

Learning through Movement

Questionnaire evaluation in a primary school

Master thesis Master thesis in the subject of sport by

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Survey instrument: the student questionnaire

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## List of abbreviation (German)

### **Abkürzungsverzeichnis**

Abb.	Abbildung
Aufl.	Auflage
BMI	Body-Mass-Index
bzw.	beziehungsweise
ca.	circa
cm	Zentimeter
d.h.	das heißt
et al.	et alii/et aliae
Kap.	Kapitel
Kg	Kilogramm
m	Meter
m	männlich
max	Maximum
min	Minimum
MW	Mittelwert
n	Anzahl/ Stichprobe
NRW	Nordrhein- Westfalen
OGS	Offene Ganztagschule
SW	Standardabweichung
Tab.	Tabelle
w	weiblich
vgl.	vergleiche
z.B.	zum Beispiel



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## **1 Introduction**

### **1.1 General background of this work**

The focus of this work is on learning in motion in the everyday school life of the pupils at the Mammutschule in Ahlen. The aim of the master's thesis is to examine in a theoretical part and an analysis to what extent movement has an influence on learning and what changes have been determined by the introduction of the movement method in relation to learning in movement.

The learning and living conditions of school children have changed significantly in recent years due to urbanization, digitization, densification of residential areas, asphaltting of open

spaces, play bans, an increase in sedentary leisure activities as well as physical inactivity diseases and the increased use of school after programs and all-day school (see Hundeloh, Kottmann & Pack, 2015, p. 10). Exercise is less important in the lives of children and young people, so that they live in an increasingly restricted world. This development illustrates the urgent need to integrate exercise into their everyday life and thus, above all, into everyday school life by meeting the natural need for exercise and creating opportunities for exercise. In this way, a sedentary lifestyle can be prevented, lack of movement in the areas of motor skills and body awareness can be remedied and the pupils' urge to move can be given freedom (cf. Oppolzer, 2015, p. 9). In addition, they should be taught lifelong exercise in order to prepare and sensitize them for a healthy life.

Movement is also of considerable importance for learning because it promotes the psychomotor, cognitive and emotional-social development of children and young people (see Müller & Petzold, 2014, p. 26). In addition, the positive connection between physical activity and cognitive learning processes shows that the holistic view of the child and the consideration of their respective need for movement enrich everyday teaching and school life (cf. Donnelly, JE, Hillman, CH; Castelli, D., Ethnier, JL; Lee, S.; Tomporowski, P.; Lambourne, K. & Szabo-Reed, 2017).

## **1.2 Structure of the work**

The theoretical part of the thesis consists of two parts. First, the concept of movement is defined (Section 2.1) so that its meaning for adolescents can then be worked out (Section 2.2). Learning is presented from a neuroscientific perspective (Section 2.3), the connection between learning and movement is illustrated below (Section 2.4) and finally the influence of nature on learning is described (Section 2.5). In the second section, the Movement Method and its components are presented (Section 2.6).

The systematic structure of the theoretical part on learning in motion leads to the problem definition (Chapter 3) to the central research questions, to what extent movement has an influence on learning at the Mammutschule Ahlen in everyday teaching and what changes have been made at the school since the start - Leadership could be observed.

For this purpose, the survey instruments used by pupils (Section 4.1.1) and teachers (Section 4.1.2) are presented, which are used to answer the research questions ) described and clarified (Section 4.2). On the one hand, the mammoth school is presented (Section 4.2.1) and, on the other hand, the surveyed classes 4a, 4b and 4c (Section 4.2.3) are presented.

In Chapter 5, both the results of the students (Chapter 5.1) and those of the teachers are described and presented (Chapter 5.2). Subsequently, they are discussed and related to the theoretical part (Section 6.1).

In addition, the methodology is discussed by critically examining and reflecting on the choice of the study group (7.2), the conduct of the study (Section 7.3) and the survey instruments (7.4).

Finally, a conclusion is drawn and a research outlook is given (Chapter 8).

## **2 Theoretical background**

The topic of movement is of great importance in public discourses and in the orientation of some pedagogical concepts, such as “school in motion”. In the last few years, the world of children and their leisure time behavior has changed in such a way that movement has to be reintegrated into children's everyday life (see Thiel, Teubert & Kleindienst-Cachay, 2013, p. 11). In the school context, the holistic view of the student is particularly relevant, since the physical and mental processes are mutually dependent (cf. Donnelly et al., 2017).

Furthermore, on November 15, 2012, the Standing Conference adopted recommendations on health promotion and prevention in schools. As a result, topics and fields of action, such as



the promotion of physical activity, are to be integrated into teaching and school life for school health promotion.

## **2.1 Definition of movement**

The human body is programmed for a life with movement because it is a basic phenomenon without which the body would not function (cf. Schwegler, 2006, p. 80). The development of movement begins in the womb of the person and does not end until death (see Zimmer, 2004, p. 17). The Duden defines movement as "the movement of someone by changing their position, position, posture" (Duden).

With regard to everyday reality and the basic function of human movement, Grupe classifies movement into four different meaning dimensions (cf. Moser, 2000, p. 68). The instrumental meaning of movement is the basic requirement for the following three dimensions. With the help of movement, people can achieve, express or represent something by experiencing, testing or changing it (cf. Aschebrock & Stibbe, 2013, p. 323).

The perceptual and experiential meaning of movement deals with both one's own body and the material environment when acting in movement. This process can take place in a targeted manner on the one hand, but also unconsciously on the other (see Zimmer, 2004). People can come into contact with one another through their own movements and body language, which means that movement also has a socio-communicative component (cf. Aschebrock, Stibbe, 2013, p. 323). With the help of the personal meaning of movement, people can experience and experience themselves. Physical abilities are perceived as skills and help build self-confidence (see Zimmer, 2004, p. 18).

The training and the gathering of extensive experience through movement is of particular importance for the holistic processes of the body in childhood. In general, however,

movement and sporting activity cannot be equated, because this can only be part of movement.

## **2.2 Importance of exercise for adolescents**

"Movement is very important for the comprehensive development of children and adolescents!" (Müller & Petzold, 2014, p. 26), as it affects the various areas of perception, cognitive and social learning, the emotional experience, the motor and healthy physical development as well as the building of a positive self-esteem affects. Movement also shapes the holistic development of people.

Childhood is described as an eventful time in which children gain complex experiences with the help of their own bodies. Perception and movement are constantly interrelated (cf. Härdt, 2000, p. 34). As a result, every movement action involves a fundamental perception that is trained, encouraged and challenged. Correspondingly, this interrelation has a major impact on the development of the child (cf. Thiel et al., 2013, p. 26). Even in infancy, people explore the world with the help of movement and thus deal with their material and social environment (cf. Zimmer, 2004, p. 29). The human body thus becomes an instrument of the experience situation (cf. Müller & Petzold, 2014, p. 17), as this movement fundamental experiences through active engagement collects (see Thiel et al., 2013, p. 29). The intensity of movement has a decisive influence on the development of the perception systems. Because the more they are addressed by the movement, the better they develop (cf. Beigel, 2012, p. 17). This means that "[...] the world is experienced, experienced, recognized and, at the same time, shaped and shaped" (Müller & Petzold, 2014, p. 17). Furthermore, childlike learning takes place largely with the entire body and all senses (cf. Härdt, 2000, p. 34). The human perception system is made up of the four areas of visual, auditory, tactile and vestibular perception. Visual perception plays a major role here, as around 80% of nerve signals come

from the visual area (cf. Beigel, 2019, p. 18). They are picked up by the eyes, passed on to the brain and processed there (cf. Eysel, 2006, p. 243).

Another important sub-area is auditory perception, because it is the most important prerequisite for linguistic communication. Therefore, depending on their severity, hearing impairments can have far-reaching effects on the development of language and, consequently, also on the acquisition of written language (cf. Barden, 2009, p. 19).

A person's tactile perception system develops already in the womb and is the first functional sensory system (see Zimmer, 2004, p. 71). The sense of touch is essentially responsible for the perception of shape (cf. Handwerker, 2006, p. 203). Heat, cold, pressure and movement can be recognized through receptors in the skin (cf. Becker-Carus & Wendt, 2017, p. 76). Adolescents perceive information about the different surface properties by touching them. These can be soft, hard or rough, round or angular, warm or cold, for example (see Zimmer, 2009 p. 82). The tactile perception system has a great influence on the development of one's own body scheme and body image (cf. Dordel, 1987, p. 125). The body schema describes the structure and function of one's own body (cf. Kiphard, 2001, p. 277) and the body image is shaped by attitudes towards the body and experiences of boundaries (cf. Beigel, 2019, p. 21). The better the tactile perception system is developed, the more closely the body scheme resp. Body image of reality.

A wide range of perception offers and experiences in the tactile perception area lead to brain-friendly support in learning. Therefore, the tactile sense of perception is of enormous importance for concentration in the classroom (cf. Beigel, 2019, p. 22). However, if there is a low tactile tolerance limit among students, the proximity of a classmate can become a burden and accordingly distract from learning (cf. Beigel, 2019, p.22).

The vestibular perception works on the basis of the vestibular organ (balance organ) and is located in the inner ear (cf. Zenner, 2006, p. 312). It is responsible for the regulation of

balance, ensures the upright posture and the orientation of the body in space (cf. Clancy 2006, p. 22). The control of the balance is a complex process in which several areas of perception are involved (see Zimmer, 2004, p. 71). Good processing of vestibular stimuli favors hearing and supports the visual area. Movement activates the vestibular system. In the school context, pupils whose vestibular system reacts inappropriately are conspicuous by having problems standing or sitting still, they appear inattentive and motor-restless (cf. Beigel, 2019, p. 24). As already explained, the different systems of perception are of great importance. As a result, the more channels are used for perception, the better and longer the knowledge is stored. In the school context, the motivation to learn and the attention on the part of the pupils also increase (cf. Müller & Petzold p.17; cf. Thiel et al., 2013, p. 26; cf. Härdt, 2000, p. 33). For this reason, several senses should be activated and controlled in order to convey knowledge in school, which go beyond the optical and acoustic analyzer (cf. Oppolzer, 2015, p. 10). Exercise also has a positive impact on social learning. People come into contact with one another through movement, so that movement situations offer the opportunity for social contact or encounters (see Müller & Petzold, 2014, p. 20). In the context of movement, communication takes place on both a verbal and a non-verbal level and thus creates the opportunity for people from different backgrounds to get closer.

The barrier of different cultures is broken down by movement and sensitizes adolescents to the different (cf. Amberger, 2000, p. 19). In addition, they learn how to deal with their own emotions with the help of exercise programs. Furthermore, they experience the feelings of the other children and in this way learn to treat each other considerately (cf. Härdt, 2000, pp. 23, 34-35). In addition, exercise offers the opportunity to act out expressions of emotions, which can often avoid escalations (cf. Müller & Petzold, 2014, p. 20). If adolescents do not have enough reasons to act out their urge to move, they usually react with imbalance, irritability or aggressiveness (cf. Barden, 2009, p. 13). This finding is of particular relevance in connection

with everyday school life, since exercise offers lead to a stabilization of the action regulation of students (cf. Müller & Petzold, 2014, p. 21).

In addition, exercise can have a positive effect on the teaching and working atmosphere by filling phases with exercise and, in addition, making a wide range of exercise options possible during the breaks. This leads to the ability to concentrate and thus also to the cognitive performance being increased (cf. Müller & Petzold, 2014, p. 21). Individual movement and relaxation exercises also reduce the stress level in stressful situations (cf. Zadrobilek, 2018, p. 13) and have the effect that a long-term change in stress resistance can be brought about (cf. Müller & Petzold, 2014, p. 22). Exercise is very important in the prevention of violence, as it helps to reduce excess energy and aggression. The holistic support of the students and the integration of movement into everyday teaching mean that the lessons can be designed more varied. In addition, the pupils' natural need for movement is pursued, which results in a higher level of well-being both on the part of the teacher and on the part of the pupils (cf. Müller & Petzold, 2014, p. 22).

With regard to the motor and healthy physical development of adolescents, movement determines the maturation and learning processes essential. Movement actions strengthen motor skills and abilities (cf. Müller & Petzold, 2014, p. 23). In addition, everyday movement can reduce and avoid muscular imbalances and postural damage in the long term (cf. Beigel, 2019, p. 31). If a child does not move enough, motor consequences can be observed. The World Health Organization recommends that children between five and 17 years of age exercise at least 60 minutes per day (see Rütten & Pfeifer, 2016, p. 10). One of the most serious consequences of a sedentary lifestyle for children is the atrophy of the muscles and the weakening of the connective tissue. In the long term, this can lead to an unstable spine and overstrain damage in the joints (cf. Beigel, 2019, p. 31). A pronounced experience of movement, on the other hand, leads to higher motor performance, which enables better

coping with everyday life (cf. Barden, 2009, p. 28). This is especially true with regard to accident prevention, as children with pronounced motor skills and abilities are less likely to be involved in accidents (see Müller & Petzold, 2014).

In addition, being overweight and obese are usually the result of too little exercise. The body mass index (BMI) is used as a simple criterion for determining overweight and obesity. Since this is calculated from the body weight (kg) divided by height (m) squared and the proportions of children and adolescents differ, percentiles are used for the BMI classification. The mean value for people of normal weight is the 50th percentile, overweight children and adolescents from the 90th percentile and from the 97th percentile are considered obese (cf. Weineck, 2019, p. 987). Between the ages of three and seventeen in Germany in 2019, 8.7% of all children and adolescents were overweight and 6.3% were obese (see Federal Ministry of Health, 2019). This means that a total of 15% of all children were overweight or even obese. The worldwide development of obesity shows that this has increased sharply in children in recent years and has serious consequences (cf. Beigel, 2019, p. 31). These include postural problems, high blood pressure, increased blood sugar levels, shortness of breath, increased cholesterol levels, diabetes and impaired vascular functions (see Beigel, 2019, p. 30; Roden & Shulman, 2019). A lack of exercise is next to the consumption of unhealthy 8 Food and beverages containing sugar are the main cause of obesity (cf. Dinges & Worm, 2003, p. 15).

Experiences that children have through movement lead to the development of a self-concept (cf. Hundeloh et al., 2015, p. 15). For this, information and knowledge are necessary in order to develop beliefs about oneself (see Zimmer, 2012, p. 50). On this basis, a picture of oneself can be created, which provides an important orientation for action (cf. Müller & Petzold, 2014, p. 25) and “[...] the totality of attitudes towards one's own Person ”(Mummendey,

2006, p. 38). Correspondingly, the connection between physical activity and the self-concept of adolescents should not be neglected (cf. Dräbing, 2006, p. 11).

For a harmonious development of adolescents, the interrelationship between movement and the cognitive, social, emotional and physical-motor aspects of personality development is of enormous importance (cf. Müller & Petzold, 2014, p. 26).

### **2.3 Learning from a neuroscientific perspective**

Research into the brain has made great strides in the last two decades, with the structures and processes in the brain being the focus of research. A more differentiated understanding was acquired, with the help of which knowledge can be gained for everyday school life.

Learning is defined as the acquisition of knowledge, skills and information (cf. Bear, Connors & Paradiso, 2009, p.822). From a neuroscientific point of view, learning means building or restructuring neural networks (cf. Bear et al., 2009, p. 822). The starting point of all intellectual processes is the brain, which at the same time takes over the control of the entire body. The brain is in constant contact with the body and is responsible for all learning and thinking processes (cf. Hannafort, 2013, p. 9). Furthermore, it takes over the control for the psychological, physical and emotional actions (cf. Zadrobilek, 2018, p. 6).

At birth, the human brain has already formed around 100 billion nerve cells or neurons, which are connected to thousands more nerve cells (cf. Mulder, 2007, p. 24). For the control of the heartbeat, breathing and body temperature, the neural connections are already in place and consolidated due to their survival function. Other connections are initially only loosely linked (see Beigel, 2019, p. 42). Additional interconnections arise from the sensory information from the environment (cf. Bear et al., 2009, p. 781), whereby a constant adaptation, refinement and organization takes place in the brain (cf. Beigel, 2019, p. 43). Because of this neuroplasticity of the brain, neurologists were able to prove that the brain is not a static organ (cf. Jasper, 2008, p. 20).

The brain can be divided into three sections (cf. Appell & Stang-Voss, 2008, p. 107). These include the reptilian brain, the limbic system and the neocortex (see Grüber, 2017, p. 31). The reptilian brain is the oldest part of the brain in evolutionary terms and consists of the cerebellum and the brain stem and controls vital functions such as breathing, blood pressure, heart rate and digestive function (cf. Beigel, 2019, p. 43).

The main control mechanism of the central nervous system is the reticular formation, which consists of a diverse network of neurons and fibers (cf. Appell & Stang-Voss, 2008, p. 117). Among other things, it takes control of sleeping and wakefulness in humans (cf. Bear et al., 2009, pp. 509, 678). A person's attention can be increased by activating various sensory organs and thereby supporting the transmission of impulses with the help of the formatio reticularis (cf. Beigel, 2019, p. 44). Another important task is the inhibition of stimuli to protect against overstimulation by suppressing unimportant sensory impressions for a certain time. Thus, the attention can be directed to certain sensory impressions.

The limbic system (diencephalon) is responsible for controlling learning and memory formation based on emotions. Its most important structures are the hippocampus and the amygdala (see Thompson, 1990, p.10). The diencephalon is responsible, on the one hand, for the generation of emotions and, on the other hand, for storing and evoking memories (cf. Upledger, 2003, p. 140). The limbic system is thus significantly involved in learning success, because it conveys affects, feelings and motivation.

The hippocampus is particularly important for learning new content and can therefore influence memory performance (cf. Böttger, 2016, p. 164). When storing information, it serves as a kind of intermediate storage and is a decisive factor for short-term memory (cf. Richter, Neiheiser & Jennrich, 2018, p. 560). Humans receive thousands of sensory impressions every minute and store them for seconds. This information is then passed on to short-term memory or deleted. There they are encrypted and stored for half a minute. A total



of seven pieces of information can be recorded at the same time and then deleted or transferred to long-term memory (cf. Beigel, 2019, p. 45).

The amygdala is connected to the hippocampus and is responsible for a person's emotions.

With their help, one's own emotions can be saved and those of other people can be perceived.

The connection of memories with positive or negative feelings leads to the fact that the person remembers something longer and more precisely (cf. Bear et al., 2009, p.644f.).

Positive feelings enable the brain to permanently store an experience and initiate the transfer to long-term memory. Joy and interest in learning lead to the release of endorphins, support memory and therefore help to improve memory (cf. Clancy, 2008, p. 17f.). In contrast, negative events lead to an association of a similar situation with these negative feelings and people react with avoidance behaviors or physical symptoms (cf. Beigel, 2019, pp. 45f.). The storage of information can help convey information through the use of movement, images, sounds, smells, events as well as personal actions in order to transfer it better into long-term memory. A learning environment that is perceived as positive can also arouse motivation and curiosity and promote more efficient learning.

This is can be traced back to the inseparable connection between emotions and cognitive abilities (cf. Bergs-Winkels & Schmitz, 2018, pp. 70f.). Another way of conveying information into long-term memory is through repetition of content. In this way, they can be recorded permanently and recalled as conscious memories for a lifetime. However, as soon as this information is not used for a longer period of time, it reaches the subconscious.

The cortex (cerebral cortex) consists of two halves (hemispheres) and is responsible for consciousness and long-term storage (cf. Beigel, 2019, p. 47). The functions of the cortex can only work when all subcortical brain structures are optimally developed. The hippocampus, the amygdala and the cortex are involved in the learning process (see Upledger, 2003, pp. 142f.). The cortex takes control of consciously controlled movements and thus enables

learning, thinking and speaking. Each half of the human brain controls the opposite side of the body and takes on specific tasks (cf. Hårdt, 2000, p. 24). In the left hemisphere the verbal, logical, analytical and rational information is controlled, whereas the right hemisphere carries out mental associations and determines the holistic thought processes. In addition, the right hemisphere is responsible for feelings, intuition and spatial relationships. The frequent and intensive activation of both halves of the brain leads to increased neuronal networking, which is created by the formation of dendrites and synapses. Dendrites are short processes that lead to the nerve cell and synapses are the contact points between neurons (cf. Weineck, 2019, p. 150). Perceiving, moving, thinking, remembering, as well as physical and mental activities improve the process of networking (cf. Beigel, 2019, p. 47).

For the optimal transmission of stimuli and information, humans need strong connections between neurons. When new information is received, the brain changes in such a way that the binding structure and function of the brain emerges (cf. Bear et al., 2009, p. 781). Childhood is decisive for the development of neuronal connections. The following

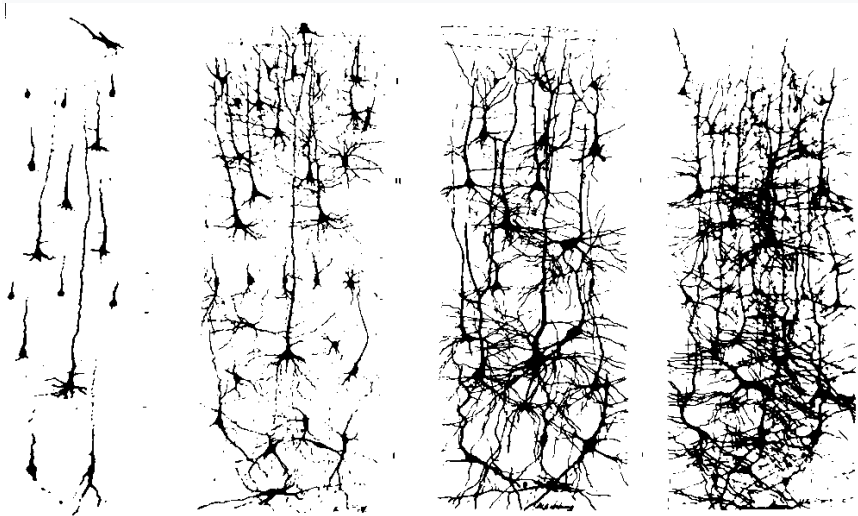


Figure 1: Nerve cells and their fiber connections in the course of childhood development.

From left to right: newborn, ten days, ten months, two years old (Weineck, 2019, p. 166).

The figure shows the connections between neurons in the course of childhood development from birth to the age of two.

With increasing age, the neural networks are refined and expanded (cf. Beigel, 2019, p. 47).

The strength of the connections is strengthened by frequent use. Since the connections are in constant competition with one another, unused connections cannot prevail against the heavily used connections and die (cf. Thompson, 1990, p. 249). The variety of synaptic connections depends on the one hand on the varied environment through which the brain is stimulated with different stimuli. On the other hand, the created genes determine the structure and function of the nervous system (cf. Bear et al., 2009, p. 781).

The described adaptation of the neural networks is determined by many influencing factors.

Daily movement and perception experiences promote the expansion of synapses and the expansion of neural pathways in the brain (cf. Beigel, 2019, p. 47).

#### **2.4 Relationship between exercise and learning**

With their review from 2017, Donnelly et al. Show that there are indications of a positive association between physical activity, fitness, cognition and academic performance (see Donnelly et al., 2017). However, some peer-review studies show contradicting results on the effects of numerous components of physical activity on cognition in terms of type, amount, frequency and timing (cf. Donnelly et al., 2017). Nevertheless, there is no evidence in the literature that an increase in physical activity has a negative effect on cognition or school performance (see Donnelly et al., 2017). Physical activity is important for growth and development and general health (see Donnelly et al., 2017). On the basis of the available evidence, the authors came to the conclusion that physical activity has a positive influence on

cognition as well as on the structure and function of the brain (cf. Donnelly et al., 2017).

Many questions remain unanswered about how best to integrate physical activity into school, such as taking activity breaks versus active classes for improved academic performance

Exercise increases the blood circulation in the brain and thus the oxygen concentration (cf. Müller & Petzold, 2014, p. 18), which activates the reptilian brain, the cortex and the limbic system more strongly (cf. Beigel, 2019, p. 52). The last-mentioned functional unit of the brain includes the hippocampus, in which the increase in neurons is intensified when there is a high level of activity (cf. Weineck, 2019, p. 159). The formation of synapses is also supported (see Müller & Petzold, 2014, p. 18). This leads to an optimization of the functions of the nerve cells and neural networks, which increases the speed of cognitive information processing (cf. Oppolzer, 2015, p. 9).

Metabolically active nerve cells require a permanent supply of oxygen and give off carbon dioxide as a waste product, which prevents over-acidification of the brain (cf. Beigel, 2019, p. 52). Consequently, you can get optimal mental performance values by activating mental skills are achieved with the help of movement (cf. Jasper, 2008, p. 27). These positive influences apply both to the time of movement and afterwards (see Müller & Petzold, p. 2014, p.18).

These findings illustrate the importance of integrating movement into everyday teaching with the help of holistic teaching and learning methods as well as active, moving and relaxing elements in the classroom. The consideration of the student in his entirety and the consideration of the movement needs lead to an improvement of the whole body processes and the learning performance.

## **2.5 Learning in nature**

The experience of nature is of great importance for the development of children and adolescents because, among other things, the perception system is trained, the health of the pupils is positively influenced and vital skills can be taught and experienced. In nature, people are given the opportunity to escape the pressure to perform. Even a short time in nature can reduce the stress level by lowering the cortisol level (cf. Hunter, Gillespie & Chen, 2019). In their 2019 review, Kuo and co-workers show that nature improves learning processes. Nature-based learning can increase student interest, improve grades and give all students the opportunity to be successful (cf. Kuo et al., 2019). Learning in nature also increases the attention and intrinsic motivation of the students. The experiences in nature help them to acquire their own skills, attitudes and behavior (cf. Kuo et al., 2019). This is especially true in. With regard to the child's non-cognitive abilities, which are important components of life outside of school in today's digital and sedentary world.

These include, for example, perseverance, self-confidence, resilience, social skills, leadership qualities and communication skills (cf. Kuo et al., 2019). In addition, the physical activity of the children is increased in nature, which leads to a decrease in tension, anger and depression (cf. Dettweiler et al., 2017).

These results illustrate the relevance for the school context. School principals and teachers should support the integration of nature into everyday teaching and offer their students as many nature-based learning opportunities as possible in order to use the advantages mentioned. Possible implementation options are, for example, learning and playing in nature as well as excursions and school trips with a focus on nature.

## **2.6 Presentation of the Movement Method**

The Movement Method was developed based on the Horse Boy concept by Rupert Isaacson. In 2004 he worked out the approach of integrating movement, intrinsic motivation and nature into the everyday life of his autistic son and thus enabling him to learn processes (cf. KultureCity, 2019). Positive results led to the establishment of the Horse Boy Center in Texas. In the following years further successes could be achieved with hundreds of autistic children, so that the Movement Method was worked out through additional adaptations of the concept. First of all, it should support children with special needs, such as autism, ADD or ADHD in everyday school life and thus initiate learning processes (cf. KultureCity, 2019). The Movement Method is based on three principles from scientific observations. Stress affects learning we learn better when we feel safe. Movement promotes learning

The stress-related impairment of learning takes into account the type of stress that results in the actual work no longer being carried out. Stress is the physical and psychological reaction of the body to a stressful situation and served in the history of evolution to ensure survival (cf. Kowalsumk, 2018, p. 152). The human brain assesses a situation within milliseconds and evaluates it on the basis of stored memories, which is why stress is a subjective feeling. If an event or a situation is assessed as a danger, a stress reaction is triggered (cf. Kaluza, 2015, p.24). To do this, a signal is sent to the amygdala, where the nerve cells become more active and trigger the fight-flight reaction. The information about the stressful situation reaches the adrenal gland via the nerve cords in the spinal cord, where adrenaline and noradrenaline are then released (cf. Thompson, 1990, p. 163). This increases the heartbeat, blood pressure and tension in the muscles and releases blood sugar for better supply to the muscle cells (cf. Härdt, 2000, p. 15). At the same time, in a somewhat slower reaction, the hypothalamus is informed by the amygdala and releases messenger substances. Then the hormone adrenocorticotrophin is released and reaches the adrenal kidney with the blood. There it causes the release of cortisol (cf. Kleine & Rossmannith, 2007, p. 79f.). The hormones ensure

that the body receives an increased supply of oxygen and energy so that full concentration is directed towards the stress-related event, the source of danger (cf. Krause, 2007, p. 12).

In the body there are other processes such as for example, increased blood clotting to protect against blood loss or shutdown of digestion and sexual function initiated in order to have all energies available for the fight-flight reaction. In addition, the immune system is shut down in the event of stress, which means that the immune system is less resistant and colds and illnesses can break out more easily (cf. Krause, 2007, p. 17). Accordingly, long-term stress can weaken human health. Another consequence of a stress reaction is tissue damage, including in areas of the brain, so that learning processes are impaired or prevented (cf. Cranston, 2014). Even uncontrolled and mild stress can lead to cognitive abilities being lost or damaged (cf. Zadrobilek, 2018, p. 20).

Scientific observations have been able to establish the connection that people learn better when they feel safe. The feel-good and happiness hormone oxytocin is of particular importance in this context, as it causes the opposite effect of cortisol in the body (cf. Kleine & Rossmannith, 2007, p. 49). Accordingly, oxytocin is released when a person feels good, which is why it is also known as an anti-stress hormone (cf. Patti, p.53). In addition, it is involved in many physical and mental processes (cf. Moberg, Streit & Jansen, 2016, p. 2). To take advantage of the beneficial effects of oxytocin, the Movement Method pursues activities that promote the production of oxytocin. This includes proprioceptive stimuli, rhythmic music as well as swinging and laughing (cf. Walter, unpublished). Furthermore, oxytocin regulates the sensitivity of the amygdala when stimulated with stress stimuli. In this way, their tolerance threshold can be raised and cortisol production can be inhibited (cf. Kirsch et al., 2005). In addition, the negative long-term effects of cortisol can be canceled out by oxytocin (Heinrichs et al., 2003).

In Sections 2.2 and 2.3 it was already shown that movement promotes learning. Taking into account the safe environment, exercise is integrated into the pupils' everyday school and teaching life so that their exercise needs are met. On the one hand, the possibility of active execution of movements is given, for example jumping on the can be trampoline or running through class. On the other hand, passive movement, such as restoring equilibrium on a moving object, can have a positive effect on the learning process.

The Movement Method follows these scientific principles and changes the everyday teaching life of students and teachers. The established guidelines of the Movement Method are a further component of this concept in addition to movement.

The following formula was worked out for successful learning:

The right environment for the body + The right environment for the mind = learning

The Movement Method follows the principle that a student learns when an environment is created that encourages learning. To this end, the production of oxytocin should be stimulated and the production of cortisol prevented at the same time. The sensory needs of the pupils are placed in the foreground, giving them the opportunity to increase movement (cf. Walter, 2018). The learning material should be conveyed with the help of fun, appropriate pressure and the benefit of intrinsic motivation and passion. A person is ready for spiritual competencies when the environment brings body and mind into harmony. Your readiness to accept mental activity arises on the basis of the harmony of body and mind (cf. Walter, 2018). If there is a change from the traditional learning environment to a learning environment that corresponds to the sensorimotor needs of the pupils, the development of stress can be prevented, which increases the willingness to learn.

Based on the scientific findings, eleven guidelines for successful learning were developed as part of the Movement Method.

Guideline 1: Follow the child: build and use intrinsic motivation



The basic requirement for successful learning is intrinsic motivation, which facilitates and enables children to learn. A safe environment must be created for this, so that the students have the opportunity to explore, present and internalize their interests. The teachers take on the task of observing, of designing and providing a selection of educational activities, and of helping and supporting them at all times. The joy of learning should be conveyed in a flexible, humorous and pressure-free way (cf. Walter, 2018).

#### Principle 2: Explore and Discover

The curiosity to explore and discover the natural environment is given to humans from birth. Enjoying it can promote the ability to learn, think critically, and reason. When learning things that interest us, the activity of the hippocampus increases (cf. Gruber et al., 2014).

Consequently, people learn better when something interests them and they enjoy the subject matter. With the help of this knowledge, teachers are given the opportunity to teach their students in all subjects of the curriculum by giving their students the opportunity to follow their interests and the learning arrangements take them up (see Walter, 2018).

#### Guideline 3: Reframing

The meaning of an event is related to a certain context and receives its meaning through perception. Correspondingly, incidents, situations, problems and incidents can be given a new meaning through a change in perspective, so that events, reactions, behaviors and relationship constellations are valued differently and can thus be better understood. The context of the situation and its influences on it is therefore the decisive basic assumption of the reframing or change of perspective.

This makes it clear that every behavior of a person makes social sense if you only see it from the “right” perspective. The fact that the perception of self and that of others is different leads to a change in the reality of the individual with regard to certain phenomena or situations (cf. Walter, 2018).

#### Guideline 4: Self-Compassion

Mindfulness is of particular relevance for everyday school life. With their help, things can be seen more objectively and ensure stability and clarity. All members of the school community must be receptive to their own feelings and those of others so that inability to act can be reduced or avoided (cf. Walter, 2018).

#### Principle 5: Choose your fight carefully

In order to create a pleasant class and working atmosphere, socially acceptable behavior must be encouraged in the classes. The fact that everyday school situations provoke fear for some pupils due to fear of performance or fear of unattainable performance requirements (cf. Oppolzer, 2015, p.23), draws typical physical and psychosomatic symptoms such as stomach pain, nausea, diarrhea on the morning of Examination days, headaches, sweats, tremors, the urge to urinate, sleep and concentration disorders. Further behavioral patterns are, for example, social withdrawal and avoidance behavior, attention and perception errors, daydreaming and dawdling, as well as low self-esteem and fear of criticism. A pleasant learning atmosphere must be created especially for those pupils, in which understanding and considerate treatment is part of everyday life. Safety, social rules and trust are particularly important principles in schools, in which the students feel protected. Exposure, embarrassment and irony should be avoided in the school context.

In addition, it should be questioned whether every conflict and every dispute has to be specifically addressed or whether it must in a certain frame of reference, it makes sense to do without it (cf. Walter, 2018).

#### Guideline 6: Trust the experts

Good cooperation between teachers and parents is an important foundation so that students can develop and use their skills as best as possible. For this reason, the parents of every pupil are the experts of their children. Nonetheless, the technical expertise is subject to the

teachers. Likewise, contact is sought with employees of the OGS, school social workers, integration workers as well as with external specialist staff (cf. Walter, 2018).

#### Guideline 7: Eye contact and attention

The benefit and intensity of eye contact should be questioned in every moment / situation of everyday school life, as this can be the trigger for processes, sensations and affects. How a communication partner experiences eye contact depends on the situation and should be as congruent as possible (cf. Walter, 2018).

#### Guideline 8: Humor

Laughing together in everyday school life creates closeness, a common understanding, a more positive mood and common values (cf. Härdt, 2000, p. 39). Laughter also improves lung function and thus supplies the brain with oxygen. In addition, laughter is a verbal means of communication, whereby stress hormones are broken down and a tense situation is loosened up (cf. Walter, 2018). Through a good mood and relaxation, pupils achieve a state of readiness to learn, which enables them to achieve maximum performance (cf. Härdt, 2000, p. 32).

#### Guideline 9: Create conditions under which the teacher can be successful

Teachers are faced with the daily challenge that the course of the lesson is determined by many influencing factors. This includes the curriculum, their own specialist skills, the learning requirements and the social origins of the students. In addition, the student's learning is guided by emotion and motivation. The influencing factors usually differ from lesson to lesson or from lesson to lesson. For this reason, measures were developed to support the teachers in their everyday teaching. The components of these measures are working in a team as a member of a professional community, the existence of an agreement on mutually accepted rights and obligations, respect for all members of the school community,

professional exchange within the teaching staff, appreciative interaction with one another and further training offers (see Walter, 2018).

Guideline 10: Create an environment in which the child can be successful

Learning in nature is an ideal learning environment for schoolchildren. The stimulation of negative stimuli is significantly reduced and the cortisol levels are also lowered (cf. Hunter, Gillespie, Chen, 2019). A learning environment can also be designed in the classrooms by avoiding overstimulation. Because the visual perception area of the pupils is overloaded on a daily basis due to the frequent and long use of smartphones, computers and other technical devices (cf. Beigel, 2019, p.19). A low-irritation and safe environment has an extremely positive effect on the students. In addition, another important factor influencing the well-being, performance, learning success and willingness to learn of the students is movement (cf. Walter, 2018).

Guideline 11: adequate pressure

Each student has their own individual learning and performance requirements. In order to do justice to these, the students are given a set goal, but the decision of the solution is left open. The teachers are available for help and questions (cf. Walter, 2018).

The interaction of the eleven guidelines is intended to create a pleasant school climate in which social interaction is of particular relevance and in which the students can successfully learn individually.

3 Problem description

This master's thesis examines the subjective perception of the meaning and implementation of learning in motion using the Movement Method at the Mammut School Ahlen. For this purpose, both students and teachers from the mammoth school were defined as a study group. Using group-specific questionnaires, learning in and through movement was recorded.

In the theoretical discussion of this work it could be shown that movement positively influences the learning processes of adolescents. Building on these findings, the concept of the Movement Method to increase movement in everyday school life was introduced at the mammoth school in April 2018 as part of the school and teaching development.

In order to obtain a differentiated statement about the importance of physical activity in everyday teaching and the changes in the school since its introduction, both pupils and teachers were interviewed. The results were compared with each other and it was checked whether their perception differs.

This resulted in four central questions that should be answered in the course of this work:

Question 1: Can the learning environment, the working environment and independent learning be improved with the help of the Movement Method?

Question 2: Can the Movement Method meet the individual learning requirements and needs of the students?

Question 3: Can the movement of students in everyday (school) life be increased with the help of the Movement Method?

Question 4: Is there a significant difference between boys 'and girls' perceptions of learning on the move?

## **4 Methodology**

### **4.1 The survey instrument**

A digital, anonymized questionnaire was used as a measuring instrument to record the subjective perception of the pupils and teachers about the concept of the Movement Method.

The questionnaire was developed on the basis of the statements obtained from the literature analysis. The intention behind this is to check the results obtained from the theoretical part for their subjective perception by the students and teachers at the mammoth school.

#### **4.1.1 The student questionnaire**

The student questionnaire was developed as part of the evaluation for learning on the move using the concept of the Movement Method at the mammoth school in Ahlen. It is a measuring instrument for pupils between the ages of eight and eleven. Taking into account the aspects of age, everyday school life, leisure time and family, the pupils' subjective perception and demands on learning in motion should be determined.

The questionnaire is easy to understand thanks to the use of simple language and images and is therefore a time-saving medium. The survey instrument comprises 38 components and contains three different options. On the one hand, the test subjects were able to answer the questions with “yes” or “no” and, on the other hand, by selecting images. In addition, some questions required the completion of free answer options. The questions were formulated positively (e.g. “I can concentrate better after moving”) and should reflect the everyday life of the students as differently as possible. For a more detailed analysis, statements about the pupils' caregivers were integrated into the questionnaire by asking them questions about their parents. The anonymity of the pupils should guarantee their honest assessment.

The structure of the questionnaire was chosen so that questions were first asked about the person, then about the way to school, school, leisure time and family. Finally, other information, such as the funding focus, was requested. The same questionnaire was used for all pupils and then evaluated by an objective evaluation program (SPSS). The number of participants can vary for the various questions due to missing answers.

Taking the total sample into account, the students' answers were compared with one another, which allows conclusions to be drawn.

#### **4.1.2 The teacher questionnaire**

The second survey instrument of this study is the teacher questionnaire, which was also developed for the evaluation of learning in motion using the concept of the Movement

Method at the mammoth school in Ahlen. The components of the questionnaire address the main topics based on questions on the introduction of the Movement Method in general, on the introduction of the Movement Method in the class, on the class, on changing teaching locations, on the person and on working in a team. There are a total of 45 questions, most of which are rated on a four-point scale (agree, tend to agree, tend to disagree, disagree). The four-point scale was chosen so that teachers would have to choose an answer. In addition, “Yes” and “No” answers were represented, as well as answer options with multiple answers or an exclusion question. In order to get an honest opinion of the teachers about the implementation of the learning in motion, the questionnaire was also kept anonymous. The first category should capture personal feelings about the introduction of the Movement Method at school. For this purpose, general conditions were asked, such as “I took part in the first advanced training with Bianca Rimbach.”, And questions about my own view of the change at the school, such as “I was looking forward to the change.” .

In the second category the introduction of the Movement Method in the class was discussed. At this point, the implementation in the class was examined and the effects and successes asked. Subsequently, in the third category, more specific questions were asked about the pupils, with the focus being on the subject of movement, learning locations and social form. The aim was to find out what importance is ascribed to movement and what successes could be achieved. Therefore, the following questions were formulated, for example:

"I use the instrument of movement to convey specialist knowledge."

"I have the feeling that my pupils are working more concentrated with the help of the Movement Method."

"I give the pupils the opportunity to move more in my lessons."

With the help of the Movement Method, both the needs of the pupils and the conditions under which a teacher teaches are to be taken into account, which is why the last categories dealt with the teacher, the health aspects and the work in the team.

The evaluation was carried out using the data from the online questionnaire with the aid of an objective evaluation program (SPSS). The number of participants can vary due to unanswered questions. The totality of the results allows conclusions to be drawn about everyday teaching and the effect of the Movement Method with regard to learning in motion.

## **4.2 Organizational and institutional framework conditions of the Mammutschule Ahlen**

In order to be able to understand the results of the investigation into the subjective perception of the pupils of the fourth grade and teachers, it is first necessary to present the school, to describe the procedure of the investigation and to clarify the institutional framework.

### **4.2.1 Introducing the school**

The Mammutschule is an urban community primary school for boys and girls in the city of Ahlen in North Rhine-Westphalia. Ahlen is located in the district of Warendorf and had a total of 56,240 inhabitants in December 2018 (see Grote, 2018).

In 2012, the city council of Ahlen decided to establish a denominational primary school Ludgeri in the media-savvy Freiligrath primary school and to develop a common primary school (cf. Tegeler, 2012). As a result of the merger, which was accompanied by supervisors, the joint Mammut School was created. Challenges such as bringing together the very different school programs and teams of teachers and educators had to be overcome. Until her retirement on January 31, 2014, Gabriele Stöver took over the management of the former Freiligrathschule (cf. Schniederjürgen, 2014). Then the Vice Rector Jutta Nienhaus stepped in as provisional management until the summer vacation 2014, as she switched to the quality analysis of the Münster district government from that point on (cf. Grote, 2014). Elke Walter first came to the Mammut School as acting director in August 2014, as she was also head of



the Vorhelmer Augustin-Wibbelt School at the same time. She left the Augustin-Wibbelt School in 2015 and took over the management of the mammoth school in full after the summer holidays (E. Walter, personal communication, January 8, 2020).

In 2018, the mammoth school had to move to a new location after the Easter break, where five classrooms were closed in the first half of the year and the sick leave of teachers and students increased as a result. In addition to help from the school psychological counseling center, a new school program was developed as part of school and teaching development based on the advanced training of Bianca Rimbach (E. Walter, personal communication, January 8, 2020).

Today the mammoth school is an open all-day school and also offers day care. There are currently 295 students attending the school, which is taught by 20 teachers. In addition, the school receives support from a trainee teacher, a school social worker, a social pedagogue, a special needs school teacher, five integration workers and five supervisors. There are three classes per year. The class size is between 22 and 28 students, with a high degree of heterogeneity (E. Walter, personal communication, November 14, 2019). Around 70 percent of the schoolchildren have a migration background and, accordingly, their roots are in different cultures and religions.

The countries belong to the seventeen different home countries of the students Germany, Turkey, Russia, Romania, Poland, Syria, Bosnia-Herzegovina, Slovak Republic, Algeria, Bulgaria, Armenia, the Netherlands, Croatia, Italy, Montenegro, Ukraine and Hungary. The different denominations of the pupils include the Catholic and Protestant religions, Islam, the Orthodox Church and the New Apostolic Church (E. Walter, personal communication, January 8, 2020).

In addition, 17 schoolchildren attend the school with different specializations in learning, emotional and social development, vision, hearing and intellectual development and other

impairments. In order to meet the different challenges and the students, a new school concept was introduced in April 2018, which follows the movement method (E. Walter, personal communication, December 9, 2019).

The implementation of this concept takes place at the educational and institutional level for the school as an organization. Basic knowledge is imparted to the students, whereby the individual interests are promoted and sustainably strengthened through intrinsic motivation. To this end, an environment is created that encourages students to learn. The subject matter of the core curriculum of the state of North Rhine-Westphalia is conveyed with fun and without pressure and adapted to the needs of the pupils (E. Walter, personal communication, December 12, 2019). Through this concept, independent forms of learning are assigned great importance, as is the selection of the learning position and the learning location. A learning environment is created for the pupils that meets their sensory needs and gives them the freedom to move around in this environment. To this end, the teachers at the mammoth school are relocating lessons to the corridors, the break hall, the stairs in the school building, to the “outdoor classrooms”, to the school courtyard or to the green areas / areas around the school. Adjacent parks are also used by teachers and classes for teaching. In addition, the students decide independently which learning position or sitting posture they want to take when working on tasks (E. Walter, personal communication, December 12, 2019). The teachers allow learning while walking, standing or lying down and standing for example, sitting balls, hokkis, resting cushions or other elements are available to the students. In addition, the ergonomics in the classroom were changed in such a way that health-promoting working conditions were created for both pupils and teachers (cf. Walter, 2018). This includes measures such as height-adjustable chairs and tables, standing desks, work surfaces as well as microphones and boxes to amplify the voice. Niches are sensibly used as places of retreat or movement in order to be able to carry out individual learning according to the

different needs of the students. Tipis or tents have been set up in the classrooms, into which the pupils can retreat to work or relax. In addition, skipping ropes, mini trampolines, casters, kneading balls and bicycle tubes are available in the classrooms. But also individual movement possibilities are tried out by the class teachers, adopted if successful and passed on to the other teachers (cf. Walter, 2018).

During the lesson blocks, individual or class-related movement impulses are carried out as rituals. Forms of instruction that encourage movement, such as language, vocabulary and 1x1 learning in motion, are more closely integrated into regular lessons. The measures mentioned should lead to a holistic learning without stress. The Movement Method is intended to create optimal conditions for learning by taking the needs of the individual student into account (cf. Walter, 2018).

In addition to the lessons, the students receive individual, learning support. These can be, for example, the Marburg concentration training, perception training or early support. The Marburg concentration training is for students who have problems concentrating, are overactive or react aggressively on minor occasions. It offers them assistance and practice-oriented training methods with the help of concentration training, relaxation training and behavior-oriented techniques (see Association for the Promotion of Overactive Children e.V.). The interests and abilities of the pupils are to be deepened with the aid of extra-curricular offers and support measures.

At lunchtime, the students receive a warm lunch, which is freshly prepared every day by the five people in the kitchen. Afterwards the students can use the available offers of the open all day. Both in the morning and in the afternoon, exercise is ascribed a central importance and a variety of occasions are made available (E. Walter, personal communication, October 04, 2019). Through the further development and consideration of all members of the school

community, an environment should be created for all those involved in which teaching and learning is successful and everyone feels comfortable.

#### **4.2.2 Time schedule and organization - the procedure at the school**

Before the student questionnaire was carried out, the parents of the fourth grade were informed first. These classes were selected for the evaluation because, on the one hand, they can best understand and evaluate the questions based on their age and, on the other hand, they are familiar with everyday teaching both before and after the introduction of the Movement Method.

In order to reach as many students in grade four as possible, the survey of the students in small groups of five students each was integrated into everyday teaching. The survey time was December 12, 2019. They were first measured and weighed and then filled out the online questionnaire. Several people were available to help with any questions or problems that might arise. The pupils' processing time averaged around twenty minutes.

The teaching staff was also involved in the evaluation. For the online survey, the teachers had access to the computer in the staff room and the link to participate from home. The average processing time was around ten minutes.

#### **4.2.3 Introduction of classes 4a-4c**

A total of 77 pupils attend grade four of the mammoth school. Classes 4a and 4b each consist of 26 students, with each class having 8 female and 18 male students. Class 4c consists of 25 students with 10 female and 15 male students. In all three classes, the pupils are between nine and eleven years old. The entire group of schoolchildren shows a strong heterogeneity in terms of gender distribution, age, migration background, denominations, different skills in dealing with the German language and learning and performance requirements. The proportion of students with a migration background in the first or second generation in class 4a is 85%, class 4b is 54% and class 4c is 80%.

In addition, students with different educational needs attend the above-mentioned classes. In 4a, two students focus on learning, one student has the focus on hearing and one student has the focus on intellectual development. Microphones were installed at the table groups for the pupil with a special focus on hearing, which transmit the pupils' contributions to his cochlear implant and then forward them as signal impulses to his brain (cf. LVR-Gerricus-Schule, 2017, p. 18) . Teachers use a separate microphone that they can hang around their necks so that their hands are available for class. This makes it possible for this student to perceive the hearing impulses and to follow everyday teaching. In addition, he receives help from a special school teacher who comes to school for two hours every 14 days and gives him strategies for learning (E. Walter, personal communication, October 22, 2019).

In addition to adequate teaching materials, pupils with intellectual development needs also receive practical learning content that is conveyed with the help of the TEACCH method (Treatment and Education of Autistic and Related Communication handicapped Children) (E. Walter, personal communication, 22. October 2019). It conveys structured work and ascribes great importance to the living and learning environment of the pupils (cf. Rechenberger, 2015, p. 113). The student with the funding focus learning receives both individual teaching accompanying measures as well as school measures to support the class.

In addition to the focus on learning, the focus on vision is also represented in class 4b. The visual limitation is compensated for by a special reading device that enlarges the teaching material. In addition, all worksheets are designed in such a way that the page contents are individually adapted in size and then copied over several pages (E. Walter, personal communication, October 22, 2019).

A pupil with a special focus on learning and emotional and social development is involved in the everyday teaching of class 4c. He too receives individual support measures to enable him to learn processes (E. Walter, personal communication, October 22, 2019).

In addition, other students in the same class receive compensation for disadvantages due to reading and spelling weaknesses or a stress disorder. The disadvantage compensations “[...] relate to the change in external conditions of the performance review” (Düsseldorf District Government, 2017, p.15f.), Such as temporal, spatial, technical or personal aspects. Pupils with a numerical weakness (dyscalculia) receive individual support (cf. Secretariat of the Standing Conference of Culture Ministers of the Länder in the Federal Republic of Germany, 2007).

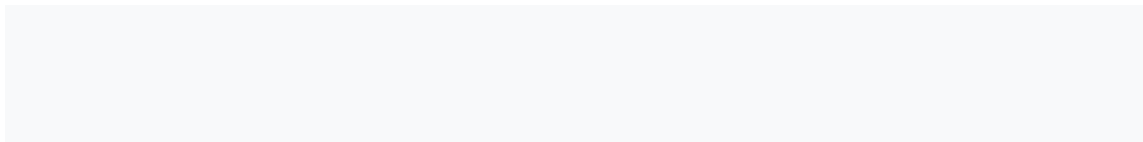
#### **4.3 Methods of data processing and statistics**

The descriptive and analytical statistics of this work are created using the program IBM SPSS Statistics Version 26. The programs Microsoft Office Word and Excel were used for further processing and display (tables and figures).

Using descriptive statistics, arithmetic means (mean) and standard deviations were calculated. If the sum of all measured values is divided by the number of participants (n), the average is obtained. Furthermore, the minimum and maximum values were determined. The standard deviation is the degree of dispersion of the values collected around the mean. It is calculated from the square root of the variance.

For the interpretation of the results, the probability of error of less than five percent was considered statistically significant ( $p \leq 0.05$ ). The following levels of significance were used for all methods used:

Table 1: Choice of the significance level



Irrtumswahrscheinlichkeit	Bedeutung	Symbolisierung
$p > 0,05$	nicht signifikant	(keine Kennzeichnung)
$P \leq 0,05$	signifikant	*

The number of subjects (n) deviating from the individual examination parameters due to missing values.

## **5 Results**

### **5.1 Presentation of results by the students**

A total of 68 fourth grade pupils were included in the study. Of these, 33.8% (n = 23) were female and 66.2% (n = 45) were male. Table 2 shows the distribution of children among the three classes in grade four as well as the gender-specific distribution. 38.2% of the total group attended class 4a. The proportion of students in class 4b was 35.3%. Class 4c was attended by 26.5% of those surveyed. There were no gender-specific differences ( $p > 0.05$ ).

Table 2: Classes attended within the overall group and broken down by gender, calculated using the Chi2 test, n = 68

		Klasse 4a	Klasse 4b	Klasse 4c	p-Wert
gesamt	n	26	24	18	0,853
	Prozent	38,2	35,3	26,5	
weiblich	n	8	8	7	
	Prozent	34,8	34,8	30,4	
männlich	n	18	16	11	
	Prozent	40	35,6	24,4	

Figure 2 shows the gender distribution in the individual classes. The proportion of male students predominated in all classes.

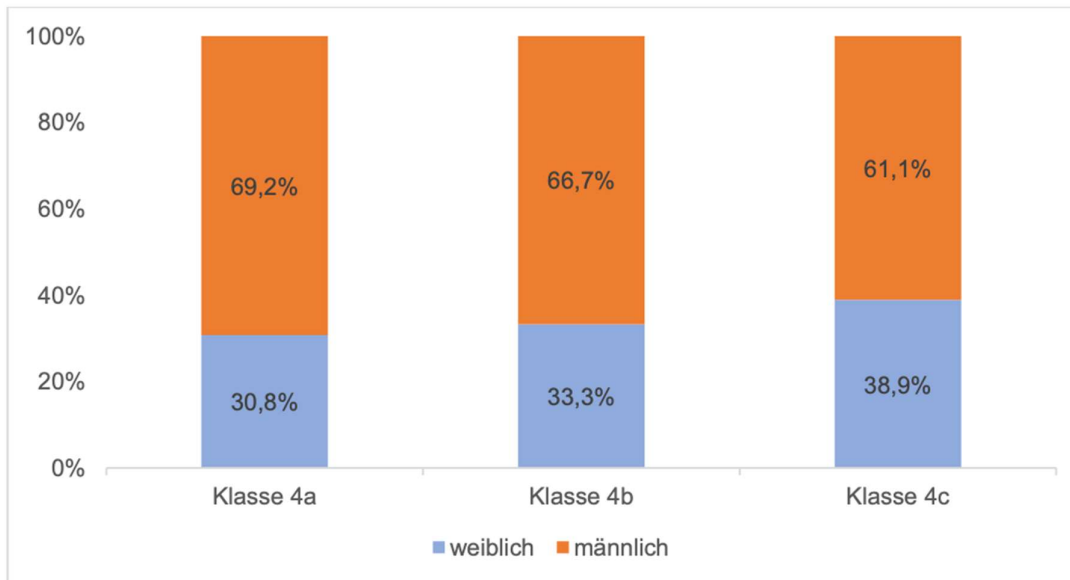


Figure 2: Gender distribution in the classes; n = 68

### 5.1 Anthropometric data

Table 3 shows the anthropometric data of the study group. The total group had an average age of  $9.5 \pm 0.6$  years. The average height of  $1.44 \pm 0.8$  m and an average weight of  $41.8 \pm 12.8$  kg resulted in a mean BMI of  $19.7 \pm 4.3$  kg / m<sup>2</sup> for the entire group. There were only significant gender-related differences with regard to age ( $p < 0.05$ ). There were no gender-related differences for height, weight or BMI (each  $p > 0.05$ ).

Table 3: Anthropometric data of the entire study group and calculated separately by gender using the T-test for independent samples, n = 68



		n	min	max	MW	SW	p- Wert
Alter (Jahre)	gesamt	68	9	11	9,5	0,6	0,033*
	weiblich	23	9	10	9,2	0,4	
	männlich	45	9	11	9,7	0,7	
Größe (m)	gesamt	67	1,30	1,66	1,44	0,81	0,346
	weiblich	22	1,30	1,66	1,42	0,88	
	männlich	45	1,31	1,65	1,45	0,78	
Gewicht (kg)	gesamt	67	27	80	41,8	12,8	0,130
	weiblich	22	29	59	39,4	10,4	
	männlich	45	27	80	43,0	13,7	
BMI (kg/m <sup>2</sup> )	gesamt	67	12,61	33,3	19,71	4,35	0,381
	weiblich	22	14,47	28,85	19,10	3,44	
	männlich	45	12,61	33,3	20,01	4,75	

Further classification using the BMI found that 4.5% of the students were underweight or severely underweight. 55.2% of the students were classified as normal and 20.9% as overweight. Another 19.4% of the students were considered obese. A total of 31.8% of the girls and 44.4% of the boys were classified in the areas of overweight and obesity.

Furthermore, no girl was underweight or severely underweight (Table 4, Figure 3). There were no gender-related differences ( $p > 0.05$ ). The results of a class-specific consideration of the BMI classification are presented in the appendix. There are no differences between the groups ( $p = 0.602$ ) (Appendix, Table 17).

Table 4: BMI classification within the total group of pupils, separated by gender, calculated with a Chi2 test,  $n = 67$

		Starkes Untergewicht/ Untergewicht	Normalgewicht	Übergewicht	Adipositas	p-Wert
gesamt	n	3	37	14	13	0,381
	Prozent	4,5	55,2	20,9	19,4	
weiblich	n	0	15	4	3	
	Prozent	0	68,2	18,2	13,6	
männlich	n	3	22	10	10	
	Prozent	6,7	48,9	22,2	22,2	

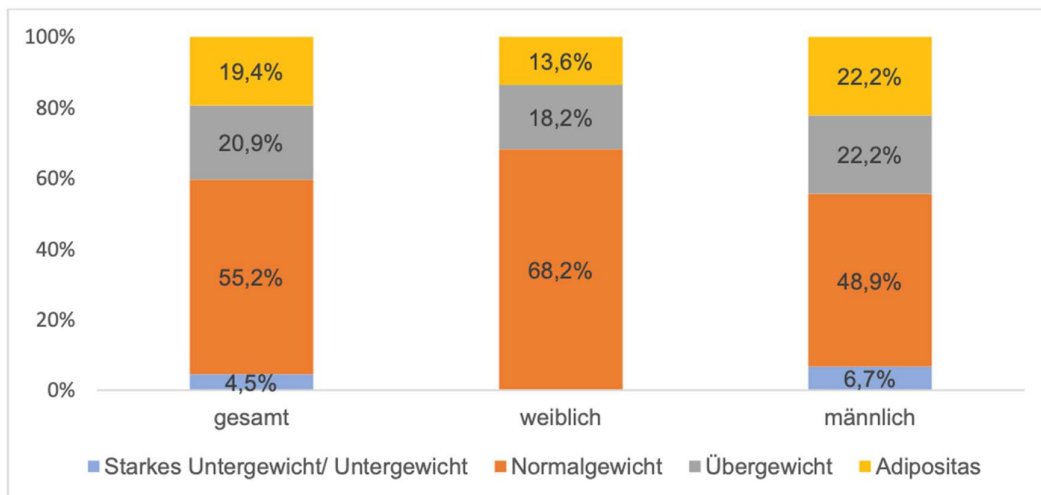


Figure 3: Relative frequencies of the BMI classification within the overall group and separated by gender, n = 67

## **5.2 Socio-cultural situation**

Table 5 below shows that 70.6% of the students surveyed had a migration background. The gender-specific analysis showed that there was no difference in this regard ( $p > 0.05$ ). Table 18, which can be found in the appendix, shows the descriptive statistics of the results on after-school care. 33.8% of the pupils surveyed take advantage of the open all-day school or

midday care at school. The gender-specific analysis showed that there was no difference between the sexes ( $p = 0.508$ ).

Table 5: Migration background of the entire study group and calculated separately according to gender using the Chi2 test,  $n = 68$

		Ohne Migrationshintergrund	Mit Migrationshintergrund	p- Wert
gesamt	n	20	48	0,667
	Prozent	29,4	70,6	
weiblich	n	6	17	
	Prozent	26,1	73,9	
männlich	n	14	31	
	Prozent	31,1	68,9	

Figure 4 shows further selected heterogeneity features of the study group. 11.8% of the pupils surveyed have a special focus, 25% are compensated for disadvantages, for example through reading and spelling weaknesses and 10.3% support measures for dyscalculia.

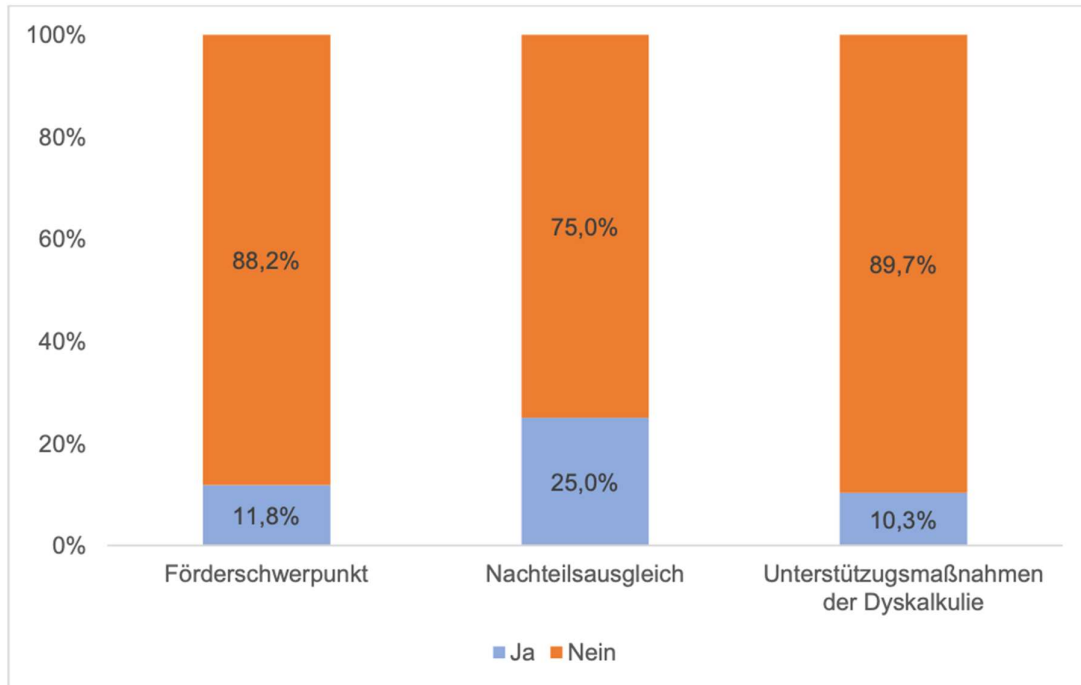


Figure 4: Selected heterogeneity features of the entire study group, n = 68

#### Movement related data

The descriptive statistics of the results for schoolchildren's way to school have shown that on December 12, 2019, a total of 42.6% were brought to school by car. Of these 29 students, 27.6% were female and 72.4% were male. A total of 41.2% of the pupils made their way to school on foot. There was no gender difference ( $p > 0.05$ ). When looking at the relationship between BMI and the way to school, no significant correlation could be found ( $p = 0.269$ ) (Appendix, Table 19).

Table 6: Presentation of the results for the question “How did you get to school today?” of the entire study group and calculated separately by gender with a Chi2 test, n = 68.

		Fahrrad	Roller	Zu Fuß	Auto	p- Wert
gesamt	n	9	2	28	29	0,513
	Prozent	13,2	2,9	41,2	42,6	
weiblich	n	2	1	12	8	
	Prozent	8,7	4,3	52,2	34,8	
männlich	n	7	1	16	21	
	Prozent	15,6	2,2	35,5	46,7	

Figure 5 shows the results of the students on learning while moving and at rest. 72.1% of the total group stated that they could learn well while moving. Furthermore, according to the students, 91.2% can study well in peace. The gender-specific considerations of the two questions showed no differences ( $p > 0.05$ ).

A total of 82.4% thought they could concentrate better after exercise. In this context, too, no difference can be established between boys and girls ( $p = 0.968$ ) (Appendix, Table 20).

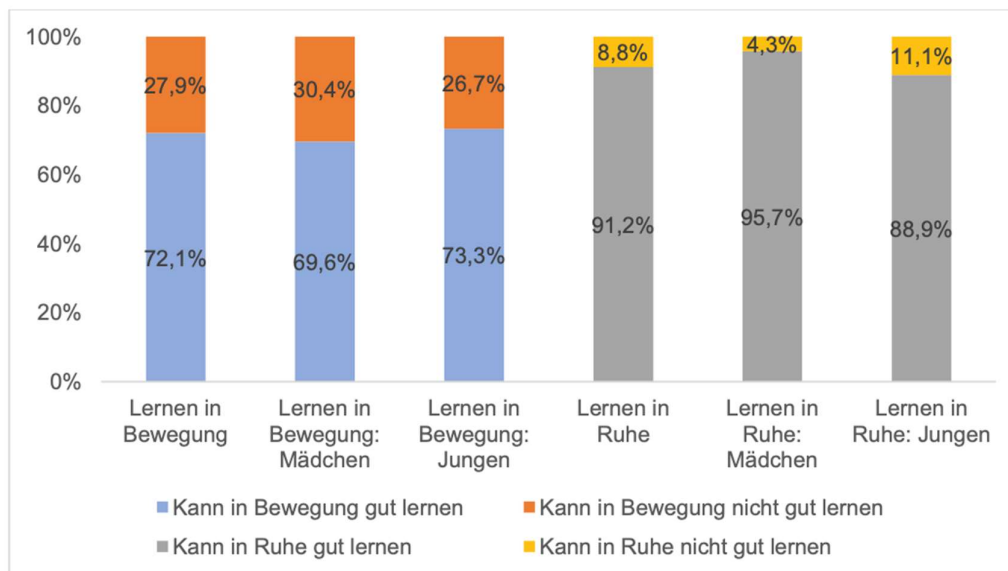


Figure 5: Presentation of results for the questions “I can learn well while moving.” And “I can learn well in peace” of the entire study group and calculated separately by gender with Chi2 test,  $n = 68$

Figure 6 shows that 57.6% of the students studied change their seating position in class. There were no gender-specific differences ( $p = 0.119$ ) (Appendix, Table 21).

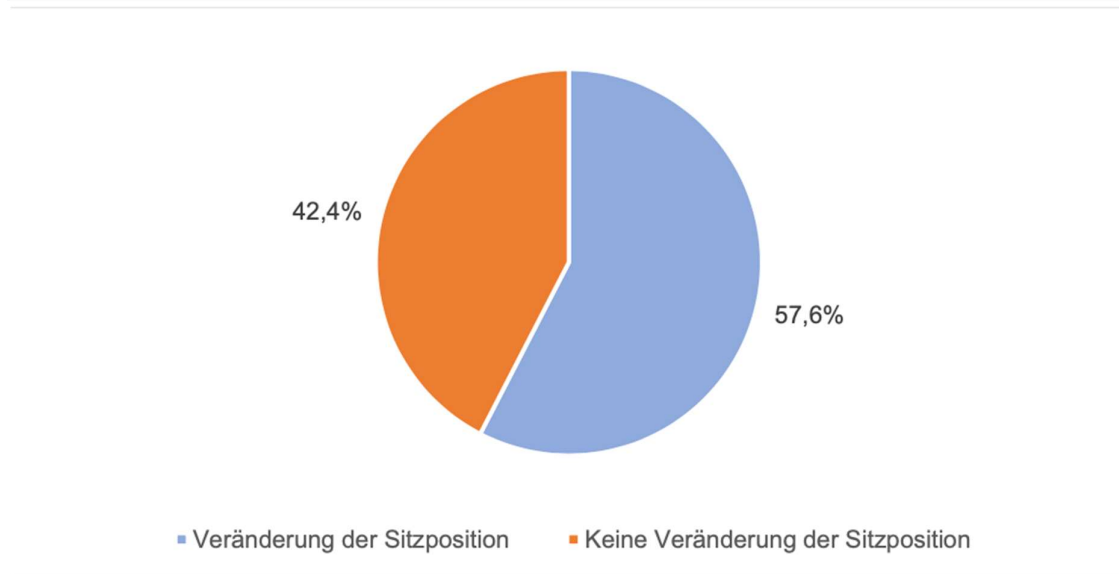


Figure 6: Presentation of the results for the question “I change my sitting position in class” for the entire study group and calculated separately by gender with a Chi2 test,  $n = 68$

Table 7 shows the selection of learning locations where the pupils believe they can learn well in class. For the sake of clarity, a list was selected for the display, sorted by descending percentages. Overall, 58.8% of all students stated that they could study well in their normal place.

Table 7: Presentation of results for the question “Where can you learn well in class?” Of the entire study group and calculated separately by gender with a Chi2 test,  $n = 68$

Ran- king		n	gesamt		n	weiblich		n	männlich	
1	Normal am Platz	68	40	58,8%	23	10	43,5%	45	30	66,7%
2	Hokki	68	35	51,5%	23	13	56,5%	45	22	48,8%
3	Minitrampolin	68	24	35,3%	23	7	30,4%	45	17	37,8%
4	Hohe Fenster- bank	68	23	33,8%	23	10	43,5%	45	13	28,8%
5	Sitzball	68	21	30,9%	23	8	34,8%	45	13	28,8%
6	Fahrrad- schlauch	68	19	27,9%	23	6	26,1%	45	13	28,8%
7	Wackelpolster	68	16	23,5%	23	6	26,1%	45	10	22,2%
8	Kleine Bänke	68	14	20,6%	23	7	30,4%	45	7	15,6%
9	Isomatte	68	13	19,1%	23	2	8,7%	45	11	24,4%
10	Kleine Kissen	68	10	14,7%	23	2	8,7%	45	8	17,8%
11	Teppiche	68	9	13,2%	23	1	4,3%	45	8	17,8%
11	Liegestühle	68	9	13,2%	23	1	4,3%	45	8	17,8%
11	Sitzkissen (Stuhl)	68	9	13,2%	23	4	17,4%	45	5	11,1%
12	Großes Kissen	68	8	11,7%	23	3	13,0%	45	5	11,1%
12	Stehpult	68	8	11,8%	23	1	4,3%	45	7	15,5%

The following ranking shows the list of learning locations according to the popularity of the students surveyed. A total of 36.8% of all pupils chose the normal seat, 63.2% of all pupils opted for an alternative learning location. The second most popular place to learn was the Hokki with 13.2%.

Table 8: Presentation of results for the question “Where in the class do you like to study most?” Of the entire study group and calculated separately by gender with a Chi2 test, n = 68

Ran- king		n	gesamt		n	weiblich		n	männlich	
1	Normal am Platz	68	25	36,8%	23	6	26,1%	45	19	42,2%
2	Hokki	68	9	13,2%	23	4	17,4%	45	5	11,1%
3	Sitzball	68	6	8,8%	23	2	8,7%	45	4	8,9%
4	Wackelpolster	68	5	7,4%	23	2	8,7%	45	3	6,7%
5	Fahrrad- schlauch	68	4	5,9%	23	2	8,7%	45	2	4,4%
5	Minitrampolin	68	4	5,9%	23	3	13,0%	45	1	2,2%
6	Hohe Fens- terbank	68	3	4,4%	23	1	4,3%	45	2	4,4%
6	Großes Kis- sen	68	3	4,4%	23	0	0%	45	3	6,7%
6	Isomatte	68	3	4,4%	23	1	4,3%	45	2	4,4%
7	Kleine Bänke	68	2	2,9%	23	1	4,3%	45	1	2,2%
8	Stehpult	68	1	1,5%	23	0	0%	45	1	2,2%
8	Sitzkissen (Stuhl)	68	1	1,5%	23	1	4,3%	45	0	0%
8	Liegestühle	68	1	1,5%	23	0	0%	45	1	2,2%
8	Kleine Kissen	68	1	1,5%	23	0	0%	45	1	2,2%
8	Teppiche	68	1	1,5%	23	0	0%	45	1	2,2%

Table 9 shows the results for quiet work on the field. 87.9% of the pupils surveyed said that they like it when they are supposed to work quietly in their place. No differences were found in a gender-specific analysis ( $p > 0.05$ ), as was the case in the class-specific considerations ( $p = 0.520$ ) (Appendix, Table 22).

Table 9: Presentation of the results for the question "I like it when we should work quietly at the desk." Of the entire study group and calculated separately by gender with a Chi2 test,  $n =$

66



		Ja	Nein	p-Wert
gesamt	n	58	8	
	Prozent	87,9	12,1	
weiblich	n	20	3	0,582
	Prozent	87	13	
männlich	n	38	5	
	Prozent	88,4	11,6	

Table 10 shows the information provided by the students surveyed on the question of whether they like to change the classroom.

83.1% of the pupils liked going to an alternative place of learning, among them 91.3% of all girls and 78.6% of all boys. In addition, 79.4% of students liked being able to study outside. Both results did not reveal any gender differences ( $p = 0.187$  and  $p = 0.197$ ).

Table 10: Presentation of results for the question "I like it when we change the classroom (for example outside or in the auditorium)" for the entire study group and calculated separately by gender with a Chi2 test,  $n = 65$

		Ja	Nein	p-Wert
gesamt	n	54	11	
	Prozent	83,1	16,9	
weiblich	n	21	2	0,187
	Prozent	91,3	8,7	
männlich	n	33	9	
	Prozent	78,6	21,4	

The following table 11 lists the play and sports equipment in the school grounds and the school yard and indicates the use according to the information provided by the students. The climbing frame is used the most by the students with 73.5%.

Table 11: Presentation of the results for the question “What are you using ?.” of the entire study group and calculated separately by gender with a Chi2 test, n = 68

	n	gesamt		n	weiblich		n	männlich	
Klettergerüst	68	50	73,5%	23	18	78,3%	45	32	71,1%
Fußballplatz	68	29	42,6%	23	2	8,7%	45	27	60%
Wackelpark	68	22	32,4%	23	5	21,7%	45	17	37,8%
Bauwagen	68	17	25%	23	8	34,8%	45	9	20%
Unterstand	68	9	13,2%	23	0	0%	45	9	20%
Garten	68	7	10,3%	23	3	13,0%	45	4	8,9%

The change of the learning location in a lesson is shown in Table 12. On average, the group as a whole changed learning location  $1.33 \pm 1.471$  times per lesson. There were no gender-related differences ( $p > 0.05$ ). A class-specific consideration of the change of learning location in a lesson also did not reveal any significant differences ( $p = 0.207$ ). Class 4a stated on average  $1.6 \pm 1.19$  times to change the learning location per lesson, Class 4b  $0.79 \pm 1.06$  times and Class 4c on average  $1.71 \pm 2.08$  times.

Table 12: Presentation of results for the question “How often do you change the place of learning in a lesson within the overall group and divided by gender, calculated with a T-test for independent samples, n = 66

	n	min	max	MW	SW	p- Wert
gesamt	66	0	7	1,33	1,471	0,417
weiblich	22	0	6	1,59	1,436	
männlich	44	0	7	1,20	1,487	
Klasse 4a	25	0	4	1,6	1,190	0,207
Klasse 4b	24	0	4	0,79	1,062	
Klasse 4c	17	0	7	1,7059	2,08461	

The survey also asked about the leisure time behavior with regard to the physical activity of the students. For this, the membership of a sports club and the playing of an instrument of the students were used. The following illustration shows the results of the investigation. A total of 52.9% of all pupils were members of a sports club, among girls it was 47.8% and among boys it was 55.6%. There were no gender-specific differences ( $p = 0.546$ ). 21.9% of all respondents said they played an instrument. The consideration of both sexes showed no difference ( $p = 0.337$ ).

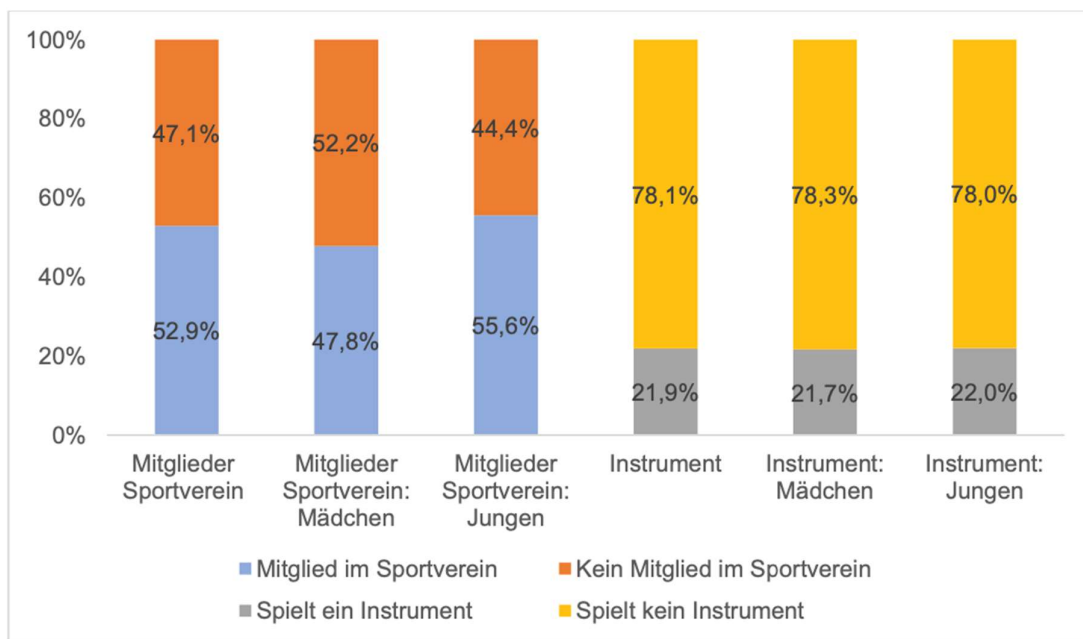


Figure 7: Presentation of results for the questions “I am in a sports club.” (N = 66) and “I play an instrument.” (N = 64) of the entire study group and calculated separately by gender with a Chi2 test

Additional parameters for illuminating the movement time of the students are shown in the two following diagrams (Table 13 and Figure 8). No gender-specific differences could be found.

Table 13: Presentation of results for the question “I like to spend my afternoons outside.” Of the entire study group and calculated separately by gender with a Chi2 test, n = 66

		Ja	Nein	p-Wert
gesamt	n	52	14	0,589
	Prozent	78,8	21,2	
weiblich	n	18	5	
	Prozent	78,3	21,7	
männlich	n	34	9	
	Prozent	79,1	20,9	

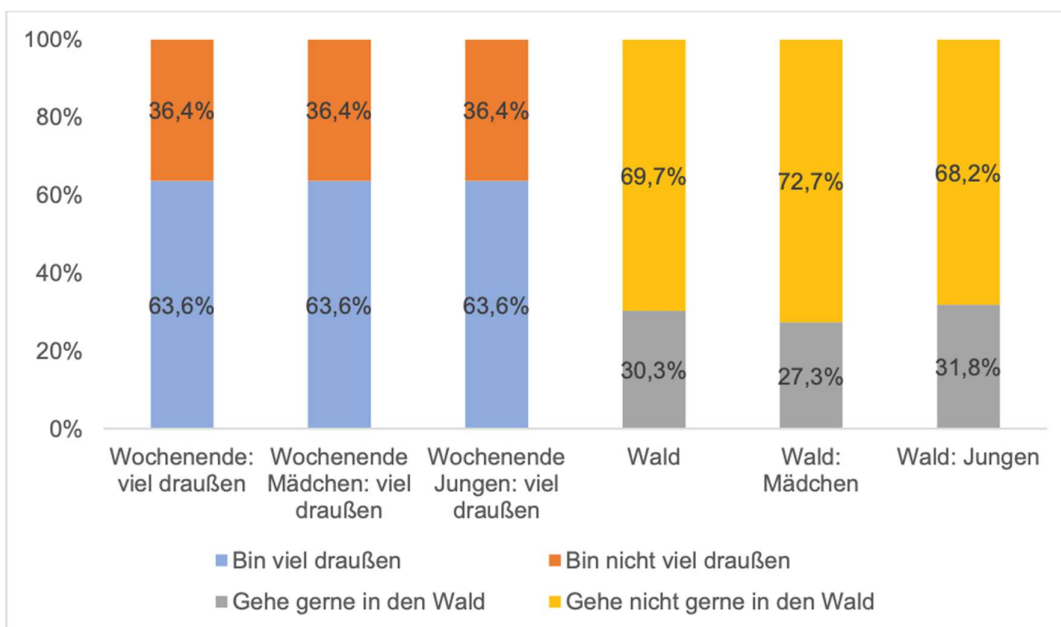


Figure 8: Result of the questions “I am outside a lot on the weekend” ( $p = 0.826$ ) and “I like going to the forest” ( $p = 0.887$ ) of the entire study group and calculated separately by gender using a Chi2 test

The following figures show the different responses in connection with exercise in leisure time and exercise in general. 84.8% of all students expressed the opinion that they like to move around in their free time, 90.9% like to move. No difference could be found between the sexes ( $p > 0.05$  in each case).

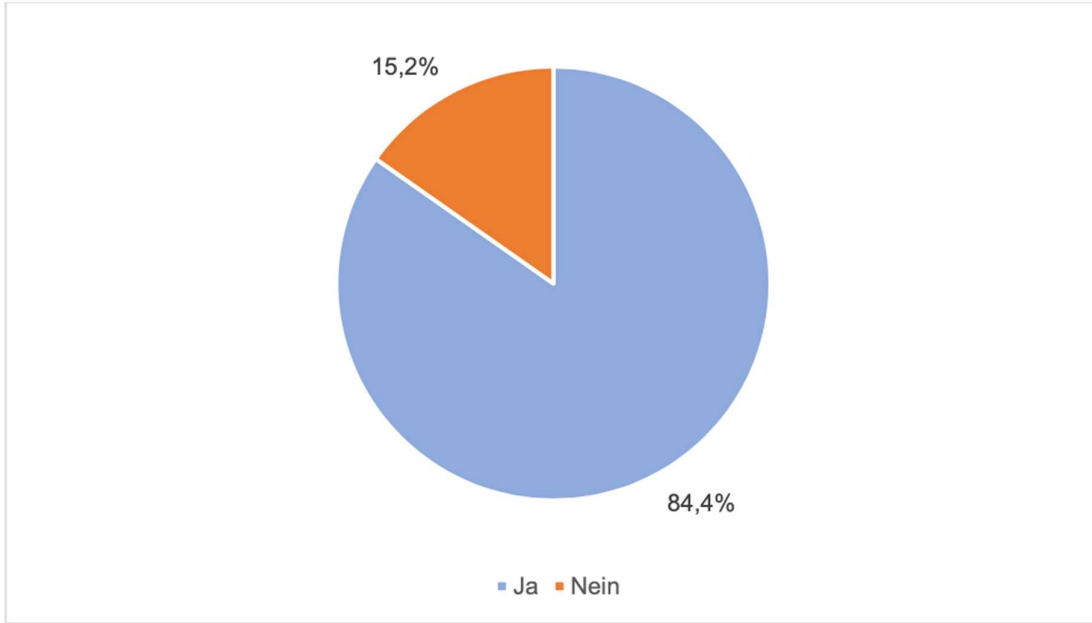
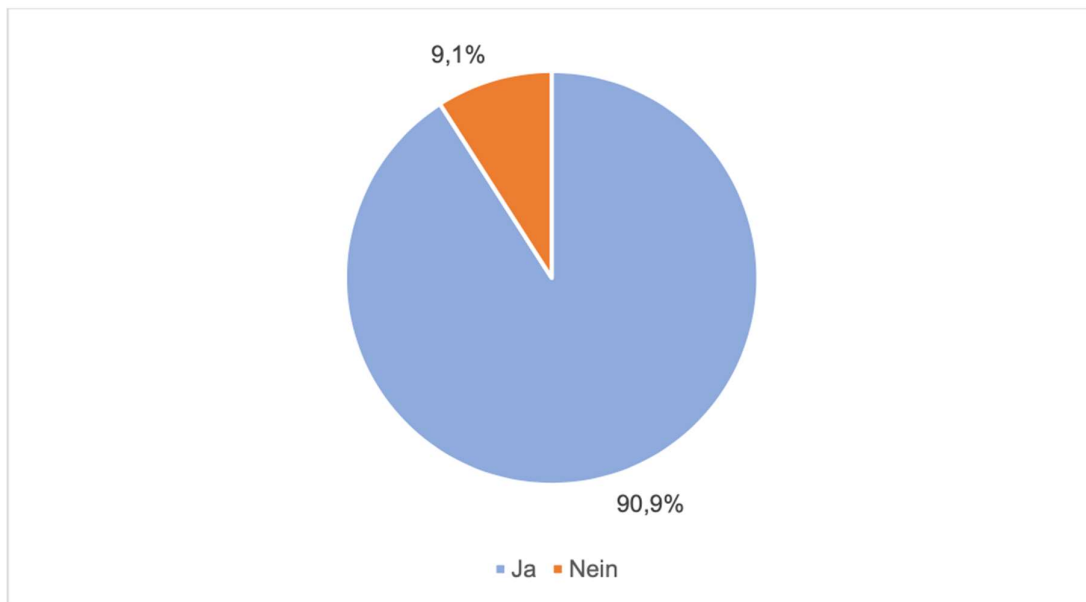


Figure 9: Presentation of results for the question "I like to be active in my free time." Of the entire study group and calculated separately by gender with a Chi2 test, n = 68



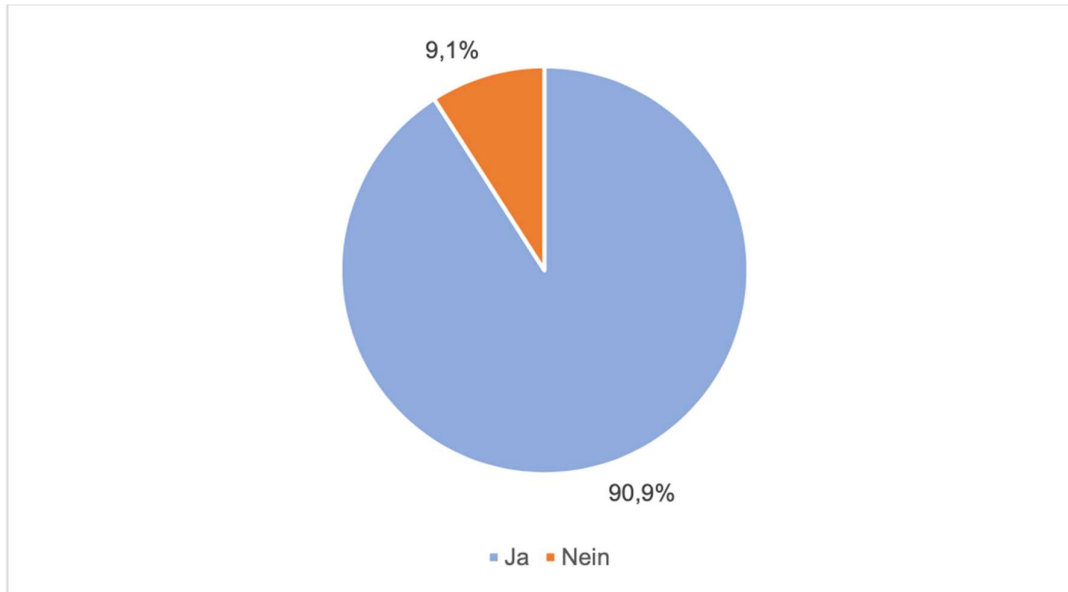


Figure 10: Presentation of the results for the question "I like to move." Of the entire study group and calculated separately by gender with a Chi2 test, n = 68

Table 14 shows the selection of the leisure activities the students enjoy most. For the sake of clarity, the list was selected according to descending percentages. A categorical analysis showed that 54.6% of all schoolchildren most enjoy sporting activity, 25.8% leisure activity with little physical activity (reading and handicrafts) and 19.7 most enjoy working with technical devices.

Table 14: Presentation of the results for the question "What do you most like to do?" For the entire study group and calculated separately by gender with a Chi2 test, n = 66

	n	gesamt		weiblich		männlich	
Fußball spielen	66	13	19,7%	0	0%	13	29,5%
Basteln	66	11	16,7%	8	36,4%	3	6,8%
Turnen	66	10	15,2%	8	36,4%	2	4,5%
Mit dem Handy spielen	66	9	13,6%	0	0%	9	20,5%
Weitere Sportarten	66	7	10,6%	1	4,5%	6	13,6%
Lesen	66	6	9,1%	2	9,1%	4	9,1%
Taekwondo	66	6	9,1%	0	0%	6	13,6%
Fernseh schauen	66	4	6,1%	3	13,6%	1	2,3%

The figures show the parents' sporting behavior with regard to general sport (Figure 11 and Figure 12) and cycling (Figure 13 and Figure 14). According to the pupils, 43.3% of the fathers and 38.2% of the mothers do sport. 47.8% of fathers and 39.7% of mothers ride bicycles.

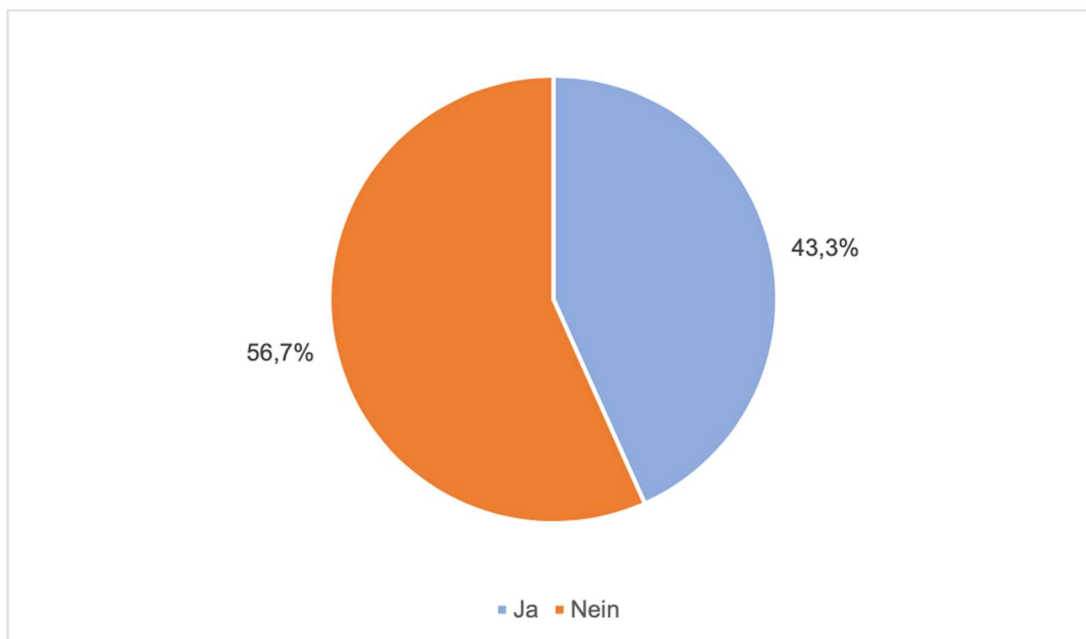


Figure 11: Presentation of the results for the question “Does your dad do sport?” Of the entire study group and calculated separately by gender with a Chi2 test, n = 67

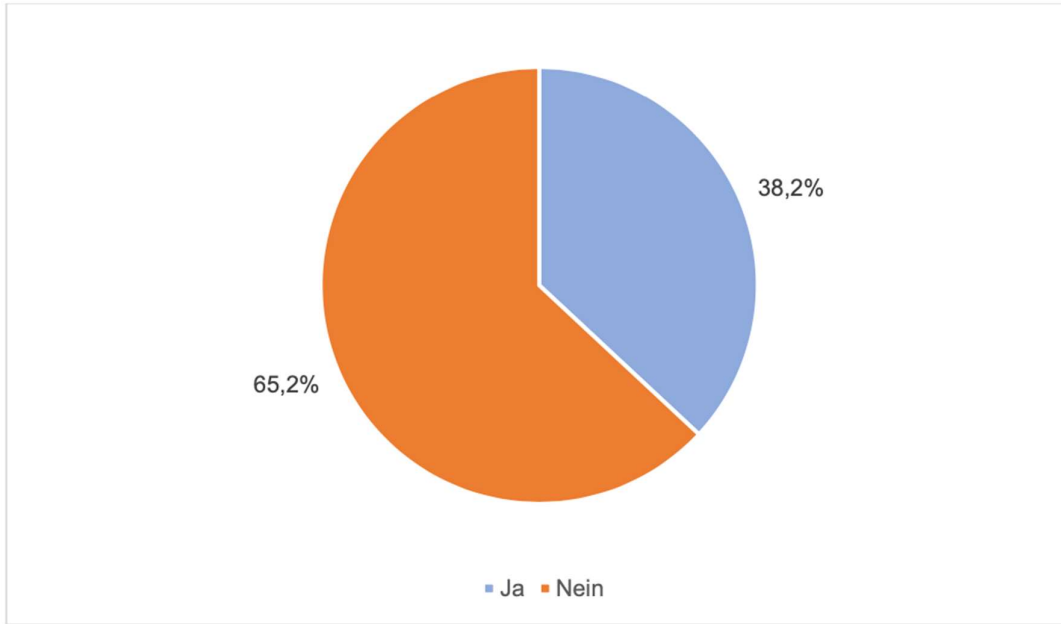


Figure 12: Presentation of the results for the question “My mom does sport” for the entire study group and calculated separately by gender with a Chi2 test, n = 68

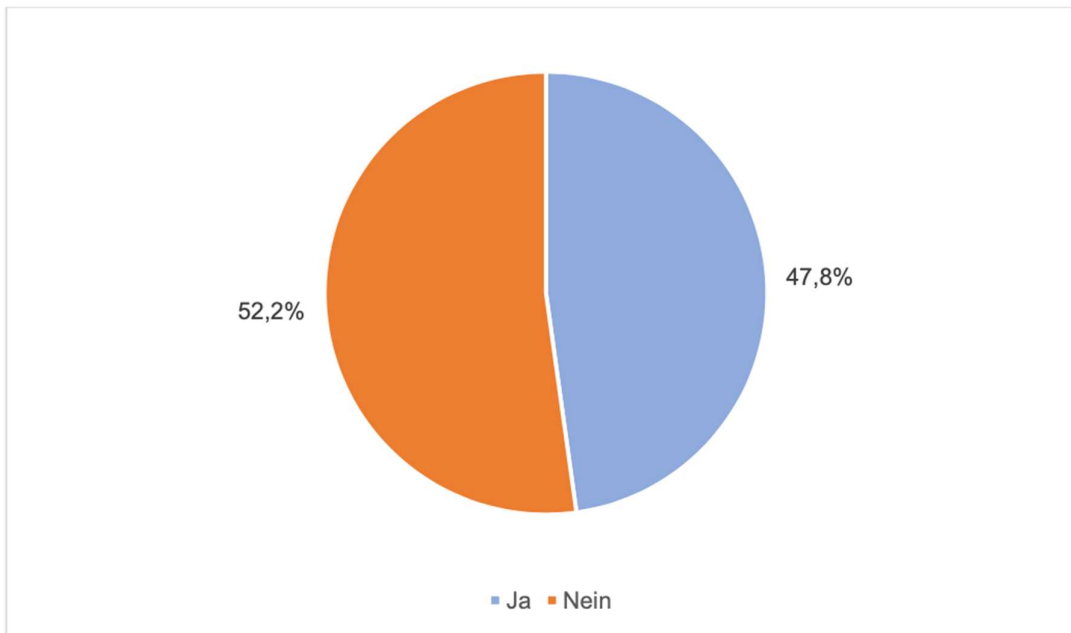


Figure 13: Presentation of the results for the question “My dad rides his bicycle.” Of the entire study group and calculated separately by gender with a Chi2 test, n = 67



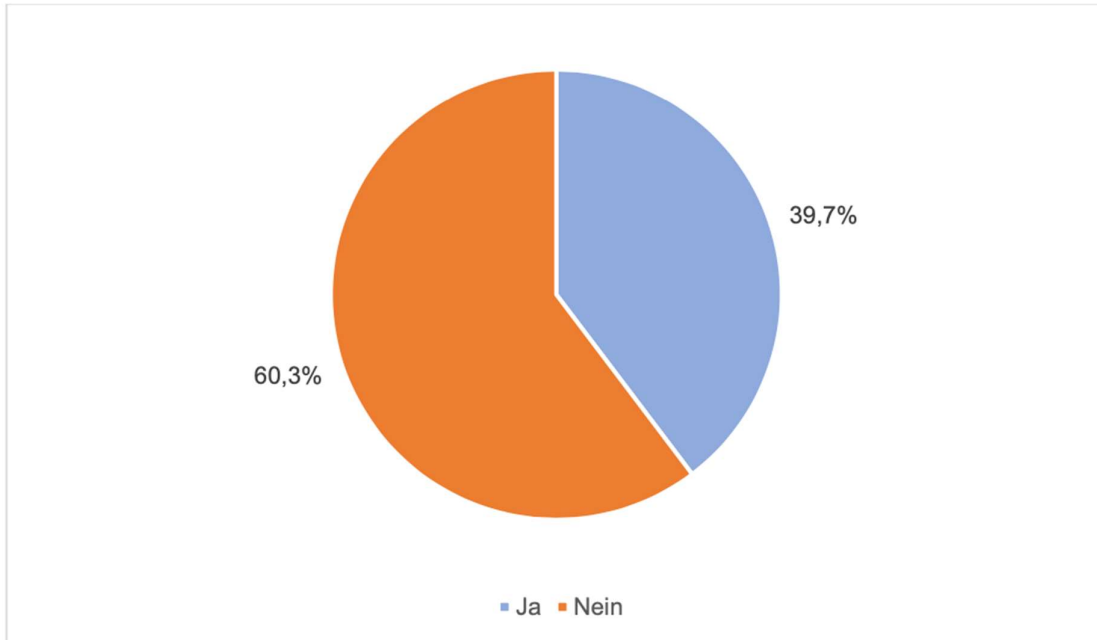


Figure 14: Presentation of the results for the question “My mom rides a bicycle.” Of the entire study group and calculated separately by gender with a Chi2 test, n = 68

Table 15 shows the number of students who have their own cell phone. A total of 59.1% of all pupils surveyed have their own cell phone and 40.9% do not have their own cell phone.

		Ja	Nein	p-Wert
gesamt	n	39	27	
	Prozent	59,1	40,9	
weiblich	n	15	8	0,447
	Prozent	65,2	34,8	
männlich	n	24	19	
	Prozent	55,8	44,2	

## **5.2 Presentation of the results by the teachers**

A total of 19 out of 20 teachers could be included in the survey. In order to guarantee the anonymity of the participants, no personal data was collected due to the small group size. For the presentation of the results, 20 items were selected that were considered to be particularly

relevant to the topic. The relative frequencies are shown in each case. The description concentrates on the noticeable results, others are in the appendix for a better overview. The following Figure 15 shows the result of the question about the necessity of the concept change carried out at the mammoth school. This shows that 21.1% of the teachers agreed with the question, while 68.4% gave a cautiously positive answer and 5.3% of those questioned tended to respond negatively.

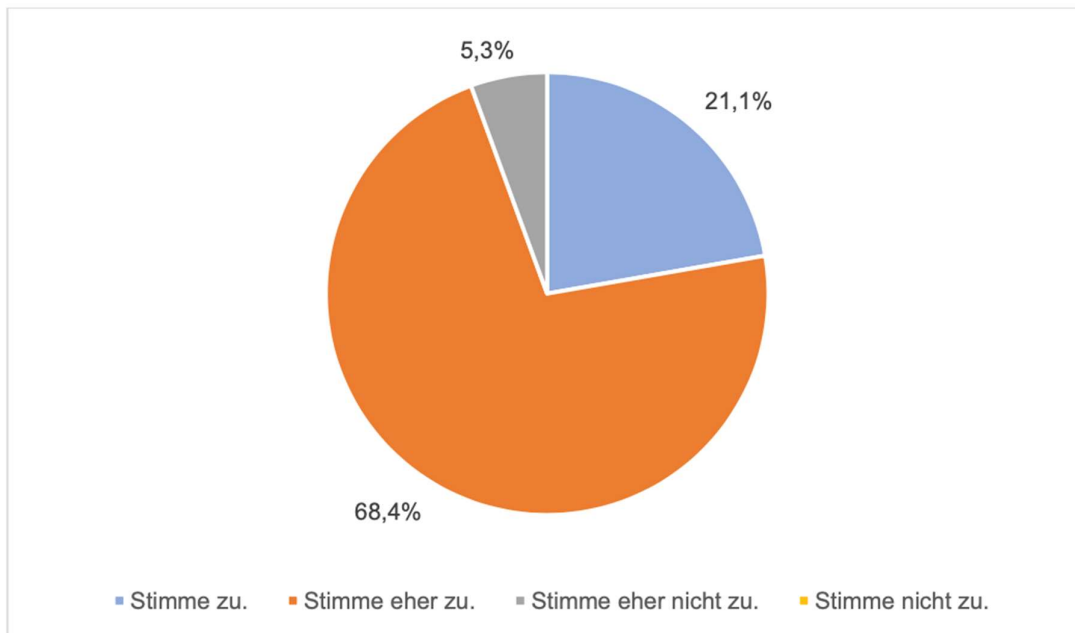


Figure 15: Presentation of results for the question “A change at the mammoth school was necessary” of the entire study group, n = 18

A total of 10.5% of the teachers surveyed agreed with the statement, “I felt tired before the concept change”. 21.1% opted for a cautiously positive and 52.6% for a cautiously negative answer. 15.8% disagreed with the statement (Appendix, Figure 27).

Another item in the questionnaire looked into the question of participating in the training with Bianca Rimbach in April 2018. Figure 16 shows a participation of 63.2%.

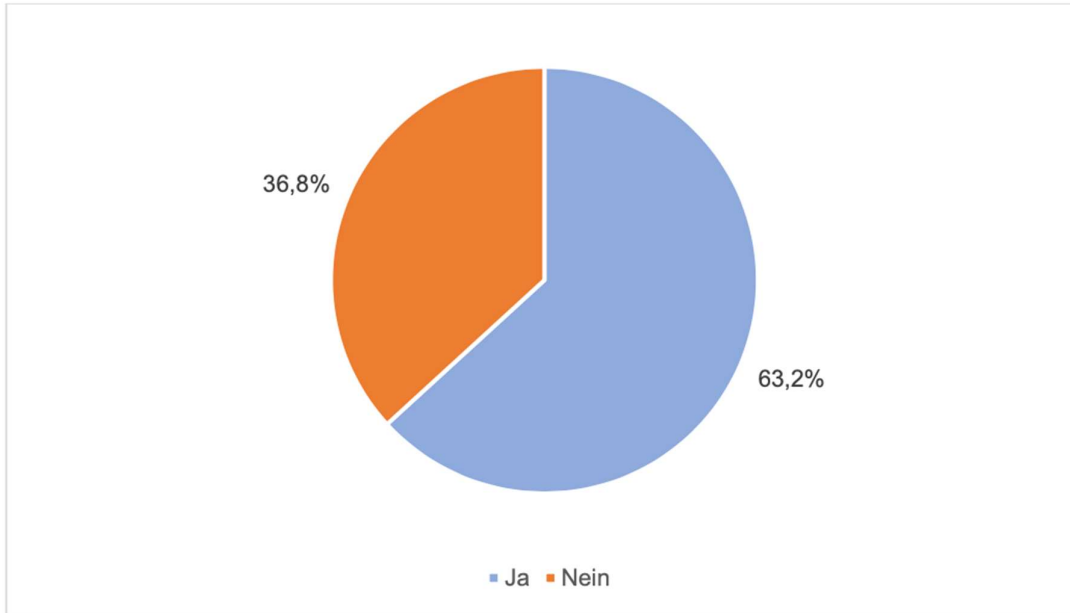


Figure 16: Presentation of the results for the question "I took part in the first advanced training with Bianca Rimbach" of the entire study group, n = 19

The evaluation of the college's responses to the questions about change showed a mixed picture. Overall, 36.9% of the answers to the statement that the change at school initially made them unsure were in the positive answer range and 63.2% in the negative (Appendix, Figure 28). 83.3% of the respondents gave a positive answer to the statement that they were looking forward to the change and 16.7% gave a cautiously negative answer (Appendix, Figure 29).

The statements made by the teachers regarding their feelings about the introduction of the Movement Method, which is shown in Figure 17, are in the exclusively positive response range. 47.4% fully agreed with the statement that they had found the introduction to be positive and 52.6% cautiously agreed.

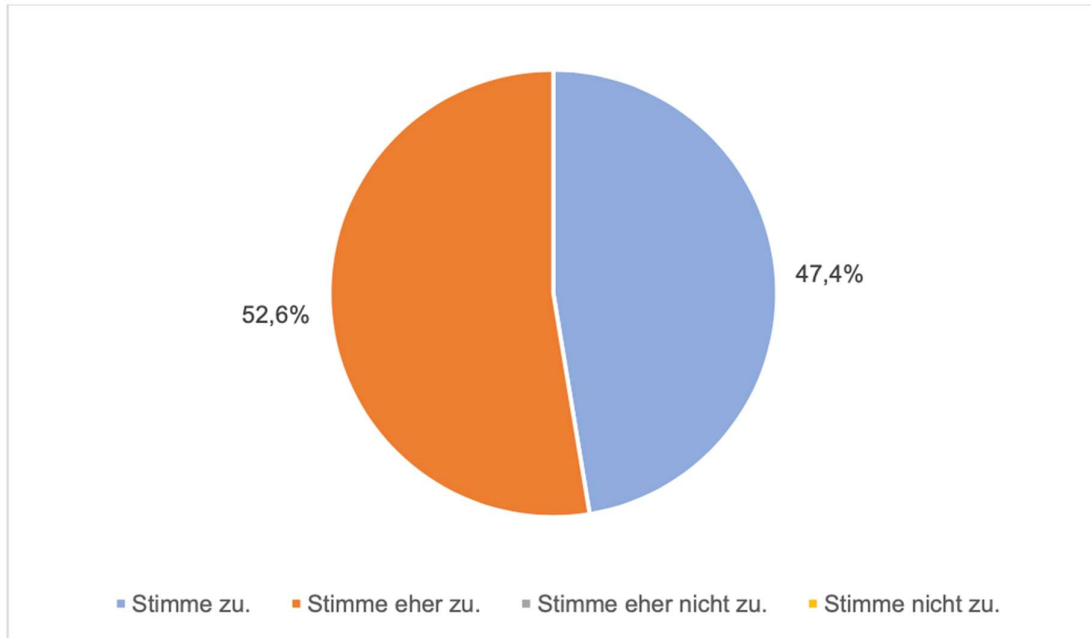


Figure 17: Presentation of the results for the question “I found the introduction of the Movement Method positive”, n = 19

The statement to implement the curriculum using the Movement Method was affirmed by 31.6%. 52.6% of the answers are in the cautiously positive range, 15.8% tend to have a negative response behavior (Figure 18). All teachers stated that they had introduced moving learning step by step (Appendix, Figure 30).

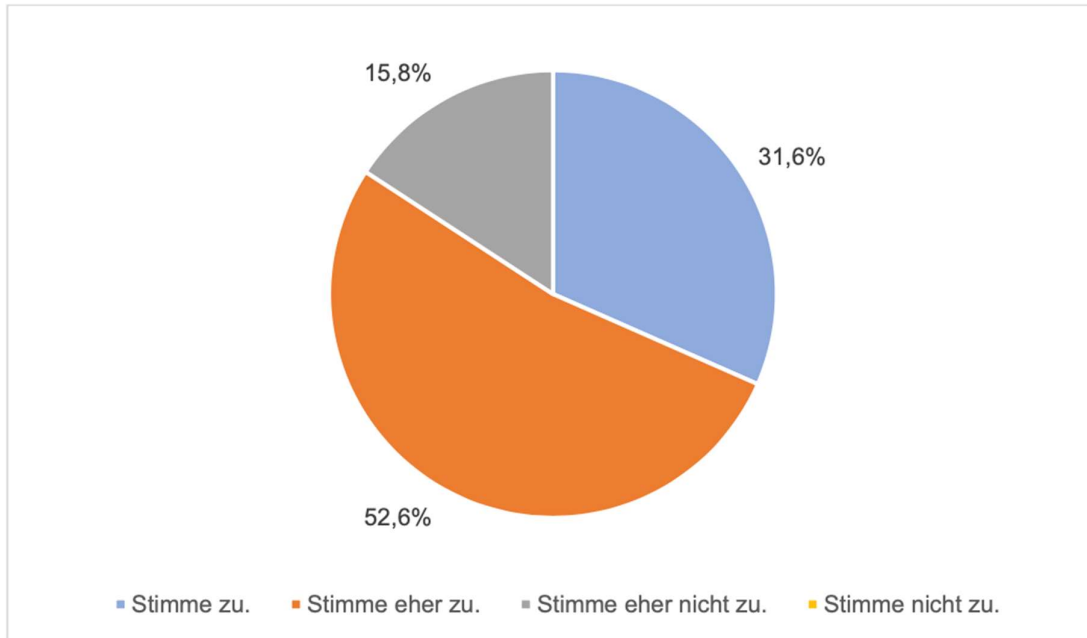


Figure 18: Presentation of results for the question “I am trying to implement the curriculum using the Movement Method.”, N = 19

In addition, the question was asked about the positive changes in terms of the learning climate, the working atmosphere and independent learning through the introduction of the Movement Method. 47.4% agreed with the statement that the Movement Method has a positive effect on the learning climate. Another 47.4% answered cautiously positive and 5.3% disagreed with the statement. 26.3% indicated a positive change in the working atmosphere. 68.4% of those surveyed are of the opinion that the working atmosphere has changed positively for the Movement Method. 5.3% answered rather negatively. With regard to independent learning, the information provided by the teachers fell exclusively into the positive range, with 61.1% of the responses being in the cautiously positive range (Figure 19).

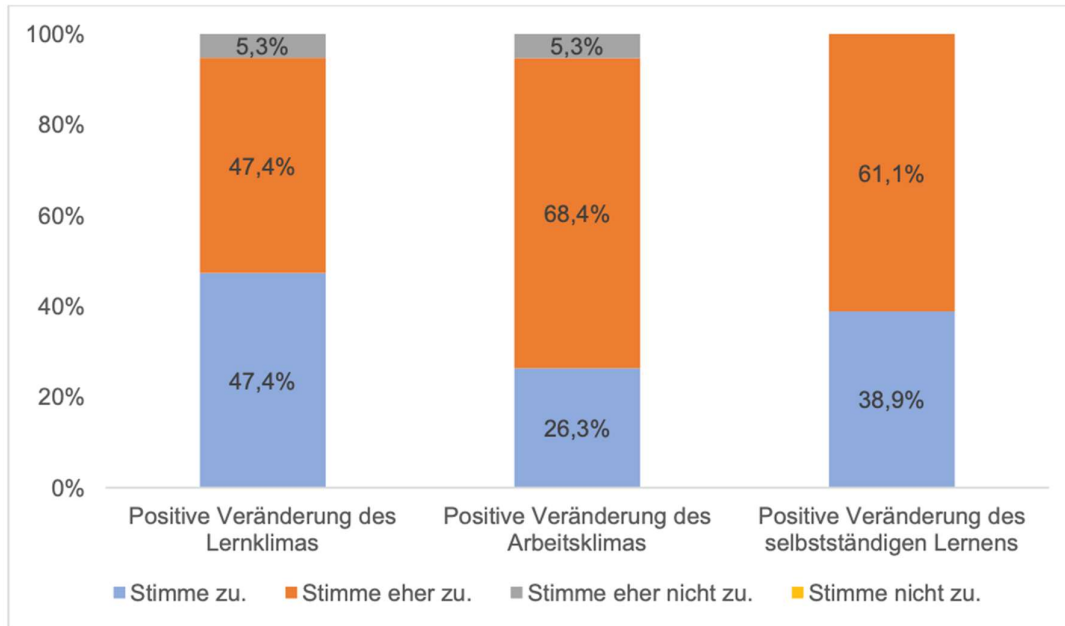


Figure 19: Presentation of results for the questions “The Movement Method positively changes the learning climate.” (N = 19), “The Movement Method positively changes the working atmosphere.” (N = 19) and “The performance potential of the pupils was through the Movement Method positively improved.” (n = 18) of the entire study group

The response behavior with regard to the positive improvement in the performance potential of students through the Movement Method shown in Figure 20 corresponds to the tendency of the phenomenon described above. 29.4% fully agreed with the answer, while 70.6% were cautiously positive. Overall, there was no negative response trend here.

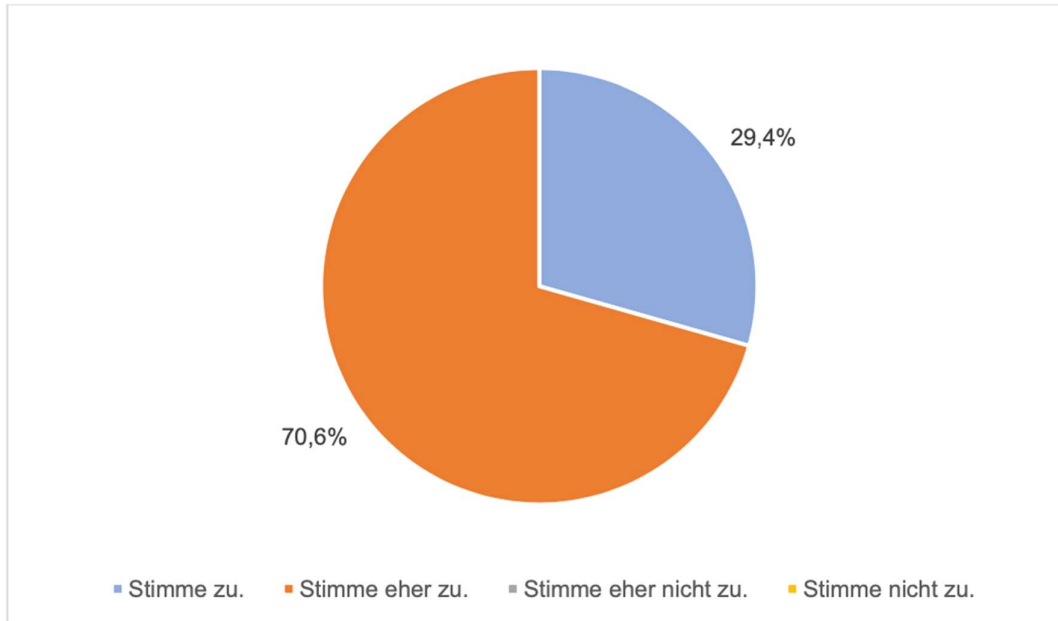


Figure 20: Presentation of the results for the question “The performance potential of the pupils was positively improved by the Movement Method”, n = 18

The item on the use of movement to convey specialist knowledge produces a differentiated result (Figure 21). 31.6% of the respondents gave their answers in the positive range, 57.9% gave cautiously positive answers to the question. The value, which tends to be in the negative area, is 10.5%.

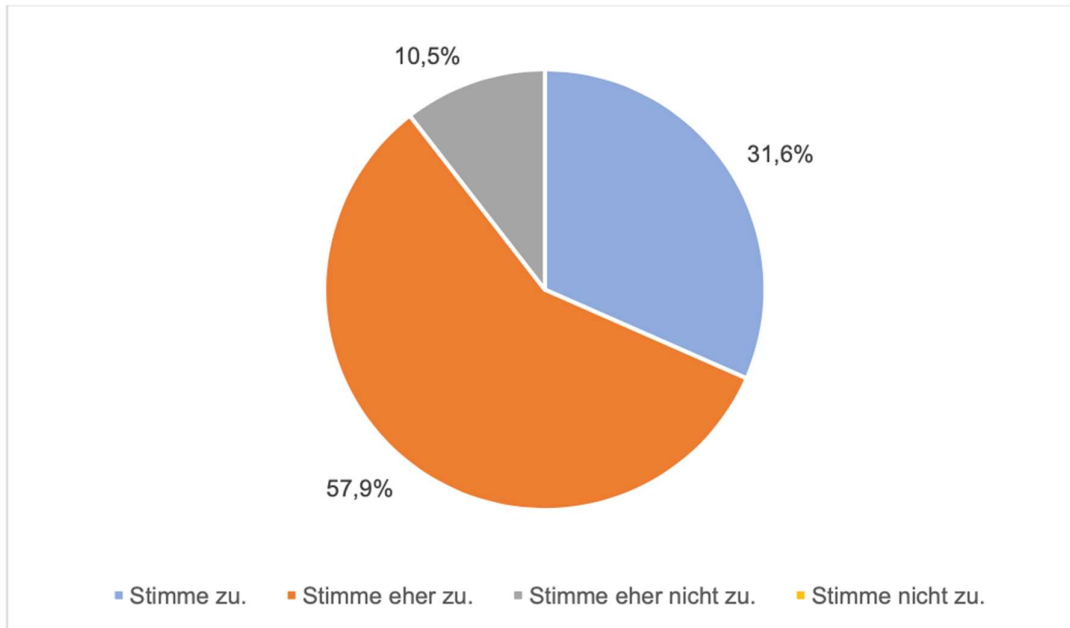


Figure 21: Presentation of the results for the question “I use the instrument of movement when imparting specialist knowledge”, n = 19

Figure 22 shows whether the movement has positive effects. This shows a purely positive picture. 33.3% affirm the statement that the students can concentrate better if they are allowed to choose the place of study themselves. 66.7% cautiously agree with the statement. 61.1% of the teachers agree with the statement that they give the students the opportunity to exercise more in their lessons. 38.9% of the respondents are of the opinion that this statement applies to them to a limited extent. The response behavior to the item that exercise is good for the students also shows a consistently positive picture. 72.2% agreed with this statement, 27.8% agreed with the answer to a limited extent.



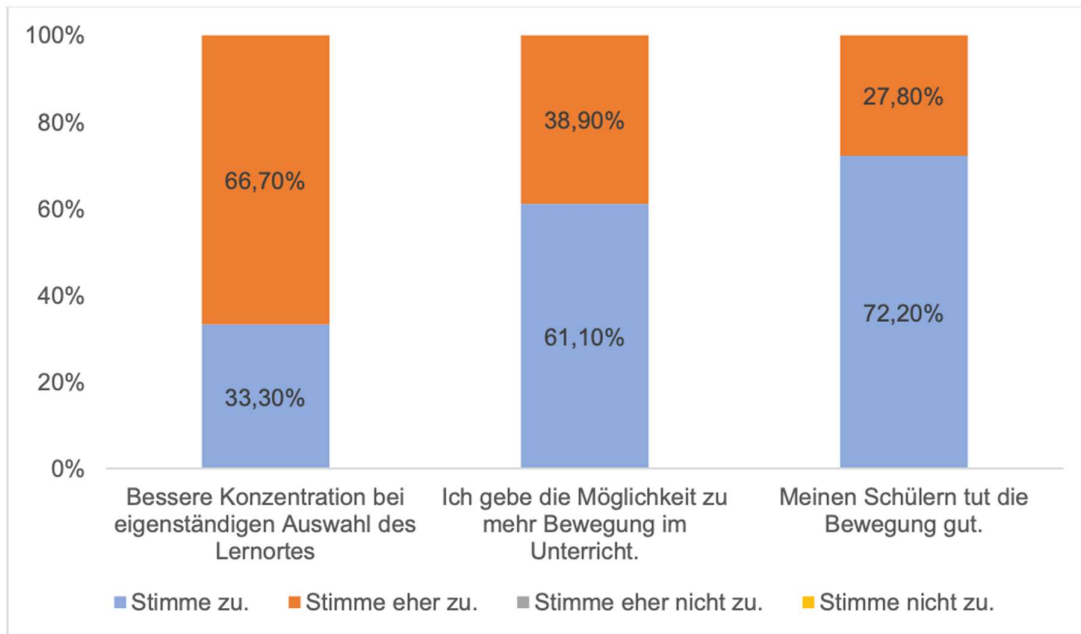
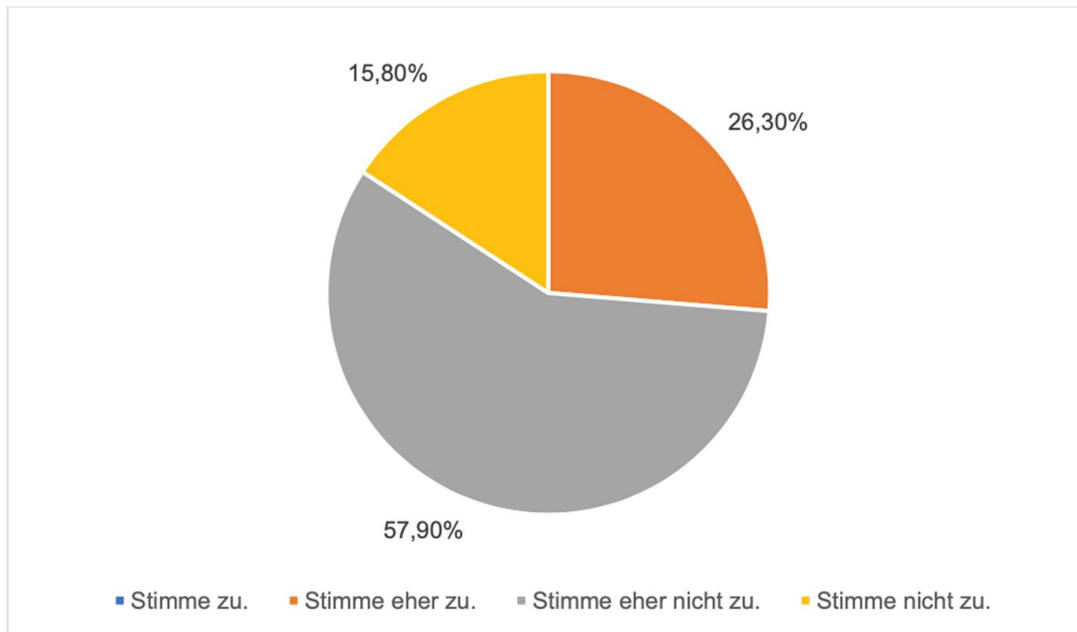


Figure 22: Presentation of results for the questions “The pupils concentrate better if they are allowed to choose the place of learning themselves.” (N = 19), “I give the pupils the opportunity to move around more in my class.” (N = 18) and “I believe that the exercise is good for my pupils” (n = 18) of the entire study group

The questions about the choice of the social form and the place of learning by the students when working on the tasks gave a mixed picture. Overall, with regard to the social type, 55.6% of the answers were in the positive and 44.4% in the negative answer range (Appendix, Figure 31). 26.3% of the teachers agreed with the statement that they leave the choice of where to study for the students to do. 63.2% cautiously agreed (Appendix, Figure 32).

The question of whether unrest arises when the students are allowed to occupy themselves freely shows a differentiated result. The teachers tended to say no, as a total of 73.7% responded negatively. 26.3% gave their answer in the cautiously positive area (Figure 23).



26.3% said that the students get along well with independent work. 68.4% were cautiously positive and 5.3% cautiously negative (Appendix, Figure 33). The question about the improvement in the social behavior of the students gave a similar impression. 22.2% fully agreed with the statement, 55.6% partially and 22.2% somewhat disagreed. The following figure 24 shows the result of the statement that the teachers have the feeling that their students find the Movement Method good. The answers are only positive, with 78.9% fully agreeing to this statement.

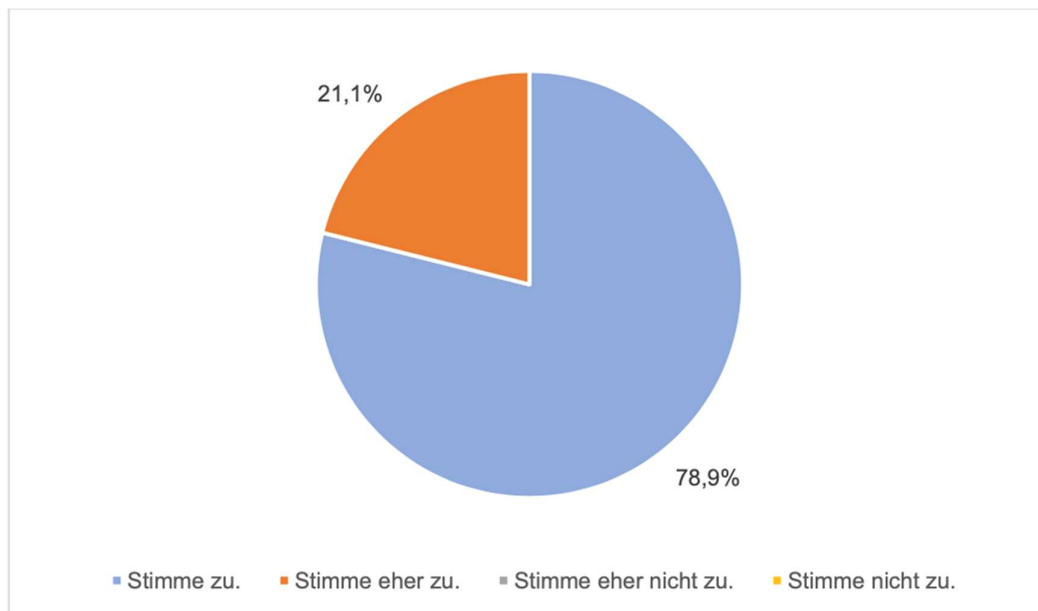


Figure 24: Presentation of results for the question "I have the feeling that my pupils like the Movement Method", n = 19

The responses to the statement that the students cope well with the newly gained freedom and the trust they have placed in them were almost exclusively in the positive response area.

21.1% agreed, 73.7% cautiously agreed and 5.3% cautiously disagreed (Appendix, Figure 34).

As part of the study, the question of the particular suitability of the Movement Method for the inclusion of schoolchildren was investigated. Table 16 shows, in descending order, the frequency with which the teachers' different responses were selected.

Table 16: Presentation of results for the question "I find that the Movement Method is particularly suitable for the inclusion of the following pupils:", n = 19

Ranking		n	Gesamt	
1	ADHS	19	16	84,2%
2	DaZ Kinder	19	9	47,4%
3	ADS	19	8	42,1%
3	Adipöse Kinder	19	8	42,1%
4	Förderschwerpunkt Geistige Entwicklung (GG)	19	7	36,8%
4	Förderschwerpunkt körperliche und motorische Entwicklung (KM)	19	7	36,8%
5	Förderschwerpunkt Lernen (LE)	19	6	31,6%
5	Förderschwerpunkt Sprache (SB)	19	6	31,6%
6	Förderschwerpunkt Emotionale und soziale Entwicklung (ESE)	19	4	21,1%
7	Hochbegabte Kinder	19	3	15,8%
7	Autismus	19	3	15,8%
8	Asperger Autismus	19	2	10,5%
8	Förderschwerpunkt Hören und Kommunikation (HK)	19	2	10,5%
9	Förderschwerpunkt Sehen (SE)	19	0	0%

Another item examined the influence of the Movement Method on independent / responsible mindfulness, also with regard to health from the teacher's perspective. A total of 47.4% of the answers are in the positive answer range and 52.6% in the negative (Figure 25).

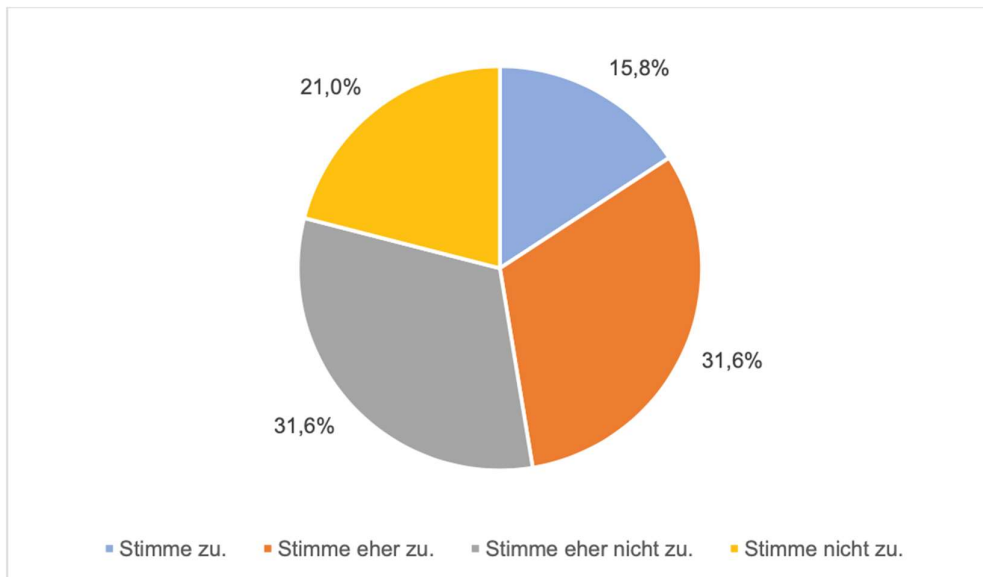


Figure 25: Presentation of results for the question "With the Movement Method I pay more attention to myself and my health.", N = 19

There is a similarly differentiated answer to the question about the own relief through the Movement Method. 21.4% agreed with the statement and 36.8% only partially agreed. 42.1% tend to disagree with the statement (Appendix, Figure 35).

Diagram 26 shows an exclusively positive picture in the teachers' response area. 84.2% of those surveyed agreed with the statement that the work in a team works well. 15.8% gave a cautiously positive answer. All teachers surveyed stated that they found working in a team as a member of a professional community to be beneficial. The professional exchange within the staff was perceived as good by 63.2%. 36.8% agreed with this statement to a limited extent.

The same answer was recorded for the statement "I find the professional exchange among the teaching staff to be profitable" (Appendix, Figure 36).

According to the respondents, 52.9% used the ideas pool, 35.3% only cautiously agreed with this statement. 11.8% said they did not use the idea pool (Appendix, Figure 37). With regard to the statement to include their own ideas in the idea pool, 16.7% answered in the

affirmative. 55.5% of the answers were in the cautiously positive area and 16.7% in the cautiously negative area. 11.1% denied this statement (Appendix, Figure 38).

The question about developing their own ideas for implementing the Movement Method showed that 27.8% of the teachers answered the question with full agreement, 61.1% gave a cautiously positive answer (Appendix, Table 39).

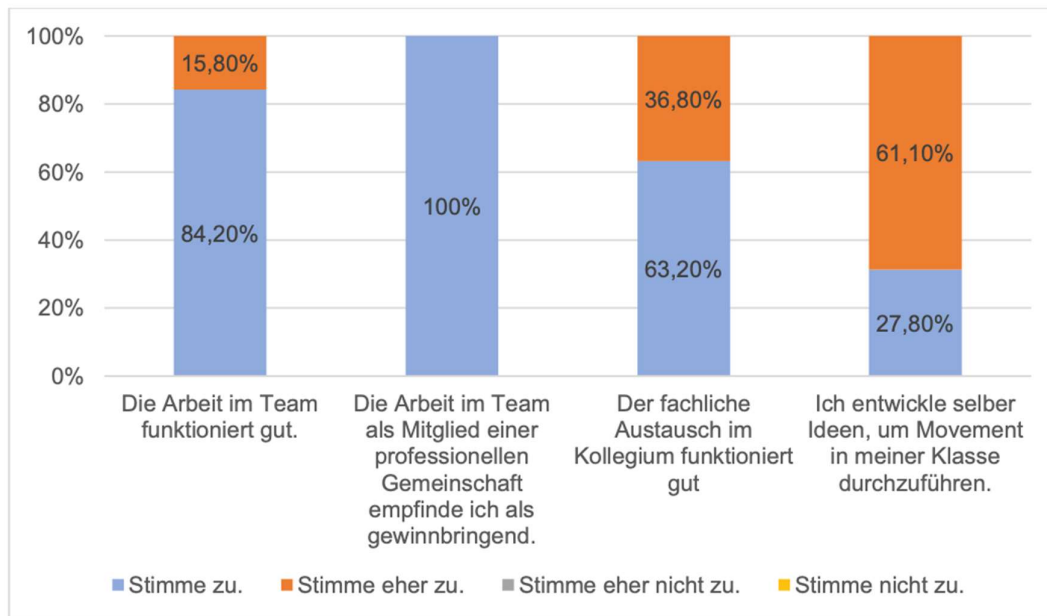


Figure 26: Presentation of results for the questions “The work in a team works well.” (N = 19), “I find working in a team as a member of a professional community to be profitable.” (N = 19), “The professional exchange among the staff works well. ”(n = 18) and" I develop ideas myself to carry out Movement in my class. "(n = 18) of the entire study group

## **6 Discussion**

### **6.1 Conclusions from the results**

Based on the theory of learning in motion and the hypothesis that movement has a positive influence on the cognitive processes of the pupil, it was examined whether movement is given a special place in everyday teaching with the help of the concept of the Movement

Method at the mammoth school Ahlen and which Changes at the school since the introduction could be observed.

The results of the students show that the value of overweight and obese children in the 4th grade at the mammoth school is 40.3%, well above the national average of 15% in 2019. The alarming number of overweight and obese children, the positive influence of physical activity on cognitive processes and the lack of physical activity in children due to digitization and other factors illustrate the need to integrate physical activity into everyday school life. In addition, the school institution must do justice to the heterogeneous student body with its individual learning and performance requirements. With the help of movement, the respective movement needs of the pupils are to be met in order to support and promote the cognitive learning processes and the holistic development of the child. The extremely individual need for movement is reflected in the results of the movement-related data of the survey. Although 72.1% of the students in the overall study group stated that they could learn well while moving, 91.2% of the students stated that they could learn well in peace. Accordingly, it is advantageous to choose a balanced ratio between active, calm and individual teaching phases. In addition, the choice of the learning location or the learning position should be left to the students themselves if possible. With regard to the results of the students, however, it should be noted that movement is not always perceived as such due to its diversity. Only 57.6% answered yes to the pupil's claim to change their seating position in class. It is noticeable that the overweight and obese students agreed with this statement with only 28.6% and 38.5% respectively to have.

However, a closer look at the overall result turned out to be found that half of the children who answered in the negative to this statement, when asked about the frequency of changing the learning location and thus also the sitting position, stated that they had to change several times. This makes it clear that the complexity of this question with all its facets could not be

penetrated by all students. Overall, there was an average change of learning location of 1.33 times per lesson. As a result, it can be seen that the natural need for movement is restricted by conventional work in the field. This fact is supported by the result that a total of 83.1% of the pupils surveyed stated that they found a change from the everyday learning environment to an alternative learning location, such as the auditorium or the schoolyard, to be positive (see Chap. 5.1, Tab. 10). In this way new impulses can be set and the children's perception systems can be trained through new movement experiences. In this context, the design of the school grounds and the school yard is of great importance, because the diverse range of exercise opportunities enables the pupils to meet their urge to exercise in various ways. In addition, 82.4% of the students found that they could concentrate better after exercise, which again emphasized the need for exercise in everyday classroom life. The teachers of the mammoth school agreed with the statement to give the students the opportunity to move more in class (see Chapter 5.2, Fig. 22). At the same time, they stated that they believe that the movement is good for their students (see Chapter 5, Fig. 22). On the basis of these results it can be seen that the pupils' perception of movement is highly individual and profitable. The resulting opening of the lessons leads to a student-friendly learning environment that corresponds to the respective needs. It can therefore be concluded that the exercise time of the students has increased through the integration of exercise into everyday teaching with the aid of the Movement Method.

A further question of this work is whether the learning climate, the working atmosphere and independent learning have improved with the help of the Movement Method (see Chapter 3). The question can be confirmed because a total of 94.8% of the teachers surveyed found a positive change in the learning and working atmosphere. Furthermore, all teachers perceived an improvement in independent learning. If the statements of the students about being able to concentrate better after movement and the statements of the teachers that the performance



potential of the students has improved positively, are put in relation, the positive influence possibilities of learning in movement with the help of the movement method become apparent. In addition, there is a significant correlation between changes in the learning climate and the work climate. In addition, a further significant correlation between the learning climate and the independent choice of the learning location could be determined. The result is that exercise has a positive influence on the learning and working atmosphere and increases performance potential. From this it can be deduced that exercise is an important influencing factor in everyday teaching. If the pupil's need for physical activity is met, the framework conditions improve, whereby learning processes can be initiated and learning can take place. In order to be able to make a more scientifically sound statement about the positive change in the performance potential of the pupils, it would have been useful to record the current situation before the introduction of the Movement Method. Only the subjective feelings of the teachers can be reproduced in this way.

With regard to learning in motion, there was no significant difference in perception between the male and female students. This means that the Movement Method, due to its individual elements, is suitable for both female and male students in the study group. It should be noted, however, that there is a large imbalance between the sexes. In order to obtain a representative statement, a further consideration with a balanced gender distribution of the study group would be useful or an expansion of the participant size of the female students.

The final question of this thesis is whether the Movement Method can meet the individual learning requirements and needs of the students.

The teachers' subjective perception results show that they are of the opinion that they can reach their students with the help of the Movement Method and that this method is most suitable for students with ADHD for students with special support needs (see Chapter 5.2, Tab. 16). Opinions are mixed with regard to further support needs, such as children with

German as a second language, children with obesity and the different support needs. This can be attributed to a variety of reasons. First of all, this result allows the conclusion that the Movement Method is only conditionally suitable for inclusion. A closer look at the results of the question about the particular suitability of the Movement Method with regard to inclusion, however, showed that the teachers surveyed decided on at least one special need for support. This shows that the teachers' perception of the inclusion of pupils with special needs is very individual. In an inclusive everyday school life, teachers take responsibility for all students with their respective special needs. Some teachers feel that they are not up to this challenge or that they are not doing justice to all of their students in this context. Another motivation for this opinion can also be the little or no experience with the different needs for support.

## **7 Reflection**

### **7.1 Critical reflection on the methodology**

#### **7.1.1 Choice of study group**

The three fourth grades as well as the teachers of the Mammut School were included in the investigation. With regard to the study group of pupils, there is a large imbalance between female and male pupils, which means that the sample of girls is very small and a comparison between the sexes is only partially meaningful. In addition, the fourth grade students are still very young, so some questions in their complexity could not be penetrated. Therefore, the answer options of the students are only used to get an impression of learning in motion, which is why the assessments and statements of the teachers are given a higher priority. The teaching staff also shows an imbalance between female and male teachers, but shows a heterogeneous composition in terms of age and years of service.

#### **7.1.2 Conducting the investigation**

The survey time of the students at the Mammut School in Ahlen was December 12th, 2019. To make the best use of the test window, all preparations and precautions were taken before the examination, such as setting up the notebooks, setting up the scales and the Attaching the tape measure to the wall. The implementation assistants were introduced to the investigation and prepared for questions and problems the students might have. In addition, they were instructed that their help was given as neutrally as possible, otherwise the students could be influenced. The implementation took place in small groups of five students each and was determined based on the class lists. Some pupils could not be included in the study because they were absent from school on the day of the study due to illness or other reasons. This is especially true for class 4c.

Around 15-20 minutes per small group were planned for filling out the online questionnaires. First, the weight of the pupils was determined with a digital scale from the company BOSCH wearing clothing and their height with the help of a tape measure attached to the wall. Since the students wore clothes when weighing, the weight does not correspond to the exact value. To ensure that the students did not forget their measurements until they were entered in the questionnaire, they were written down on a note. The questionnaires were then filled out on the five notebooks. Because the completion times were not identical, there were waiting times in individual cases. That can be attributed to the facts that had different experiences with regard to the use of notebooks, that the reading speed of the students varied or that more help was needed.

Some students had great problems using the touchpad on their notebook, so it would have made sense to provide them with keyboards and mice. After the small group finished filling in, they were brought back to class and the next one picked up. It was not examined whether the selected order had an influence on the investigation. The later the pupils took part in the

survey, the more likely the extent of their exhaustion from the lessons they completed could have had an influence.

The teachers' survey period ran from December 12, 2019 to January 5, 2020. The online questionnaire could be completed both on the computer in the staff room and at home using a link. They were informed about the survey in advance by the school management.

Participation in the investigation was initially slow and can be attributed to reasons such as illness, scheduling difficulties, stress before Christmas, the restriction of not using the computer in the staff room at the same time or the location of the computer. The computer is permanently installed in the teachers' room and its location is chosen so that other teachers can look at the screen. The anonymity when filling out the questionnaire was therefore not guaranteed at all times. For these reasons, the survey period was extended to January 5, 2020, as a result of which the participation increased significantly and a participation of 19 out of 20 teachers could be recorded.

### **7.1.3. Applied survey instruments**

The survey instruments created and used in the context of this work consist on the one hand of the pupil questionnaire and on the other hand of the teacher questionnaire. They were each filled out anonymously in order to receive an honest assessment.

The survey instrument of the pupils largely and the teacher questionnaire only closed questions. In the student questionnaire the selection of the images served for better understanding, but could not be arranged next to each other in the questionnaire, only one below the other. Therefore, the pictures could only be viewed one after the other and the selection made, but the students showed great patience in this regard. Interviews were deliberately excluded because this would have meant a lot of time for both students and teachers. The survey instruments were appropriate for the target group and had

the advantage that they could be filled out quickly and easily and, as a result, the barrier was lowered. The time aspect was therefore a very important influencing factor.

## **8 Conclusion and Outlook**

The results of the present study show that learning in motion is an extremely individual need of every student and that the Movement Method has proven to be a successful example for the practical implementation of learning in motion.

The eleven guidelines of the Movement Method are part of the concept, but not decisive for its success. They merely represent the general pedagogical action required by educators and teachers in everyday teaching. Accordingly, the key to the movement method and successful learning lies in movement and therefore not in guidelines. Because through movement, the focus is on the individual need and therefore on the learning processes of the students. On the basis of this, through content-related, methodological, didactic, social and organizational arrangements, an environment that is geared towards them and conducive to learning can be created for the students. The aim of the teacher should be to appreciate movement, to initiate it and not to perceive it as disturbing and stressful. Since one of the tasks of the school is to promote the holistic development of the pupils, the different (movement) elements of the Movement Method show clues for the practical implementation of learning in movement.

Although in the last few years more and more attempts have been made to close the technical gap with regard to active teaching, there are still today no experiences and knowledge of the implementation in everyday lessons. This study shows that the Movement Method at the Mammutschule accords great importance to the pupils' need for physical activity and that this improves the learning and working atmosphere, independent learning and the pupils' performance potential. The individual components of the Movement Method for individual learning can be implemented both in the classroom and on the school premises. In addition, it

is important to close the scientific gap in the practical implementation of learning in motion in the coming years and to create and disseminate successful (school) concepts in this context. Accordingly, it should be an important concern to provide both prospective and practicing teachers with appropriate qualification and advanced training opportunities. In particular, the exchange of experiences and implementation options can significantly contribute to the success of learning in motion.

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## Anhang

### 1 Weitere Ergebnisse

Tabelle 17: BMI- Klassifikation der Untersuchungsgruppe aufgeteilt nach Klassen berechnet mit Chi<sup>2</sup>-Test

		Starkes Untergewicht/ Untergewicht	Normalgewicht	Übergewicht	Adipositas	p- Wert
Klasse 4a	n	0	17	5	4	0,602
	Prozent	0	65,4	19,2	15,4	
Klasse 4b	n	2	10	6	6	
	Prozent	8,3	41,7	25	25	
Klasse 4c	n	1	10	3	3	
	Prozent	5,9	58,8	17,6	17,6	

Tabelle 18: Betreuung der gesamten Untersuchungsgruppe und getrennt nach Geschlecht berechnet mit Chi<sup>2</sup>- Test

		OGS/ ÜMI	Keine Betreuung in der Schule	p- Wert
gesamt	n	23	45	0,508
	Prozent	33,8	66,2	
weiblich	n	9	14	
	Prozent	39,1	60,9	
männlich	n	14	31	
	Prozent	31,1	68,9	



Tabelle 19: Zusammenhang zwischen BMI und dem Schulweg der Gesamtgruppe berechnet mit Chi<sup>2</sup>-Test

		Starkes Untergewicht/ Untergewicht	Normalgewicht	Übergewicht	Adipositas	p- Wert
gesamt	n	3	38	14	13	0,818
	Prozent	4,4	55,9	20,6	19,1	
Fahrrad	n	1	4	0	4	
	Prozent	11,1	44,4	0	44,4	
Roller	n	0	1	0	1	
	Prozent	0	50	0	50	
Zu Fuß	n	1	16	7	4	
	Prozent	3,6	57,1	25	14,3	
Auto	n	1	17	7	4	
	Prozent	3,4	58,6	24,1	13,8	

Tabelle 20: Ergebnisdarstellung zu der Frage „Ich kann mich nach Bewegung besser konzentrieren.“ der gesamten Untersuchungsgruppe und getrennt nach Geschlecht berechnet mit Chi<sup>2</sup>- Test, n= 68

		Ja	Nein	p- Wert
gesamt	n	56	12	0,968
	Prozent	82,4	17,6	
weiblich	n	19	4	
	Prozent	82,6	17,4	
männlich	n	37	8	
	Prozent	82,2	17,8	

Tabelle 21: Ergebnisdarstellung zu der Frage „Ich verändere meine Sitzposition im Unterricht.“ der gesamten Untersuchungsgruppe und getrennt nach Geschlecht berechnet mit Chi<sup>2</sup>- Test, n= 66

		Ja	Nein	p-Wert
gesamt	n	38	28	0,119
	Prozent	57,6	42,4	
weiblich	n	13	8	
	Prozent	61,9	38,1	
männlich	n	25	20	
	Prozent	55,6	44,4	

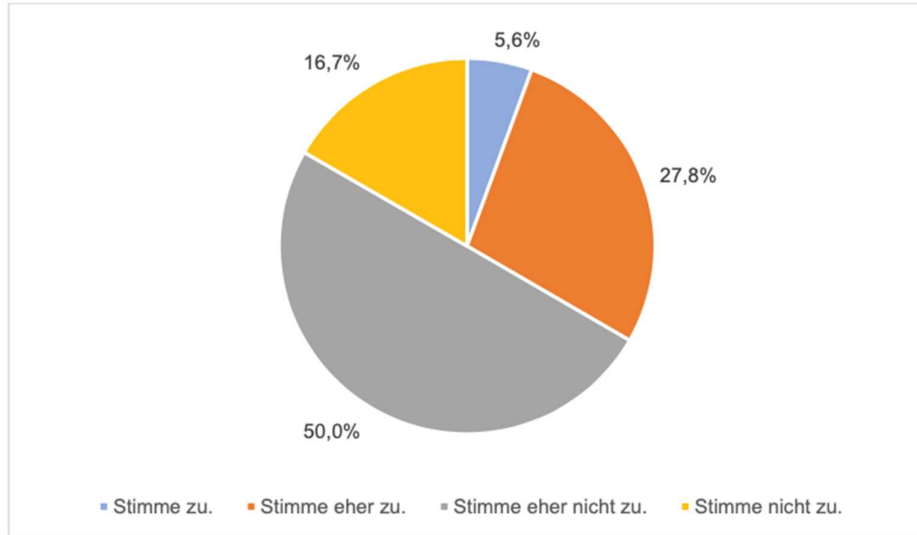


Abbildung 28: Ergebnisdarstellung zu der Frage „Die Veränderung an der Schule hat mich zunächst verunsichert.“ der gesamten Untersuchungsgruppe, n= 19

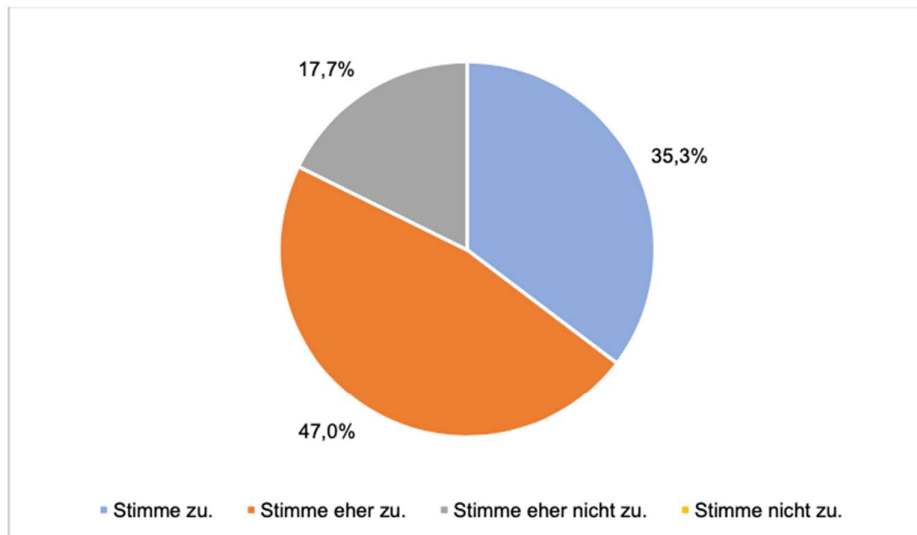


Abbildung 29: Ergebnisdarstellung zu der Frage „Ich habe mich auf die Veränderung gefreut.“ der gesamten Untersuchungsgruppe, n= 18

Tabelle 22: Ergebnis der Frage: „Mir gefällt es, wenn wir ruhig am Platz arbeiten sollen.“ der gesamten Untersuchungsgruppe und getrennt nach den Klassen berechnet mit Chi<sup>2</sup>- Test

		Ja	Nein	p-Wert
Klasse 4a	n	24	1	
	Prozent	96%	4%	
Klasse 4b	n	19	4	0,520
	Prozent	82,6	17,4	
Klasse 4c	n	15	3	
	Prozent	83,3	16,7	

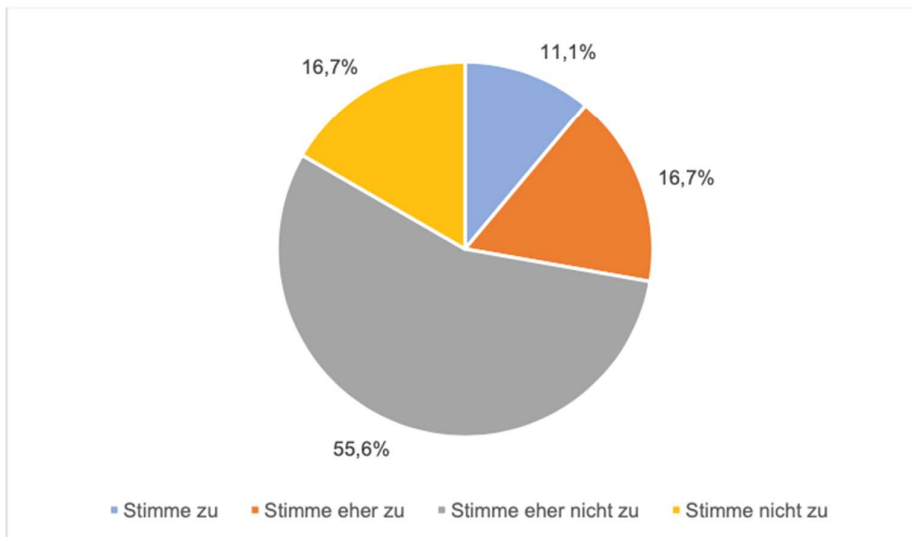


Abbildung 27: Ergebnisdarstellung zu der Frage „Ich habe mich vor der Konzeptveränderung ermüdet gefühlt“ der gesamten Untersuchungsgruppe, n=19

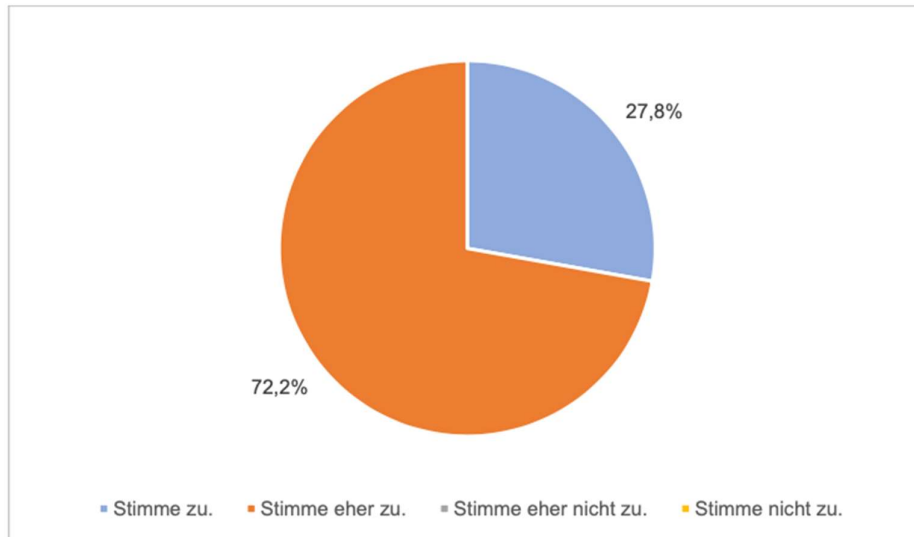


Abbildung 30: Ergebnisdarstellung zu der Frage „Ich habe das Bewegte Lernen schrittweise eingeführt.“ der gesamten Untersuchungsgruppe, n= 19

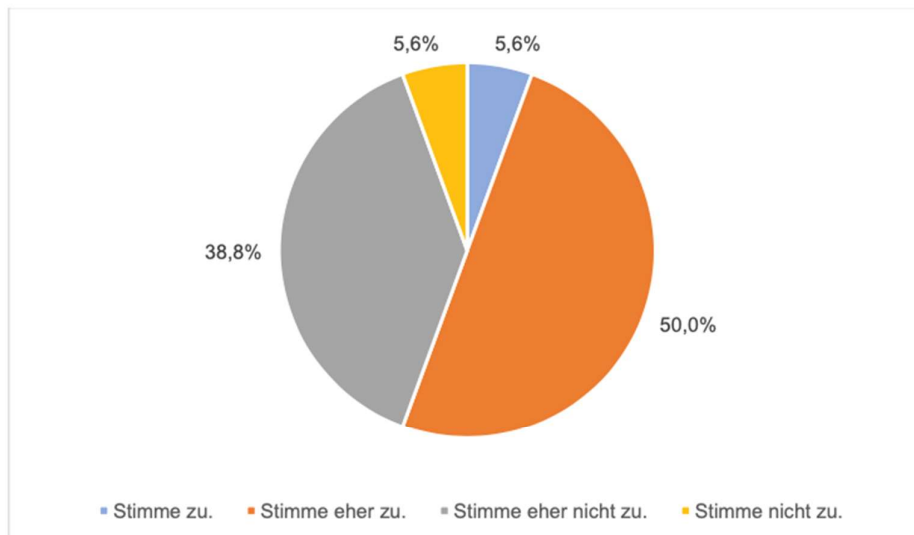


Abbildung 31: Ergebnisdarstellung zu der Frage „Beim Bearbeiten der Aufgaben überlasse ich den SuS die Wahl der Sozialform.“ der gesamten Untersuchungsgruppe, n= 18

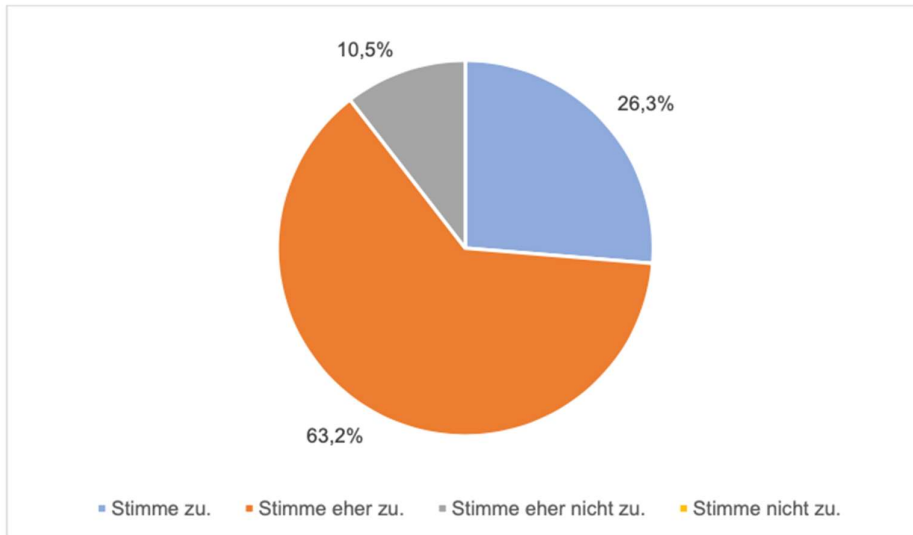


Abbildung 32: Ergebnisdarstellung zu der Frage „Beim Bearbeiten der Aufgaben überlasse ich den SuS die Wahl des Lernortes.“ der gesamten Untersuchungsgruppe, n= 19

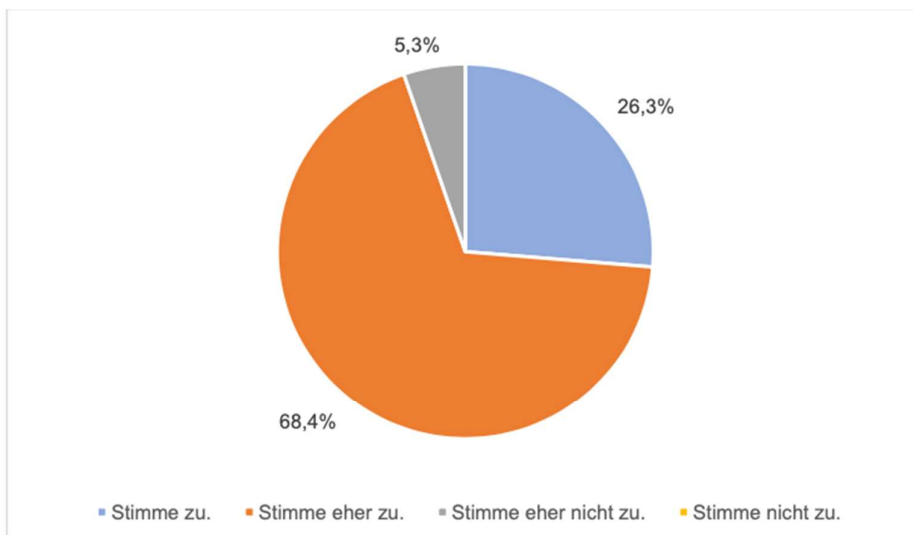


Abbildung 33: Ergebnisdarstellung zu der Frage „Meine SuS kommen mit dem selbständigen Arbeiten gut zurecht .“ der gesamten Untersuchungsgruppe, n= 19

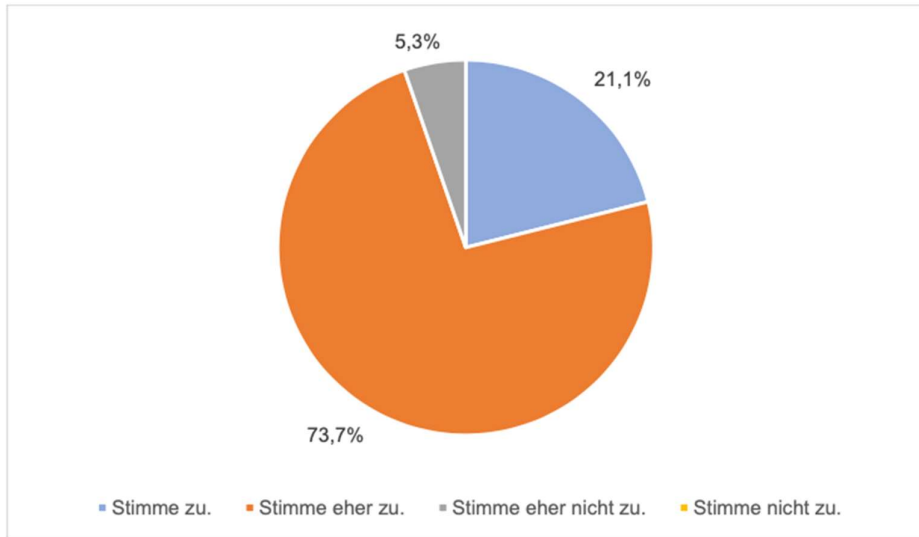


Abbildung 34: Ergebnisdarstellung zu der Frage „Meine SuS kommen mit der neu gewonnenen Freiheit und dem entgegengebrachten Vertrauen gut zurecht.“ der gesamten Untersuchungsgruppe, n= 19

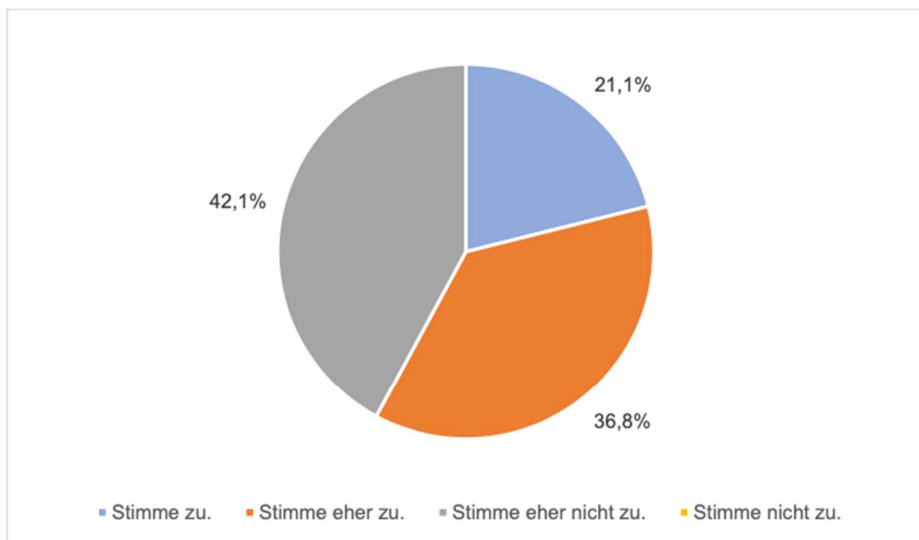


Abbildung 35: Ergebnisdarstellung zu der Frage „Mithilfe der Movement Method entlaste ich mich selber.“ der gesamten Untersuchungsgruppe, n= 19

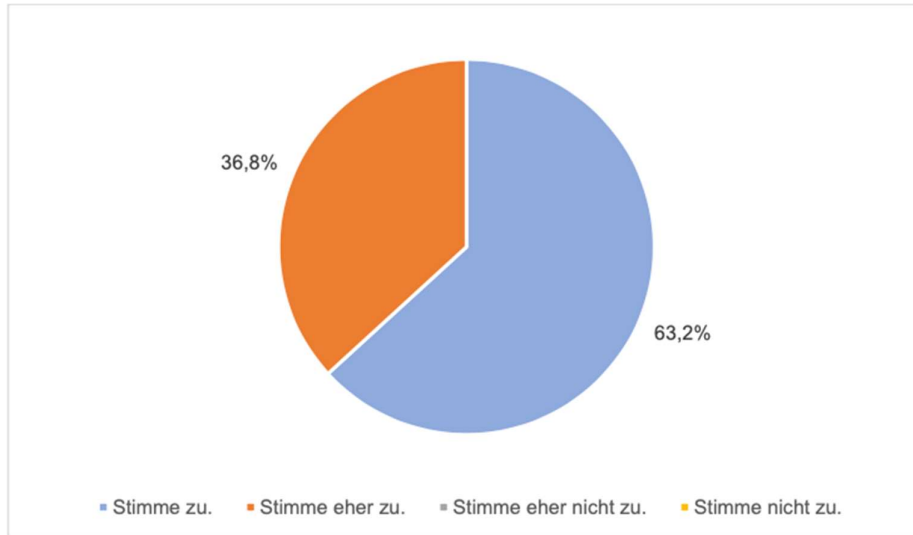


Abbildung 36: Ergebnisdarstellung zu der Frage „Den fachlichen Austausch im Kollegium empfinde ich als gewinnbringend.“ der gesamten Untersuchungsgruppe, n= 18

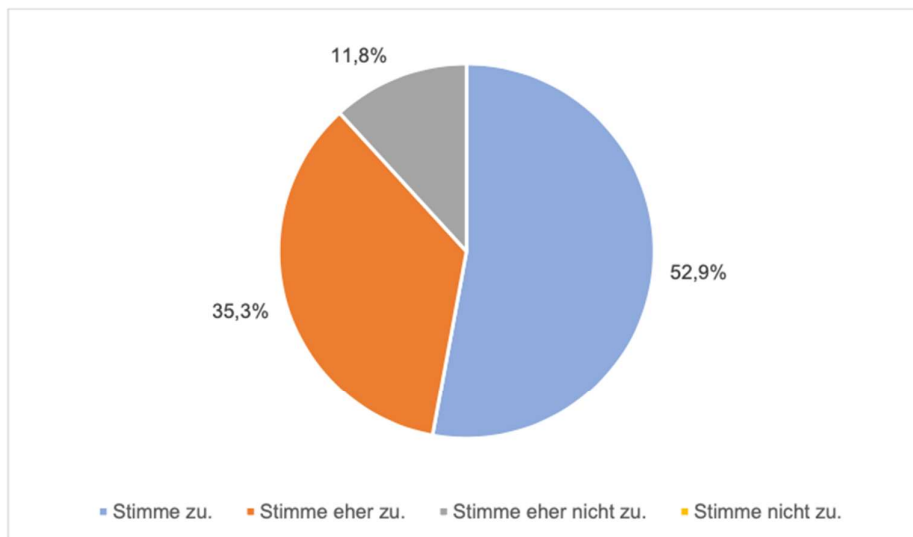


Abbildung 37: Ergebnisdarstellung zu der Frage „Ich nutze den Ideenpool.“ der gesamten Untersuchungsgruppe, n= 17

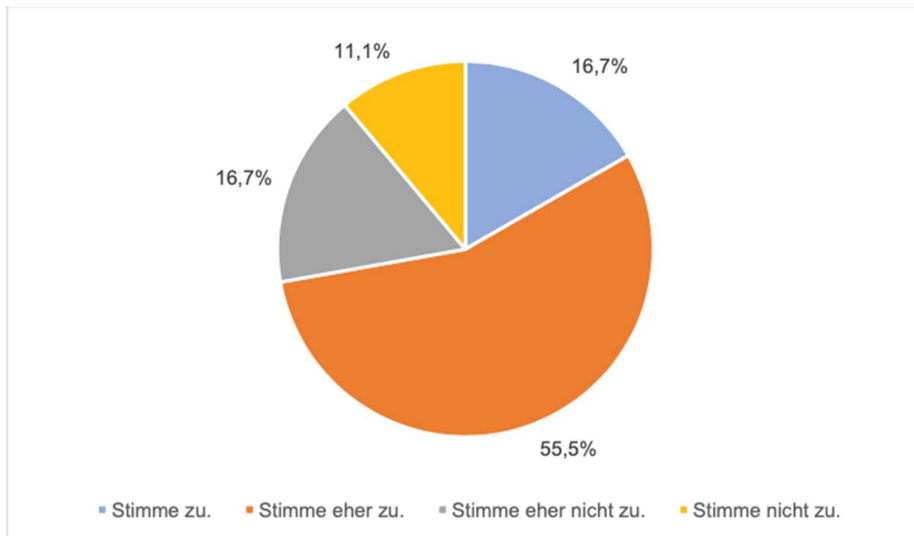


Abbildung 38: Ergebnisdarstellung zu der Frage „Ich gebe eigene Ideen in den Ideenpool hinein.“ der gesamten Untersuchungsgruppe, n= 18

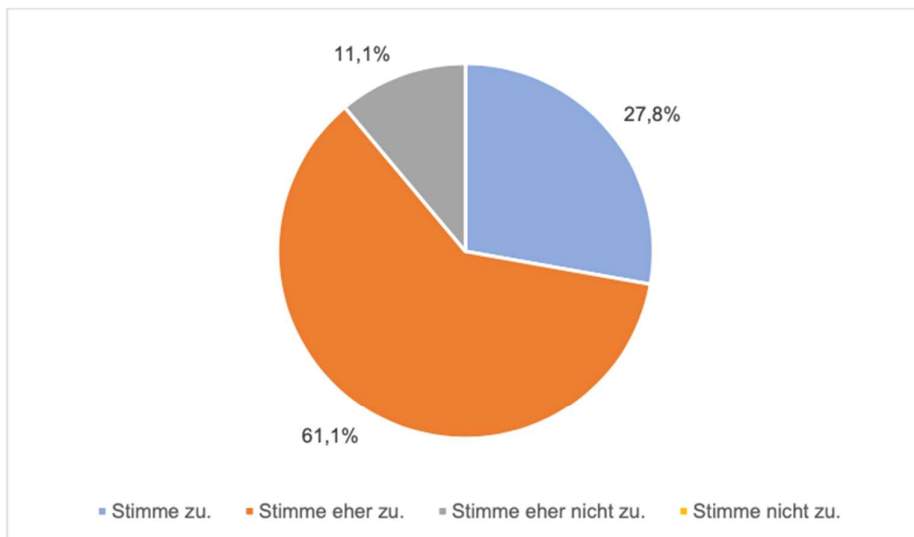


Abbildung 39: Ergebnisdarstellung zu der Frage „Ich entwickle selber Ideen, um Movement in meiner Klasse durchzuführen.“ der gesamten Untersuchungsgruppe, n= 18



## 2 Erhebungsinstrument: Der Schülerfragebogen



### Person

Bist du ein Mädchen oder ein Junge?

Ich bin ein Mädchen.

Ich bin ein Junge.

Wie alt bist du?

Wie groß bist du?

Wie viel Kilogramm wiegst du?

Ich gehe in die OGS oder ÜMI.

Ja

Nein

14%

WEITER



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## Schule

Ich kann in Bewegung gut lernen.

---

Ja

Nein

Ich kann in Ruhe gut lernen.

Ja

Nein

Ich kann mich nach Bewegung besser konzentrieren.

Ja

Nein

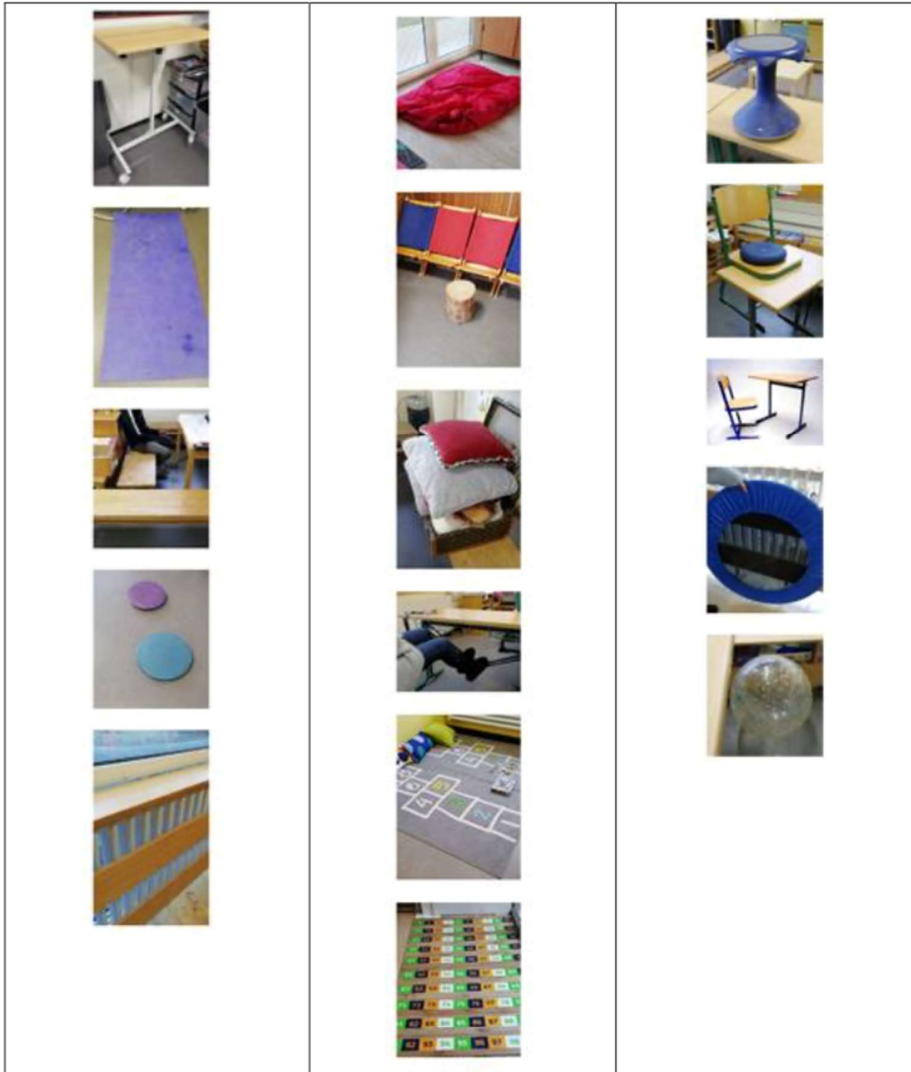
Ich verändere meine Sitzposition im Unterricht.

Ja

Nein

Wo kannst du in der Klasse gut lernen?

---





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## Schulweg

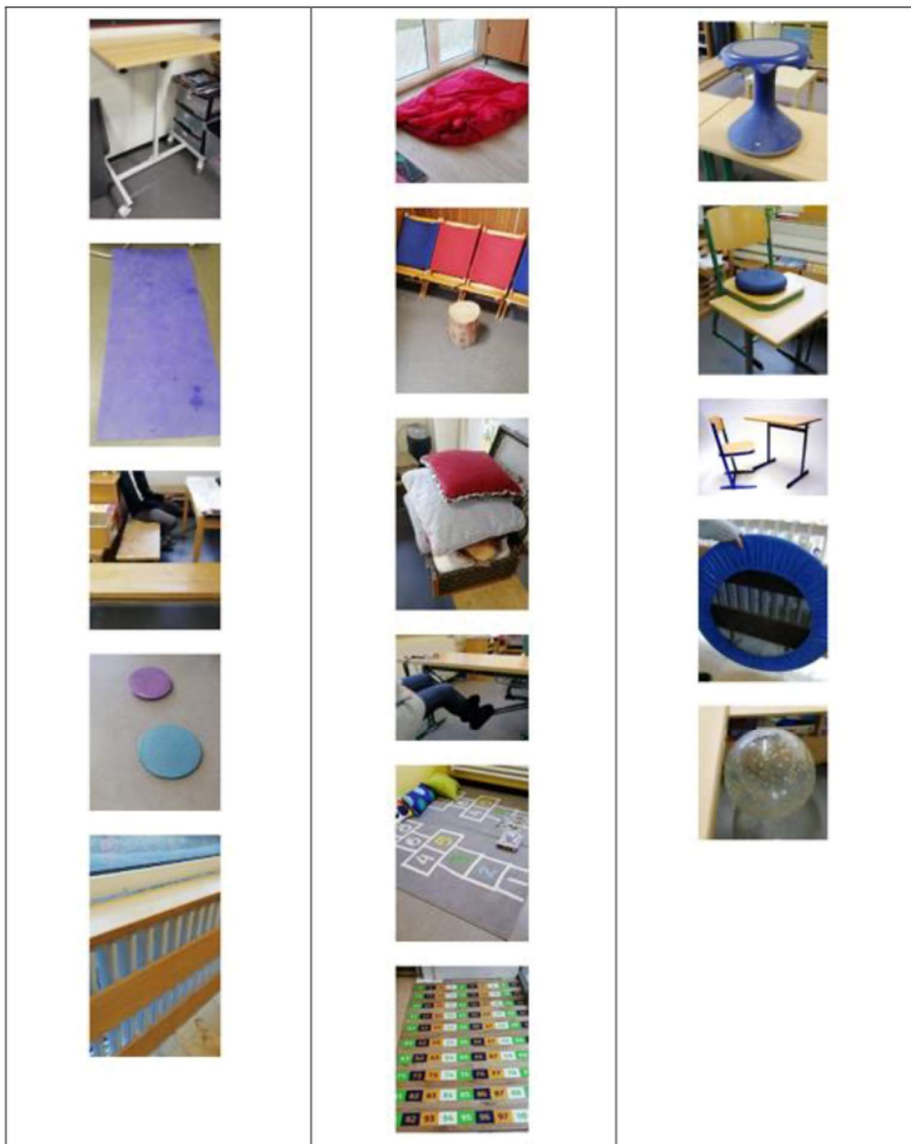
Wie bist du heute zur Schule gekommen?



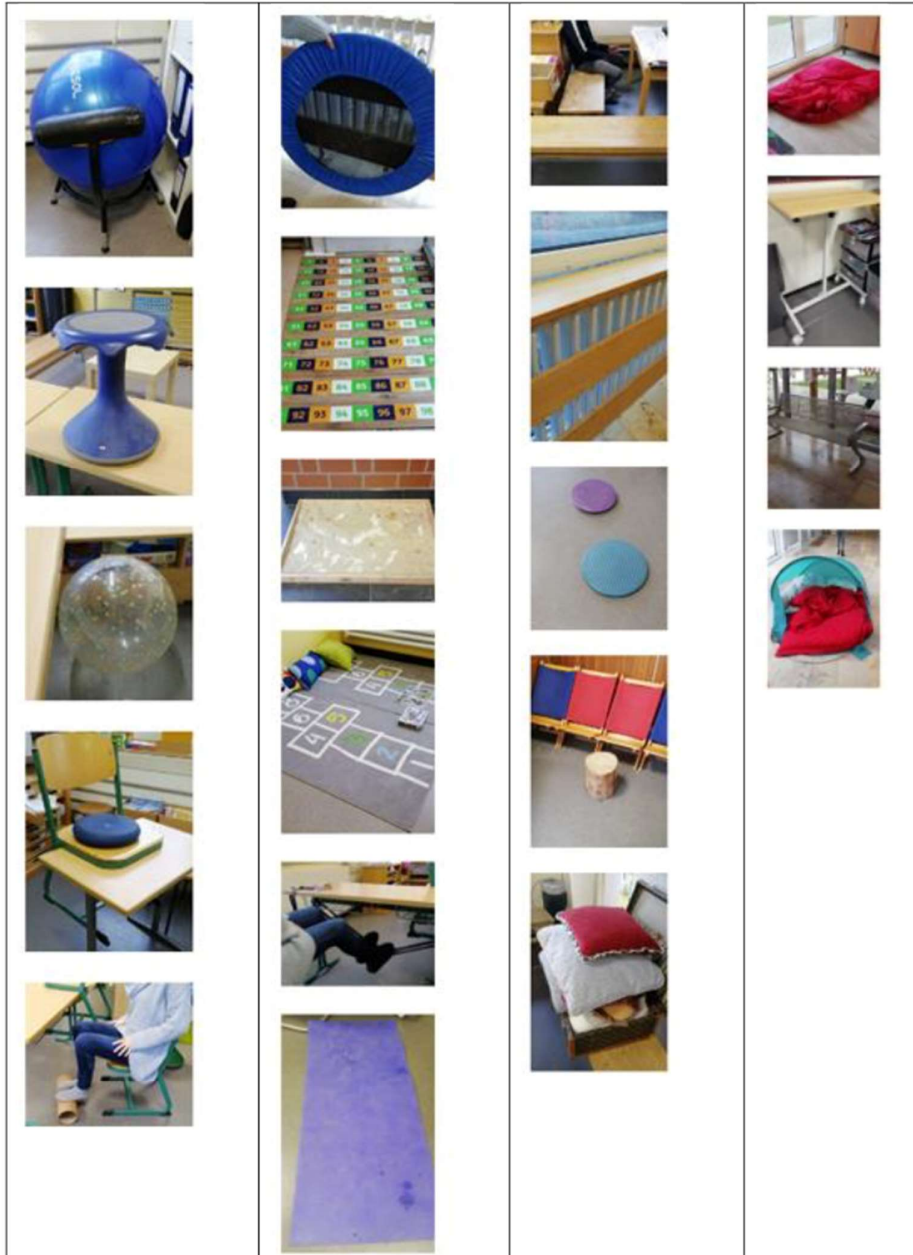
29%

WEITER

Wo in der Klasse lernst du am liebsten?



Was benutzt du (in der Schule)?



Mir gefällt es, wenn wir ruhig am Platz sitzen sollen.

---

Ja

Nein

Mir gefällt es, wenn wir den Unterrichtsort wechseln (zum Beispiel nach draußen oder in die Aula).

Ja

Nein

Mir gefällt es, wenn wir draußen lernen dürfen.

Ja

Nein

Ich nutze die Spiel- und Sportgeräte auf dem Schulhof.



Wie oft wechselst du den Lernort in einer Unterrichtsstunde.

Ich bewege mich gerne.

---

Ja

Nein

Was machst du am liebsten nach der Schule?

---

Was machst du am allerliebsten?

---





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## Freizeit

Ich bin in einem Sportverein.

---

Ja

Nein

Ich spiele ein Instrument.

Ja

Nein

Ich verbringe meine Nachmittage gerne draußen.

Ja

Nein

In meiner Freizeit bewege ich mich gerne.

Ja

Nein

Ich habe ein eigenes Handy.

---

Ja

Nein



## Familie

Mein Papa macht Sport.

---

Ja

Nein

Meine Mama macht Sport.

Ja

Nein

Meine Mama fährt mit dem Fahrrad.

Ja

Nein

Mein Papa fährt mit dem Fahrrad.

Ja

Nein

---

71%

WEITER

Ich bin am Wochenende viel draußen.

Ja

Nein

Ich gehe gerne in den Wald.

---

Ja

Nein



## Sonstiges

Ich habe einen Migrationshintergrund.

---

Ja

Nein

Ich habe einen Förderschwerpunkt.

Ja

Nein

Ich habe einen Nachteilsausgleich (beispielsweise Lese-Rechtschreib-Schwäche).

Ja

Nein

Ich erhalte besondere Unterstützungsmaßnahmen der Diskalkulie.

Ja

Nein

In welche Klasse gehst du?

---

Klasse 4a

Klasse 4b

Klasse 4c

86%

WEITER



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Umweltforschung

100%

Einführung der Movement Method

Ich habe mich vor der Konzeptveränderung ermüdet gefühlt.

---

Stimme zu.

Stimme eher zu.

Stimme eher nicht zu.

Stimme nicht zu.

Eine Veränderung an der Mammutschule war notwendig.

Stimme zu.

Stimme eher zu.

Stimme eher nicht zu.

Stimme nicht zu.

Ich habe an der ersten Fortbildung mit Bianca Rimbach teilgenommen  
(April 2018).

---

Ja

Nein

Die Veränderung an der Schule hat mich zunächst verunsichert.

---

Stimme zu.

Stimme eher zu.

Stimme eher nicht zu.

Stimme nicht zu.

### 3 Erhebungsinstrument: Der Lehrerfragebogen



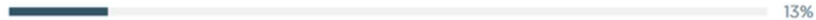
Deutsche  
Sporthochschule Köln  
German Sport University Cologne  
Institut für Outdoor Sport und  
Umweltforschung

Herzlich Willkommen!

Liebes Kollegium der Mammutschule,

danke, dass ihr euch die Zeit nehmt, um diesen Fragebogen auszufüllen. Die Evaluation findet anonym statt und soll eure subjektive Wahrnehmung in Bezug auf das Lernen in Bewegung darstellen.

Vielen Dank für eure Mühe und Unterstützung.



13%

WEITER



Einführung der Movement Method in meiner Klasse

Ich versuche den Lehrplan mithilfe der Movement Method umzusetzen.

Stimme zu.

Stimme eher zu.

Stimme eher nicht zu.

Stimme nicht zu.

Ich habe das Bewegte Lernen schrittweise eingeführt.

Stimme zu.

Stimme eher zu.

Stimme eher nicht zu.

Stimme nicht zu.

Die Movement Method verändert das Lernklima positiv.

Stimme zu.

Stimme eher zu.

Stimme eher nicht zu.

Stimme nicht zu.

Die Movement Method verändert das Arbeitsklima positiv.

Stimme zu.

Stimme eher zu.

Stimme eher nicht zu.

Stimme nicht zu.

Ich habe mich auf die Veränderung gefreut.

---

Stimme zu.

Stimme eher zu.

Stimme eher nicht zu.

Stimme nicht zu.

Das Kollegium wurde in den Veränderungsprozess mit einbezogen.

Stimme zu.

Stimme eher zu.

Stimme eher nicht zu.

Stimme nicht zu.

Ich konnte mich in den Veränderungsprozess einbringen.

---

Stimme zu.

Stimme eher zu.

Stimme eher nicht zu.

Stimme nicht zu.

Die Einführung der Movement Method habe ich als positiv empfunden.

---

Stimme zu.

Stimme eher zu.

Stimme eher nicht zu.

Stimme nicht zu.

ZURÜCK  25% WEITER





### Meine Klasse

Bei der Vermittlung von Fachwissen nutze ich das Instrument der Bewegung.

---

Stimme zu.

Stimme eher zu.

Stimme eher nicht zu.

Stimme nicht zu.

Die SuS konzentrieren sich besser, wenn sie sich den Lernort selbst aussuchen dürfen.

Stimme zu.

Stimme eher zu.

Stimme eher nicht zu.

Stimme nicht zu.

Beim Bearbeiten der Aufgaben überlasse ich den SuS die Wahl der Sozialform.

---

Stimme zu.

Stimme eher zu.

Stimme eher nicht zu.

Stimme nicht zu.

Beim Bearbeiten der Aufgaben überlasse ich den SuS die Wahl des Lernortes.

---

Stimme zu.

Stimme eher zu.

Stimme eher nicht zu.

Stimme nicht zu.

Es entsteht mir zu viel Unruhe, wenn sich die SuS frei beschäftigen.

---

Stimme zu.

Stimme eher zu.

Stimme eher nicht zu.

Stimme nicht zu.

Ich habe das Gefühl, dass meine SuS mithilfe der Movement Method konzentrierter arbeiten.

Stimme zu.

Stimme eher zu.

Stimme eher nicht zu.

Stimme nicht zu.

Ich gebe den SuS die Möglichkeit, sich in meinem Unterricht mehr zu bewegen.

---

Stimme zu.

Stimme eher zu.

Stimme eher nicht zu.

Stimme nicht zu.

Ich habe das Gefühl, dass ich mit der Movement Method meine SuS erreiche.

---

Stimme zu.

Stimme eher zu.

Stimme eher nicht zu.

Stimme nicht zu.

Das Leistungspotential der SuS wurde durch die Movement Method positiv verbessert.

Stimme zu.       Stimme eher zu.       Stimme eher nicht zu.       Stimme nicht zu.

Das Selbstständige Lernen der SuS hat sich positiv verändert.

Stimme zu.       Stimme eher zu.       Stimme eher nicht zu.       Stimme nicht zu.

Ich nutze mit meiner Klasse die zur Verfügung stehenden Lernorte.

Mehrfachnennung möglich.

- |  |                                |                                   |   |
|--|--------------------------------|-----------------------------------|---|
| <input type="checkbox"/> Aula                    | <input type="checkbox"/> Foyer | <input type="checkbox"/> Schulhof | <input type="checkbox"/> Outdooklassenräume |
| <input type="checkbox"/> Wiese hinter der Schule | <input type="checkbox"/> Park  | <input type="checkbox"/> Bauwagen | <input type="checkbox"/> Flure              |
| <input type="checkbox"/> Treppenhaus             |                                |                                   |   |

Welche Methoden wendest du an?

Mehrfachnennung möglich.

- |  |  |   |                                      |
|--|--|---|--------------------------------------|
| <input type="checkbox"/> Doppelkreis     | <input type="checkbox"/> Partner an Partner      | <input type="checkbox"/> Verabredungskalender | <input type="checkbox"/> Line- up    |
| <input type="checkbox"/> Jigsaw          | <input type="checkbox"/> Placemat                | <input type="checkbox"/> Think- Pair- Square  | <input type="checkbox"/> Pair- Check |
| <input type="checkbox"/> Team Tournament | <input type="checkbox"/> 3- Finger- Einschätzung | <input type="checkbox"/> Graphic Organizers   | <input type="checkbox"/> Graffiti    |
| <input type="checkbox"/> Mindmap         |  |   |                                      |

ZURÜCK  38% WEITER

Ich finde, dass die Movement Method sich besonders für die Inklusion von folgenden SuS eignet:

---

Mehrfachnennung möglich.

- |  |   |  |   |
|--|---|--|---|
| <input type="checkbox"/> Forderschwerpunkt Lernen (LE) | <input type="checkbox"/> Forderschwerpunkt Emotionale und soziale Entwicklung (ESE) | <input type="checkbox"/> Forderschwerpunkt Sprache (SB)                                | <input type="checkbox"/> Forderschwerpunkt Hören und Kommunikation (HK) |
| <input type="checkbox"/> Forderschwerpunkt Sehen (SE)  | <input type="checkbox"/> Forderschwerpunkt Geistige Entwicklung (GG)                | <input type="checkbox"/> Forderschwerpunkt Körperliche und motorische Entwicklung (KM) | <input type="checkbox"/> ADHS   |
| <input type="checkbox"/> ADS                           | <input type="checkbox"/> Hochbegabte Kinder   | <input type="checkbox"/> Adipöse Kinder  | <input type="checkbox"/> Asperger Autismus                              |
| <input type="checkbox"/> Autismus                      | <input type="checkbox"/> DaZ Kinder   |  |   |

Ich glaube, dass meinen SuS die Bewegung gut tut.

- |                                     |  |  |   |
|-------------------------------------|--|--|---|
| Stimme zu.<br><input type="radio"/> | Stimme eher zu.<br><input type="radio"/> | Stimme eher nicht zu.<br><input type="radio"/> | Stimme nicht zu.<br><input type="radio"/> |
|-------------------------------------|--|--|---|

Meine SuS kommen mit dem selbständigen Arbeiten gut zurecht.

---

- |                                     |  |  |   |
|-------------------------------------|--|--|---|
| Stimme zu.<br><input type="radio"/> | Stimme eher zu.<br><input type="radio"/> | Stimme eher nicht zu.<br><input type="radio"/> | Stimme nicht zu.<br><input type="radio"/> |
|-------------------------------------|--|--|---|

Das Sozialverhalten meiner SuS hat sich positiv verändert.

---

- |                                     |  |  |   |
|-------------------------------------|--|--|---|
| Stimme zu.<br><input type="radio"/> | Stimme eher zu.<br><input type="radio"/> | Stimme eher nicht zu.<br><input type="radio"/> | Stimme nicht zu.<br><input type="radio"/> |
|-------------------------------------|--|--|---|

Ich habe das Gefühl, dass meine SuS die Movement Method gut finden.

Stimme zu.       Stimme eher zu.       Stimme eher nicht zu.       Stimme nicht zu.

Meine SuS kommen mit der neu gewonnenen Freiheit und dem entgegengebrachten Vertrauen gut zurecht.

Stimme zu.       Stimme eher zu.       Stimme eher nicht zu.       Stimme nicht zu.

Meine SuS nehmen die Angebote an.

	Stimme zu.	Stimme eher zu.	Stimme eher nicht zu.	Stimme nicht zu.
Lernorte	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sozialformen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sitzmöglichkeiten	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lernpositionen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Rückzugsmöglichkeiten	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Ich unterrichte das Fach Sport.

Ja       Nein

Mein Sportunterricht hat sich durch die Movement Method verändert.

Bitte nur ausfüllen, wenn die Frage "Ich unterrichte das Fach Sport" mit "Ja" beantwortet wurde.

Stimme zu.       Stimme eher zu.       Stimme eher nicht zu.       Stimme nicht zu.

ZURÜCK  50% WEITER



### Wechsel der Unterrichtsorte

Ich führe regelmäßig einen Wechsel der Unterrichtsorte mit meiner Klasse durch.

	Stimme zu.	Stimme eher zu.	Stimme eher nicht zu.	Stimme nicht zu.
Pausenhalle	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Treppen auf dem Schulhof	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Outdoorklassenräume	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Schulinnenhof	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Grünflächen/-anlagen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

ZURÜCK  63% WEITER



**Deutsche  
Sporthochschule Köln**  
German Sport University Cologne  
Institut für Outdoor Sport und  
Umweltforschung

### Arbeit im Team

Die Arbeit im Team funktioniert gut.

---

Stimme zu.

Stimme eher zu.

Stimme eher nicht zu.

Stimme nicht zu.

Die Arbeit im Team als Mitglied einer professionellen Gemeinschaft  
empfinde ich als gewinnbringend.

Stimme zu.

Stimme eher zu.

Stimme eher nicht zu.

Stimme nicht zu.

Der fachliche Austausch im Kollegium funktioniert gut.

---

Stimme zu.

Stimme eher zu.

Stimme eher nicht zu.

Stimme nicht zu.

Den fachlichen Austausch im Kollegium empfinde ich als  
gewinnbringend.

---

Stimme zu.

Stimme eher zu.

Stimme eher nicht zu.

Stimme nicht zu.

Ich nutze den Ideenpool.

Stimme zu.

Stimme eher zu.

Stimme eher nicht zu.

Stimme eher zu.

Ich gebe eigene Ideen in den Ideenpool hinein.

Stimme zu.

Stimme eher zu.

Stimme eher nicht zu.

Stimme nicht zu.

Ich entwickle selber Ideen, um Movement in Klassen durchzuführen.

Stimme zu.

Stimme eher zu.

Stimme eher nicht zu.

Stimme nicht zu.

ZURÜCK

88%

WEITER



**Deutsche  
Sporthochschule Köln**  
German Sport University Cologne

Institut für Outdoor Sport und  
Umweltforschung

Vielen Dank für die Teilnahme und Unterstützung!

100%



Ich

Durch die Movement Method achte ich mehr auf mich und meine Gesundheit.

Stimme zu.       Stimme eher zu.       Stimme eher nicht zu.       Stimme nicht zu.

Mithilfe der Movement Method entlaste ich mich selber.

Stimme zu.       Stimme eher zu.       Stimme eher nicht zu.       Stimme nicht zu.

Die Couch im Lehrerzimmer ist für mich ein Rückzugsort.

Stimme zu.       Stimme eher zu.       Stimme eher nicht zu.       Stimme nicht zu.

Ich nutze den Snoezelen Raum.

Stimme zu.       Stimme eher zu.       Stimme eher nicht zu.       Stimme nicht zu.

ZURÜCK  75% WEITER

Statement

I hereby affirm in lieu of an oath that I wrote this work myself and that I have not used any other sources and aids than those given. I have marked the passages of my work that are taken from other works and sources in terms of their wording or meaning, stating the source.

The same applies to tables, maps and figures. I did not submit extracts of this work in the same or similar form as part of another examination.

Cologne, February 4th, 2020

\_\_\_\_\_ (personal signature)