, children observe the body language of the other party with the aid of the objects and elicit an action in the next step.

Every learning box is also an emergency box and provides distraction or entertainment in difficult situations. Children can also contribute personal toys such as puppets, games, or toy cars they made themselves, as well as notepaper and colored pencils. Children say that keeping busy helps them overcome their fear.

Learning box for 3 to 7-year-olds

Many children also use their learning box to entertain themselves at home. The parents can support their children with collecting the various materials.

The following materials are examples of personalized content:

- Plastic bottles filled with seed pods
- Plastic bottles that have been cut open to serve as flower vases or which can be used to play with in the sandbox.
- Small boxes or small bags with plastic bottle caps of different sizes.
- Ball made of newspaper
- Puppet
- Wooden sticks and blocks, plant seeds
- Plastic spoons and forks
- Yogurt cups
- Medicine boxes
- Entry ticket/voucher
- Pictures of animals from newspapers
- Toy car made of wood
- Textiles such as a scarf
- Small, empty boxes
- Leftover paper for drawing
- Pens/pencils and paper, photos of parents and siblings (to prevent homesickness)
- Newspaper and glue

Fig. 83: A small child in Bangladesh with a “treasure chest”

Learning box for 7 to 9-year-olds

- Small boxes or small bags with plastic bottle caps, seeds, or stones of different sizes
- Paper
- Pens/pencils
- Puppet
- Textiles/cloth
- Book (for reading)
- For longer periods, also schoolbooks
- Rule-based games (matching game, puzzles, mill)
- Photos with parents, siblings, cut-out pictures of animal or car which the child likes
- Materials for craft work such as embroidery, knitting, sewing, weaving etc.

Learning box for 9 to 12-year-olds

- Schoolbooks
- Books for entertainment
- Collection album/notebook for writing a diary or jotting down stories and poems that come to mind
- Puzzles or patience games
- Rule-based games such as chess etc.
- Craft work materials for embroidery, knitting, sewing etc.
- Materials for creative work such as paper, magazines, newspapers
- Textiles/cloth
- Toy cars
- Glue/adhesive
- Favorite photos/images
- SMS from friends

Many children systematize their learning materials as they grow older.

12 to 16-year-olds

They no longer wish to have a learning box, but instead use the technique for this purpose — or a learning aid that nobody can see as a "pocket aid," so to speak.

Fig.84: Example of a learning box for a 7 to 9-year-old

Fig. 85: Example of a learning box for a 9 to 12-year-old

Fig. 86: Systematic learning box for 9 to 12-year-old (inside view)

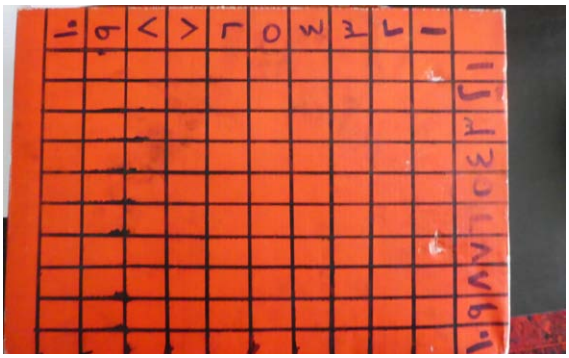


Fig. 87: Systematic learning box for 9 to 12-year-old (underside)

Fig. 88: Upper side with geometric shapes and fractions

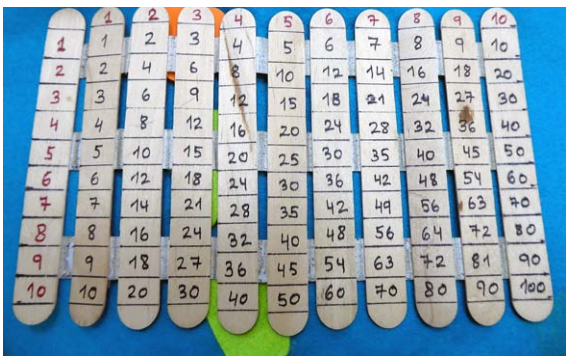


Fig. 89: A foldable multiplication table as a "pocket aid"

16.3 The calculating machine

The calculating machines, which to some extent are also developed by the children, are highly popular (especially among younger children), as the word “machine” gives them the feeling that they do not need to do the calculations themselves, because a machine will do it for them.

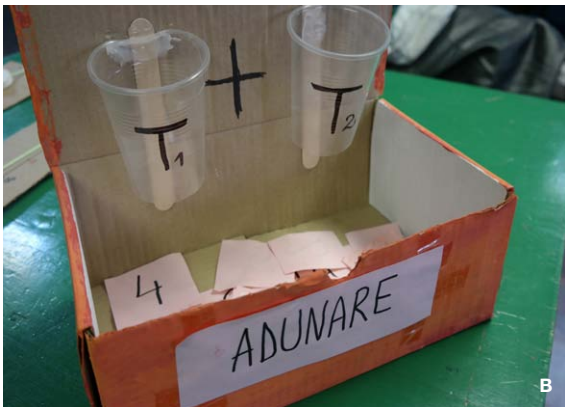
The counting machine
These “machines” are primarily used for addition and subtraction. Pre-school children use them for counting while training their fine motor skills at the same time.

The counting machine was invented to simplify and visualize addition. For this purpose, two cardboard tubes (or tubes made of another material) are attached to a wall with a little space between them (see Figure x). A large plastic container is placed under the lower openings of the two tubes. Now the number of plastic bottle caps corresponding to the numbers to be added can each be placed in one upper opening of the two cardboard tubes. Counting the number of plastic bottle caps that collect at the lower end of the pipes gives the sum of the addition.

Younger primary school children are impressed by the interaction and the change, because things are moving. This is a completely different impression from the one they get from working with their schoolbook. The machine connects arithmetic with games.

Particularly in primary school, children love developing machines which they often use for only a short time before dedicating themselves to new challenges. In light of this, it can be said that the calculating machine re-opens the door to arithmetic for them.

The multiplication table
The multiplication table is especially created for working with very small to large numbers, and is also used in many cases for calculating and converting fractions.



A) Fig. 90: Calculating machine for addition and subtraction
B) Fig. 91: Addition machine
C) Fig. 92: Subtraction machine

Children use this calculating machine to visualize multiplication and division. It can be made by the children themselves using various materials. What is important is a visible base area consisting of 10x10 (or more) fields or holes (cf. Figure x). For the multiplication of two numbers, one number is counted off from left to right, and the other from top to bottom. This yields a rectangle. Counting the number of fields or holes in the rectangle gives the result of the multiplication. In this manner, children can visually represent all multiplication tasks, and count or derive the result.

The fields of the rectangle can be filled with empty yogurt cups, plastic bottle caps etc. to make the result easier to see. For older children, the machine can also simply consist of a piece of paper on which the 10x10 fields are drawn. This version is small, foldable, and fits in any pants pocket.

After rubicon, children want to use real calculators which hide the actual calculating process — even though they show the correct result. However, the correct result can be used to re-trace the steps in order to make the child aware of how the calculation is performed. The mechanical calculating machine is an orientation aid which visualizes the process in a sensory manner for the orientation of the child. Once this has been done, interest in the machine wanes, or it changes.

16.4 Alphabet cards

Many children have poor corporeal orientation and forget which direction “the letter is looking,” as children say. There are writing systems in which the differences between the letters can be more easily discerned than those whose round forms more or less resemble each other. Therefore, being able to feel the letters is a huge help.

Alphabet cards are created by the children to visualize individual letters or entire words; they also serve as memory aids. There may also be a word-image representation in which the front and rear sides are used. The selected letter is formed out of a piece of string, wool, or cloth cut into strips and pasted onto a piece of cardboard or paper. On the rear is an image or a word which presents the letter in a typical fashion. Children often make alphabet cards that fit easily in their pants or jacket pocket and can be taken along anywhere.

The child does not have to look at the card in order to feel it, so it can also be held under the table. Knowing that they have this aid is a relief for the children and helps them remember. Once again, the card is used for orientation — not to experience the process in this case, but to reinforce the nuanced understanding of shapes. In summary, every learning aid reduces stress and stimulates curiosity for learning.

Fig. A) 93, B) 94, C) 95: Here are some examples for alphabet cards and alphabet dice for practicing through play

In addition to the described there are a lot of other learning aids in the fields of mathematics and language, which are eagerly used by the children. There are no limits to the imagination when creating such aids. On the next page, for the different age groups, some of them are shown as a suggestion.

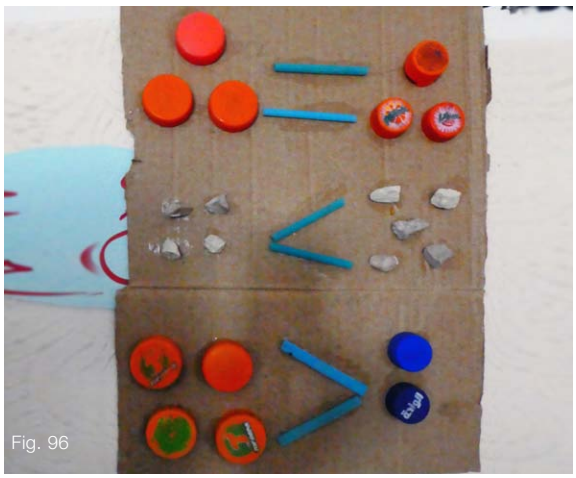


Fig. 96

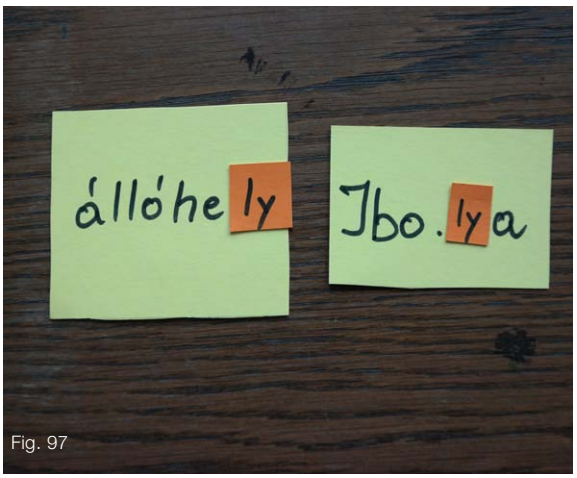
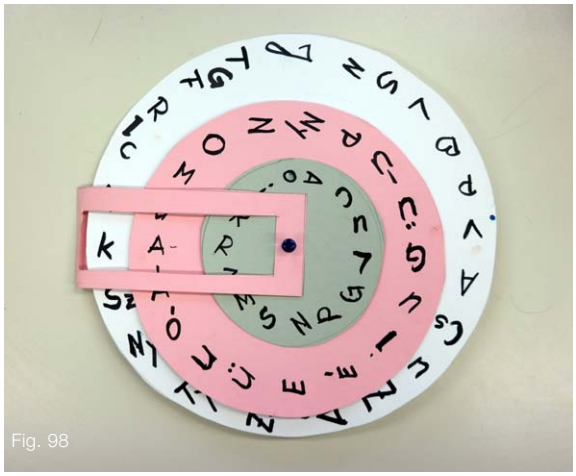


Fig. 97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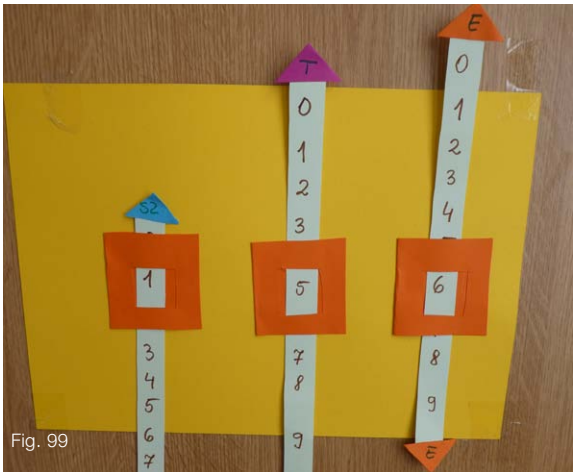
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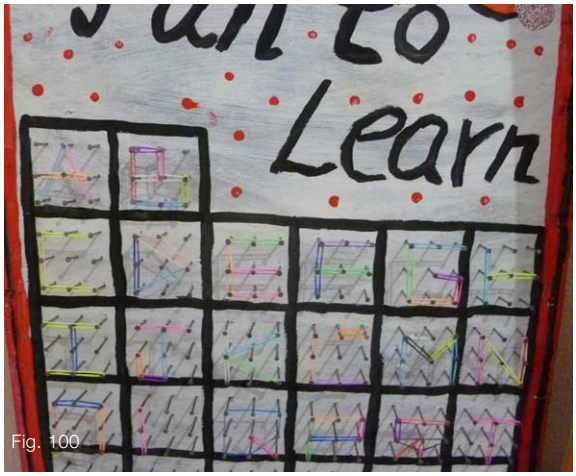

Fig. 100

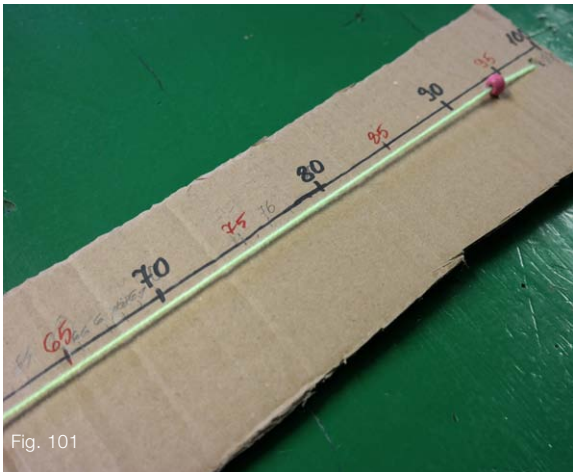
Fig. 101

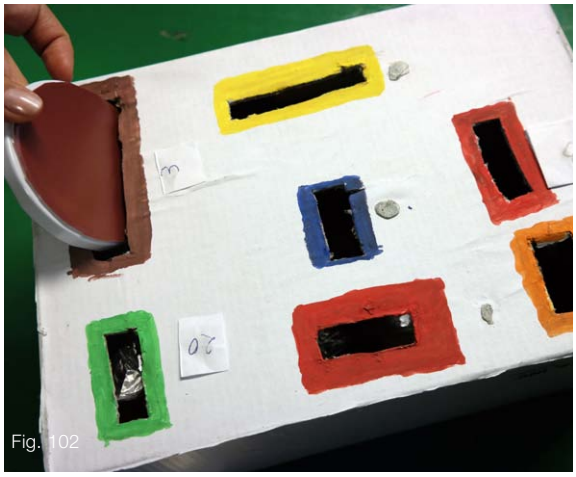
Fig. 102


Fig. 103

Module: Training and quality assurance

17 How are the teachers trained?

17.1 Initial situation

Even in crisis regions, a large number of teachers are well-educated. They are highly familiar with childhood development and above all, know what they need to do in the respective age groups according to the curriculum. Moreover, they have also learned how a school period should be structured with regard to content and flow and how lessons need to be prepared and followed up. Even from a methodological/didactics standpoint, they are often aware of child-centric learning methods. They learn these key topics from specialists who usually have little or no experience working in a practical setting. The more severely a country is affected by poverty, the greater this disparity. Many teachers were unable to attend a university due to reasons of cost. On the other hand, many trained teachers do not work in their profession, because it is often poorly paid, does not enjoy a good reputation, and offers few chances for career advancement.

Preschool training often takes place within the scope of pedagogical studies. However, preschool is usually not a mandatory component of the school system, which means that there is rarely a budget for it from which teacher salaries can be paid. Consequently, there is a lack of practical instructions for education in emergencies, not the least because teacher training in many countries is based purely on theory and contains no practical modules.

17.2 Who teaches EoL in the individual countries?

As mentioned in the introduction, the qualifications which the individual teachers have differ from case to case. Therefore, the persons working in EoL programs include trained educators, (kindergarten) teachers, psychologists, and social workers, as well as teachers without specific training but with a great deal of experience.

In most cases, EoL is taught by local non-governmental organizations in extra-curricular, child-friendly institutions. Early childhood education in Bangladesh, however, is also offered informally by entrepreneurs in slums, and teaching with EoL therefore has become a source of income. Finally, EoL components and approaches in certain countries have also become part of the public school and kindergarten curriculum.

What all teachers have in common is that they need to have successfully completed a practical EoL training program in order to obtain the necessary qualifications.

In summary, it can be said that EoL training also leads to the teachers, with their varied occupational backgrounds, having a uniform view of children and being able to better imagine their learning abilities and learning difficulties.

17.3 Who trains the EoL teachers?

To date, Ms. Beatrice Rutishauser Ramm (Caritas Switzerland), who developed the EoL program, has been carrying out the initial training of the teachers for newly initiated projects. For this purpose, she travels to the individual projects, provides guidance to the people on site, and creates teams of trainers. In Kosovo, Erika Masina (Caritas Switzerland) also trains people in EoL at the kindergarten level.

When the multi-stage training has been fully completed, and the trainees can fall back on their own body of experience, these trained persons can also train additional teachers according to the "train the trainer principle."

17.4 What does an EoL training program look like?

Foundation: four-day training for teachers
The training courses only last for four days and are generally supplemented with two "Reflection on Practice" modules which are each scheduled to last for two days. The training course is geared toward practical applicability and teaches exercises for the individual learning steps along the learning pathway. These are adapted to the context, the training standard, and the age group.

Generally, a distinction is made between two training programs: One for early childhood education and one for the primary school level.

As an emergency educational approach, EoL is flexible, because the initial situation differs greatly in each case and needs to be considered individually.

In order to plan the training, the following questions are always asked at the beginning:
- In which type of crisis situation do the children find themselves?
- Where is the EoL program used?
- What are the advantages of a long-term concept?
- Should it be conducted as part of or outside normal learning activities?
- What are the advantages of a self-contained concept; i.e. 10-week program?
- What is the basic education level of the teachers in question?
- Is early childhood established in the relevant country?
- What qualifications do the teachers possess?

The corresponding decisions can be based on the answers to these questions.

Fig. 104: Mathematical exercise for understanding the layout of the multiplication rows

Fig. 105: Teachers practice a scene for table theater with the aid of natural materials

The practical training course links realistic lesson aspects such as materials and learning behavior with developmental principles and the ways in which these change in crisis situations. The participants experience a learning process in a manner analogous to the experiences which the children also have during class. Often, the training leads to an “aha” effect which enables the teacher to see teaching in a different light. Therefore, nothing new is learned, but learning is seen in a different light. Suddenly, they realize that child-centric learning methods are not difficult to integrate into lessons.

17.5 Further aspects: Mentoring as a quality improvement measure

Mentoring is a common part of all EoL programs. It comes into play immediately after EoL training and should not be confused with monitoring. Mentors are experienced teachers who have practical experience and provide the teacher with methodological/didactic support in practical lessons. This may mean that mentors themselves take over parts of the lesson or observe the interaction between the teacher and children and share their observations with the teacher after class. In addition, they too can learn from the mistakes of the other party, as observation from the outside leads to other realizations than those obtained from their own practical work with the children.

While EoL teacher training focuses on implementation (materials and room organization), once this has become routine, it is followed by more in-depth methodological/didactic examination within the mentoring relationship by taking a more nuanced approach toward the timetable and the understanding of the methodology/didactics. Finally, individual elements are then reinforced and improved upon. Preparations and follow-up for the individual learning sequences are discussed. In this manner, the mentors experience appreciation, as they are perceived as experts. At the same time, the teacher feels that his or her questions are being taken seriously. This other party enables them to view their own mistakes and the ways in which they can be corrected in a new light. This is also new for many teachers, because there is no culture of mistakes in many countries, which is why they tend to be suppressed instead of rectified. Leadership also needs to be relearned and can be practiced via mentoring and the resulting increase in responsibility.

17.6 Plan of procedure for an EoL training program:

1. The decision is made to establish an EoL measure.
2. One or more eligible teachers are found and the parents are informed.
3. The classrooms are found and outfitted.
4. The practical four-day training program is conducted.
   A new center is opened after a suitable group of teachers has been trained.
5. The EoL program begins, and regular visits from mentors take place.
6. The first two-day “Reflection on Practice” training module takes place.
7. While the program is ongoing, additional mentor visits take place. The purpose of these visits is to review the material collected (stories, riddles, games, and custom-made items) for their suitability and to disseminate the best elements adapted to the local situation within the EoL community, as well as to eliminate things which have proven ineffective.
8. The second two-day “Reflection on Practice” training module takes place.
9. All EoL teachers are connected in a network where they can share their experiences.
10. EoL teachers have the opportunity to act as mentors as well, in which case they take part in a one-day mentor training course.
11. The EoL teachers independently organize one-day or half-day “Reflection on Practice” training sessions with each other, i.e. they observe each other during their practical work, derive conclusions for their own work, and provide feedback. Because each of these persons possesses different strengths, each can lead others in his or her own specific field of expertise and enrich them with examples from lessons.
12. When the teachers have proven themselves both in practice and in mentoring, they have the opportunity to train other EoL teachers. Ideally, “trainer tandems” are then formed which jointly conduct EoL training courses to pass on the knowledge.

After the first four-day training program, participants receive a confirmation of participation. After the mentoring has been completed, and it has been documented that everything necessary has been implemented, they receive a certificate.

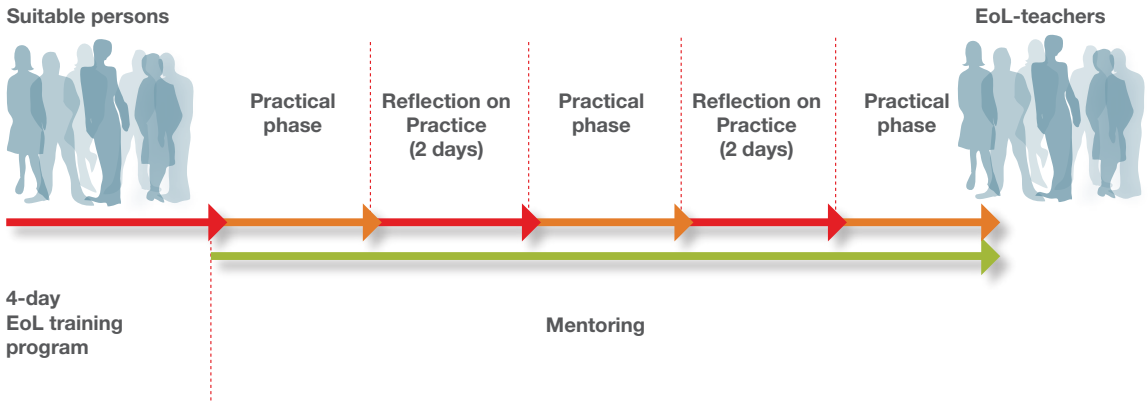

Diagram 7: Structure of training program for EoL teachers

18 Children describe learning experiences

Working with learning aids is particularly fun for the children. The organizational activity makes them forget that they are in the middle of a learning process, because being busy with their hands and the mobile materials animates something within them. It is striking that movement helps the children to remember, whether it is moving their own body, moving the materials in conjunction with a learning task, or the inner imagination of a movement that can be presented and supplemented.

Children give the following descriptions:

- The thought comes into my head while I am moving.
- When I move, I see it in front of my eyes.
- If I have formed letters before, they appear in front of my eyes when I have to write them. I can imagine the letters better when I have held them in my hands before.
- Because of the story about the number 6, I now remember it better.
- Now the words come into my head, because we acted out the text as a skit.
- When I have to do homework and I don't know something, I get the plastic bottle caps so I can find my way better.
- Every time I come to the center, I paint. I like painting what I see in my mind's eye.
- I have the image in my mind. Painting makes it go onto the paper.
- I like to get a task we can follow. Our potatoes have grown. It was a lot of work to till the ground, plant them, and to make sure that they do not dry out. I will never forget it now. Now, if someone asks me what I have to do, I know exactly what to say.
- We were in a shop and looked at the special offers, and then calculated how much we saved. It was much easier than in the schoolbook. I didn't understand it there.

- I write letters, and we play post office. I can write! When I imagine that I am writing a letter, then I know what I have to write.
- I have a book and I write things I don›t know in it.

These statements show that movement activities while performing specific tasks activates a process and an “inner impression” is achieved, so to speak, which helps the children to remember things when learning with schoolbooks.

Fig. 106

Summary and outlook

With its 4x2x2-day training program, the EoL approach turns the learning system “upside down” by showing teachers a “different” way to work with children. EoL replaces teacher-centric learning in which children often have the feeling of “running after” the material. With autonomous learning, they experience the exact opposite of this feeling. The children master the material and progress to the next task.

At the early childhood and kindergarten levels, EoL is a pedagogical approach which attempts to compensate for the lack of toys and a stimulating environment, as well as time and resources. It conveys to the teacher at this level the skills and limitations of mental abilities and the children’s corresponding awareness of consequences. The many sensorimotor games and materials encourage and stimulate the children’s development, and social and cognitive experiences are made possible thanks to the structured flow and wide variety of activities. As a result, the children are ideally prepared for school and the upcoming abstract thinking.

In a crisis situation, EoL becomes an education in emergencies concept for children at the kindergarten, primary, and secondary school levels through the conscious repetition of things that have been learned previously (analogous to the learning flow) and the specific implementation with the learning pathway. Specifically, EoL allows learning from schoolbooks to be replaced with autonomous learning. For this to happen, the children’s motivation and joy of learning need to be reinforced and factors blocking sensory perception eliminated. They should be addressed and encouraged in an age-appropriate manner. Through the clear, systematic approach of the learning pathway and a wide range of fun learning aids which help them grasp concepts, children experience successes which encourage further learning. This allows them to autonomously complete the learning steps along the learning flow. Their learning skills are reactivated and they are able to integrate back into the public curriculum. A great help for coping with regular lessons is the development of custom learning strategies which children create to solve tasks. This is because they can also be utilized in this context (where necessary, with the help of a custom-made learning aid). The learning strategies and aids are particularly useful for independently completing homework.

Drawing and painting periods as well as project lessons foster individual creativity and open up freedoms for the children with the help of the associated movement and sensory activities. The opportunity for free expression and social togetherness — everything within a secure framework — actively teach decision-making competency. These activities form the foundation for promoting autonomous learning and constitute important components for developing resilience in children.

The holistic educational approach of EoL integrates and practically implements the requirements of psychosocial support (PSS) and social-emotional learning (SEL). The implementation of PSS and SEL are urgently recommended as important approaches for coping with crises by UNICEF, the INEE (Inter Agency Network for Education in Emergencies), and the IASC (Inter Agency Standing Committee). Findings from brain research, sensory perception, salutogenesis, and resilience, which form the basis and the framework for EoL, fulfill the underlying requirements of these two approaches to a great degree. As the sample exercises for the individual learning steps show, they are fixed components of practical implementation — both in the classroom and at home. Associating learning at school with games and free time and with using fun, sensorimotor learning aids serves this exact purpose.

Despite all this, EoL cannot, nor is it intended to, replace regular school activities, but rather sees itself as complementing them. If the schoolbooks used in crisis regions are of varying quality, and if not all children are able to follow the learning material taught in them, the learning strategies acquired via EoL help them to achieve success once again in normal lessons. During this process, EoL helps children establish an “inner” relationship with the learning material and to store what they have learned in their long-term memories. In this manner, the already highly-stressed and overworked short-term memory is relieved of stress during the crisis. If children deny themselves access to long-term memory due to traumatic experiences, the

learning aids build bridges, so that new material can be learned. Positive experiences therefore overlay the horrible experiences with newly acquired learning experience. However, EoL cannot replace therapy, and traumatized children or those suffering from post-traumatic stress disorders should receive specialized aid wherever possible.

Experience has shown that temporary symptoms such as wetting the bed, the urge to move, concentration difficulties, “numb” senses and the loss of speech can be attenuated as part of an EoL program, and in the best case, overcome. If the reacquisition of access to corporeal perception and the senses does not lead to re-traumatization in times of crisis and after a war, but rather helps children get back in control, this should be encouraged. Both during class and in daily life, children are encouraged to use aids until they are no longer necessary. A plastic sheet and a terry cloth towel protect the mattress from being wet; the option of learning while standing or walking helps in acting out the urge to move about; longer phases of relaxation and shorter ones of tension promote concentration.

Many findings have been obtained from practical research, project monitoring, and project evaluations on how children affected by stress and trauma can be helped. Caritas has a great many statements from children and teachers which document what is appreciated and, in their opinion, which learning difficulties have been overcome. Innumerable drawings show the developmental steps of the children, and in many cases we can speak of normalization. Despite this, interdisciplinary research in crisis regions is lacking, and a great number experiences from the field of education in emergencies still need to be further investigated. It would be gratifying if holistic education in emergencies approaches, including EoL, were to be investigated neutrally and critically in order to gain a better understanding of their mode of action. What helps children the most? What can definitely be left out? What can be attributed to the approach and what has developed all on its own? These questions urgently need to be answered in order to be able to help even better and more efficiently.

Even without a rigorous scientific review of the EoL approach, Caritas Switzerland is convinced that education in emergencies and EoL constitute added value, and more investments should be made in practical teacher training. According to the statements by the children, this would be an enrichment of their otherwise harsh daily school life.

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Additional links

Education in emergencies networks and funds:
The Inter-Agency Network on Education in Emergencies is the largest and most important association of governments, UN organizations and NGOs which work in the field of education in emergencies. In total, more than 13,000 people from 130 organizations are members of INEE. INEE provides important standards and basic principles:

http://www.ineesite.org/en/

In Switzerland, teachers who work in education in emergencies meet in the Network for Education and International Cooperation (RECI).

https://www.reseau-education.ch/de

The global education fund “education cannot wait” compiles important documents and finances education in emergencies projects.

http://www.educationcannotwait.org/the-situation/

UNO:
UNICEF, the child aid organization of the UN, has the widest access to education and child issues. UNICEF publishes the “education for all” report annually and

https://www.unicef.org/education/

UNHCR, the UN organization for refugees, compiles specific materials on the situation of refugee children.

http://www.unhcr.org/education.html

UNCECO publishes the global education monitoring report annually in which failings and successes are summarized.

https://en.unesco.org/gem-report/

Initiatives in the education in emergencies sector to which Caritas Switzerland contributes:
“Humanitarian Education Accelerator” is an initiative for identifying and disseminating good education in emergencies approaches and was founded by the British government, UNICEF, and UNHCR. EoL is one of five selected approaches

http://hea.globalinnovationexchange.org/

“Promising Practices in Refugee Education” is a compilation of case studies related to the education of refugees. Promising practices is under the auspices of Save the Children, Pearson and UNHCR, and also presents the EoL approach.

https://www.promisingpractices.online/

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