

Imagination is enriching self-knowledge

– a possibility for inclusive learning about the own needs
and resources

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Abstract

This master thesis consists of two parts. The first part is the extended summary, which gives further theoretical knowledge, deeper insights in the methodology and is expanding the discussion of the results. The second part is an academic article, written for the “Mindful” journal, with the title “Imagination is enriching self-knowledge - a possibility for inclusive learning about the own needs and resources”. A qualitative experiment with students was done. It was organized in a mindful group practice and a semi structured interview using individually AI generated pictures to reflect the practice. The interviews and answers to a questionnaire shall answer the research question of – “Can imagination be used to enrich our self-knowledge?” “Enrichment” considers development as a shift from elementary to complex” (Mounoud, 1990) as gaining more experiences and self-knowledge over lifetime. Further interest is in the questions of - in which way can imagination support talking about our inner self? In which way is imagination supporting a learning process? In which way do we use imagination to understand each other? Do the students experience changes through the practice? How is the picture used and what are the outcomes of using it?

The interviews were transcribed and analysed by using thematic analyses. The answers of the questionnaire were used for increasing the internal validity or explain content of the interviews. The results show that imagination is widely used in the context of learning, bordering and communication, which goes along with the literature review, and imagination is enriching the self-knowledge. The clients experienced changes during the practice, were expanding them to their life context and developed ideas for self-help. Imagination was a common, inclusive starting point for the practice and such the participants were free to mediate, what they made meaning of in that moment. This gives the possibility to use imagination as a tool to reduce stress. Instead of working on purpose, imagination enables to learn what is needed. The mediation instruments of the mindful practice, breathing, the AI picture and the instruction, were individually chosen. Imagination seems to be inclusive to students with special needs because it allows that the development and learning process arises individually from that person. It seems to be culturally open since the own culture and background seems to influence the imagination. In the experiment imagination is not stressing the own problems, but life can be imagined as a social construct and the own position can

be observed. Furthermore, imagination in communication should be seen under the eyes of diversity and culture to learn to address all people when giving instructions and influencing communication positively.

Imagination enables to know us better and expand the own world in a mindful setting. This led to individual learning and transformation of the participants. Doing this practice in a group setting seems to be a possibility to work with students on enrichment of self-knowledge and possibilities to reduce stress in a school setting and prevention of possible psycho-social problem.

Preface

The inspiration for that thesis were my different jobs as a speech-language therapist, a breath therapist, a Yoga instructor, and my work in a school. The first idea came up, when I realized that many of my clients described their symptoms by using pictures and imagination. Their symptoms are multifactorial. That caused confusion and helplessness. All the clients had in common that they wished to know themselves better, to be able to react on the own body and thoughts and to be not that helpless – with their, often, circling thoughts. Since self-knowledge is an ability, which should be learned and supported early and life-long, I decided to build a setting, which can be used with students. Furthermore, I often made the experience in the last two years, that students or their parents talk about symptoms and being stressed. If they wish for help, they mostly had to wait a long time to get therapy. In my eyes education shall support the health among students. The qualitative experiment contains different mindful approaches, using imagination as an important part of a learning process and creating a non-judgmental – free setting to choose the support, which is needed. The student has an important and independent position in the process. The educator or therapist is more a manager than giving direct advice. This qualitative experiment shall be the first try of a concept to enrich self-knowledge and reduce stress in the life of students. I hope to evaluate and improve that possible concept in the future.

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Extended Summary

Imagination is enriching self-knowledge – a possibility for inclusive learning about the own needs and resources

1 Introduction

This extended summary shows benefits of mindful work, the richness and broad use of imagination are shown, principles of learning – constructing and deconstructing thoughts and overcoming borders - are described. The limits of language are discussed. The argumentation and structure arise from the general problem of high stress among students and the need to gain self-knowledge to find coping strategies to reduce stress. The following texts provides the background, knowledge, and meaningfulness of the different concepts to understand a qualitative experiment, which shall evaluate if imagination is expanding self-knowledge as a common starting point for a group work supporting the need of prevention of illness connected to high stress experience.

A study in the light of stress and self-knowledge

A report about live satisfaction in Norway shows that 50% of the students experience that they are weekly exhausted and around a third of these group feels low satisfaction in their life (Støren, 2020). A literature review about the psychical health of Scandinavian students, including fifty-two studies, showed that 21% of students reported symptoms, which are pointing towards a clinically significant psychological problem. The same review also showed that mindful and preventive training for students is effective (Mordal & Ness, 2021). Mindfulness is the approach to stay in the present moment and being conscious without judging that, what is observed (Didriksen, 2022). There exists a huge variety of therapy concepts and mindful approaches. Mindfulness is learning about the own person via interoception. Learning is connected to imagining the future (Vygotsky, 2004). Furthermore, learning is a social act. It is about observing the surrounding and internalizing (Vygotsky, 2023) that, what is meaningful. Language is one connection to the surrounding, but a limited one in its expression. This leads to “talking in pictures” – using imagination. That happens often when people try to explain the diffuse symptoms of stress. The problem seems not to

be, that no approach to reduce stress exists, but it seems to be difficult to express the symptoms and find the right approach the person needs. That could explain the high numbers of students showing symptoms of stress on one hand and the variety of therapy concepts on the other hand. An open, inclusive learning setting is needed, which allows to choose the own approach. Allowing imagination in a learning process means that learning becomes inclusive, and the person is free to choose what shall be learned. People with special needs can participate and being positioned inside the learning setting and not as outsiders, because of not reaching the common goal the same time as others do this. This leads to the question - what changes for the students if imagination, as individual learning, is allowed in a learning environment, which is mixed with the mindfulness approach of non-judging, interoception and consciousness to reduce stress? This leads to the research question if imagination is enriching self-knowledge? This question and underlying reasons shall be evaluated in a qualitative experiment using a mindful practice and a communicative setting. The need for preventive help for students is huge and it can be questioned if the health system can carry such a task since therapy places are too little. Stress can cause a feeling of helplessness and the individual symptoms vary a lot. Moreover emotions of "fear and anger are created by our body's physiological stress response" (Greenberg, 2017). Physical responses of stress are often experienced in the "interruption in breathing" (Greenberg, 2017). Breathing and the autonomic nervous system are linked and react on each other. Slow, deep breathing "decreases in intrinsic excitability of pacemakers such as the heart and amygdala, causing physiologic inhibition of negative emotions" (Jerath et al., 2006). By breathing it is possible to reduce physiological and psychological stress (Hopper et al., 2019). After being triggered by a stressor, the response to stress is individual and can be - beside a change in breathing - mental, like circling thoughts and the feeling of not having control, it can be neuronal, the nervous system active on flight mode, somatic or molecular with an increase in cortisol (Rensing et al., 2013). Non concentration, diffuse symptoms of stress or the feeling of not being able to "catch a thought" and having a restless body can be very harmful. The chance is high that people begin to see themselves as negative. Expressing that in words, with the limitations of language or with limitations in interoception due to several reasons, can be difficult. Mostly imaginations or expressing the feeling via others helps people, who have problems to express their feelings in words (Norman et al., 2021). Some even talk in imaginations about their inner experience "my breath

stops somewhere here (pointing).” Maybe imagination can enrich our world being communicated and perceived. This is examined in the following qualitative results of the group experiment.

The students shall be supported to talk about their inner self with the help of pictures done by an artificial intelligence and when doing so it shall be the first step into a learning process about their own needs and increase self-knowledge. Furthermore, symptoms of stress and the circling thoughts shall not be seen as a problem, as something wrong or as “the end of the way.” The project shall put the “progress” into focus and give the person an allowance to experience and express their own body, mind, and surroundings. This mindset leads to the term of “mindfulness” and the reason of using a mindful setting for the project. The stress under students is high and the need for help is huge. An effective therapeutical approach shall be found, which sees the individual student in the centre of the practice and gives room for self-knowledge and communication about the inner self and own needs.

Introspection and mindfulness

Mindfulness as a resource

Mindfulness is describing the action of paying attention on purpose without judging the observation (Didriksen, 2022). Mindful attention brings new insights and experiences about themselves or their situation. In times of stress and fast transformations in life, like it is the case in student age, new insights can help to develop coping mechanism and possible self-helping tools. The approach of mindfulness is doable in a setting with students and groups. Mindfulness is a shift of the perception from the outside to the inside. This contains often an awareness on the connection of emotions and physical sensation, emotional regulation and mind wandering (Didriksen, 2022). Meditation and mindful practice provides inner awareness and meta- awareness (Didriksen, 2022). This enables them to observe their own thoughts or mind circling. Observing that, means, that the ongoing transition of awareness is observed, but not judged. Mind wandering is often seen as being distracted, but it “is not only necessary living in the existence here-and-now but also projecting oneself ahead and postulating alternative possible existence” (Tateo & Dario, 2022). A possibility of transition and process.

Nowadays there exist a wide variety of therapy methods and practices. Yoga increases the awareness of oneself “to improve the body’s sense of embodiment and interoception in healthy subjects” (Arora & Bhattacharjee, 2008), is related to the “non-judging facet of mindfulness”, acting with awareness and associated to improvements in wellbeing (Gibson, 2019). Interoception is the concept of “the sensing and representation of signals concerning the internal state of the body” (Pollatos & Herbert, 2018). Breathing is an important part of a Yogic practice and seems to be linked to mindfulness (regression coefficients for effect of breathing on mindfulness in all cases significant (Tellhed et al., 2019). The “increases in yogic breathing and mindfulness significantly mediated reductions in three negative health effects associated with stress: anxiety, depression, and sleep problems” (Tellhed et al., 2019). What is happening exactly and why this effect is happening is not exactly known. Known is, that deep breathing has huge effects on our body, nervous system, and health. Deep breathing improves mood and reduces the feeling of stress besides the objective parameters, such as heart rate and salivary cortisol levels (Perciavalle et al., 2017).

Biological level

In a mindful practice you are taught to focus on the present moment, which can be challenging when experiencing symptoms of stress. Doing this switch of perception often, leads to changes in the brain. The “default mode network” is more activated in mind wandering, but less (Didriksen, 2022) activated in a mindful practice. The mindful activity becomes easier and is strengthened, which leads to less mind wandering (Tang, 2017). Also eye movements change when the mind is wandering and attention is shifted (Dias da Silva et al., 2022). That can probably lead to changes in observation of our environment during a mindful state and reduce self-judgment and maybe reduce the fear of not having control over the own body and thoughts (mind wandering). Furthermore, the insula area in the brain is involved during this practice. Science states that the activity of the insula area is connected to emotional regulation (Böttger & Költzsch, 2022). So how we connect a sensation to feelings. Guided sessions and talks after the practice can lead to strong emotions, also if these were under the surface during the meditation practice. An outcome of memories or personal issues is possible. A social talk after the practice can lead to experiencing behavioural, emotional, or cognitive manifestations. Detecting possible underlying processes can lead to personal, structural changes (Eifring, 2022). A possible hypothesis behind this

mechanism could be that under relaxation the mind is wandering, which is activating the episodic memories and leads to emotional processing (Eifring, 2022). Meditation is leading to a physiological relaxation response, which is connected to changes in oxygen consumption, lower blood pressure, reduced heart rate, slower brain waves (Eifring, 2022), lower muscle tension, breath pace and more equality in the breath pattern (Rehfishch & Basler, 2007). Furthermore the heart rate variability is connected to the relaxation response (Nesvold et al, 2012 cited in Eifring, 2022). This describes the ability of the body to react to a situation and adapt better to it. Good abilities to adapt might sometimes help in the case of being a student, since the environment, subject, tasks, and teachers change several times per day. All in all mindfulness can shape the attention, awareness on the own body, influence emotional regulation and lead to personal changes, for example in the self-perspective (Hölzel et al., 2011).

Psychological benefits

Mindfulness orientates the attention on the present moment and reduces past, future orientates thoughts and off task orientation (Xu et al., 2017). Interoceptive awareness is linking the experience to the sensation. For this it is needed to be aware and being able to identify the sensation. This switch in consciousness can also cause a shift in the understanding the life and surrounding (Price & Hooven, 2018). New understanding brings the possibility to link the understanding of the physical being and emotions “involving metacognitive awareness processes (Fernandez-Duque et al., 2000 cited in Price & Hooven, 2018). “Effective communication between body, thoughts, and feelings” means understanding cognitive and physical signals and reacting appropriate on them (Price & Hooven, 2018). That brings the ability to adapt and manage challenging stimuli and sensations, which comes with the term of emotional regulation (Price & Hooven, 2018). Mindful attention in general is a possibility to gain insights about the own self or a situation. Understanding the own situation and maybe reaching a meta-view on that, can help to let changes arise. This ability is important in the life of a student, but also a life-long resource, which can be developed and integrated in daily life. People showing depressive symptoms do often suffer from mind wandering, unrelated thoughts, like self-doubt or feeling worthless. Furthermore mind-wandering is linked to lower performance in general, is discussed to be the opposite of mindfulness (Mrazek et al., 2012) and is linked to errors in memory (Riby et al., 2008). Mindful interventions can help with the symptom of mind wandering

connected to depressive disorders (Didriksen, 2022). Concluding that mindful practices can help to gain more self-knowledge about body and mind and react appropriate on signals of the body and mind – also in challenging situations.

Therapy concepts

There exist many different techniques if mindful training. “Contemplative practice is an umbrella term” for these (Didriksen, 2022). These practices think that nothing is permanent. This comes along with the thoughts of transition and learning. Furthermore, many of these concepts can be done in a group setting, which fits to the work with students. For the clinical work Yoga, Zen, Imagination practices and transcendental meditation are important and used in treatment of several disorders, for example pain treatment (Rehfishch & Basler, 2007). Contemplative practices can be done in a one-to-one setting or a group setting. The Mindfulness-based stress reduction (MBSR) is an 8-week contemplative group program to reduce stress. After the exercise, a reflective talk helps to deepen the observation of the own being and inner self and brings these observations into daily life. The MBSR programme trains the attention on the present moment without engaging in the thoughts or observations versus – when the mind is wandering alertness and sensory processing is reduced (Didriksen, 2022) . Mind wandering in the evening is a typical symptom for chronic stress. During this state, the person is less engaged in the moment. “Psychological stress interferes with daily attention while positive social connection enhances attentional quality” (Crosswell et al., 2020). The MBSR programme is supporting awareness and social connection the same time, since it is a group practice. Better awareness can improve vitality and coping (Grossman et al., 2004). Coping is an important strategy to deal with stress. Furthermore do participants report about the programme, that their life was more meaningful over time and they perceived their daily experiences different (Dobkin, 2008). Another program, which is also training interoceptive awareness is the “Mindful Awareness in body orientated therapy” (MABT) programme, which reconnects body awareness and inner awareness to overcome maladaptive stress response or automatic patterns (Price & Hooven, 2018). Another, well known practice of mindfulness, comes with the umbrella term of Yoga, which means “union”. Yoga is an ancient traditional practice, which dates back 3000-5000 years, the time when the scriptures “Upanishads” and later the “Vedas” have been written. In former times Yoga was taught by Gurus and was mostly a seated practice

chanting mantra, control breathing and meditating. The aim is that the “individual is united with the Universe”, “return of the many to the One” and to reach “the highest sense of oneness”, because separation is the root of suffering (Bhavanani, n.d.). The “Bhagavad Gita”, an Hindu book, is seen as one of the central sources of Yoga (Bhavanani, n.d.). But Yoga is not a Hindu religion. Similar practices like Matras, are found in other religions, like prayers in Christianity. The first detailed and structure description is the “Yoga Sutras of Patanjali” around 600 B.C. to 800 B.C. In 1893 Yoga Swami Vivekananda brought Yoga to Chicago. From there it developed into different styles and was spread around the world. Nowadays different Yoga forms exist, which are not necessarily taught by Gurus (Bhavanani, n.d.). Some are more physical related, and some are more connected to meditative practices. This enables people to start from their point of knowledge, culture, and mind-body connection. Yoga teaches “acting with awareness, non-judging, and non-reactivity” with showing improvement in mindfulness, stress level, wellbeing and changes in observation (Gibson, 2019). Since Yoga has shown many benefits, therapeutical Yoga developed, which concentrates on gaining physical and mental well-being and inner harmony (Lehrer et al., 2007). Furthermore, Yoga seems to be effective in treating several psychological symptoms. The body sensation, interoception and awareness of the internal state is increased (Arora & Bhattacharjee, 2008). Another approach to the already named practices is the nondirective meditation. The focus is either not on keeping the mind calm nor is the task to observe a part of the body or focusing an object. In nondirective practices the mind is free and allowed to wander, which is the point of focus. A meta-awareness over the own mind and thoughts is developed (Raffone et al., 2019). Possible experiences in the past or future might come. At this point there is the possibility to imagine an outcome for these scenarios. The attention is wide during the practice and the mind is spontaneously wandering. There is the possibility that the thoughts and feelings attract the attention of the practitioner and the focus is forgotten for a while before returning to the object of meditation (Didriksen, 2022). Mindful therapy concepts can be directive or non-directive and lead to better perception of the own self, control over emotional engagement, appropriate reactions of emotions arising, reduction of symptoms of stress and reconnecting body and mind.

Breath and mindfulness

By breathing the autonomic nervous system can be influenced. By deep breathing the parasympathetic nervous system is stimulated, which leads to relaxation (Sinha et al., 2013; Tellhed et al., 2019). Furthermore, symptoms arising, when experiencing stress, can be reduced with deep breathing techniques. On the physiological level that is the reduction of cortisol, which rises when experiencing stress, and the influence on the heart rate (Perciavalle et al., 2017). The diaphragm is reacting on emotions and pain. The perception of pain can be positively influenced via breathing and muscle tone reacting on that. Beside using breathing to influence the nervous system, it can be used as a predictor or a sign for experiencing pain, anxiety, fear, sadness, or stress. The link between the emotional state and the diaphragm is because of a complex interaction between brain stem, brain centre, limbic area and the cortex (Bordoni et al., 2016). Furthermore breath can link mind and body in a mindful practice (Salmon, 2009 cited in Tellhed et al., 2019). Breathing can be used as a coping technique to improve mental health. Students can learn, that breathing at school or in life, is a possible resource. Science shows reduction of sleeping problems, anxiety, and depression after a Yogic breathing exercise. Mindful breathing can help to stay in the present moment, perceive stressors without judging them or self-criticism. Emotional triggers get reorganized (Tellhed et al., 2019). The physical relaxation, reacting on deep breathing, can be linked to a cognitive process, like telling the breath. In some therapy approaches the goal is to cause a sort of conditioning and expanding this into daily life. In this case breathing becomes a self-helping tool (Rehfisch & Basler, 2007). Overall, breathing can influence the nervous system and cause relaxation, the diaphragm activity can be a sign of experiencing emotional stress or pain, breathing can link mind and body in a mindful practice and can be used as a tool to focus and relax in unpleasant scenarios. Breathing is an important part of a Yogic practice and seems to be linked to mindfulness (regression coefficients for effect of breathing on mindfulness in all cases significant (Tellhed et al., 2019). The “increases in yogic breathing and mindfulness significantly mediated reductions in three negative health effects associated with stress: anxiety, depression, and sleep problems” (Tellhed et al., 2019). What is happening exactly and why this effect is happening is not exactly known. Known is, that deep breathing has huge effects on our body, nervous system, and health. Deep breathing improves mood and reduces the feeling of stress besides

the objective parameters, such as heart rate and salivary cortisol levels (Perciavalle et al., 2017).

State in between mind wandering and attention

The different directive and nondirective mindful concepts, the reaction on the deep breathing, the use of the breath as a tool on the other hand, the fact that the body is reacting with a relaxation response on mindful practices and the same time, that mindful practices lead to emotional control shows that the processes of mindfulness and breathing are not one directional. Mind and body are constantly in exchange and linked. Interception is transmitting the state of the body back to the mind, awareness of the inner self is increasing and a behavioural response is activated to “regulate the inner state” (Verdejo-Garcia et al., 2012). During this process, the attention is constantly switching in between the inner self, the own body and the surroundings and signals given from outside. It is a “bi-directional communication between bodily sensation and multiple levels of cortical interoceptive awareness” to “support physical and emotional well-being” (Price & Hooven, 2018). Despite the fact, that that mind wandering is a symptom connected to psychological disorders, like depressions, and is linked to lower attention and lower performance, this swich of attention is still important. Mind wandering can be seen as an inner speech. Inner speech is a form of problem solving and a cognitive tool. For inner speech self-awareness is necessary (Morin, 2011). It is shown that “interoceptive signals influence emotional and motivational processes” (Gibson, 2019) and that shows the need of understanding the contribution of body and mind. It makes senses to not use one-directional therapy concepts, but to support ongoing attention shifting. Seeing mind-wandering less as a pathological symptom can maybe help to reduce the negative image the client has possibly developed. Furthermore, mind wandering can be a chance of exploring the inner self in a broader way, a chance to develop and problem solving. A way to express these inner processes is needed to deepen the practice in a talk and having the option to include this advantage and new gained knowledge from the client into a possible (group) therapeutical setting. Mindful practices are a wonderful starting point for transformation.

Making meaning, transformation and increasing self-knowledge

De(construction) in life, language, feelings, and mind wandering

The world is not like we see it through our eyes. The perception is biased, interpreted by us and influenced by culture, memories, and values. The world is seen from the own perspective. This, what is called biased is the own position and a position seen from reality (Tateo, 2018, p. 18; Valsiner, 2019). Communication, how we behave and treat others is influenced by our position. How we understand signs and how we form them is due to our own thoughts and the process of semiosis. Semiosis allows opposites in what we think and talk and construct in our mind. The “psyche can perfectly live with ambivalence, co-existence of opposites” (Tateo, 2018). When we learn, communicate, and feel, opposites exist. Maybe they are not talked out loud, but they exist in our mind. Mind wandering is the inner process of remembering experiences in the past, thinking about the future, being creative and integrating that in our thoughts (Didriksen, 2022; Tateo & Dario, 2022). This a complex, multi directional construct and finding logic in this process of our thoughts and perception is difficult. Maybe this wish of logic and this thinking in opposites is the harmful feeling and feeling of losing control when it comes to a stress symptomatic. The difficulty of understanding the own self can be linked to disconnecting from the physical body (Norman et al., 2021). Separating thoughts, body, and mind. Often people tent to distinguish themselves into different parts and describing the own self is either a dialogue or a conflict (Norman et al., 2021). If someone is referring to an point “A” the “A” gets questions and the “non-A” is searched for (Tateo, 2018). Humans tent to think in opposites and meanings are complementary. “The fundamental process of psyche is the production, maintenance and destruction of meaning through an infinite semiotic activity” (Tateo, 2018). What can be seen as a circling of the mind can be the process of construction and deconstructing meaning, which is transition and in a broader sense learning. Students in many countries are educated to be present and not having a circling mind, which is often judged as being “inattentive or dreaming.” But maybe that is the time when humans review their life and develop also new interests, which are become “boarders” (Tateo & Marsico, 2021) and which wished to be overcome. This process is done in a tendency to move forward. The person is in contact with the environment, is using the feelings coming up and is using the apperception to develop

further. The person is an “active and intentional part” of the environment the same time (Valsiner, 2019). Humans’ life in a system being active and passive and the psyche is constructing and deconstructing. What is considered as “illogic” or “biased” by the logic understanding is “affective logic” and is the understanding that our psyche can live “with ambivalence, co-existence of opposites” (Tateo, 2018). Learning and transition does not have to be linear and calm. With this thoughts mindfulness and the approach of staying in the present moment, but also allowing the thoughts to circle, to develop, to construct and deconstruct, can be perfectly combined. Both can be mindful and observed. As soon as a human being knows that the thoughts have circled, these people have been aware about themselves.

Limits of language

What does it mean if your “heartbeat is very fast”? Are you having a heart problem or are you nervous or are you in love? Language is central in the human life but has its limits and rules. Sometimes language has to be used under certain circumstances to represent a certain meaning (Branco & Valsiner, 2010). What shall we say if we feel active and calm the same time? This comes with the fact that feelings are not logic and opposites and ambivalences (Tateo, 2018) can exist. The feeling of calm and active can co-exist, but sometimes language comes to its limits and has no words for that. What is love and what is the feeling behind love? Or are that more feelings? Love is a “hyper-generalized sign.” Most people have an imagination and feeling concerning that word but cannot put it into words. “The unconscious is not accessible to the means of verbal communication” (Valsiner, 2019), but still is the unconscious present for people if we say a hyper-generalized sign like “love”. Behind that words are many feelings and meanings. Still, it is important to have the ability to communicate. Not having this can lead to feelings of isolation, being misunderstood or even self-harm (Norman et al., 2021). Expanding the classical way of verbal communication could be a tool to talk about inner feelings and maybe even developing unconscious feelings into conscious feelings. This shall be examined and taken into concern when planning the design of the experiment.

Imagination as a resource in a learning process

Different theories

Imagination is a complex process, which enables us to learn and come to new conclusions. Learning is not limited to the context of schools, but learning is a lifelong process, which enables transformation. In the context of therapy, leaning is self-knowledge, which leads to process and to new positions and insights in and about our life How shall a person develop interest without imagine the outcome? Imagination is a concept that is known to everyone, to some more conscious and to some unconscious. Imagination is more than just fantasy, more than the creation of visual representations, it does not have to be the centre of our awareness (Gozli, 2020). It is possible to imagine during dreaming, which means that imagination is free from consciousness (Tateo, 2020), but it is also not a dream. Imagination is not “true knowledge,” no “reconstructive knowledge, based on remembering and anticipating,” not a sensation and not an action, but something in between sensation and action (Tateo 2016 cited and adapted in Tateo 2020). Imagination is a higher mental function (Valsiner, 1994, cited in Tateo, 2020) and neural mechanisms of imagination stimulate a common network of brain regions as real extinction stimuli (Reddan et al., 2018). Maybe that is the process which takes place, when we give an instruction connected to a movement to a person. Imagination as a process in between sensation for the own body and the movement? Imaginative work is future orientated and is at the edge of familiar experiences (Tateo, 2020). It is a mental process, which is mediating between presence and absence. To gain new knowledge we need to be aware of the absence as well. This is describing the process of learning. Vygotsky states, that noting can exist, which was not in the imagination before (Vygotsky, 2004). Imagination is “the capability of (pre)sensations of enacting and desires” (Tateo, 2020). We live in the middle of presence and absence. We might imagine a response to an action and think about if that is reasonable for us (Gozli, 2020). We make meaning of something. Imagination is meaning-making semiotic process (Valsiner, 1994) and is helping to judge decisions about the present, past and future (Tateo, 2020). In this process in between imagination and non-imagination, desires might arise and imagination becomes a process of “filling gaps” (Pelaprat & Cole, 2011). “The link between imagining and wanting can result in action, inaction, and hesitation” (Gozli, 2020). Trough imagination, absence can become presence and new knowledge can be gained or transformation can arise. The same time concrete can be developed into abstract (concrete meaning -> sign) and abstract into concrete (feeling -> known

picture) (Tateo, 2020). These opposites come along with the already discussed concept of “affective logic” and the construction and deconstruction of meanings.

Imagination as a tool to talk about the inner self

Like already mentioned, imagination gives the possibility to turn abstract into concrete and concrete into abstract and “goes beyond the current limits of the universe of discourse” (Tateo, 2020). Language, which is our main expression tool, has its limits. Hypergeneralized signs like “love” make it possible to transport an unspoken feeling, but the feeling cannot be taken into words if you would have to. Experiencing the world “is always partly imaginative and partly non-imaginative, in other words, if we live in both constructed and imagined worlds” (Tateo, 2020). Seeing communication in this way, it is obvious to making use of this already imaginative world to use imagination as a tool to express us better in the non-imaginative world. By using imagination, we can make meaning of something and describe it maybe in a particular way. Other studies show that participants use poetry, lyrics, memes and metaphors when they are unable to express their feelings (Norman et al., 2021). When we think about the daily use of our language, we already use a lot of imagination, because of several reasons. “The water is ice cold,” “I feel as I could fall asleep,” “I feel as if someone is holding me back” Imagination can “expanding the field of experience” (Vygotsky, 2004) and can “violate the rules of empirical reality and classical logic” (Lapoujade, 1988 cited in Tateo, 2020). That makes imagination powerful in communication and creating messages to another person. The current study shall explore in which ways imagination is used to support the talk about the inner self and expanding self-knowledge. Since a relaxed state is important for most imaginative techniques (Rehfishch & Basler, 2007) it makes sense to link a mindful practice and imagination.

2 Methodology

The research questions

The broad literature research shows that imagination is used in several contexts. So, the question comes up if imagination can be used to enrich our self-knowledge? Can we turn imagination into an enrichment concept and use that which is already there and used by humans? “The psychological model called “enrichment” considers development as a shift from elementary to complex” (Mounoud, 1990). As complex the transformations in life is seen, gaining more experiences and self-knowledge over lifetime. Building self-awareness and being aware of the own conditions, is the most important in therapy (de Mello & de Souza, 2019), gives us the possibility to react and to transform stressors or conditions. Knowing us and our environment better can help to develop coping strategies. These are processes of learning inside the environment, with which humans constantly communicate, being influenced, and get new ideas. Further sub-questions are - in which way can imagination support talking about our inner self? In which way is imagination supporting a learning process? In which way do we use imagination to understand each other? Do the students experience changes through the practice? How is the picture used and what are the outcomes of using it?

Building the experiment

This described in detail in the article and shortly in the following paragraph.

Since every person is different and stress symptoms are diffuse an inclusive setting shall be built. The setting shall allow the students construction and deconstruction of thoughts. The participants are “mediating” (Karpov & Haywood, 1998) the practice on their own. The experiment contains a mindful practice, breath exercises, the use of the AI and instructions given by the researcher and instructor. All these exercises are related to the use of imagination in a natural way. The participants choose what they want to make meaning of what they are interested in and like to construct or deconstruct in that moment. In this way they shall enrich their self-knowledge over time. The therapist is more a supervisor than giving advice. The participants answer a questionnaire about stress first. After that, a mindful breath-based group practice is done. The participants are asked some questions about their feelings, what they relate

to and on what they focused during the practice. The questions were answered in words and putted into an app using an artificial intelligence to draw a picture about the experience of the practice. A semi-structures interview with different questions coming from two mindful questionnaires and additional questions about using the picture, the personal background and culture were asked in a one-to-one situation. The interview shall give insights in the events and experiences happening during the practice and their connection to the life of the person. The experiment shall give a first idea if the practice could be later used in a school context to reduce stress and provide a self-helping tool.

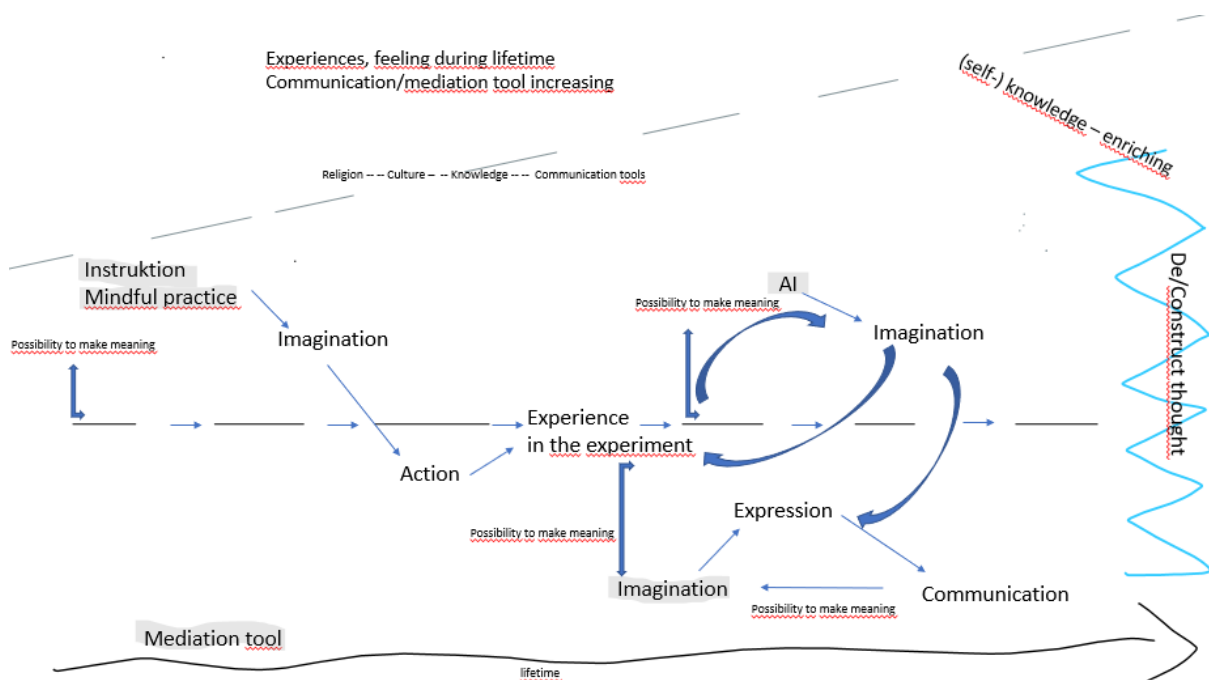


Figure 1 The framework of the practice. Possibilities to make meaning of the elements of the practice and enriching of self-knowledge over time. Influence of the personal background (culture, experiences...) overall. Own work.

Pictures as a tool

Due to the need, that an aim of this project is to research imagination and how it is used to talk about the inner self, a stimulus for using imagination is needed. A picture seems to be a good and already known method in psychology (Lampropoulos et al., 2004) to support the content and depth talk. Also it can be seen as a tool to structure the talk (Norman et al., 2021) and the participants might not be lost in their own

thoughts. Furthermore, pictures can go beyond words and show more than a word could show. In social media pictures are used for self-expression and “peeking” (Lee et al., 2015). The picture can transport a feeling and unconscious meanings. This meaning making process can be also done with a picture, which does not show the own person. The person can make meaning of what the picture expresses. Feelings can sometimes be more easily expressed and recognized when they are shown by someone else (Norman et al., 2021), here the picture. It is expected that the picture can lead to a meaning making process and reflection of the own experience.

Use of AI

Using an AI for drawing a picture has several advantages. The principle is to give the AI words to draw the picture. The words can be feelings, thoughts, images...The AI has the ability to learn from the data given and is supervising the new data to complete the task (Perakakis et al., 2018). The pictures improve with time and the AI learns from the “previous therapeutical experience” (Aktan et al., 2022). Furthermore the AI is analysing patterns and might find underlying variables (Horn & Weisz, 2020), which enable to draw pictures beyond the limits of what the participants would think about themselves. The AI might include patterns, which the human person might not be aware of or not include in the picture. The therapist or researcher has the ability to include experience and knowledge and converge with the results of the AI, if these diverge, to collect information for the interpretation (de Mello & de Souza, 2019). In the case of the pictures drawn by the AI, which shall be interpreted by the participants, the researcher could interpret the pictures in depth as well and include this knowledge in the interview questions with the participant. The AI should be used as an tool to “improve the quality” of the treatment or project (de Mello & de Souza, 2019). Using artificial intelligence in psychology or therapeutical work “allows combining heuristics and algorithms in a complementary way.” The research fields shall not stand in a conflictual relationship to each other, but in a “complementary one” (de Mello & de Souza, 2019). Since the human mind adapts to patterns, to be comfortable, it is a conflict to leave its well-known comfort zone (de Mello & de Souza, 2019). The AI, with its ability to go beyond reality and the patterns of the human mind, can be a possibility to motivate a person to leave this comfort zone. The perception of humans is increased when facing possible difficulties (de Mello & de Souza, 2019). That might be the same

when facing possible feelings or transformation in the produced pictures, which have been out of our centre of awareness so far. The AI shall challenge the person and being a mediation tool in the process of learning about the inner self.

Cultural exchange via the tandem project

The research was connected to an international research project of the University of Oslo and the University of Salvador de Bahia. The goal of this project was to enable international scientific exchange, international cooperation among students and teachers and to promote the exchange of knowledge. Because of this, the data was collected in Brazil. This cultural exchange makes the data collection and data evaluation interesting. The clash of cultures enables to see and observe things in broader detail, which would maybe not be considered if you are part of the culture. The research partners from Brazil could enrich the project with cultural knowledge and empathy. Furthermore, they could develop a close relationship with the participants by speaking their first language and having a common cultural basis. The diverse cultures of the researchers were seen and used as a resource in the experiment. The participants are mainly students at the University of Salvador de Bahia. Some of them were part of an already existing group of students with socioeconomic low background. Their different social, economic, and religious background is representing the diverse society of Salvador.

Ethics and data security

The research project is proven by SIKT and the (Brazil). The data contained red data (*How to Classify Data and Information*, 2018), health data, which caused the storage of the data on TSD. During the mindful class and the interviews just nicknames were used, which the participants chose on their own. When the researchers met the participants, the participants were told again, that they can leave the study at any point of time and do not have to answer if they do not wish to do that. The interview did not contain any harmful questions or questions about illness, the family situation, socio-economic status, or therapy. The questions concentrated on the practice and if it came to personal questions, the question was an open question and the participants were free to share, what they wanted to share. Beforehand the participants were informed,

in written form, that the study is related to stress, which practices are done, which tools are used (AI) and that they have a one-to-one interview after the practice. This information beforehand is important to give the option to think about the participation beforehand and to protect the person from harm (Aurini et al., 2021). The participants did not receive payment for taking part at the study, but they got snacks and drinks during the study and the bus transportation to the place, the study was done, was paid. That made sure, that no person is taking part because of financial pressure and advantage.

Coding and Validity

For the coding, the thematic analyse was chosen. It is based on identifying, describing, and reporting themes within the given data set. Similarities and differences in between participants can be detected and highlighted. The concept is described in phases (Maguire & Delahunt, 2017). In reality the process is not linear. The codes and themes are developed over time, reflected, maybe changed, and developed further. The process is a back and forward in between the phases (Nowell et al., 2017). In the first phase the transcripts of the data were read a couple of times. Notes about the content were taken. In round two eighteen codes were designed and a codebook written, which contained the code, a colour for the code, a definition, inclusion, and exclusion criteria defined. These codes were coded in the text. The parts in the transcript, describing a code, were copied and separate Word documents created, which collected the parts of the transcript belonging to the code and where exactly (name of interview, line) the quote can be found. In the end of this phase the codes were revied and modified. Some of the codes were put together, since they almost described the same, contained just few quotes in the transcript, were close to the other code and difficult to separate from definition of the other code. To the code “being focused and concentrated” the initial codes of “being in the present moment” and “need for calming the thought” were added. The initial code of “fear” was added to “talking about distraction of thoughts, feelings or concentration.” First themes were found and later reviewed. The reviewed themes were visualized in a mind map. The connections in between the themes “ways of talking about the inner self”, “picture as a tool/stimulation”, “changes after or during the practice”, “general background of the person” and “instructed mindful practice” were revied in a visualization of an initial the concept containing the ideas of the literature

review and the dimension of time was added. The mindful practice, the breathing, the picture/AI and the “ways of talking about the inner self”/imagination were seen as possible mediation tools. These were all examined for use of imagination again, since the literature review and the ongoing review of the transcripts pointed towards the fact, that imagination was used in a broad way for mediation. This is described in the results of the study. During this process, a journal was used. This can record logistics, decisions and personal reflections of interests or values (Nowell et al., 2017).

Self-reflexion and reflexivity and validity

As being a researcher, it is important to reflect the own position and influence on the research and participants. The personality of the researcher must be considered. This construct is called “reflexivity” in research. The reader has to be informed about all details of the study, including social and environmental contexts (Dodgson, 2019). The position of me in the research process was at first an outside position, coming from another country with a quite different culture. During the research and mindful practice and being included in the group of Brazilian researchers the positions changed to a more inside position. Since most participants took part at the research for just one day and since the interviews were done by the Brazilian researchers, the position was still connected to the task of observation and not being fully engaged into the interview process. Furthermore the “reactivity” (Aurini et al., 2021) of the researcher on the participants, so how the participants react on the researcher is important to reflect. In the case of the experiment the participants reacted with friendliness, interest, giving a feeling of welcoming to the own country and some with a bit of shyness towards the European researcher. Later, communication and talks about non-research related topics in between the European researcher and some of the participants arise during breaks. During the interviews “member checking” (Aurini et al., 2021) was used to support the trustworthiness of the study. Trustworthiness is the “golden standard” of qualitative research (Teh & Lek, 2018 cited in Dodgson, 2019). As a researcher you cannot ensure the truth in your findings or that people tell you the “truth”, but the conclusion can be tested for validity (Aurini et al., 2021). Member checking is a collaborative strategy including the participant, who is asked if content and findings were understood correctly and if the findings are realistic. This enables to “capture the voice of the participant” and to “produce new evidence the participant may not have

given during” yet (Candela, 2019). This was done during the interviews. The researchers shared their understanding with the participant and asked the participant for consent. In the experiment the perception of stress and exhaustion was asked via the K-10 questionnaire and the topic came up in some of the semi-structured interviews after the practice. This can be also seen as a kind of “member checking” or stressing on the “validity” of the research. Furthermore a detailed audit trails (Aurini et al., 2021) was documented from beginning on. All decisions, reasons for these and activities were written down. During the data analysis the researcher came often back to the audit trails and reflected them again to understand the data better and broaden the research question concerning the initial research problem. Since the researcher, who designed the experiment and coded the data is a therapist and Yoga teacher with initial knowledge about the effect of these practices, it was important to reflect about the codes, themes, and conclusions with a second researcher to not be led by expectations. It is important to be a witness of the process and being honest and being not engaged in the own beliefs, existing thoughts or perspectives (Nowell et al., 2017). The double checking of the themes with another person is an advantage of the validity of the research.

Sources

The articles were mainly searched with the searching tool “Google scholar” and on the platforms “Pubmed”, “Wiley” and “Sciencedirect”. Two ways of research were used. Keyword research and “snowball” research (Lecy & Beatty, 2012) starting from known authors and high quality books and articles in the field of imagination and mediation. The key-word research contained “mindfulness,” “breathing,” “Yoga,” “pictures in psychology,” “Ai in therapy,” “imagination,” “Ai in psychology,” “imagination and inner self,” “imagination and self-talk”, “mediation”, “imagination and learning”, “imagining future leaning” were some of the keywords used in the research. The articles were positioned in the clinical- psychological, medical, IT, semiotic-psychology, cultural-psychology, and epidemiology field. The used research was not generally limited in age, since several models were used, and linear increase of knowledge is not expected in science. Concerning the medical, therapeutical literature and literature about AI, new literature of the last years was prioritised since these research fields develop fast.

Journal publication

Mindfulness by Springer was chosen as the journal to publish the article. The journal is interdisciplinary and publishes new ideas and practices about mindfulness across cultures (*Mindfulness*, n.d.). Since the qualitative experiment is bringing psychology, medicine, pedagogy, special needs, and culture together, it comes along with the idea of knowledge exchange and interdisciplinary in between the different research fields and experts. The journal addresses parents, clinicians, teachers, and institutional staff. It is a source to widen the edge of knowledge concerning the topic of mindfulness and its preventive care, assessment, and consultation. The need for prevention and help in schools is current due to high numbers of stressed students, who show in parts severe clinical symptoms of psychological illness (Mordal & Ness, 2021), and long waiting time for therapy (example Norway) (*Psykisk Helse for Voksne - Ventetid*, 2019). The language of publication is English, and the article written in APA style and not exceeding forty-five pages and 250 words in the abstract.

3 Results and Discussion

The practice showed that imagination supported communication and imagination was used in the broad context of learning. That goes along with what is described in literature. The participants used the different mediation instruments of breath, the AI pictures, the mindful practice itself and instructions during the practice, which they made meaning of and which led to individual effects and benefits. Imagination was used to interpretate instructions and finding the own position in the practice. The mindset of entering the practice was different in between the participants. Imagination seems to be inclusive and cultural open since the participants felt the freedom to mediate and learn individually and in the own pace. Imagination can be seen as an instrument and possibility to express ourselves in a better way and expand our inner world, which leads to action and progress. Especially in special needs and multi-cultural education imagination shall be more focused and benefits and chances evaluated. In a context of experiencing stress in a school setting imagination can be the starting point for a self-helping concept. Imagination enables to develop with interest in overcoming own, fluctuating borders and position the own person under imagining social issues and not forcing to point on the personal problems.

The project as an individual self-helping tool

The participants used the breath, the AI, the instructions, and the mindful practice as mediation instruments. Every participant mediated differently and had different imaginations of a possible outcome. That what helped in the practice was extended to problems and challenges in the daily life. The imagination allowed to expand the current experience to something, yet, unknown. Many participants used the breath as a mediation tool felt different benefits like to be calm, focussed or to have control. Using these benefits for a specific problem, like anxiety, was imagined. The participant Morgan Autie (29) experienced breath as a tool to deal better with irritation. Seeing the practice as a mediation tool, Luka (participant, 32) told to gain a relaxed, conscious feeling and feeling of tranquillity. The practice gave Luka (32) a good feeling for the body, and it was imagined that this might be a resource for the day. The participants were not asked to develop possible self-helping tools, but they did that using their imagination. A possible explanation might be, that mindful practices, like in the

experiment, raise the level of self-awareness. Self-awareness could be seen as the starting point of developing self-helping tools. Self-awareness seems to “increase resilience during hard times” (Ardelt & Grunwald, 2018). Mindful practices can be a possibility to develop more self-awareness and - looking at the results of the experiment – developing self-helping strategies.

A diary based long term project

A study, which questioned why Instagram is such successful, found out, that the users have motives to show their pictures. These are social interaction, archiving, self-expression, escapism, and peeking (Lee et al., 2015). Pictures seem to be powerful in their expression and can contain a wide range of unconscious thoughts and messages. The use of the picture in the experiment was not fully defined. The picture was used as a mediation tool and more precisely as mirror, but also as a tool to expand the thoughts and reflections about the practice and life in general. Furthermore, the picture had the effect that participants reflected more precisely, the picture calmed their thoughts or made them free of social rules. The two participants, which came to the practice two times got more used to the practice and also compared the pictures. During the second interview with Lan Zhan (participant, 21) both pictures were reflected again. That leads to the thought to use the pictures for a diary project. The pictures can be a mediation tool for a long-term self-reflection. The pictures could be used again as a self-helping tool in times of stress. For this the students could be trained to do an imaginary on their own. Guided imaginary seems to help to “evoke a pleasant, relaxing multi-sensory experience to improve mood, cognition, and physical comfort” (Carroll, 2022). Further research on the use of a diary concept in times of stress would be interesting. The experiment could be a possible helpful coping strategy, which can be done in a school and group setting. The practice is inclusive and every person free to learn in the own pace.

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Attachments to the Extended Summary

Journal: Mindfulness (*Mindfulness*, n.d.)

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Use internationally accepted signs and symbols for units

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Use generic names for drugs and pesticides

Use the standard mathematical notation for formulae and symbols

References

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Cite references in the text by name and year in parentheses. Some examples:

- This result was later contradicted by Becker and Seligman (1996).
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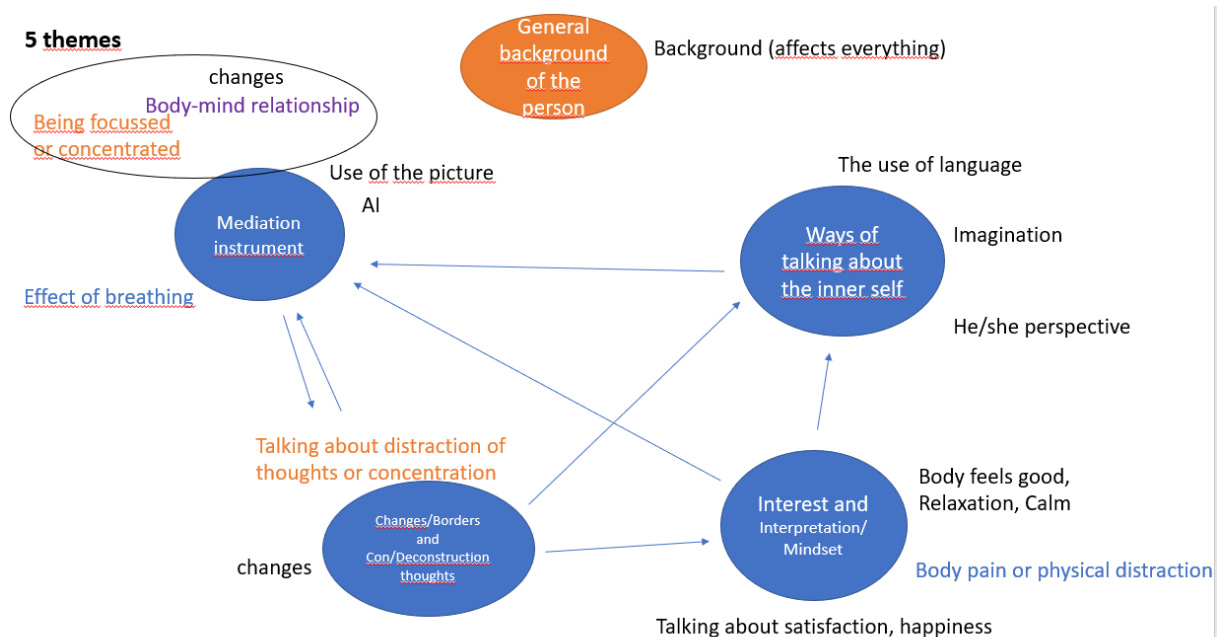
Codebook

	inclusion	exclusion	definition	example
Body pain or physical distraction	Physical feeling of discomfort, pressure, pain, distraction or the need to flee this	Feeling of relaxation Liking the feeling	Unpleasant sensory and emotional experience, potential fear of damage	I felt pressure on my head I felt pain
Body feels good, Relaxation, Calm	Feeling of relaxation or being in ease, soft Liking the feeling	Physical feeling of discomfort, pressure, pain, distraction or the need to flee this	Pleasant sensory feeling and emotional experience, feeling safe in the position	I feel relaxed and light
Being focused or concentrated	Feeling of ease, in the flow, surrounding is unimportant, Thinking nothing Tool, which helped to focus Reason/Effect to stay in the present moment, benefit, effect on body and mind	Thinking about other things Mind circling Nervosity Breath as a tool Calming	Intentionally and consciously focussing connected to not being in a hurry, not running away, but being in the flow and in a process. The surrounding is unimportant. Eventually focussing on the present moment. Effect of being focussed.	I focused my breathing and just thought about that.
Talking about distraction of thoughts or concentration	Mind circling Other things (surrounding) catch focus Nervosity Automatic mode Fear	Being concentrated Focused on one thing Feeling of being safe, having control	Feeling that the thoughts are distracted and concentration is harder. Can be connected to the feeling of being uncontrolled or nervous. Unpleasant emotion connected to danger, pain, harm, unsecure, suffering	My thoughts were distracted
Talking about satisfaction, happiness	Enjoying Not wanting more or searching for more Emotion	Wanting more Physical feeling	Feeling of enjoying, pleasure or happy about the result	I liked it a lot in general
effect of breathing	Changing breath	Non change	Breath as a tool to have a positive effect	Concentrating on the breath

	Breath as a tool To what the breathing leads	Not being aware of breath or change		calmed my mind
changes	Different direction in the process Change in life	Non change, stating that it is still the same situation/condition	The situation is different after an event	After a while I adapted the position to my body
Use of the picture	Use Benefit To what the picture leads	Description of the picture Thoughts about the AI	Shows in which way the participant used the picture and what the picture leads to. Including the use of the picture as a tool	The picture gave me the possibility to think about my feeling in depth
Process of producing the picture	Personal experience, thoughts, difficulties, ease during the process Thoughts about how the process done by researchers	Thoughts about the AI Picture description	Personal experience, thoughts, difficulties, ease during the process of answering the questionnaire for the picture and the process of the picture production	It was hard to find words
Thoughts about the AI	Positive and negative thoughts, comments, feelings	Thoughts about the picture	Thoughts about the use and technical innovation of using a AI	Personally I do not like the AI, because
imagination	From abstract to concrete From concrete to abstract Wish Problem solving process	True knowledge Reconstructive knowledge, based on remembering and anticipating, as if it was present Sensation Action (Tateo 2020)	regards imagination as a state between presence and absence, as a mental process that can mediate between what is present and what is absent (Tateo 2020)	mental weight
background	Naming experiences in life, believes,	experiences in life, believes, culture, religion of another person	Cultural, religious, spiritual background of the person. Experiences and believes included.	I come from a religious family and grow up in S.

	culture, religion	thoughts about AI		
Body-mind relationship	Pre-knowledge and experience during class	Talking about the perspective of a other person	Experiences of mind-body connection and how they possibly influence each other during class and in the past	The body is a extinction of the mind
He/she perspective	All experiences, feelings and observation from the he/she/they perspective	Other perspective than he/she/they	All experiences, feelings and observation from the he/she/they perspective	He seems to be relaxed
The use of language	Use of language words, benefits, borders, difficulties, Verbal opposites used to describe	Any other form of language than words	Describing how words as a form of communication are used	I had no words

Themes



Imagination is enriching self-knowledge – a possibility for inclusive learning about the own needs and resources

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Abstract

Objectives: It is shown that imagination is enriching the process of self-knowledge after a mindful practice and picture supported talk.

Further questions, which were answered, are in way imagination supports learning and communication. If the students experience changes through the practice, how the AI picture is used and what the outcomes are of using mediation instruments?

Method: A qualitative experiment containing the K-10 questionnaire, a mindful practice with breathing exercises and Yin Yoga and a semi-structured interview, using a picture produced by an AI during the talk, was done.

Results: Thematic analyses with a codebook and a journal was done. Imagination enriched the self-knowledge, was used when words were limited, to underline and express feelings and actions, to mediate, to compare and expand our perspective and feelings using the AI generated picture and to interpretate instructions bringing in the own background.

Conclusion: Imagination is enriching self-knowledge and is a possibility to learn individually and inclusive. Imagination enables to mediate, what is needed and meaningful at this point of time. That agrees with the literature. Imagination expands our inner world and presence, which leads to transformation, communicating feelings and experiences in images, when words are limited. It allows to interpret instructions individually. In special needs and multi-cultural education imagination shall be focused and chances evaluated. In stress prevention in a school setting imagination is a possible starting point for an individual self-helping concept. Imagination enables to develop with interest in overcoming own, fluctuating borders and position the own person under imagining social issues and not forcing to point out the personal problems.

Pre-registration: This study is not pre-registered.

Keywords: stress. mindfulness. imagination. AI. mediate. students

Introduction

Imagination and enrichment of self-knowledge

Imagination is an important part in learning what we make meaning of and use as possible instruments to reach a certain goal (Vygotsky, 2023). Via imagination individual borders, so actions which cannot be done unsupported, are found and the future is imagined (Vygotsky, 2004). That means that this, what we want to learn and that, what we see as a border is different from person to person. Every border is a new experience. Making these processes conscious to ourselves, leads to gaining knowledge about the learning process. These individual borders and therefore imagination, need allowance. Especially in the curricula education imagination and individual development needs allowance. If allowing individual bordering and making these learning processes conscious the same time, the research question comes up if imagination can enrich our self-knowledge? “The psychological model called “enrichment” considers development as a shift from elementary to complex” (Mounoud, 1990). As complex are seen the transformations in life, gaining more experiences and self-knowledge over lifetime. During lifetime we experience more, overcome borders, process, and solve problems. These cognitive and social processes are reflected, developed, and taken into action to adapt to situations and life challenges over time. For that thoughts are constantly constructed and deconstructed and supported by using imagination (Tateo, 2018). Imagination is “source of invention, novelty, and generativity” (Egan & Judson, 2016) for our thoughts and life. It is seeming to be a good possible starting point enriching self-knowledge. In this article imagination is seen as an intentional act and “a purposeful action accomplished in the function of a future-

oriented goal” (Tateo, 2020). These goals are developed individually. It can be stated for sure, that imagination is not just a memory of old experiences and pictures, in contrast - imagination can lead to something new. David Hume had the idea of asking to imagine all shades of blue from the darkest to the lightest (Sepper, 2013 cited in Tateo, 2020). Gaps arise when doing so and the imagination can fill these gaps by producing something new. This “unknown” is not limited to pictures, but also feelings can be imagined. For example, asking myself like which animal I feel myself. A feeling, which has never been experienced is imagined. The ability to deal with things, which are not present in this moment, is necessary (Tateo, 2020).

When we want to achieve new goals, we also imagine and fill a gap. For that need to work imaginatively. In the pedagogical approach this process of imagining the future, the unknown when succeeded and having overcome an border, is taking place in the Zone of Proximal Development (del Río & Álvarez, 2007). This Zone of Proximal Development is the time after being interested in something and having imagined a possible outcome and the time before being able to do things independently. Vygotsky sees a possibility for development when a person “strives for the future, is enabled by creative imagination embodied in the present” (Vygotsky, 2004). By imagining the future, it is possible to learn and develop something new. Imagination can go beyond reality and logic and expand our perceived world (Tateo, 2020). Imagination is not a distinction of rationality (Egan & Judson, 2016), rather the own world, knowledge and actions are expanded. Way before humans learn something, they are interested in something and make meaning of it. In the approach of “Imaginative learning” the learners “engage in problem solving and investigative reasoning with absorbing interest and concentration” (Lawrence, 2010 cited in Maher et al., 2012). This approach states that humans learn on their personal purpose and imagination is an act of finding this purpose. A purpose develops with wishing. If something, that is meaningful to the

person, is currently not available, the absence of that can lead to wish to turn this absence into presence. Imagination is a mental process in between presence and absence (Tateo 2020). “The link between imagining and wanting can result in action, inaction, and hesitation” (Gozli, 2020). Imagination is not “true knowledge,” no “reconstructive knowledge, based on remembering and anticipating,” not a sensation and not an action, but something in between sensation and action (Tateo 2016 cited and adapted in Tateo 2020). Imagination is the in-between process of overcoming a border. Borders are a process of semiosis. Seeing that in the lights of special needs education, so enable borders a fluctuating future orientated process and progress. This process can regulate psychic life (Tateo & Marsico, 2021). With a self-selected sample of students, a qualitative experiment in Salvador, Brazil was done to find out in which way imagination is used to enrich self-knowledge after a mindful setting and the use of a picture generating AI. Ways of how to use this setting to reduce stress among students are discussed.

Imagination in mediating tools and signs in the context of stress

The research is interested in how imagination is connected to the process of learning and overcoming borders, gaining new knowledge about the inner self, and leading to action. Thinking about that in the light of special needs, so is imagination the possibility for individual development in own pace inside the given environment. Maybe that non-freedom is one point, when stress arises in the typical curricula school education beside possible challenges in life. Most curricula do not plan individual developing time. Curricula tend to follow “ad hoc” principles and teach on a common purpose. Making meaning and imagining is individual and such maybe not following the common principles. Imagination seems to be deficient (Egan, 1985). In contrast to this the free

choice of development is the principle in this research. Imagination is allowed, welcomed, and is meant to gain self-knowledge regulate stress and a starting point for learning how to mediate stress. Similar principles are known under the term “mindful practice” (Didriksen, 2022). Mindful practices are about paying attention purposefully and not judging possible observations, feelings or reactions (Didriksen, 2022). These enable unconscious feelings and actions to become conscious. These practices are used to reduce the symptoms of stress (Tellhed et al., 2019). Stress is a well-known topic in nowadays society and is meeting us daily. This comes with the term of “acute stress” (Greenberg, 2017). This kind of stress passes within some hours and can cause positive or negative feelings. “Chronic Stress” (Greenberg, 2017) on the other hand is a continuous state. It can cause a feeling of helplessness. Also emotions of “fear and anger are created by our body’s physiological stress response” (Greenberg, 2017). In the case of students, the stress level for students is high and even rising (Robotham & Julian, 2006). Imagination is necessary to mediate, to find tools and coping strategies to deal with stress. Imagination is used in different ways to enrich the process of learning about the inner self. In case of learning and overcoming borders, mediation is the interaction with the surroundings and imagination is an important part of it. Signs and tools can be mediated (Tateo & Marsico, 2021). The tool is directed outward and is changing the object versus a sign is directed inward and changes the psychological action or behaviour (Vygotsky, 1997 cited in Gillespie & Zittoun, 2010). This process is a “higher psychological function” (Vygotsky, 2023). The surroundings are interpreted and used as instruments to mediate, shape and experience this world (Tateo, 2020). The process of mediation goes along with making meaning of something and imagining the “unknown outcome.” Meaning-making is self-regulated and makes it possible to get involved or ignore certain things, rules or norms (Tateo & Marsico, 2021). In the case of the experiment the choice of getting involved into the multiple therapeutical

and mindful approaches lies in the decision – meaning-making process – of every single participant. Therefore, the data had to be analysed in several rounds to understand the whole process. Codes are formed and collected to themes. The theme imagination will be spitted in several codes. These describe how dynamic imagination processes are influencing the process of transformation and development (Valsiner, 2019) in gaining self-knowledge. An example of mediation would be the sign of pointing, which is first observed. Then the sign is internalized and used for its own advantages and effects. “We call the internal reconstruction of an external operation internalization” (Vygotsky, 2023). The sign pointing is changing the inside and behaviour of the person and gives new advantages and possibilities and “brings the person to a higher level.” (Vygotsky, 2023). The sign “begins to regulate psychological functioning. It also becomes a psychological tool for dealing with other humans and with the environment” (Vygotsky, 2023). In a broader view is mediation influencing and also shaping relationships and our society. The tools and signs mediated are self-chosen and different from person to person. These different ways of mediating connected to imagination shall be analysed and the effect described. All that is under the umbrella – above level - culture, background, knowledge (including the knowledge, that the experiment is connected to the topic of the experience of stress). This level is influencing how you make meaning of the mediation tool “provided,” which the participants make to an instrument, in the experiment and how imagination is used in the process under this above level. All in all, this is the process of gaining new knowledge and overcoming a border. “Bordering is an act of semiosis” (Tateo & Marsico, 2021) and gaining knowledge is seen as an ongoing process of constructing and deconstructing thoughts and sensations of experiences. “They become ordered in a moment by moment, back and forth, formative or developmental process at the boundaries of our being, involving similar linguistically mediated ethical and rhetorical

negotiations' as those we conduct in our everyday dialogues with others" (Shotter, 1993).

Imagination in the process of learning about the inner self

Learning is not limited to education. Learning is all over and a part of therapy and self-study. Especially in challenging times self-study and self-knowledge is important to regulate emotions, conditions of the situation and be aware about the own needs. Perceiving the own self and imagination is starting point of becoming social. As already described, communication is a mediation tool and sign, which is influencing our surrounding and building connections in society. "One must learn how to do certain things in the right kind of way: how to perceive, think, talk, act, and to experience one's surroundings in ways that make sense to the others" (Shotter, 1993). Since stress is an umbrella term of many symptoms and the emergence of the feeling of stress not isolated to the own world, but also connected to our surrounding. Bronfenbrenner shows in his model, that a person is living in the "Microsystem", dealing with his/her own world, which is influenced through close relationships "Mesosystem" and further the "Macrosystem" with its attitudes, cultural values and expectations (Bronfenbrenner, 1979). Since the person is influenced through, but is also influencing, the surrounding and relationships, it makes sense to also include the surrounding into any therapeutical thought. When mediating symbols and tools are shown outside the "Microsystem." As soon as signs and instruments become a meaning and get internalized, they enter the "Microsystem." Communication, a type of symbols, as a mediation tool in between the layers of the system is important in a therapeutical process. Communication is providing ideas, which can be made meaning of and which can be internalized. This is not a one-directional process from therapist to client – no, it is bidirectional. Signs are

“made of a triad (representamen, object, interpretant) in which two different elements are mediated by a third” (Tateo & Marsico, 2021). As both, the client and the therapist use signs, the positions, representant and interpretant, in the triade change constantly. Sometimes this communication process is not possible because of just staying in verbal communication, which is limited in its expression. The model of “semiotic regulation of dynamic fields” shows that we have limited access to the “low” (immediate feeling) and “high” (semiotically mediated hypergeneralized affective fields) levels.” When we communicate, we are constantly changing in the levels of this hierarchy. But still, verbal language is “narrow meaning–verbal representation” (Branco & Valsiner, 2010). Low levels are before language production and hypergeneralized meanings like “love” cannot be verbalized fully. Verbal communication is taking place on categorical and generalized meanings (Valsiner, 2019). This can lead to self-harm and suffering for the person, who cannot communicate. “A lack of interpersonal connection, arising from difficulties understanding feelings and communicating them to others, may create or exacerbate the context for self-harm” (Norman et al., 2021). Mostly imaginations or expressing the feeling via others helps these people (Norman et al., 2021). Self-awareness practices are all-over in therapy but stay on a categorial sign level and experiences during the practice are not discussed further. Furthermore, instructions in mindful work are mostly given without thinking about how these instructions are interpreted and are cultural influenced. How language is understood, how instructions are understood and processed and maybe lead to a process of bordering, which is culturally influenced. A border can be only significant and important for a person, when it is meaningful, in their imagination, to them (Tateo & Marsico, 2021). Imagination as a part of communication seems to be important in the process of learning and in a mindful practice.

AI produced pictures in the process of learning about the inner self

Abstraction and the use of imagination might help to express themselves and develop new ideas. That can lead to an ongoing de/construction process and getting away from the thought that learning is a linear process. With the idea to stimulate imagination, abstraction and expressing themselves with the use of imagination, an AI, which produces pictures based on word, is used in the experiment. The AI can go beyond the human reality and imagination (de Mello & de Souza, 2019), since it is not influenced by experiences or feelings. This abstraction might challenge the participants' imagination, motivate them to leave their comfort zone (de Mello & de Souza, 2019) and lead to new thoughts, imagination and positioning. The following work shall analyse the use of imagination stimulated by the picture.

Self-experience via Imagination as a starting point for the need of coping with stress

The research shall find out in which way imagination was a fundamental process in learning about the inner self and to what (benefits) it led concerning the different feeling, which arise when we experience stress. By having more insights and free choices of mediation during the process of a mindful practice, and its aim to build self-awareness, the practice shall be improved by making use of the imagination. I proposed that cultural awareness, when using imagination, imagination in communication, imagination in the process of individual bordering and imagination as a switch in between abstract/concrete and the own positioning, might lead to the enrichment in self-knowledge. Furthermore, since imagination is all-over and known to every human being, it might be a starting point to develop a group therapy concept/self-

leaning concept, which is not limited to therapeutical knowledge only and which could solve the big lack of help therapeutical help for people not having a diagnose, which is currently needed to get professional help.

Also the fact, that students develop self-coping strategies and help each other when perceiving stress underlines the meaningfulness of a group setting (Reeve et al., 2013). A meta-analyses on university students shows, that stress reduction programmes are the right direction to go and that they are effective with decreased symptoms of anxiety, lower levels of depression and cortisol (Regehr et al., 2013). “Stress” is a well-known negative feeling in our society, which is often ignored, not treated via preventive work, or not treated before it comes to a severe illness and a diagnose. A study showed that nurse students react with the feeling of “rejection and inadequacy” on the feeling of stress and higher consumption of alcohol (Reeve et al., 2013). Furthermore gender differences, in disadvantage for the male gender, in perceiving treatment were detected (Seehuus et al., 2021). The same time this phenomenon “stress” is not treated appropriate, loads of articles about “self-care” (Brouwer et al., 2021; Gupta et al., 2020) were published during the Covid 19 pandemic. Breathing seems to be able to reduce symptoms of stress. People feel improvement in mood and stress after deep breathing, but also objective parameters like heart rate and salivary cortisol levels were positively influenced by breathing (Perciavalle et al., 2017). Breathing is influencing autonomic nervous functions, which is in charge of our relaxation (Hamasaki, 2020). Breathing exercises can be done with focussing the own natural breathing function. The breath is reacting naturally on movements in that case (Middendorf, 2007). Another approach is to change the breathing function mentally like in Yogic breathing (Pranayama) (Tellhed et al., 2019). The need for self-care is huge, the topic is present in literature and education and at the same time the lack of therapeutic help is huge. In 2021 the waiting

time to get psychological help in Norway was 46 days (*Psykisk Helse for Voksne - Ventetid*, 2019). The waiting time for a therapist with multicultural knowledge is even higher (Balsharan Pal Kaur, 2022). In Germany, the waiting time for a psychotherapeutic consultation is between 3 and 9 months. The therapeutic care of children and young people is not given in all parts of the country (*Wartezeiten auf eine Psychotherapie - Studien und Umfragen*, n.d.).

A concept based on a phenomenon - imagination, which is known to everyone, might enable preventive “help” and be much closer to the life of possible clients/groups being interested in taking part to learn about the inner self. That leads to the research question in which way imagination does enrich self-knowledge after a mindful practice using AI created pictures? Further interests in this research are in which way imagination supports talking about our inner self, supports the learning process and is imagination used to understand each other. Concerning the setting of the experiment it shall be analysed if the students experience changes through the practice, how the picture is used and what the outcomes are of using it?

Method

Participants and cultural exchange in the study

The research was a common project of the university of Oslo and university of Salvador de Bahia. Brazilian and European researchers worked in common in both countries, The participants, given themselves the nicknames of Jonas, Achieh, Lan Zhan, Pixel, Morgan Autie, Rafael, Luka, Ana Clara, and Matheus, are mainly students at the University of Salvador de Bahia. Some of them were part of an already existing group of students with socioeconomic low background. A part of the students were

psychology students with knowledge and interest concerning the topic. Taking part at the research was self-chosen. The sample is representing a “snowball sample” (Aurini et al., 2021) in parts, since some of the participants brought their friends to take part at the study. Most of the participants have not done Yoga before, but did physical exercises or mindful practices, like meditation before. The mindful practice itself was done by a 26-year-old Yoga teacher and therapist and student of special need from Europe. The practice was a mixture of Yoga, in the young style of Yin Yoga, used as a therapeutical tool, Pranayama exercises and breath therapy. Being taught by a person from a different culture can influence experience of the practice, because as a Yoga teacher and therapist the own self practice and experience is taken into the practice and verbal instructions. The European Yoga teacher came to the practice with an outside position, since she did not have contact to the participants before. The Brazilian researchers were “gate openers” in the process of the research by overcoming the language border and being culturally included. They built “a bridge” between the European researcher and the participants. Furthermore the mindful practice mediated the “outside” to an “inside” position (Aurini et al., 2021), since the practice was done together. The interviews were done by male and female Brazilian researcher and students of psychology and anthropology living in the same city as the participants. The interviews were done in the language the participants chose, which was mostly Portuguese and their first language. Using the first language enables to express oneself in a broader way. Furthermore, Portuguese as a language is very rich in words and expressions. The data and the practice were observed and interpreted by the European student. This “cultural outside position” can lead to seeing and things, because they are not common in the own culture. On the other hand, underlying cultural mechanisms can stay unconscious. The qualitative researchers themselves are a research instrument by the “ability to understand, describe and interpret

experiences and perception is key to uncovering meaning in particular circumstances and contexts” (Maguire & Delahunt, 2017). Since more researchers from different background took part at the experiment, the study can be enriched by different positions and perceptions. Furthermore, the participants were told that the study is in the context of stress, and they were aware of the interview after the class. That can lead to more awareness during the practice because of developing the wish to be able to answer the questions.

Procedure of the experiment and use of the AI

The planning and selection of the research approach is not simple, arbitrary or an automatic decision-making process, it is a process for the “fitness of purpose” (Cohen et al., 2018). The aim of qualitative research is “to deeply understand a participant’s lived experiences, the significance of those experiences, and potentially a phenomenon that the experiences illustrate” (Morrow, 2007 cited in Candela, 2019). The approach had to give the participants the freedom to enrol in the practice, to feel, to experience and to learn about themselves during the experiment. In contrast to a strictly controlled setting of a positivist experiment, a qualitative study allows individuality and gives the chance to examine underlying, non-visible backgrounds. For giving the participants a feeling of freedom and support in their choices a mindful practice, which supports inner awareness, meta- awareness and a non-judgmental experience of observation (Dario & Tateo, 2022), was chosen before the interview. The qualitative experiment was structured in several steps connecting a mindful group exercise (40 min day one- and 25-min day two) and an interview in a one-to-one setting. Two participants did this process on two days and seven participants participated on one day due to the high amount of time, which was needed for the

experiment and transport to the location or for personal reasons. Before the mindful practice the K-10 screening (*Kessler Psychological Distress Scale (K10)*, n.d.), a self-assessment tool of stress being perceived and based on a 5 point Likert-scale, was answered paper based. For getting insights about the perception of the stress, the participants experienced, and as a tool to compare the experience to the content of the interviews, the K-10 scale is used. Such another time dimension (before and after the practice) is added to the research and it is a tool of content validity. This scale has been used as a screening instrument for stress in student age before (Qamar et al., 2014). After that a mindful practice, instructed on a pre-recorded video translated to Portuguese and the movement simultaneously shown by the Yoga instructor next to the video, was done in a group setting. The practice contained exercises from Middendorf breath-therapy, Yin Yoga in the style of Paul Grilley, a directive short meditation practice based on focussing the own natural breath and a Pranayama exercise. The structure of the experiment is following the Mindfulness-based stress reduction (MBSR) in the sense of having a mindful practice and a talk afterwards, which shall support and deepen the understanding of the own practice. In case of a meditative practice it is known that emotions arise more in the guidance dialogues after indirect meditations than in the meditation itself (Eifring, 2022). The semi structured interviews were done in a one-to-one situation and mainly in the mother tongue, Portuguese, of the participants. The structure of the interview gave the participant an idea and direction to talk about, but it also allowed to, both, the researcher and participant to interact “spontaneously” and expand the topic (Aurini et al., 2021). The talk was supported through a picture being processed by an AI based on the experience the participants had during the mindful exercise. For being able to process the individual picture the participants answered questions about their feelings and thoughts, experienced in the practice, with words, which were taken into the AI app to produce

the picture. The use of an AI makes sure to not limit the picture to a rational fantasy of the person. The AI enables us to go beyond words, constantly learning from what the person told before and stimulating the person to produce new ideas. Furthermore, there is no need for a person to draw a picture in the case of feeling non creative. The semi structured interview contained questions of the FFMQ Questionnaire (Five Faced Mindful questionnaire) (*Five Facet Mindfulness Questionnaire (FFMQ)*, n.d.), the MAAS Questionnaire (Mindful Awareness Attention Scale) (*The Mindful Attention Awareness Scale (MAAS)*, n.d.) and in addition questions about the body-mind experience and some additional questions about how the participants experienced the experiment, what the practice and interview led to and about how the AI based picture was affecting the participants.

Data Analyses

The qualitative data was analysed doing thematic analyses (Braun & Clarke, 2022). A codebook described the codes in detail, which were organized to themes. During the process codes and themes were re-organized several times. Decisions and steps were written down in a journal to reflect the process constantly.

Results

Observations of Imagination as Enrichment in the experiment

Imagination when words are limited

The society forms pressure to verbalize ourselves. A dualism of the “silent society” versus the “vocal society” arises (Valsiner, 2019). Words are limited in what they can

express. Some parts of the communication are unconscious and others are “unconscious” (Valsiner, 2019). These are hyper-generalized signs like “love.” During the practice hyper-generalized signs like “peace,” “relaxed” were used (Ana Clara (22):” But in general, it was very relaxing”) and imagination when words were limited in their expression. Participants talked out loud that it is not possible for them to use words. Lan Zhan (21): “explain this with just one word? I think it was in the first question, I could put an image, an animal symbol”. Lan Zhan (21) is already seeing the potential and richness of symbols and images in communication and uses images. This participant draws pictures with the own words: “which is knowing how to turn off,” “it was as if I did not exist “(Lan Zhan, 21). Lan Zhan (21) goes from concrete to abstract and gives a deeper meaning to the concrete word of “wings” when talking about “wings as liberation... I am freeing myself “. Wings become a symbol. These symbols are related to the own culture and environment. The word wings are related to a bird and probably, but not necessary, used if you know that kind of animal. In another case imagination describes something, which the person did not experience – but imagines to be. A line to the work of poets is drawn and imagined when saying: “Even poets, in their moments of greatest ecstasy, still don't have enough words to describe so many confusing things that we feel inside” (Mateus, 33). Mateus talks about “vehicles of knowledge and experimentation” to, probably, be better understood. Another person is talking in (what our reality and logic would describe) opposites: “is calm but also tumultuous at the same time” (Jonas, 21). Feelings are not logically, and words are limited in describing opposites or are formed in a structure that we have the feeling, that the world and feelings must be dualistic. Feelings are underlined with images in language: “traveling in mayonnaise” (Pixel, 21), “I was a little rusty” (Rafael, 21), “intimate relationship with my room” (Lan Zhan, 21). These descriptions have in common that imagination is going beyond the known feelings. Other examples

underline actions with pictures: “this automatic mode is more when we turn off ourselves” (Lan Zhan, 21), “never felt interested in fixing myself” (Pixel, 21), “guided through my breathing” (Achieh, 22), “passed through a challenge” (Rafael, 21). Imagination allows to describe physical conditions (fixing the body, breath), but also thoughts. In addition is imagination used to reflect the own position in this world from an outside perspective: “at the same time we are very small compared to the universe” (Achieh, 22), “world, and about myself in the middle of it” (Rafael, 21). Furthermore, possible wishes and gaps are described with imagination: “I tried to keep my head emptier” (Ana Clara, 22), “stop my thoughts” (Lan Zhan, 21). The word “tried” points out that the person is describing the own transformation in the Zone of Proximal development. All in all, it can be concluded, that imagination is enriching the language, can support communication and maybe gives the possibility to understand the feelings, perspective, or content of the communication partner in a better way. Furthermore, wishes can be named and the actual experience expanded and verbalized via imagination

Different experiences in the same practice - Interpreting words and instructions

The practice and instructions, given in English by the researcher and Yoga teacher, were filmed. The instructions were translated to Portuguese and merged with the video picture. Instructions seemed to have an importance for the participants since some of the participants told, that they could not hear the instruction well because of other noises and that gained irritation in them. Morgan Autie (29) stated that “the practice made me deal better with irritation.” Still imagination seems to help to get orientation in the practice and maybe also a feeling of safety, which might be needed in the

beginning. In the study the perception of the feelings of stress or tension differ a lot. Rafael (21) talked about physical tension when letting the head and arms fall (“Physical tension, yes, especially on the moment to straight the body, letting the head and arms fall”), Morgan Autie (29) talked about “a burning in the body. Especially here in the thorax....” Jonas (21) felt “some parts kind of stuck”. “I realize some areas of my body that were not very well relaxed, so I felt a little more pain (Morgan Autie, 29)” was another feedback. This person also states that the goal was to “stay more in the present moment, instead of being in the past and in the future” and to have this desire to have full attention. In the K-10 questionnaire Morgan Autie (29) had a high score answering nine questions with three on a 5-point Likert-Scale and telling to be some of the time nervous, restless, hopeless, worthless, depressed, sad and tired. Describing the feelings was “was very difficult because I have a difficulty describing what I am feeling.” The answers to the questionnaire and do explain her wish to have this full attention, maybe as a feeling of control. The practise was a new experience and maybe expanding the comfort zone for Morgan Autie (29). On the opposite Morgan Autie (29) said that “sometimes it is a little tiring to keep thinking a lot about doing things. Sometimes I think about how to open the door and how to do things. It is tiring”. That is not necessarily a opposite, it can be just another feeling and a sign of constructing and deconstructing thoughts. This will probably lead her to another way of understanding the practice and instructions than a person like Jonas (21), who wants to do “things more thinking than leaving alone). Luka (32) began the practice with a different goal and says, that “the issue is not... the level, the difficulty, having to do something... I think that only you, consciously, stretch yourself, this is already very relaxing, and then gradually with the practice, the person goes to a new level.” Luka scored very low on the K-10 questionnaire about experiencing stress. Pixel (21) said that it was possible in the Yoga class “to do it calmly and it was not an inconvenience

for me... it was not an inconvenience for me.” The mindset of entering the practice was very different and also the interpretation of the instructions seems to be very different since all did the same practice, but the feelings of discomfort differ a lot. Furthermore, differences in the movements were observed by the Yoga teacher from person to person during the practice. On the other hand, the positive feelings were quite equally described by six of the nine participants with the words of “calm,” “relaxed,” “light,” “connected” or “peace.

Imagination for getting new perspectives

Wishes are already an expansion of the actual perspective and a meaning making process has been lived through. A border has been found and there is interest to overcome this border. Going back some of these steps, is the process of imagining the future taking place. Before something is mediated and learned, it is imagined (Vygotsky, 2004). It is the process of feeling interest in something before stepping into a process of transition (Tateo & Marsico, 2021). Maybe that begins with personal satisfaction, like “it’s great, the practice (Jonas, 21)”, “very good practice. I really liked it a lot (Lan Zhan, 21)” or “it is great (yoga and being aware) (Luka, 32)”. Thoughts about wishing more of this feeling might come up: “during the practice I was thinking, wow, I’m going to look for something to do (Luka, 32)” and imagining the future possibilities “wow, if I did it every morning, I could do anything now throughout the day (Luka, 32)”. Furthermore, satisfaction can turn into imagining plans “very good practice. I really liked it a lot, I will repeat it at home (Lan Zhan, 21)”. Also imaging possible benefits or help can be a next step towards leaning and mediation. Imagining benefits is already the formation of something abstract and unknown. “Because I thought it was very interesting to do this in the morning. To start the day with full attention (Morgan

Autie, 29)” – the feeling of full attention in the morning might not be experienced before but is imagined. Ana Clara (22) was imagining getting help against the anxiety:” I am very anxious. I think you keep the awareness of yourself and that you are there, and you have control and do not need to be desperate. I think that is what I can take away”. Maybe Ana Clara (22) has already experienced it partly or it was a more unconcreted thought like: “I think I'll think more about breathing at the moment, it can help (Jonas, 21)” or “so I think I'll try to do these more often. I do not know if yoga is necessarily, but definitely this control of breathing and aerobic exercises (Rafael, 21)”. Also, a surprise can be a form of being interested: “to allow oneself, it is important to allow oneself. I think that experiencing practices like this is very much linked to the surprise of life. You can be surprised by something simple because it is simple. For me it was that a simple practice. What has changed is that it is very much against my daily life” (Mateus, 33). Imagination allows to imagine new perspectives and to see the own life from a meta-position.

Imagination leads to mediation

Mindful practice as a mediation instrument

Most of the participants made use of the practice to reach a feeling of “being connected (Lan Zhan, 21)”, “slow down (Achieh, 22)”, “much freer, much lighter (Achieh, 22)” and to relax. Furthermore “being present (Jonas, 21)” and “try to feel the present (Mateus, 33)” was important. Some mentioned that the feeling of light pain helps them to focus. Lan Zhan (21) experienced: “control myself, I'm aware of myself and I'm the only one who should care about me now”. Morgan Autie (29) tells, to get the desire to have this full attention more often, when paying attention to the body to do the positions. Some began the practice with focussing the body and some more the thoughts. Some wanted

to feel their body intensely. Ana Clara (22) described the switches of attention and the travelling of the thoughts. This participant tried to come back to the own self when the distraction was conscious, which means, that Ana Clara was aware of her thoughts. Luka (32) imagined to be aware all the time – “Oh, now our cells have to divide, our hearts have to beat” and concludes this imagination that humans need automatism in life. It “is an automatism of knowing how to position it in the best way, to know, to recognize that you are feeling something, you can stretch it, you can change it... (Luka, 32)”. This kind of automatism is a positive feeling and an automatism of being in ease. “With the consciousness of your body, of your movement, you build new automatisms (Luka, 32)”. Consciousness plus a wish is describing the interest in something unknown, which is imagined. We need to be conscious and interested first. Maybe a new - later automatic - movement is imagined. The movement is mediated to become an automatism. Other participants, like Lan Zhan (21) or Morgan Autie (29) had more the goal to control and focus. But in all these cases body and thoughts were connected in experiencing the outcome and a model of duality cannot fit the experience. When “the mind was relaxing, the body relaxes together (Pixel, 21)”, one participant told. In general, it can be concluded, that the mindful practice was used as a mediation instrument for goals which were connected to awareness, control, and relaxation. The mediation process was different from participant to participant. It seems as if many small borders were overcome and that the richness of the practice contained different mediation instruments, which were paid attention of when the person was interested in it. Every instruction and movement could be seen as an option to be mediated.

Breath as a mediation instrument

The breath seemed to be used as a mediation instrument. A possible outcome was imagined in the mediation process. Through the breath people felt more in the present

moment. Breathing helped her to focus, to stop “intrusive thoughts (Lan Zhan, 21)”, to gain control over her thoughts and worries. It is gaining awareness of the own body, of the present moment and has a calming effect for him and his emotions, including anxiety – “I do not need to be anxious with something. I was just aware of what was happening at the time (Ana Clara, 22).” Mateus (33) described that breathing is “creating space between so many diffuse thoughts”. This might be because of the shift of attention. It helps to be conscious. This causes a positive feeling of being connected. Another person is experiencing a “earthing effect (Morgan Autie, 29)” and tells: “I try to breathe. In the case of being irritated, I try to breathe (Morgan Autie, 29)”. Breathing seems to have a calming and focussing effect on the people. But breathing does not only influence the own condition – conscious breathing helps “trying to process things by myself that what is happens around me (Rafael, 21)”. That helps him to understand interaction between himself and the world. The participants were aware of the different types of breathing exercises and differentiated in between the natural breath and the pranayama exercises. About the natural breath Luka (32) told: “I followed the breathing that was flowing with my body, and I became aware of it.” Following the natural breathing rhythm was effortless. The exercise, which asked to count the natural breathing cycles, helped to relax. Pixel (21) underlines that: “My conscious breathing, in fact, it helped me relax, mainly in the part that was counting the breaths”. The same person observed a pranayama breathing exercise “alternate nostril breath” in detail. Pixel gained awareness of the pace of the breath through the pranayama exercise, which is slowing down the breath by a constriction. The slow breathing was more relaxing for Pixel because it was calmer. To conclude, it can be said that imagination was used to mediate the breath. The participants experienced and differentiated the natural breath and breathing exercise differently and precisely. They felt an effect of the breath and imagined how to use breathing in their life.

AI as a mediation instrument

The AI generated picture was used in different ways. They were used as a mirror and participants were comparing their feelings to the feelings they are seeing in the picture. For doing this, they create an imagination of the feelings shown in the picture and have their feelings in mind, which are used to compare. Achieh (22) did so and does not feel represented in the picture and does not go on with mediating the picture after the comparison. But still the comparison gave Achieh and the researcher some insight, that the imagined feelings and real feelings do not match. Luka (32) states that he feels “like this” shown in the picture, which is also a kind of comparison and using the image as a mirror. Luka says to be bad with art. This might show insecurity with handling the picture or feeling and expectation of the researchers. Luca does not mediate further and is losing interest on the picture. Mateus (33) compared the overall feeling with the feeling the picture gives. From first using the image as a mirror Mateus (33) goes into detail and is just comparing a part of the image – “it does not describe exactly how I feel. However, analysing, I realized lightness.” Later Mateus (33) sees the feelings of “happy”, “carefree” and “present” in the picture which the participant connects to the practice of Yoga in general. Drawing this conclusion is just possible because of imagining the feelings in the picture and imagining the experiences with Yoga in the past. The feeling of lightness is an interesting change during the practice compared to the normal life of the person, which was described with feeling “most of the time, that everything was an effort” in the K-10 questionnaire before the practice. Mateus’ feelings got more concrete. Similar experiences had also another person. Jonas (21) tells that it was a positive experience to identify feelings more “precisely”. Jonas (21) is using the picture as a tool to expand the feelings. Furthermore, the image and talk helped Pixel (21) to “rethink” and “reflect again in a more focused way”. The image is

challenging the participants to think in a deeper way, if they are interested in it. It expands sensations to new ones. Pixel (21) is interpreting the surrounding in the picture from concrete to abstract, which reminds Pixel (21) of a place of relaxation short before night comes. This is in line with Pixel's feeling during the class. It seems as if the image combined with the talk is also having an effect on the feelings in this moment. The image brings a "lighter image" (Pixel, 21) when interpreting the picture and comparing it to the own experience. In this case the image and the talk would deepen the feeling of lightness. Ana Clara (22) is searching for her feelings in the processed imagination of the AI and says that the chosen picture "makes her feel calmer", so it is expanding her feeling. Interpreting the picture and feelings goes beyond the class. The image makes Lan Zhan (21) less "connected to social rules", getting "rid of some labels, some rituals". The image brings a feeling of "introversion." Lan Zhan (21) is seeing parts of her feelings in the image. The participant is separating the own personality from parts of the picture, saying to not be able to connect to this man or woman, because it is uncomfortable. The picture is used as a tool to expand the own reality. A second example of going beyond the practice is Luka (32), who is seeing the feelings in the picture and interpreting not just the practice, but also life by using the picture – "but I still feel that I can control each one of them. Kind of like tentacles of an octopus, and like even it is many members, it can hold everything right, as if it were several problems in his life" (Luka, 32). Before the practice Luka told in the K10 questionnaire to feel most of the time hopeless and that everything was an effort. The participant is switching from speaking in the I/me-form to a third person perspective and interpreting, probably, the own situation with distance. Speaking in a third person about people in the picture and their feelings was the case with several participants. The pictures were used to analyse the practice, to influence the current feeling and to expand the thoughts to the own life. Imagination was a central aspect in these

processes. The images were used in two ways. As a mirror and to compare and as a tool to reflect, construct and deconstruct thoughts in ongoing circles and expanding the own feelings and ideas. When it was used as a mirror the AI turned the words given into a picture, “materialized the feelings,” how Rafael (21) said. The picture was then interpreted and feelings in the picture imagined and compared to the own feelings. If this did not fit, the picture was not used further. With other participants the picture was not used as a mirror, but as an instrument to reflect and guide and enrich the reflection. These participants imagined the picture and own pictures from a “third” or meta-perspective. The imagination and interpretation of the AI picture was used to feed the own experience. From this perspective participants started ongoing circles of imagining, abstraction of the picture, comparing and enriching details and parts of the experience and picture. Lan Zhan (21), who participated the practice on two days did even compare and see a process in the pictures, which she connected to her own process.

The opposition I noticed now between the images is that in the previous practice I was trying to connect myself more or less, I was very distracted, as I had described, and in this one I was able to concentrate more. So, if you notice the other image, it seems that it is coming out, and when you see this image, it seems that the person is entering. (Lan Zhan, 21)

In this process the participants imagined the picture and own feelings/life constantly a little bit different to enrich both perspectives and compare them again. The interview and feelings were mediated through the AI.

Fig 1 Picture as a mirrow

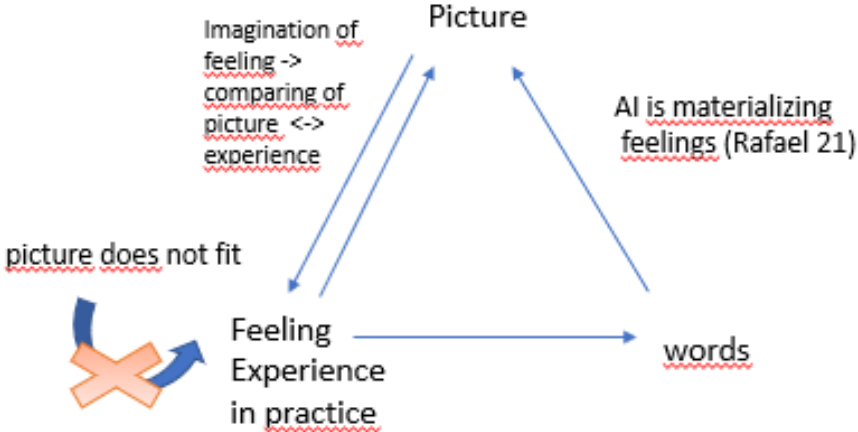
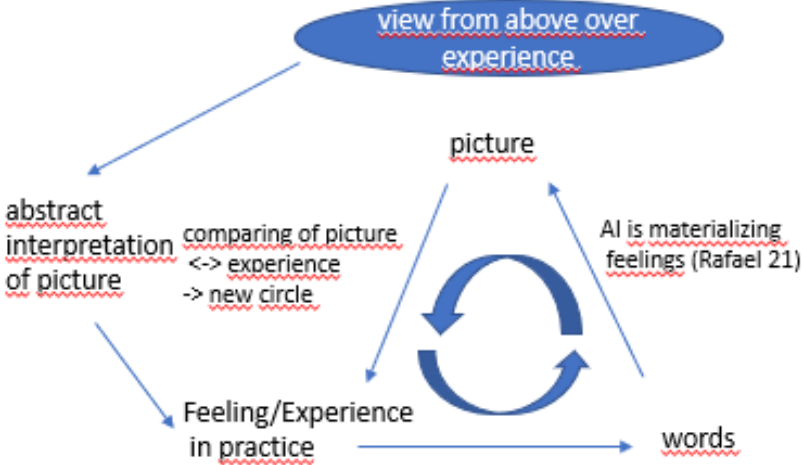


Fig 2 Picture to enrich in circles



Signs of construction/deconstruction of thoughts

It seems as if the participants reflect the practice and changes during the interview. This reflection goes along with thinking about already experienced events and the

experiences during the practice. Since these events have already happened in the past or are option in the future, imagination is needed to reflect or to form new possibilities. Pixel (21) states that “it's not time to develop something new, but I think both of them helped to reaffirm the idea that the body and the mind connection really exist”. This person remembers an already known feeling. On the second day Pixel (21) explains to travel with the thoughts and feelings. In some moments, the person “was much more focused on the voice orientations” than being able to relax, which were the moments to “really abstract the mind.” This is a shift of the focus and thoughts. Furthermore, the construction and deconstruction of thoughts seems to happen over time. Thoughts seem to be developed gradually. Achieh (22) tells, that she is experiencing “a state which I had already witnessed before. I had already felt this state before and being relaxed in some way. But I did not feel that something had changed for me.” Some lines later in the interview the person deconstructed the thoughts that nothing had changed and states that “today's class was a very important point to remember to do this more often and to meditate again” (Achieh, 22). Constructing and deconstructing thoughts seems to be a central process in gaining more self-knowledge. The practice had the goal to be open to travelling thoughts and the participants seem to make meaning of that and experienced that.

Changes in the practice - in general

Changes occur when we were interested in something, constructed and deconstructed thoughts, imagine and mediated. For many of the participants the breath was experienced in a new way – as a tool. It is a tool to “stop” to feel the body more, be aware of the own body and “do things thinking” (Jonas, V1). That could mean to focus on the things done by the body. A possibility to control the body arises. The feeling of control was also seen as a possible help against anxiety (Ana Clara, 22). Lan Zhan

(21) connected the exercise with the feeling of calming down and experiencing the own body and inner self – “not the outside”. Morgan Autie (29) was experiencing to move the body “consciously”, which describes focussing the movement and feeling possible tension or an effect of a movement. For Achieh (22) the whole practice was a reminder of a known feeling, which led to the wish to experience it more often. For others, the practice expended the known experience. Pixel (21) was experiencing to notice her state of relaxation, which was a new experience. Pixel (21) was aware of a switch of the focus in between focussing the own self and the surrounding. When Pixel’s body relaxes, it was easier for the “mind” to relax, and they relaxed “together.” An experience of body-mind connection.

Two participants joined the study and practice on two different days. Lan Zhan (21) tells to be more used to the practice” and Lan Zhan (21) “felt more relaxed, more focused”, to be able to focus more easily on the own body than on external things and be less distracted by the surrounding – the light. Lan Zhan (21) “was already learning to focus better.” The second person, Pixel (21), joining both days came up with more questions about her body connected to her health situation and previous bad experiences in ballet training. Pixel (21) reacted to what she was feeling and adjusted her body to that during the class and called out to “reaffirm the idea that body and mind” are connected and not necessarily developing “something new”. Pixel (21) was more used to the practice. The change of the surrounding and time (to evening) helped Pixel to relax more. These results show that the participants benefit from the practice and experienced positive changes. Pixel (21) and Lan Zhan (21) also experienced transformation and progress when comparing the two days, they did the practice.

Background influence

It seems as if the background is influencing the practice, the imagination and how the participants enter the practice. Achieh (22) told to be not that flexible and “it was hard for me in the beginning, like doing some kind of movement because I was not used to it”. The practice and movements were influenced by that. Several participants told to do Yoga for the first time, but not all of them told to have problems with the movements. The body is just one part of this huge construct in this practice. The participants also clearly changed the way of practicing with their own interpretation and mindset, which is developed over time and influenced by experiences in life. Lan Zhan (21) said that she likes “feeling pain when I'm exercising because I think it's more productive”. Lan Zhan (21) also explains to have problems with anxiety and that she always keeps herself busy. Ballet helped her to “exercise and focus more on the body and what's inside.” This person will probably, first, also try to have this light feeling of pain and exercise during this practice. Pixel (21) told that she has a ballet trauma and “something that broke what I'm used to”. In the case of the practice Pixel (21) finally relaxed when getting help for the movement: “she (the Yoga teacher) was going to do something that was super relaxing, super calm, so that made me to like the yoga proposal a lot”. Pixel (21) also felt a bit anxious when her arms felt a bit weak. In this case the feeling of safety during the class was influenced by the experiences in the past and her anxiety. Pixel (21) also mentions to have “much more facility when I'm alone, listening to my music, then I lie down on the bed, and I can have a moment of abstraction faster and much more intense”. The surrounding seems to be important for Pixel's (21) experience in the practice. The participant also practiced Yoga for the first time in life. In contrast to most participants one of them practiced Yoga already for a while and experienced personal benefits of the Yoga practice. Yoga is “revolutionary”

for Mateus (33), helped to stop smoking and “changed” the life. But Mateus (33) mentions that “it is also very difficult to think of yoga in an unequal society like Brazil, it is very difficult to think of yoga”. In Mateus’s life there is a “need to fight so much every day to get the minimum necessary to live, to eat, to pay the rent, to pay for energy, internet.” Mateus (33) also scores high (4 of 5) on the sentence “feel that everything was an effort” in the K-10 questionnaire. Mateus (33) tells, that that easy things like Yoga are a surprise and you need to “allow oneself”. Mateus (33) knows about the benefits of Yoga but enters the practice with this contrast in the head. Achieh (22) had some Yoga experience and in the past a therapy with a psychologist, which will be continued soon. This participant experienced that calm environment and music helps to calm down. It could be expected that Achieh (22) is seeking for that setting and calmness in the practice since it is good for her. These examples are some of the stories the participants shared, and which seem to influence how we interpretate the way of practicing and treating ourselves.

Discussion

All the chapters of the results show different shades of enrichment of self-knowledge. The paragraph “When words are limited” shows how imagination is used to talk about the inner self and that imaginations are used as signs to share, to underline and to communicate. This can be the begin of a process of making feelings and experiences conscious, to maybe learn cognitively from these and draw later on conclusions for the own life. The paragraph “Different experiences in the same practice - Interpreting words and instructions“ is showing how imagination is used to understand each other and mediate the same instructions differently. The paragraphs “Background” and “Imagination for new perspectives” analyses the process of making meaning before it

comes to a learning process and overcoming a border. The paragraphs “AI as a mediation instrument,” “Breath as a mediation instrument” and “The mindful practice as a mediation instrument” describes examples of mediation and making use of imagination, which leads to learning. Furthermore, the paragraph “AI as a mediation tool” describes how the picture was used and to what that led. The process of borders is further analysed in the paragraph “Construction and deconstruction of thoughts.” This leads to the paragraph “Changes in the practice,” which answers the sub-question of the changes and which effect these had.

Mediation, satisfaction, and interest over time

The results show that many changes happened during and after the practice. The participants benefit from the practice and have positive experiences. Some expanded the insights they got in the practice to their life and created future ideas, like doing Yoga in the morning to start the day with full attention (Morgan Autie, 29) or stopping and breathing if anxiety comes up. Possible self-help strategies were developed. The changes the participants experienced differ from each other. This might be because of the rich possibilities of mediation instruments. If a person mediates and overcomes a border interest is necessary (Tateo & Marsico, 2021). Since not all people face the same challenges in life and not all of them are interested in the same, a broad setting filled with different stimuli and possible mediation instruments, gives the participants the freedom to “choose” their strategies. As soon as a human being is interested, the future after overcoming a border is imagined (Vygotsky, 2004). In the interviews it seems, that satisfaction beside being interested is important for the process of mediation. The people mostly talk about new insights and chances when they are satisfied the same time. Many of them told, that they liked the practice – being

interested - and some told to like the breathing exercise especially and got more concrete. Lan Zhan (21), for example, told to like the breathing and developed over time to calm down by breathing, especially by counting the breathing. Lan Zhan's (21) first interest or satisfaction of feeling good got concrete, led to a concrete observation and strategy. Breath became a mediation instrument. This leads to the question if satisfaction in general is connected to the process of mediation? It seems as if the people used the instruments when they were satisfied and not just interested. They talked about positive experiences and feelings. Does that point out that dissatisfaction could influence the process of learning and mediation? Rafael (21) is not satisfied to talk about the feelings since it was difficult for him to write these down. This participant explains to be not good with art, used the image as a mirror and was not interested in a further talk about it or feelings in the picture. Rafael (21) did not use the picture as a mediation tool. Dissatisfaction and interest could be one explanation. There is no need in such a rich setting to use a specific mediation tool. The goal of the practice was clearly the opposite – to provide every participant an individual starting point to enrich self-knowledge. In a more closed setting, like schools, it can be difficult if satisfaction and mediation is such close related. Especially in a learning process students are not always satisfied. How can they be motivated? Further research on mediation, interest and satisfaction could help to understand the process better. The practice shows that imagination can give new perspectives. The AI can be a starting point to get challenged by new ideas. Since dissatisfaction and noninterest seems to stop possible processes, a group setting to support the development and exchange of new perspectives in between participants and interest via imagining the future could be interesting.

Imagination is inclusive and culture diverse

The different experiences during the same practice show that there must be a difference in that what we hear and do. When we hear an instruction, for example “to twist the body with a long spine towards the right side,” we must interpretate the words. We need to imagine our body in the room. We need to imagine our dimensions. To elongate the spine, we enter a meta-awareness of about the current position to gain the new position. In the practice the feedback and problems, which the participants had in some positions, were different from each other. One person was talking about the lower spine versus another talked about a sensation in the chest. This leads to the question if just their body was different or if also imagination leaded to different interpretations of the practice and thus to different challenges. The short moments of observation during the practice do support the thought that the people interpretate instructions differently. Some participants searched for intense movements while others tried to fully release tension. Furthermore, the background and experiences the person had in life seem to influence the interpretation of the practice. The question can be not answered for sure right now, but it might be, that imagination is changing the way of how we understand and do things. In nonviolent communication Rosenberg (Rosenberg, 2015) is forming the four categories of observation, feelings, needs and request to understand that, what another person says, in different ways and reflect about it without judging. This is a form of imagination, which makes that process possible and leads to different understanding the words and positioning of ourselves. If we expect every person to do the same in a practice, that might be a limitation. If we seek for self-development and inclusion, imagination is a chance to include people into a practice. The concept of sociological imagination (Mills, 2000) sees observation of the own position via lenses that show societal issues as very important. Maybe

imagination enables in special needs education to think differently about psycho-social problems. Maybe imagination points out, that possible problems, when imagining that personal problems, are in fact societal issues. Maybe imagining the life from another position enables Lan Zhan (21), who feels “connected to social rules”, to get “rid of some labels, some rituals”. Rafael (21) tells that conscious breathing changing his perception of the surroundings and the own person. That helps Rafael (21) to understand interaction between the own person and the world. Maybe breathing enables Rafael (21) to imagine life from another position. Imagination seems to be inclusive and culturally diverse. Thinking about verbal communication, imagination is used to talk about feelings, wishes and underlines that, what we want to say. We will probably use a description, which we know from our culture to do so. With the interpretation of an instruction, which leads to imagination, it is the same. Interpreting instructions is connected to our culture and background, which do the results of the practice show. Having a background of ballet versus a background of meditation led to different interpretations of moving the body. This practice was not limiting the participants in their expression and it was open to different interpretations. The instructions during the practice allowed to add own interpretations. Seeing that in the context of education - “educational materials have to be crystallized in culture” (Gajdamaschko, 2005) to develop imagination. Instructions must be culturally adapted. Imagination and the openness to own interpretations of the students, of what is understood, might be a starting point for using imagination to include different cultures and in a culturally diverse society. How exactly imagination and instructions shall be to be more open to cultural diversity was not tested but might be an interesting topic for future research. It would be interesting to know more about giving cultural inclusive instructions in the form of words or in the form of using imagination (describing pictures like “stretch yourself as if you want to pick an apple”). What can already be said is, that

imagination is culturally diverse, open, and inclusive if we are allowed to interpretate tasks coming from our culture related imagination. Imagination has to be “actively accepted by the child (adolescent) as being part of her cultural development” (Gajdamaschko, 2005). What is also known is, that imagination can shape something new, we have not experienced on our own (Tateo, 2020). That can be seen as a starting point to include others into a conversation and form ideas together.

Chances of a group setting

A group setting for the talk after the group practice might be an idea of enriching self-knowledge and gaining new ideas. Since (as the results show) our background is influencing how we interpretate an instruction, since being interested in something and satisfaction seems to influence the process of mediation, it is important to get new ideas from other persons. Exchanging experiences and how the practice was interpreted might be interesting for the group to gain new insights for future practices or life in general. A group talk might become a mediation instrument, which can be made use of or not. Furthermore, the results show some examples, that thoughts were constructed and deconstructed, even during the interview. The talk after the practice seems to enrich the self-knowledge, leads to reflection, and turns unconscious processes into conscious ones. One participant told that the breath changes how the surroundings and communication to others is seen later on. Doing a mindful practice can be a good starting point for a communication. Practices, like walk and talk in nature, combining movement and conversation, seem to relief stress-related problems (van den Berg & Beute, 2021). It is an interesting thought to add a group talk to the mindful practice done in a group setting to cope stress and exchange experiences,

interests, and interpretations. A group setting would enable the broader use of the practice as a stress coping instrument in schools.

Limitations

The participants in the study were self-selected. Most of them did not do Yoga before but were interested to join the practice based on the information they got beforehand. Furthermore, were some of them psychology students with a specific knowledge, which not every student has. That could influence the results. It would be interesting to know if people, who do not believe in a mindful practice or do not like that type of practice, would mediate as well. Meditation and overcoming a border is connected to being interested (Tateo & Marsico, 2021). Would the neurological system and the body on the biological level react to this calming practice? The execution of the practice must be improved. The group practice was just observed by the instructor beside doing the movements. Observing the class could give interesting insights, since the body position is connected to inner feelings and influenced by daily patterns. Dance for example is a type of expression, like a picture or language. Maybe doing a Yoga movement is the same. Furthermore, the questions for the interview or possible group talk should be better defined. The type of asking a question can lead to very different actions concerning interpretation of the picture. The use of the picture shall be clearly defined, and the participant supported. It was defined to provide the participant several possible instruments to mediate in the practice. How far the picture shall be used was not clearly defined before the practice, which led to a totally open setting. Some participants used the picture a lot and some just commented on it shortly. It must be planned beforehand if the participants are totally free to use the picture or if the researcher shall motivate them by questioning to get back to the picture. Otherwise, it

can cause insecurity on side of the participants and researchers since the picture is present during the interview. Depending on that interview (questions) must be planned. The task to put feelings into words to produce the AI picture was challenging for the participants. But Jonas (21) and Rafael (21) do also tell that this task was clarifying and interesting. Maybe the main problem is again that the language is limited in expressing feelings and not the task itself is a problem. Furthermore, the outcome of the practice and drawing the question back to the context of stress was not evaluated well. The participants were asked how they benefit from the practice, but the context of “stress” was not further questioned. Another limitation is, that all interviews were translated from Portuguese language into English language. The translation can cause that underlying information gets lost. Words being used as hypergeneral signs (Valsiner, 2019) or also phrases are maybe not translated correctly. It would be better, as a researcher, to fully understand the language spoken in the interviews. The environment for the practice was too busy, but the researchers were limited in their choice of finding a place to do the practice. Some participants got distracted by the environment. Handling the feeling of distraction can be also a seen as a life-related practice, but makes the practice, being focused and observing the own self, more difficult for most people. Lan Zhan (21) and Pixel (21), who joined the practice on two different days got more used to the environment and light situation, but also experienced the practice with less people and less noises as easier to focus.

Conclusion – Imagination as a possibility for inclusive prevention of stress in education

Enrichment is per definition the process going from simple to complex (Mounoud, 1990). The practice showed that imagination supported communication, imagination

was used in the broad context of learning and mediation and imagination was used to interpretate instructions and finding the own position in the practice. That goes along with what is described in literature. Overall, the participants talked about chances during the practice, which shows that they mediated and used imagination. They connected new insights to their life and thought about using mediation instruments as self-helping tools in daily life. In contrast to a school curriculum, the rich structure of the experiment gave every participant the option to choose the mediation instrument. Imagination was not seen as destructive in this way. It can be proposed that the participants chose a mediation instrument, which was appropriate to them in that moment. Imagination seems to be strongly connected to learning and transformation. The AI generated picture, which were one possible mediation instrument, was used as a mirror or as a mediation instrument enriching and guiding the talk and expanding self-knowledge. Symptoms of stress were not forced by diagnosing and writing them down, but they were seen as a process of constructing and deconstructing thoughts. A group talk makes sense to be added to the practice for cultural exchange and exchange of interest and interpretation. Further research on giving culturally diverse instructions, giving instructions in words or in imagined pictures and gaining more knowledge about “satisfaction” in the mediation process would be interesting and gain better understanding of the practice for a possible group setting in schools. If the practice leaded from simple to more complex can be discussed. During lifetime more knowledge and experiences are gained, but the same time some are forgotten. The word “enrichment” shall be less seen in the context of more complexity and more in the context of broaden knowledge and getting new insights. Imagination can be seen as an instrument and possibility to express ourselves in a better way and expand our inner world, which leads to action and progress. Especially in special needs education imagination shall be more focused and benefits and chances for individual learning

and the effects on the participation and behaviour evaluated. Imagination enables to develop with interest in overcoming own, fluctuating borders and position the own person under imagining social issues and not forcing to point out the personal problems. Imagination is a possibility of a more inclusive language, in general and in such a group setting, in interpreting words and talking in imagines when words are limited. In a context of experiencing stress in a school setting allowing imagination can be a starting point for a self-helping concept and a possible prevention of psycho-social and behavioural problems, since it is inclusive. Further research on this shall be done.

Author Contribution: Sarah Huttner: conceptualization, methodology, data collection, data analyses, writing, reviewing, and editing.

Data Availability: Cleaned Data in transcript form can be obtained from the author upon an email request.

Declarations

Letter of consent: The participants signed the letter before taking part at the experiment.

Ethics Approval: The project is approved by SIKT and followed and ethical principles of the 1964 Declaration of Helsinki. Data was stored on TSD and handles following the guidelines of red data. No real names were used during the experiment and analyses.

Conflict of Interest: The authors declare no conflicts of interest and no competing interests.

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Appendix

Translation of the K10 questionnaire

Qual a sua idade: _____

Escolha seu nome fictício: _____

Durante os últimos 30 dias, com que frequência se sentiu cansado sem uma boa razão?

- Em nenhum momento
- Algumas vezes
- Várias vezes
- Na maior parte do tempo
- Todo o tempo

Durante os últimos 30 dias, com que frequência se sentiu nervoso?

- Em nenhum momento
- Algumas vezes
- Várias vezes
- Na maior parte do tempo
- Todo o tempo

Durante os últimos 30 dias, com que frequência se sentiu tão nervoso que nada o acalmava?

- Em nenhum momento
- Algumas vezes
- Várias vezes
- Na maior parte do tempo

Todo o tempo

Durante os últimos 30 dias, com que frequência se sentiu sem esperança?

Em nenhum momento

Algumas vezes

Várias vezes

Na maior parte do tempo

Todo o tempo

Durante os últimos 30 dias, quantas vezes se sentiu inquieto?

Em nenhum momento

Algumas vezes

Várias vezes

Na maior parte do tempo

Todo o tempo

Durante os últimos 30 dias, quantas vezes você se sentiu tão inquieto que não conseguia ficar parado?

Em nenhum momento

Algumas vezes

Várias vezes

Na maior parte do tempo

Todo o tempo

Durante os últimos 30 dias, com que frequência se sentiu deprimido?

- Em nenhum momento
- Algumas vezes
- Várias vezes
- Na maior parte do tempo
- Todo o tempo

Durante os últimos 30 dias, quantas vezes sentiu que tudo era um esforço?

- Em nenhum momento
- Algumas vezes
- Várias vezes
- Na maior parte do tempo
- Todo o tempo

Durante os últimos 30 dias, quantas vezes você se sentiu tão triste que nada poderia animá-lo?

- Em nenhum momento
- Algumas vezes
- Várias vezes
- Na maior parte do tempo
- Todo o tempo

Durante os últimos 30 dias, quantas vezes você se sentiu inútil?

- Em nenhum momento
- Algumas vezes
- Várias vezes
- Na maior parte do tempo



Questions to produce the AI picture (English and Portuguese)

Can you describe the most important feeling during the class with an image/picture/animal/thing?

In which way changed your body during class (3 words, for example: softened, tighten, opened...)?

How would you describe your thoughts during class (for example: distracted, calm...)

What did you think of/be aware during class?

What helped to be aware/stay in the moment?

How did you feel when in end of the class when laying on the mat?

Perguntas após o estudo para encontrar a palavra para o aplicativo da inteligência artificial para desenhar a imagem:

Você pode descrever o sentimento mais importante durante a aula com uma imagem/imagem/animal/coisa?

De que forma mudou seu corpo durante a aula (3 palavras, por exemplo: suavizado, apertado, aberto..)?

Como você descreveria seus pensamentos durante a aula (por exemplo: distraído, calmo...)
O que você achou de/estar ciente durante a aula?

O que ajudou a estar ciente/ ficar no momento?

Como você se sentiu ao final da aula quando estava deitado no tapete?

Questions semi-structures interview

To what extent has the lesson changed/been observing your inner self?

Does the picture reflect you and your condition during the lesson?

Helps you reflect the picture of the lesson

What do you take with you from the lesson for yourself and everyday life?

How has your well-being changed?

What helped you to calm down today?

What effect did the breathing have?

How was it for you to find words for your feelings?

How do you think about these feelings? Do you react to them?

What is happening when you watch your feelings?

Do you allow all feelings? Which ones if not? What are you doing with feelings you do not like?

Do you pay attention to your senses? Which ones especially?

FFMQ Questionnaire

When do you notice feelings of physical tension or discomfort? Do you think quite soon or later?

How is the tension when noticing?

How was it for you to hold a pose for a long time?

Did you have to change positions after a few seconds or minutes? What did you do when changing the position and why?

Do you know the feeling of rushing or running on automatic mode? Did you experience that?

What did your thoughts do during class?

How is it for you to stay in the present moment?

What does it mean for you when you realize that the thoughts were not with you?

How did you react when the thoughts were not with you?

What effect did the breathing have?

In which time do you live the most with your feelings? (Past, present, future)?

MAAS Questionnaire

To what extent has the lesson changed/been observing your inner self? Have you done that in such a way before?

Does the picture reflect you and your condition during the lesson?

Did the picture help you to reflect about your feelings, thoughts and inner being?

What do you take with you from the lesson for yourself and everyday life?

How has your well-being changed?

What helped you to calm down today?

Can you tell me about your living situation and background?

Own questions