Recognition of Color as a Step Towards Cognition of the World: The First Case Studies and Their Importance

Olga FEDOTOVA¹, Elena PLATONOVA² and Vladimir LATUN³

¹Don State Technical University (DSTU), Rostov on Don, Russia
²Moscow Pedagogical State University, Moscow, Russia
³Southern Federal University, Rostov on Don, Russia

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Abstract. The article is devoted to the analysis of the importance of the theoretical heritage of the German psychologist and teacher W. Preyer, in which the stages of cognition of the world by the child are studied. Using the example of W. Preyer's study of the stages of formation and development of the visual analyzer, it is shown that the scientist established theoretically important regularities. According to the study of W. Preyer, conducted in the 19 century, the child begins to recognize first yellow, then brown and red. This discovery is important for the use of yellow indicators to identify dangerous places, as well as in didactic toys.

1. Introduction

The problem of determination of age limits in the context of accounting factors of development of person has acquired relevance in the 19th century. This time was characterized by keen interest of scientists to natural science and its practical applications. The important stage of development of pedagogy and psychology as sciences related to this difficult period. New theoretical approaches and concepts appear. Many inventions of that time have caused theoretical registration of new branches of pedagogy. The problem fields connected with cross-disciplinary studying of the person by representatives of natural sciences—biology, medicine, paleontology and biogeography. Such terms as “psychiological pedagogy” and “psychiological psychology” have been introduced for scientific use. These terms fixed associativity of biological and social factors in studying of development of the person, in general.

The author of these terms and the founder of these scientific approaches is the German scientist William Preyer (1841-1897). He belongs to the researcher of that difficult and interesting period. Up to German scientist Robert Gaupp, he was the founder of new branch in the science—psychogenesis as comparative science, discovering differences in mental development of children. Unfortunately, his works were forgotten by Russian scientists.

William Preyer’s legacy is interesting on many bases [1]. He was the author of the book “The soul of the child”. This book is devoted to development of thinking, motility and visual perception. It was translated in Russian and edited by famous Russian doctor Ivan Sikorsky.

2. Methodology and Sources

Problem statement. The research questions - what contribution did W. Preeyer make to the development of the theory and practice of education regarding the development of perceptual perception of color as a perceptual standard? Can the results of W. Preyer be used in the system of sensory education of young children?

The object of the study is the theoretical legacy of W. Preyer, represented by his fundamental work “The soul of the child” (1882) in its German version [2]. The inability to use the Russian translation of this publication is due to the following reasons. The German version of the book and Russian translation are not identical. For example, in Russian version the chapter, devoted to
speaking of the child, is absent. Dr. Sikorsky, the editor of the translation, had a point of view, that Russian language and German language are various. The Russian readers of the “The soul of the child” don’t need information about the development of language skills by German children. Thus, for understanding the ideas of W. Preyer it is possible to use only original German edition of the W. Preyer’s study.

Research methods: analysis, synthesis, content analysis, typology.

In Prey's work time frames of experiment are designated in the different way—he keeps count in one cases for days, in others—for weeks. For maintenance of unity we have translated all data in weeks of life of the child. Besides, the number of the experiences devoted to various colors of a range, is not equal. We will provide information in percentage.

3. Results and Discussion.

Preyer’s experimental studies were conducted within 125 weeks according to 4 technics in 4 steps (Picture1).

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Picture 1. Schematic Diagram of the Experiment of W. Preyer (1882).

The first step on the first stage had negative result. The second step on the first stage had positive result. The child could show 3 colors—but with mistakes. The child could recognize the yellow color with great success.

In the second phase W. Preyer used the technic “Call me color”. W. Preyer added new colors. The yellow is distinguished best of all by the child. Blue color has got the last place. The child often mixed it with blue and violet.

The third phase and new technic “Recognize all shades of colors” showed that yellow, brown, black and grey were recognized without any mistakes. Mistakes were the following. Blue was called violet, and green was called grey.

On the final fourth phase W. Preyer used the technic “Give me the object of my color” (Picture 2).

Picture 2. Results of W. Preyer's Studies at the Fourth Stage of the Experiment (In Weeks and Percent).

Red, yellow and black were recognized by the child unmistakably. Green, blue, grey and orange had the worst results.

The sequence of maturing of child’s readiness to distinct colors of dark and light ranges, shades and tones at various intensity of illumination of household objects and stimulus material has been
established (the researcher used the standard plates for perception of color introduced for scientific use in 1879 by Dr. H. Magnus).

The data obtained by stimulation of the child to recognition and the name of colors of a short-wave and long-wave part of a range have been repeatedly rechecked in the course of testing. Results of the experiment had the practical importance, besides the academic interest of scientific community in further studying of a problem. Restrictions have been defined for using of the mixed colors in the first didactic toys (rattles) which aren't perceived by the child owing to backwardness of the visual analyzer; it is offered to enter the elements into their structure providing sounding at their intensive "shaking" by the child.

4. Conclusion

Estimating the importance of the W. Preyer’s study, we will note the following moments.

The limitation of experimental practice of W. Preyer connected with a research only of one respondent hasn't affected the reliability of the results received by him which have been directly or indirectly confirmed further on by other physiologists and psychologists. The problem of determination of age limits of ability of color distinguishing and a qualitative originality of distinction and preference of the choice of color has received new sides of the relevance in researches among modern scientists.

On our opinion, W. Preyer’s technics have conceptual defects. First of all, they assume knowledge of color names. Children must have a strong associative link between the name of color and the corresponding color feelings. But at this age the child’s vocabulary is very limited concerning colors. That is at first W. Preyer had to teach children to call popular colors (color of a range) the names corresponding to them. That is preliminary training makes experimental conditions unnatural. The researcher sets a task to establish whether the child at this age distinguishes color and, at the same time, previously trains him in distinction of colors.

In spite of the fact that W. Preyer's experiments were made without check group and only on the able to see child (his own son), results can be found in our social practice now. His idea that yellow color is recognized before all and is strongly fixed by the person, has applied relevance. Due to results of the first experiences of W. Preyer’s attention was drawn to the fact that yellow color can be successfully used as the color indicator. This color draws special attention of the person and it save the person from danger.

References

