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## Visual Art Education for Blind Persons: Psychological Perspective

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### Abstract

The interest in research on perception of art in blind persons is represented in psychology through research on perceptual and cognitive processes. Psychology of perception enabled the understanding of interactions between the individual senses and highlighted the importance of touch, and the cognitive psychology pointed on the incentives from the environment, which are essential for the development and reorganization of operation of human brain and demonstrated the role of the cognitive processes. Taking into account modern inclusive approaches in the education of blind persons, can be created conditions for the development of skills for the perception of art, which are immanent to every blind person. Among the key conditions the contribution recognizes so-called active involvement of blind persons in direct gallery environment, which in this context takes over an educational role.

Keywords: blind persons; the perception of art; perception; cognition; gallery environment

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## 1. Introduction

The interest in comprehension of art in blind persons has been present in arts as well as in psychology for a long time. In this article we aimed at two main problems. First, how the blind persons appreciate the visual art, and second, how to create successful art educational settings, in which the blind will develop and realize high levels of understanding visual art. We note that psychological understanding of the appreciation of art in blind persons can be divided into two main branches. The first one largely emphasizes the perceiving aspects, while the second one examines the appreciation of art through exploration of cognitive processes. Research on sensory processes and appreciation of the visual art in blind persons dates more than 300 years ago, when many philosophers, including Rene Descartes, John Locke and George Berkeley, dedicated considerable attention to this field (Gregory & Wallace, 2001). Among their works we find a fairly contemporary way of thinking about blindness and the relation between eyesight and touch. Descartes, for example, believed that a white stick well replaces lost vision to a blind person because by using this tool in correct way he can effectively build his own sensory world. In addition, Locke and Berkeley in their excellent discussions dealt mainly with cases of blind persons who gained their eyesight in adulthood.

Of course, also different views emerged on the role of eyesight in human development. Thus, for example, Julien Offray de la Mettrie in his book *"The Natural History of the Soul"* (1746, in Gregory & Wallace, 2001) argued that only education which an individual receives through all the senses actually makes a human being and gives him what we call a soul. Otherwise, the mind cannot develop. With this he inhibited the right development of thinking about the role of other senses in blind persons for more than two centuries.

General climate of the 20<sup>th</sup> century, which was also partially corroborated by the interpretation of texts by some eminent historians and sociologists, was not in favour of blind persons and their appreciation of art. The traditional view of art was that the gallery art is based on the eyesight and visual stimuli, which would mean that it can only be fully comprehended through eyesight. Thus, for instance, a German historian Ernst Gombrich (1977) with a thesis on so-called economy of eyesight has set eyesight as the first and only sense through which it is possible to perceive the visual arts. And the French sociologist Pierre Bourdieu (1983; Darke, 2003) believed that the visual art is the sphere, which is more often reserved for specific elites and as such represents exclusivity.

## 2. The appreciation of art in blind persons through exploration of sensory processes

### 2.1. Eyesight, touch and aesthetic assessment of artwork

In the early 20th century, when the first empirical studies appeared, psychological interest in understanding the non-visual perception of blind persons increased. In 1930s a German psychologist Marius von Senden published a survey in which based on extensive medical documentation on blind persons he focused on the issue of art and blind persons (von Senden, 1960). He believed, however, that blind persons are incapable of understanding visual arts, as it is based solely on eyesight, and eyesight is not in any connection with touch which is supposed to compensate the deficit of the eyesight. He thought that blind persons have not developed the concept of visual aesthetics and that the world of visual arts is therefore unknown to them. Despite his false conclusions he has, however, encouraged the scientific interest in the issue of the appreciation of art in blind persons. Among other things, he also influenced the research questions by famous Canadian psychologist Donald Hebb, who in the work *"The Organization of Behavior: A Neuropsychological Theory"* (1949) announced the development of neuropsychology. 20 years later a Dutch psychologist of Hungarian origin Geza Revesz brought together his findings about blind persons and art in the book entitled *"Psychology of Art of the Blind"* (Revesz, 1950), which represents a turning point in understanding the psychology of arts in blind persons. He strongly rejected von Senden's idea about the disconnection between eyesight and

touch, and based on the theory of hapticity he assumed that this link exists and that blind persons can also get closer to a piece of art in this way, by touching it. Of all the visual arts sculpturing is the one, he thought, through which blind persons get a certain impression of artwork the fastest. However, he argued that for the proper appreciation of art a key factor is missing and this is an aesthetic assessment. According to him, blind persons therefore cannot develop aesthetic assessment.

The sixties have also brought progress in the understanding of the relation between blind persons and appreciation of art. Gregory and Wallace in 1963, published a book *"Recovery from Early Blindness: A Case Study"* (2001), which represents an upgrade also in connection with aesthetic assessment. Based on the case study of a blind person, who gained vision in adulthood, they substantiated through the process of cross-modal transfer the ability of aesthetic assessment in blind persons.

## **2.2. The ability of art appreciation and aesthetic assessment without eyesight**

A breakthrough in the conception of art appreciation in blind persons happened with a book by Kennedy *"Drawing & the Blind: Pictures to Touch"* in 1993, in which the author through research on tactile drawings of blind persons draws attention to two important discoveries. First, he clearly shows that the spatial perception can be comprehended by both sights as well as through touch and explains that even blind persons have the inherent ability to understand art. With these two findings Kennedy contributed new knowledge to practical work in art education for the blind persons and also enabled further development of research on art and blindness in cognitive psychology.

The nineties also brought new understanding in relation to tactile materials, particularly tactile maps. Ungar et al. (Ungar, Blades & Spencer 1995) investigated the ability for detection and orientation on tactile maps and developed strategies to promote these skills. They worked on understanding the transformation from two-dimensional into three-dimensional space and reaffirmed the so-called cross-modal transfer between sight and touch.

The end of the last century has brought revolutionary insights in the field of experimental psychology. Nobel Prize winner Charles Spence (2003) is certainly one of the pioneers in this field. Although he himself is not dealing explicitly with the appreciation of art in blind persons, he has opened endless possibilities to explore the interaction between individual senses and he scientifically debunked numerous stereotypes and prejudices about the art appreciation in blind persons.

## **3. The appreciation of art in blind persons through exploration of cognitive processes**

At this point in the article we encounter the interaction of basic concepts that we wish to connect, these are: Appreciation of art in blind people, the role of cognitive processes in perceiving art and the meanings of inclusive art education. It is surprising that this interaction in psychological literature started as early as in the first half of the 20th century but was overlooked due to ideological and political reasons. We are referring to Lev Semyonovich Vygotsky's sociocultural theory.

### **3.1. Sociocultural theory and inclusive education**

To help us understand why Vygotsky's theory is important for understanding the appreciation of the visual arts in blind, let us first look at the main assumptions of this theory. And to better understand the importance of inclusive art education and education in the blind, we will look at how Vygotsky explains education through a child's psychosocial development.

In the 1929 Vygotsky wrote a book *"The Fundamentals of Defectology: Abnormal Psychology and Learning Disabilities"* (Vygotsky, 1997a) in which he developed the concept of defectology. The theory

is based on the idea that human development is a process of children's mastering their experiences in their social environment. An adult plays an important role of continual guidance and meaningful relationships during this process. Vygotsky argued that "defects" should not be perceived as abnormality, but need to be brought into social context. He criticized special education as a combination of low expectations and diluted curriculum, and he challenged all educators to have a 'positive differential approach' of identifying children's strength and not their disability.

In his theoretical platform, the organization of higher mental functions has two principles; systemic and dynamic. The systemic organization of higher mental functions means that "... no specific function is ever connected with the activity of one single brain center. It is always the product of integral activity of strictly differentiated hierarchically interconnected centers" (Vygotsky, 1997c). Considering the systemic character of higher mental functions, Vygotsky discusses also the disability. Within this context he distinguished between two types of disabilities; the primary and the secondary ones.

For Vygotsky, a child with special needs is not a disabled child. He regarded disability both as a socio-cultural developmental phenomenon as well as a composition of primary and secondary types of disabilities. The regard of disability of socio-cultural phenomenon comes from the understanding that all higher mental functions have social roots. He wrote that "...every function in child's cultural development appears on the stage twice, in two planes, first - social, then - psychological; first between people as an intermental category, then within a child as an intramental category" (Vygotsky, 1997a).

The primary disability is an organic impairment and as such it may limit the acquisition and the use of some social skills and it means that children acquire knowledge at a slower rate. The secondary disability arises from distortions of higher psychological functions due to negative social factors. Vygotsky correctly assumed that it is the child's social milieu that may severely limit the course of development and lead to the delays or differences that are typical for many people with disabilities. Therefore he named the secondary disability also a socio-cultural disability (Vygotsky, 1997a).

He explained that the many behavioral traits such as passivity, dependence and lack of social skills that might characterize children with special needs are in fact the product of poor access to socio-cultural knowledge, lack of social interaction and opportunity to acquire psychological tools. As the result of the primary disability, expectations and attitudes change access to social experiences leading to the development of the secondary disability. Children with the secondary disability can develop "compensatory reorganization", which means that they can adopt their higher mental functions in a positive or negative direction. For example, a child with special needs might develop a series of maladaptive behavior, which is due to negative adaptive compensatory organization of higher mental functions. On the other hand, if a child is surrounded by positive social incentives and inclusive educational settings, he could develop self-regulated functions, such as self-commands, self-discussions of the school task, that all lead to positive reorganization of higher mental functions. Of course, this could not be processed without the pedagogical help, as Vygotsky stated, or rather, without inclusive education.

According to Vygotsky (1997a), dynamic localization occurs due to; (1) modification of the structure of functions through child's development, (2) modification of the functional structure depending on the level of automatization, and (3) possibility of using different means to achieve the same result. Dynamic localization of brain functions of a child with special needs could have two opposite tendencies; negative as well as positive. Negative tendency means that a child's impairment can cause a significant underdevelopment of a number of brain functions. On the contrary, the positive tendency of dynamic localization of brain functions means to substitute and create new interfunctional connections. The formations which emerge much later and are less connected with the primary derivate factor are easier to eliminate with the support of educational influences.

These two tendencies are in constant competition in the process of child's development.

### **3.2. Artistic experience as perceiving and intellectual process**

As early as in 1925 a Russian psychologist Lev S. Vygotsky wrote a pioneering work on the psychology of art. It is a book "Psychology of Art" (1971), which was first published 42 years later in the Russian language, and shortly after also translated into English.

In Psychology of Art, Vygotsky particularly focused on architecture and sculpture and on the understanding of materials and forms of artistic work. He was not engaged in touch as an alternative sense to eyesight in blind persons, but rather interpreted the art from a completely different point of view. For Vygotsky the perception of art is something highly subjective, where emotions, imagination and overall personality are active. He interprets art through perception of the concept, which refers to the sensory image. Thus, on the one hand psychology of art is imbued with emotional, on the other hand with cognitive elements (Gonzalez Rey, 2011). He understood the perception of art as a process, where three main processes are intertwined; sensory, intellectual and emotional. For the perception of art, therefore, it is not enough only to perceive, i.e.; sight, touch, smell, taste and hearing, but also and above all the intellectual and emotional aspect. He often summarized words of the Ukrainian composer Mykola Ovsianiko-Kulikovsky, who claimed that art is 'an exercise of mind' (Vygotsky, 1971).

With the parallel reading of The Fundamentals of Defectology (1997a), in which he lucidly demonstrates the advantages of the inclusive education, it becomes clear that for Vygotsky the development of appreciation of art in blind persons takes place in the right extend only in an environment which allows the active involvement of blind person in the art events and processes. Why?

Firstly, by introducing the concept of an intellectual process and its interactive operation with perceptual and emotional processes, the first rudiments of the later development of cognitive psychology can already be observed, which in the appreciation of art in blind persons put great emphasis precisely on the cognitive processes; thinking, understanding, interpreting, schemes, etc.

Secondly, if we look back yet at other concepts with which Vygotsky was inspiring psychologists even a century later; among them we also find the concept of so-called importance of social interaction in development of the brain. With it he greatly emphasized the social origins of cognitive functions and the importance of cultural processes in the development of cognitive abilities. With procedures of connecting cognitive processes with different parts of the brain and of the role of the environment in the development of the brain he showed how important it is to integrate a blind child into sighted environment already from the day of his or her birth. He pointed out that for optimal psychosocial development of children with special needs the key element is the effective inclusion based on the premises for individualized learning environment. In the context of the perception of art in blind persons it is therefore important that, like about any phenomena, a child as soon as possible learns also about the art in the environment in which he is born, i.e. in sighted inclusive environment.

### **3.3. Art appreciation in blind people and inclusive art education**

To be able to continue with understanding the connection between art appreciation and inclusive art education we must first clarify what inclusive education actually means. The fact is that not every education is also inclusive education. Our thesis therefore is that the inclusive art education for blind persons is the education which helps the blind persons to develop aesthetic appreciation of art.

Inclusion is a paradigm that has its roots in social justice and the deinstitutionalization and civil rights movements of the 60's. Its founding principle is to give children with special needs equal opportunities to participate fully in regular education classrooms with children who are not disabled. It expresses commitment to educate each child, to the maximum extent appropriate, in the school and classroom he would otherwise attend. However, studies have shown that for some students with

special needs placement in regular education classrooms without appropriate social supports has resulted in social isolation and, ultimately, a more restrictive environment with lower school achievement (Sacks et al., 1992). Therefore, classroom teachers need to make the development of social competence a priority for children with special needs. Efforts to include students with special needs are most effective when teachers are actively involved in assessing the students and helping them acquire appropriate social and academic skills. Inclusive intervention strategies of parents and teachers enhance the social development and school achievement of children. It is also important that the children's ability to implement these skills successfully is carefully monitored. In blind children it is especially important that this inclusive educational support is constant as most of the skills and knowledge they have to learn and do not develop them by themselves as this is typical of children who can see. Art education is certainly a constituent part of every inclusive education, which is why it is very important how teachers and other educators plan and carry out activities that in blind children lead to interest for art education and to development of skills for aesthetic experience. In what connection is inclusive art education for blind persons to findings about the activity of higher mental functions in persons with disabilities, which were established by Vygotsky?

The fact is that the primary disability of blind persons, as Vygotsky stated, is of course their lack of eyesight. This of course prevents them from visually detect a piece of art. If they live in an environment with insufficient or negative incentives, it is highly likely that also in the area of perceiving art they will develop the so-called maladaptive behavior, which in this case reflects as passivity, lack of interest for the arts, lack of desire for artistic interest, etc. Due to this kind of development the blind will feel that the art is a completely unknown area and not at all for them. Their systemic organization of higher mental functions will lead from primary to secondary disability. On the other hand, if blind persons live in a social milieu since their childhood that promotes art education, interest in arts, in short, creates an optimal environment for development of interest in art and curiosity about it, they are likely to establish compensatory reorganization of their higher mental functions in a positive direction. This means that through stimulus from the environment they will develop such self-regulated strategies through which they will develop an interest and curiosity in relation to art and their motivation for artistic pursuits will grow. This is in our opinion a turning point in which the role of art teachers, art galleries and museums and other educational participants who contribute the blind to properly understand art, proves to be indispensable in developing motivation for art and, consequently, for the corresponding perception of art. Therefore, it is important that art education is present from early on, because only as such it will really be inclusive art education. Without the inclusive art education it is more likely for blind persons to develop malcompensatory reorganization of their higher mental functions and maladaptive behavior.

Even though Vygotsky does not discuss this, it seems that the system reorganizations of higher mental functions, both in negative and in positive direction, occur when there is a primary disability, regardless of the person's age. This might happen when a person loses their vision, or this reorganization takes place from birth of the blind child onwards. This means that the art education is important in any stage of development. In children, this manifests itself as inclusive art education that helps them to develop the motivation for the arts and the gradual ability of aesthetic appreciation, meanwhile in adults if they go blind later, art education is important from the point of view that if their primary environment since childhood encouraged art education, they have had more experience with arts and will as blind adults more easily appreciate aesthetic experiences than adults who did not properly receive art education in the past.

On the other hand, one might conclude that the negative dynamic organizations and localizations of higher mental functions occur only in children but not in adults. This is what Vygotsky writes about in *Fundamentals of Defectology* (1997a), where he emphasizes the consequences of lesions with the same localization in children and adults. He specifically wrote that in children, and it is not the case in adults, overlying operations that require participation of the affected component and their development are usually more affected. That means that a child's partial impairment can cause a



significant underdevelopment of many higher mental functions. From this perspective, the inclusive art education, which a blind child receives ever since an early age, is the starting point for the development of his aesthetic appreciation of art.

#### **4. The brain and perception of art**

Assumptions about the importance of the inclusive education, which were discussed by Vygotsky in his work, have been confirmed nearly a century later by a number of discoveries in the field of neurology and neuropsychology.

Today, for example, it is known that different brain centers are responsible for processing a variety of information; the parietal lobe is responsible for movement, orientation and different types of recognition; the temporal one for information of auditory stimuli and the occipital for the information of visual stimuli (Carter, 1999). The research has also shown that all these centers work together and thereby enable an individual to comprehensively identify objects, sounds, and other information (Imamizu, 2010).

Essential is the realization about so-called plasticity of the brain, which means the lifelong ability of the brain to reorganize neural pathways based on new experiences (Neville, Bavelier, 2000). The brain is thus capable of changing their own functions, especially in the early period of the child's life (Cai, Chan, Yan & Peng, 2014). It is interesting that among the factors that affect brain plasticity, the environment is the one which contributes the most to the formation of new neural pathways and the renewal of processing the information (Sale, Berrardi & Maffei, 2009). Incentives from the environment that a child receives since birth are therefore the decisive factors which foster the brain development. Blind children, of course, are no exception (Voss, Lepore, Gougoux & Zatorre, 2011).

Discoveries made by using functional magnetic resonances have shown that the visual cortex in blind persons is also stimulated if a blind person carries out tasks such as; reading Braille, speech processing or tasks requiring verbal memory (Goldreich, & Kanics, 2003). Merabet and Pascual-Leone (2010) emphasize that in blind persons appears a massive reorganization of operations in cortical areas, which are otherwise responsible for vision. Thus today the speculation about 'deadness' of the activity of the visual cortex in blind persons has finally been dropped.

So, if we consider Kennedy's finding on the innate ability of the blind persons for the perception of art, the importance of inclusive education according to Vygotsky and neuropsychological research findings, then it is possible to conclude the following:

1. Blind persons have innate abilities to appreciate art, which means that in theory they all have the possibilities to activate these abilities.
2. All blind persons do not develop potential abilities to appreciate art.
3. Blind persons living in a stimulating inclusive environment which values artistic pursuit develop their potentials to appreciate art faster.
4. The ability of art appreciation is strengthened also by restructuring the neural pathways in the brain, which due to its plasticity enable reorganization of the activity in the brain centers responsible for vision.

Therefore those blind persons who have been since the beginning of impairment or since birth already exposed to an inclusive environment that assesses and stimulates artistic pursuits, are more likely to have processes in their brain reorganized due to their plasticity in a way that they can effectively develop their potential to perceive, experience and assess visual arts.

Thus, we can conclude that contemporary knowledge in the field of neurology and neuropsychology suggests that the lifelong ability of plasticity of the brain (although this is higher in childhood and

therefore the appropriate inclusive art education is so important for children to later develop the ability to aesthetic experience) helps adults to continue the aesthetic experience with the reorganization.

## **5. Incentives from the environment and appreciation of art in blind persons**

There are many factors that influence the development of appreciation of art in blind persons. At this point, we focus only on the ones that, in our opinion, significantly contribute to the relevant incentives from the environment; the family, education, and active involvement in direct gallery environment. We believe that in each of these environmental factors the elements of art education and professional support of art educators are required.

Family environment is definitely one of the first and most important environments that provide positive or negative incentives for the development of a child's appreciation of art. Since it is usually hard for a family to accept the fact their child is different and to adapt to a different way of life, the role of consultants for so-called early intervention education is very important. Their role is to support the family to get included in both the narrow and wider social environment as equally and competitively as possible (Troster & Brambring, 1994), which, in our opinion, should include all the opportunities for a blind child to deal with art experiences, which would later lead to aesthetic experience and enable the development of motivation for interaction with art. We can create activities and variety of games that promote optimal development of blind children from birth until school (Brown, Simmons & Methvin, 2007) in a way that we include elements of art education. In addition, it is important that a family, especially if this interest was already present before, continues with visits to galleries, conversations about artworks, enhances the opportunities for direct contact with artworks, meets artists etc., and that in their daily interactions with a child it introduces also such elements of art education.

Second factor is school and art education in schools. This factor includes a variety of educational methods and learning environments which provide enough material and incentives for the development of the appreciation of art. In this context, we borrow the concept of so-called educational dose which is used by Wai et al. (Wai, Lubiński, Benbow & Steiger, 2010) to interpret the role of education in gifted children. The educational dose means intensity and diversity of educational interventions and creating a learning environment in which gifted students can develop their talents. Analogously we conclude that not only in talented but also in blind pupils we have to provide quality and diverse interventions, in which they will learn about art in different ways, and to enable them such learning environment in which they will be able to develop their potential.

Third factor, active involvement in direct gallery environment is a factor that offers a blind person a comprehensive insight into the gallery art and the experience of artwork. It is very important that galleries and museums in customized ways promote interaction between the artwork and a blind person. Candlin (2003) points out that the basic and most important way is certainly the art education in galleries that stresses the tactility of art, especially texture, weight and form. De Coster and Loots (2004), however, draw attention to the role of art educators as museum guides. We believe that both, tactile sensations, as well as art educators as museum guides form an optimal basis for the creation of aesthetic experience of blind persons. Our findings are also consistent with the thesis by Vygotski, who stated that perception for art appreciation is not enough, but there also and above all has to be the intellectual and emotional aspect. We believe that a clear, precise and technically sophisticated interpretation of the artwork enables a blind person to get closer to it, not only by touching it but through verbal explanation by the museum guide educator he can appreciate it completely and more fully.

## **6. Conclusions**



In our theoretical psychological study of importance of inclusive visual art education for blind persons we came up with several components. First, art appreciation is not only sensual but also cognitive and emotional experience. This means that blind persons approach a work of art by touching, smelling, tasting and hearing it as well as by listening to a precise and exhaustive description of the artwork that they get from others. Both of these components help them develop an emotional feeling and relationship towards the artwork.

Second, even though blind persons lack vision to have full sensory perception, this does not mean they cannot develop skills of aesthetic experience. Discoveries in psychology have shown that blind persons could develop high aesthetic appreciation if they are in their early development stage of an inclusive environment that encourages participation in the arts. Incentives from the environment affect both their attitudes and views toward the arts, artistic engagement and aesthetic assessment as the development of their brain, which due to its plastic nature, allows the reorganization of information processing and integration of different cortical centers.

Third, to be able to develop skills of appreciating art, they need the support from the environment, which has elements of art education. From this point of view it is important that a child receives arts education already in the home environment which in different ways stimulates proper attitude towards art. Institutional education in kindergarten and school is another factor that can provide a blind child, a pupil or a student diverse experience, whereas direct gallery environment allows direct and physical contact with artwork.

Fourth, the galleries and museums should take the role of educational institution, irrespective of the age of blind users. It is not enough only for an individual to want to learn about art, for a parent to be concerned about art education, to have school work in classroom, etc., it is important to have a gallery as such to offer blind persons contact with artworks and thus contribute to comprehensive perception of art. Touch, smell, hearing, taste, detailed technical description of an artwork, teaching about it and personalized time for getting to know it are the parameters that will enable blind persons equal opportunities for appreciation, assessment and emotional experience of art.

From everything written it can therefore be concluded that physical contact and physical environment of a gallery as an educational space represent that supreme potential of artistic engagement which enables a blind person direct, intellectual, emotional and sensorial experience and aesthetic assessment of artwork. It is of key importance that wider environment in which blind persons live recognizes the need to have the artworks, galleries, museums and art in general part of cultural-historical and social context through art activities. If therefore a blind person has the opportunity to learn about the art also through this context, we can say that he has all the potential to develop the aesthetic experience, and can develop an appropriate emotional relationship towards the artwork and art itself. Needless to say, it is also the role of art education, in which through active discourse between a blind person and art educators a blind person develops a truly intimate emotional experience and relationship with art. Maybe this could be the "... third element as the main link in the existing interaction between the blind spectator and the art object." (De Coster, Loots, 2004). Therefore it is particularly advisable that museums and galleries get opened and adapted to the individual needs of blind users.

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