

Multi SkillZ – SKILLS

Skills in Multi SkillZ

A. Overview of the development factors and their sub-factors

| Fitness | | Skills | | | | Function | | | | Speed | | | |
|---------|----------|-------------|---------------------|------------------|-----------------------|----------|----------------------|------------|----------------|----------|---------|------------------|--------------------|
| Games | Training | Orientation | Eye-hand & Eye-foot | Moving & Jumping | Rhythm & Dissociation | Balance | Mobility & Stability | Techniques | Kinetic Energy | Reaction | Agility | Running & Moving | Speed Coordination |

B. Development factor Skills

Skills Focus is on improving coordination and motor control. The exercises are designed to stimulate the ability to solve motor tasks. The motor coordination is emphasized within the set-up.

Following sub-factors are elaborated within Multi-SkillZ in various ways:

1. Orientation
2. Eye-hand & Eye-foot coordination
3. Moving & jumping
4. Rhythm & dissociation

‘Skills’ are mainly dependent on the neural modulator system.

Skill Acquisition and Motor Learning

A. Self-organising process directed by constraints

The motor coordination of a movement action can be seen as a self-organizing process, controlled by constraints. These restrictions affect not only coordination itself, they are at the same time a necessary condition for the coordination of a movement action.

The limitations channel the process of self-organization that gives rise to coordination by excluding possibilities. Eg. the movement function of the body limits the movement options and thereby directs the coordination.

The motor system can be subjected to a variety of limitations so the realisation of the coordinated movement is influenced.

The co-ordination results from the interaction of the nervous system, with the body and the surroundings.

As explained in DrillZ #1: Multi SkillZ is a unique method to stimulate and enhance motor development and motor learning. The system ensures a well-rounded high-quality practice. In Multi SkillZ games and motor tasks are created and materials are used to direct the coordination and thus the movement experience to shape the motor competence of the children.

B. Coordination ability and skilfulness

Actions in sports feature the selection and controlled execution of complex movements. Efficient tuning of all different movement actions to one another and to the game events demands exceptional coordination abilities. The coordination ability is of double importance for sports:

1. The coordination ability limits the development of sport-specific skills or in other words the better developed the motor ability, the faster and better skills can be acquired.
2. Performing specific skills in a sports context implies the ability of adapting motor actions to the unique spatio-temporal circumstances. In this way the coordination ability constraints the specific technical performance.

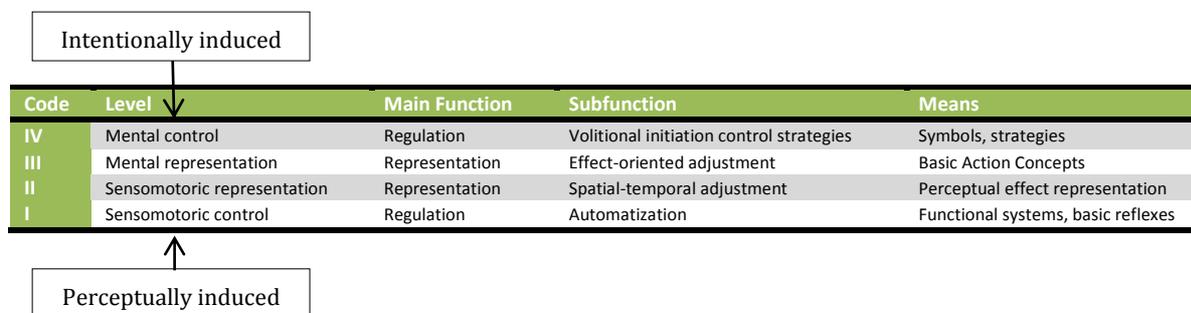
Coordination ability is the conditional ability to quickly and purposefully organise and perform movement actions. Skills (complex motor actions) and techniques suppose a coordination of a group of basic actions.

The coordination ability can be considered as a base which to a greater or lesser extent, can be invoked to learn and to carry out a skill or technique. This base can be widened by broadening the movement experience under different circumstances and motor tasks.

Through Multi SkillZ the individual coordination ability boundaries can be pushed by the plastic nature of the neural system.

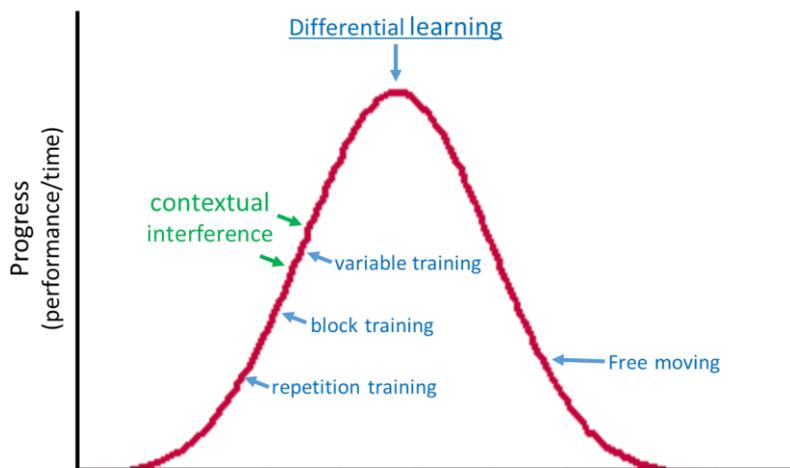
C. Motor control

It is the question of how the human brain is systematically finding solutions in a jungle of information and opportunities. The cognitive skill control is hierarchically organized in a vertical structure. The model below shows the vertical organization of the functional structure of actions.



Multi SkillZ develops the motor control in the motor skills for all sports by introducing motor tasks that evoke a wide variety of movement intentions and therefore actions. This approach leads to implicit learning (sensomotoric experience) with an external focus (intention).

D. Motor learning



@Prof. Dr. Schöllhorn, several presentations

The contextual interference effect in motor learning refers to the interference that results from practising a task within the concept of other tasks in a practice session. Several studies have shown that practice under conditions of high contextual interference (i.e. with a random practice order) degrades performance during acquisition trials, compared to low contextual interference conditions (i.e. with a blocked order, where practice is completed on one task before practice on another task is undertaken). In contrast to acquisition performance, random practice usually leads to more effective learning than blocked practice, as measured by retention and transfer tests.

Differential learning is a learning concept that assists subjects to find individual optimal performance patterns for given complex motor skills. To this end, training is provided in terms of noisy training sessions that feature a large variety of between-exercises differences. In several previous experimental studies it has been shown that performance improvement due to differential learning is higher than due to traditional learning and performance improvement due to differential learning occurs even during post-training periods.

E. Progressive learning

At some motor skill level the child is able to master a given motor task with variations and in different circumstances. The motor development does not have to stop there. The motor potential is not sufficiently activated by a mere 'broad' formation. The competency can and must be challenged by increasing the pressure.

When a given skill is acquired at a certain level, the child is asked to demonstrate the skill in more stressful situations. This way we provide progressive challenges to the motor ability of the child, and progressive learning can occur.

There are several methods to increase the pressure on the motor performance of a task:

1. Precision pressure: increase the necessary precision of the execution
2. Variability pressure: increase the variability in necessary executions
3. Time constraints: increase the time pressure
4. Complexity pressure: increase the complexity of the execution
5. Stress pressure: increase the performance context, elevate the mental pressure

F. Practical mnemonics

In practice the above insight can be simplified by the following next 4 steps:

1. *First 'Download'*: Offer the children a new challenge, give them the time they need to get the idea of what needs to be done and what actions need to be performed to successfully resolve the motor task.
2. *Then 'Play Slow'*: Let the children experience and help them to gain the motor control in the given task. The goal is that they acquire a slow execution.
3. *Then 'Play Fast'*: When the children master the slow execution, they will love to perform the task under time pressure or at a higher speed of execution. Raise the performance challenge.
4. *Finally 'Mix-up'*: Children who are able to control actions under time pressure are ready to take up a more complex situation. Challenge them to combine and consecutively perform mastered actions.

PS: Remember *"The Coach is a DJ"*