

# Is The Stimulation of Moral Competence with KMDD® *Well-suited* for Our Brain? A Perspective From Neuroethics

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## 1. Introduction

The stimulation of moral functioning is most often associated with educational influences in the area of shaping social competences that are significant for the process of participation in a democratic society. Their meaning is usually embedded in the context of communication that is an important aspect of socio-democratic co-existence. Developmental psychologists point out the great possibilities contained in human communication competence. The ability to communicate – in a discussion or just in everyday life and functioning – is closely related to social skills such as the ability to understand decent behaviors, intentions, the ability to cooperate peacefully and strengthen each other through common moral rules that are socially and culturally created and accepted. Most of the training of social and socio-democratic competences is therefore rooted in the idea of shaping proper communication patterns between people and proper cognitive skills (Kohlberg 1984). In this context it would be worth considering what influences are the most effective, and whether this idea can be used for the general support of the moral development of an individual. Among all the methods that constitute valuable tools for stimulating moral development through the participation in the discussions based on the moral and social skills, *Konstanz Method of Dilemma Discussion* - KMDD® comes to the fore. KMDD® is a unique method with measurable and scientifically confirmed effects in the field of shaping *moral competence*. Prof. Georg Lind, who is the KMDD® creator and a direct student of Lawrence Kohlberg defines moral competence as:

The ability to solve problems and conflicts on the basis of universal moral principles through thinking and discussion, instead of using violence, deceit and force (Lind 2016, 45).

In this definition there is a clear reference to participation in the discussion, which should allow for controlled coping with dilemmas in order to develop the

appropriate skills (competencies), which can then be generalized to everyday situations. This requires the strong cooperation of cognition and emotions in the course of the decision making process, which is somehow encoded in our brain functioning. The natural process of decision making (including decisions related to the consideration of moral dilemmas) is usually largely dependent on the complex situational and social context (Moll *et al.* 2003). In face of this the decision-making process is not an easy one and inevitably requires some well-trained skills. If we look at this situation from the neuropsychological point of view and consider it on the level of an analogy between the external functioning of the individual (level of behavior) and the underlying processes and their structural counterparts in the structure of the brain, we easily come to the conclusion that the proper shaping of a competence in the field of moral behaviors, should maximally focus on taking into account the neuropsychological basis of those behaviors.

## **2. Neuropsychology of Emotion and Cognition in The Field of Moral Decision-Making**

In the neuropsychology of morality, the distinction between the "higher" cognitive processes and the "lower" emotional processes has almost been abandoned. The operative and equivalent influence of both, cognitive and emotional aspects, on the decision-making processes in the face of moral dilemmas is now being much more clearly emphasized. This must also be taken into account in the selection of methods aimed at stimulating the development of moral competence. The best and the most suited to the needs of our brain stimulation process should – at the level of the theory that supports it – take into account the interdependence of cognitive and emotional processing. KMDD® introduces such an approach. The theoretical basis of the method is the *Dual-Aspect Theory of Moral Behavior and Development* also called the theory of two aspects or the two-facetted theory of moral action (Lind 2003, 2016). As part of his theory, G. Lind proposes that emphasis be placed on the importance of developing not only cognitive but also affective aspects of moral competence (Lind, 2008). Thus, he questions the primacy of the cognitive structure over affective factors which – according to the main representatives of the cognitive-development approach in developmental psychology – determines moral development in general. The theory of two aspects assumes that cognitive and affective factors are two inseparable and always co-existing aspects of human behavior that cannot be separated from each other, and which are in compliance with our brain functioning (Lind 1985). As a result, the KMDD® method appears to be an answer to the question about the method of stimulating moral competence best suited not only to our development but also to our brain (Huebner *at al.* 2008). As it has been shown by the neurobiological research, emotional processing is closely related to the

rationality of thinking located to a large extent in the *prefrontal cortex* (PFC), which mediates the conscious regulation of moral behavior. In his article *Moral Brain*, D. Loye proposes the concept of a *guidance system of higher mind* (GSHM) (Loye 2002). He defines this as a general model of intelligence, in which moral functioning is integrated not only with cognitive functioning but also with affective and volitional functioning. This results in the flow of information between all levels of brain activity. This kind of "intelligence" is reminiscent of intuition. While it is not possible to speak about the literal influence of emotions on the intuitive issuing of moral judgments, it seems that moral judgments are mediated by fast, unconscious processes that take place in parallel with any intentional representations. Such "emotions" can also contribute to the processes of taking actions which are somehow motivated. Recent research has shown that the *ventromedial prefrontal cortex* (vmPFC) influences moral reasoning subjected to emotional control, while moral intuition is conducted partly by the *temporoparietal junction* (TPJ) (Harenski *et al.* 2010). Moral reasoning is therefore paradoxically based, to a certain extent, on emotions. Moral reasoning inextricably interacts with emotional processing, which in part could explain big difficulties in making decisions in the face of moral dilemmas. A. Damasio describes emotions as completely integrated with reasoning (Damasio 1994). He also puts forward the hypothesis that the moral judgment is always grounded on the basis of emotional processes that are connected with the vmPFC's functioning. The areas of the cerebral cortex underlying the processes of the highest complexity, such as parietal and temporal cortex as well as the frontal cortex, and more precisely the *prefrontal cortex* (PFC) responsible for operational memory, thinking processes, higher emotionality, social functioning and decision-making are the youngest brain areas from an evolutionary point of view. However, P. Churchland very clearly indicated that the PFC area in the ontogenetic development of an individual is the one which takes the longest to develop (Churchland 2011). This explains why the behavior of children and young people is quite chaotic and usually a long way from the typical rationality and common sense characteristic for an adult person. The prefrontal cortex appears to be crucial for the development of human morality. This area is one of the two main brain regulators of morality processes and socio-moral behavioral patterns (Korzeniewski 2010). The second regulator is the *limbic system*, which is considered to be an older part of the brain, from an evolutionary point of view, responsible mainly (but not only) for emotional processing. It turns out that both parts cooperate with each other on multiple levels and optionally involve other areas of the brain, which in part reflects the functional complexity and cooperation of rationality with emotionality within the unitary moral action to be taken. To better understand the brain mechanisms underlying morality, attention should be paid to the fact of the evolution of the human brain reflected at the levels of its structure (topography). The neuroscientist P. MacLean has distinguished three parts

(levels) of the human brain in his *model of the triune brain* (Panksepp 2005). According to MacLean, the phylogenetically oldest part of the brain (at the same time located at the lowest level) is the so-called *reptilian complex*, which is responsible for basic life functions and instincts. It includes evolutionarily encoded behavior (e.g. tribal behaviors). A second system, which is also a higher organized brain layer, is the previously mentioned limbic system, which MacLean describes as the *paleomammalian complex*. This is responsible for the regulation of the functioning of affective (procedural) knowledge, managing emotional reactions and subjective sensations, and feelings and attitudes, which are unconscious and automatic. The limbic system affects conscious cognitive experiences by adding specificity to them (making cognitive experiences positive or negative in terms of value). From the structural point of view, the limbic system is more like an overall functional system rather than simply a set of precisely defined brain structures just working at one time. Its composition includes *inter alia* the olfactory fields, the hippocampal formation, cingulate cortex, ventral part of the striatum with nucleus accumbens and amygdala. Although it is believed that the limbic system functions below the level of cognition and inductive and deductive reasoning, it is assigned to play an important role in maintaining the sense of individual identity as well as in supervising learning processes (mainly due to the regulation of memory processes, in which the amygdala and hippocampus participate). The limbic system is also described as responsible for providing the state of homeostasis in the face of changes occurring in the external environment (due to the connections with the hypothalamus, which is sometimes considered as a part of the limbic system). The limbic system connects with the cortical structures through the ventromedial prefrontal-prefrontal cortex (vmPFC) and insula. According to R. Stach, these structures should be described as the *sentient part of the thinking brain* (Stach 2012). As it has already been pointed out, the emotions - as well as biological drives and body states (the limbic system is also responsible for them) - are partly responsible for the regulation of conscious, rational activity, e.g. considering moral dilemmas. In modern neuroscience, the biological states of the body and emotional processing are considered to be a necessary basis for all cognitive activity. A. Damasio, who strongly sympathizes with the above view, emphasizes with the above view the fact of significant mediation of the so-called *somatic markers*, which are located in the neural circuits of the PFC. Thanks to them, we feel unpleasant visceral reactions when we recall our bad behavior in earlier situations of a the same kind. This is how actions currently being undertaken could be modified, which would entail better adaptation abilities. Somatic markers affecting the enhancement of the operational memory and increased attention also translate into greater the accuracy and effectiveness of our decisions in situations involving the discussion of moral dilemmas. Disturbances in the rationality of action do not have to be the result of a decrease in the efficiency and quality of the cognitive

processes themselves. The hypothesis of Damasio's somatic markers indicates an alternative explanation by indicating to the dissociation between the level of rational regulation and the one's own emotional experience. J. E. LeDoux has isolated an additional functional subsystem responsible for emotional memory within the limbic system (LeDoux 1996). According to LeDoux, the specificity of human memory is based on two-dimensions: on the one hand, we remember consciously, declaratively and contextually *about* emotions (remembering that in a given situation we have experienced some emotions), which is what the hippocampus formation is responsible for. On the other hand, we also have the memory *of* emotions that can only be experienced at present (hidden, unconscious emotional memory realized by generating a current experience of emotion, which is remembered as the one that has been experienced in a given situation). The second track of memory is regulated by the amygdala. Due to the fact that the memory of emotions is located in the older part of our brain, one can suppose that emotions are remembered at the earliest, generalized to the greatest extent and used more quickly in the face of a moral judgment or decision-making. Certainly this is reflected in the regulation of morality. Some authors even suggest that the psychology of morality focused for too long on the role of reasoning in morality, neglecting the affective side of this process: emotions and intuition. Only with the development of research has it been shown that the emotions are, as much as cognitions regulators of subjective morality. This makes MacLean's theory of the triune brain more complicated than it may at first seem. The most evolutionarily recent part of our brain distinguished by MacLean – the *neomammalian complex* – which consist of the cerebral neocortex (within the PFC area) is considered to be mostly cognitive in its actions. The dominance of the cognitive-developmental approach in psychological research on morality is in accordance with this claim (Greene & Haidt 2002). The role of reasoning (the cognitive factor) is excessively emphasized in the regulation of moral behaviors by L. Kohlberg (King & Mayhew 2002). Nonetheless, many neuroscientists, e.g. M. Gazzaniga just like A. Damasio claims that regardless of how rational humans are, emotions are necessary to make almost all their decisions (Gazzaniga 2009). This also applies to moral dilemmas. Moral decision-making takes place already at the pre-conscious level and is based on the *affective priming*: before the rational justification of choice comes to the fore, a certain kind of readiness concerning the subject of choice occurs in terms of a positive or negative reaction (*the unconscious brain* processes stimuli before the *conscious mind* starts to process the outcomes of this process) (Banse 2001). It can be described as early evaluation and discrimination:

Early affective evaluation and discrimination, which can also occur in parallel to other cognitive activity and under reduced attention, serve to maximize detection of stimuli that are

important for well-being and to enhance readiness for defensive and appetitive behavior (Calvo & Avero 2008, 52).

M. Gazzaniga states that every stimulus triggers an automatic reaction of approval (approaching) or disapproval (avoidance) that can lead to a fully developed emotional state (in terms of cognition and affection at once). This emotional state creates a certain moral intuition that can motivate the individual to act. The action is taken later, when *the mind* begins to look for a rational explanation of an automatic reaction already processed within *the brain*. This is why a basic moral judgment can be compared to an aesthetic judgment in which immediately after seeing a certain piece of art the primary feeling of approval or disapproval appears without any rational deliberation. Conscious processing is another step. The sense of basic approval or disapproval appears also at the same time both in the case of solving personal and non-personal moral dilemmas. This is in line with the distinction made by P. Przybysz and W. Dziarnowska between *non-epistemic* and *epistemic* moral emotions (Przybysz & Dziarnowska 2012). Returning for a moment to aesthetic and moral judgments - their regulation is most likely related to the functioning of the *brain reward system*, which involves not only the FC but also the subcortical structures of the limbic system. This is another argument for the indispensability of emotions in the domain of moral behaviors related to the consideration of moral dilemmas, which turns out to be as cognitive as was previously considered. When considering moral decisions made in the face of moral dilemmas the frontal lobe area must be taken into account. It is said to be the most important for the regulation of morality, which is the most human aspect of the overall activity of a human being. This area is responsible for the regulation of the state of expanded consciousness and higher affection, intentionality and action planning with regard to the context and possible effects of behaviors. The frontal and prefrontal areas are often described as the "social brain" responsible for the integration and balance between the action of "emotional brain" (limbic system) and the impact of all the cortical areas on the cognitive assessment of the occurrences which are considered to take place in our "mind". At the same time it has an inhibitory function with regard to the amygdala activity (it regulates e.g. the level of anxiety which is increased by amygdala activation). Due to the regulation of morality, the vmPFC and dlPFC (*dorsolateral prefrontal cortex*) - are distinguished in the prefrontal cortex. VmPFC is involved in the consideration of personal moral dilemmas (in which the subject is personally involved). The explanation of this tendency is the clear relationship between this area and the *cingulate cortex* which, as part of the limbic system, participates in the regulation of emotions and forms part of the already mentioned reward system. In the vmPFC specific moral emotions may be localized (e.g. pity, guilt, compassion, shame). VmPFC is also responsible for higher emotionality, systematic action control, value assessment (medial part) and the emotional-cognitive management system. This area is a "place" where

conflicts between emotions and reason arise in the case of solving moral dilemmas of a personal character. The dlPFC area participates in solving non-personal moral dilemmas (dilemmas which are of a typically utilitarian character related to the assessment of anticipated profits and losses). The structural-functional connection of this area with the parietal lobe is a specific background for cognitive regulation and the implementation of the utilitarian way of thinking (the parietal lobe participates, *inter alia*, in the integration of cognitive information at the abstract level and in the process of formation of association formation) (Koenigs *et al.* 2007). The dlPFC is involved simultaneously in the organization of memory, intentionality and abstract thinking. In this area, the most important *executive functions* related to cognitive behavior control have also been found. Mirror neurons have also been detected in the structures of the limbic system, the parietal lobe and the dFPFC. Perhaps their presence constitutes the biological basis for empathic participation in the mental states of others. Mirror neurons, which were discovered by the research team of G. Rizzolatti in 1992, initially as those that become active when observing other people's behavior which is important from the point of view of the observer, are now considered to be the basis of moral intuition (Rizolatti & Craighero 2004). The diffuse nature of their localization confirms the inability to clearly determine the place in the brain in which "moral" intuition can be literally "found". Perhaps the existence of mirror neurons enables us to understand the intentions behind other people's actions. The characteristics of mirror neurons may be seen as a confirmation of the diversity of individual moral activity among people, re-emphasizing the emotional and cognitive aspects that underlie morality. Connections between evolutionary older areas of the brain responsible for emotional regulation and high development of the newest and human-specific prefrontal regions regulating the most complex cognitive mechanisms such as conscious and self-aware functioning explain to some extent the specificity of moral judgments and moral behavior.

### **3. KMDD® in Recent Neuropsychological Research - A New Perspective for Moral Competence Stimulation**

In the research on solving moral dilemmas, the principle of inference about the activity of particular areas of the brain is based on decisions or behaviors, the representation of which is the activation of specific areas of the brain. This has been demonstrated in recent neuroimaging research. These studies are based on correlations, so the directionality of the shown relationships are uncertain, but the co-occurrence of specific moral behaviors and specific brain activity gives rise to the assumption that there are significant and direct dependencies between variables that should be taken into account (in terms of the influence of one variable on another). K. Prehn's

research made at the Free University of Berlin has shown some interrelations between brain functioning and moral decision-making in the situation of facing certain moral dilemmas (Prehn & Wartenburger 2008). The sentences containing a moral (e.g. he breaks a window) or grammatical problems (e.g. he look out the window) as well as the neutral sentences without any problem (e.g. he looks out the window) were presented to the respondents. The task was to press the button when they assessed the given sentence as clearly containing a problem. The error rate and reaction time of the respondents were measured, which constituted the indicators of decision-making ability. The study was accompanied by imaging with fMRI. The scan showed significant activation of the dlPFC in the situation where the presented sentence contained a moral problem. At the same time, this type of activity was represented in particular by those subjects whose level of moral competence was high (assessed with C-score index measured with Moral Competence Test MCT for evaluating the effectiveness of the KMDD® method) correlated negatively with the scan result ( $r = -0.47$ ). It can be concluded, that the higher the moral competence is, the less effort and time (measured by the reaction time) the moral decision of an individual requires (Prehn 2013). Moral competence is defined at the operational level as the ability to evaluate arguments based on their quality, regardless of how favorable they are to the evaluator's real moral position. The largest activation in the dlPFC area is related to cognitive processing, which obviously does not mean simultaneous inactivity in the areas involved in emotional processing (e.g. vmPFC, TPJ, limbic system structures). It can be simply a test of the greater control of emotions which directly translates into greater ease in making moral decisions. It is connected with the possibility of giving control to emotions, so that they do not interfere with the decision-making process that mainly takes place on the level of cognitive processing mainly. It should be taken into account that the dFCP area is a moderator of vmPFC activity. Both areas take part in the process of making moral decisions, regardless of whether the dilemma is personal or utilitarian, and thus related to the estimation of profits and losses (Saraiva & Marshall 2015). The differences can only be manifested in the specificity of the area's activity, but both dlPFC and vmPFC will be involved in the processing of the moral dilemma situation. Also the complexity of the external and internal context may change the proportion of dlPFC and vmPFC activity. But still both areas will be active in processing this context. Every KMDD® session proposes changing the phases of cognitive and emotional activity. Thanks to this – based also on the neuroplasticity hypothesis – the discussion of the dilemma during each session of KMDD® is the most effective way of learning and fostering moral competence also in the neuronal sense (Demarin *et. al.* 2014). This is important for planning educational interactions with a high degree of effectiveness which is in line with the specificity of brain functioning and interrelations between emotions and cognition. During every KMDD® session

the brain of each participant needs to face the problem of adaptation to change. It is an outcome of aforementioned processes of changing the phases of cognitive and emotional activity. At the beginning of every session a story should be presented to all participants clearly in oral form. This part catches the attention of the group and stimulates imagination which is cognitive and emotional. Both processes are stimulated at one time. Another task is to read printed version of the story and make notes on the decision of the protagonist. Here every participant needs to reflect on the story and introduce own judgments on the protagonist's behavior therefore rather cognition is involved. After this all participants are free to comment the problem included in the story (clarification; emotional involvement). This phase ends with the voting "for" or "against" the decision of the protagonist. Voting divides the group into two subgroups ("for" group and "against" group). Within those subgroups all participants work in small teams of 3 or 4 persons. Their task is to work together to create as much as good arguments for their choice as they can (brainstorming may increase the level of emotional involvement of a participant). The main and the longest phase of the KMDD® session is the discussion itself. It starts just after team work and involves the activity of the whole group (but still divided into two sub-groups). During the discussion participants need to take a seat in front of each other but still within own group ("for"/"against"). During the discussion they need to obey two rules: (1) everything can be said but without judging other participants and their opinions, (2) last speaking participant gives her/his voice to someone from the opposite side who is eager to answer and signal it by raising her/his hand (this is why this rule is called ping-pong rule). At the same time one of the participants is assigned to write all arguments from both sides. Arguments should be prominently displayed (blackboard, projector). The discussion produces strong emotions and strong cognitive involvement as well. After thirty minutes of discussion participants are encouraged to nominate and vote for the best counterargument of the opposite side. They can confer together in subgroups or propose personal independent preference of an argument. During this phase participants have an opportunity to say something good or just nice to the opposing group. After that the whole group is being asked for final voting "for" or "against" the decision of the protagonist. Votes from the beginning and from the end of the session should be recorded (e.g. blackboard, screen) and compared with the group. The last question is:

"did you have fun and did you learn anything?" (group feedback; all participants have the opportunity to evaluate the session).  
Every KMDD® session is standardized this way (Lind, 2016).

Thanks to changeability of the learning environment provided by every KMDD® session brain's capacity to change is stimulated and more neuronal networks are produced and rearranged.

#### **4. KMDD® as the Most *Well-suited* Method of Supporting Brain Activity While Facing a Moral Dilemma**

The KMDD® method is based on the changing phases of participants' activity during each session. The construction of the procedure allows us to intertwine moments that require a high level activity of the participants with moments when their activity is relatively low. G. Lind calls it *alternating phases of support and challenge* over the course of a KMDD® session (Lind 2016). It is also connected with the control of the participants' emotions, which may affect the learning process. Thanks to the changing phases of the KMDD® session, participants experience locally strong emotions that are soon be calmed by the introduction of a phase based on mainly cognitive processing based on self-reflection and calming down. This is why within the course of each KMDD® session a relatively constant, and therefore balanced emotional involvement of participants in the dilemma discussion is preserved. As the emotions do not interfere with cognitive processes, they do not threaten the simultaneous cognitive process of evaluating moral arguments for and against the decision of a presented protagonist of an educative story. Emotions, which are too strong or too weak, could significantly disturb the thinking process which is necessary in stimulating moral competence. The changing phases of the KMDD® session also promote the development of brain neuroplasticity, which depends to a certain extent on differentiated learning processes. Neuroplasticity can be defined as the capacity of the brain to change, to reconstruct and reorganize in order to create a better ability to adapt to new conditions or to new situations (Draganski *et al.* 2004). The differentiated learning process should be understood in terms of the multiplicity of forms and ways of stimulating development. Only then would the brain would be forced to perform more adaptively, due to changing conditions. At the same time neural networks become more equipotential, capable of possible transformations supporting adaptation processes. The ability to make decisions and assess arguments during a dilemma discussion is strongly associated with the ability to adapt. It is about communication skills matching to the situation and interlocutors, as well as the ability to change the way of thinking under the influence of situational factors. The phase change of the KMDD® session is at the same time a kind of a response to the problem of a decrease in the distribution of attention during the learning process conducted by using classical, lecture-based methods (Grossberg 1999). The changing circumstances of a KMDD® session makes the discussion participants attention increases naturally after each moment of decline related to the process of lowering the participant's activity. In addition, it is constantly accompanied by a conscious cognitive alert supporting the learning process, which translates into shaping moral competence. An appropriate level of emotional arousal makes the learning process even more effective. In each KMDD® session, there are also group work tasks. J. Willis

claims that group work is one of the most important factors supporting learning processes, also from the point of view of neuropsychology (Willis 2007; 2008). Being with others promotes the stimulation of the prefrontal cortex which is a part of the brain responsible for learning processes, including social learning and moral processing at the same time. Experiences (also emotional experiences) related to sharing thoughts and attitudes with other members of the group are crucial for supporting one's brain activity. Discussing moral dilemmas in smaller groups, and then in the whole group by taking part in the session of KMDD® promotes the development of neuroplasticity, and it builds behavioral and personal openness to experience. Thanks to this, the extreme and unambiguous views of certain participants are not strengthened by the favorable environment, but the favorable environment helps to build an individual's a different view or point of view of an individual with no pressure or coercion. It is said that there is a natural relationship between brain structure and learning. David L. Kolb describes a *learning circle* which combines experience, reflection, abstraction and active testing of an outcome of the process of learning. Every experience must go through the sensory cortex of the brain. Reflective observation connected with the process of experiencing involves the integrative cortex. In the process of creation of every abstract concept the frontal integrative cortex is activated. Motor cortex ends the circle with the process of active testing. Kolb's circle of learning shows how strong the learning processes are grounded in the brain structure and functions. Only by providing the best stimulation of those processes we can expect the high quality of an outcome of learning (Zull 2002). During every KMDD® session this stimulation is provided and Kolb's learning circle can go on. Lind's *alternating phases of support and challenge* are strongly related to experience, reflection, abstraction and active testing behaviors. It also combines emotions and cognition in the best proportions for learning. It is important for the brain functioning during the controlling of learning processes. Especially when those processes are complex and associated with increasing the level of moral competence of an individual.

## 5. Conclusion

The KMDD® method is definitely the method that seems to be the best suited to the needs of our brain which takes part or even finds the moral competence. Perhaps due to this aspect it also reveals extremely high efficiency in comparison with other methods of discussion. The application of KMDD® in educational practice is a great opportunity to support moral development in a neuropsychological perspective without the need to create a new, separate method derived from reflection on the needs of the learning brain. The knowledge and the results of recent research allow us to argue that supporting moral competence with the KMDD® method is a great opportunity for moral

education. It may give the best results not only because it uses modern psychological techniques and is grounded in good theory. Understanding the importance of brain functioning it is obvious that KMDD® is definitely well-suited for the human brain and its complex activity. The premises described in this article are also an argument in support of the need for in-depth and specialized scientific research in the field of the impact of the KMDD® method on the functioning of the brain during moral decision-making in discussions of moral dilemmas.

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*Is the Stimulation of Moral Competence with KMDD® Well-suited for Our Brain? A Perspective from Neuroethics*

**Abstract.** This article is an attempt to show that the KMDD® method is the best for both our brain and our moral functioning, which undoubtedly has its

basis in the brain. At the same time, it is an attempt to draw attention to the importance of planning interventions (e.g. at the educational level) which stimulate moral development in accordance with the psychological and neurobiological functioning of an individual. The paper briefly presents the neuropsychological context of moral functioning, and then a series of arguments in support of the thesis that the scientifically proven effectiveness of using the KMDD® method has its support in adapting the method not only to one's pattern of individual behavior, but also to the proper functioning of one's brain.

**Keywords:** KMDD®, moral competence, moral dilemmas, vmPFC, dlPFC, limbic system

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