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**CRITICAL VIEWS OF MARIE CURIE ON SCHOOL EDUCATION**

**KEYWORDS:** school education; compulsoriness; critical views; learning.

**ABSTRACT.** The given paper deals with the views of Marie Curie on education. Special attention is paid to her critical attitude towards the system of school education, its compulsory nature and chaotic piling of subjects in the curriculum. The author analyzes the initiative of Marie Curie in education and shows the real significance of her views today.

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**КРИТИЧЕСКИЕ ВЗГЛЯДЫ МАРИИ КЮРИ НА ШКОЛЬНОЕ ОБРАЗОВАНИЕ**

**КЛЮЧЕВЫЕ СЛОВА:** школьное образование; подневольность; критические взгляды; учебный процесс.

**АННОТАЦИЯ.** В настоящей работе рассматриваются взгляды Марии Кюри на образование. Особое внимание уделяется ее критике системы школьного обучения, его подневольности и хаотичном нагромождении предметов в учебном плане. Анализируется инициатива Марии Кюри в образовании. В заключении автор раскрывает реальное значение ее взглядов в наше время.

Another most important sphere of activity of Marie Curie. She got her first experience in pedagogy in her youth, when she worked as a governess in the family of a rich local squire. And when she grew older, she became a professional pedagogue and, finally, a professor. Being the mother of two children, she paid attention not only to family education but also to the system of school education. As long as she didn't like the then system of education in France, she put forward an initiative to create a kind of an educational cooperative in which new forms of teaching could be used. And she was always a success – both as a teacher and mother-educator; many of her students became famous scientists, including her daughter Irène Joliot-Curie, Nobel Prize laureate for chemistry. It is only natural that Marie Curie is also an outstanding pedagogue whose pedagogical experience and views are valuable even now.

Marie Curie belongs to a very rare type of personality. She is an activist; she is decisive and firm; she always tried to do her best to reach the aim. As a scientist who had devoted all her life to scientific investigation, she easily discerned the goals of education and set out to reach them trying to get rid of everything that could prevent her from doing this. And what is it that interferes with education? It is interesting that both in the biography of her husband and in her own autobiography Marie Curie begins to discuss the issues of education not with the pros but with the cons. She gave a definitely negative evaluation of efficiency of the contemporary education of France thinking that school was actually a hindrance to the process of education. And what did she criticize in par-

ticular? First, it was the compulsory nature of education, and, second, the chaotic piling of subjects in the curriculum that she disliked most of all.

### 1. About the compulsory nature of schooling

In her writings, Marie Curie demonstrates a dislike towards school education and a sharp criticism of its system. Such attitude is, of course, partly the result of her unpleasant memories about school in Poland, but it had been formed to a large extent by the system of education of France of that time. Marie Curie believes that it is the compulsory nature of schooling that produces an unfavorable effect upon the child first and foremost. The children have to sit, read and write for hours on end and do endless homework. In a word, the children are made to work mechanically, which kills their interest to learning in the long run.

In her memoirs about Pierre Curie, Marie Curie describes the husband's childhood in the following way: his fantasy was too rich to get accustomed to all kinds of nonsense used to stuff the children's heads at school (Marie Curie. Autobiography, 79). She was glad her husband was lucky, because his parents were wise people and didn't send their child to school. Pierre grew up in the world devoid of restrictions, due to which his healthy mind had not been spoiled by various limits, stereotypes and prejudice (Marie Curie. Autobiography, 80).

It seemed to her that the school employed mechanical or dogmatic learning methods; teaching was carried out in the framework of a uniform curriculum; and all pupils were to learn the same subjects in the same way. But the children are different. Pierre, for one, referred to

the type of people who could concentrate their mind on a singular object from the very childhood in order to find answers to the questions that interested him. It is a highly desirable quality of a future scientist, and such minds are extremely rare, but at school he would have been considered dull because he would never have coped with the school education with his mental concentration and fantasy.

Compulsory and dogmatic teaching is also characterized by a gap between natural science and practice. Nevertheless, the role of practice in the development of natural science is great. Marie Curie believes that interest to sciences can be formed in the child only via direct contact with objects and materials and, as a result, stands for the children to spend more time in natural environments.

Accidentally, positive examples in favor of her belief can be found in the two families: in those of the Curies and the Skłodowskis. She recollects her childhood with pleasure, and tells about her husband's parents and his childhood with equal satisfaction. The atmosphere in both families was light and joyful, which was useful for the healthy spiritual development of the children. The children were not only loved; their personality was carefully guarded by the parents. When Marie Curie faced the problem of bringing up her own children, she continued and developed the traditions of the two families.

## 2. About chaotic piling of subjects

Marie Curie criticizes not only the teaching methods of school education but also its subjects. "It has always seemed to me that there are too many subjects at school; the children sit at the lessons too long, which is harmful to their health" (Marie Curie. *Autobiography*, 32). Because the lessons are too long, pupils have to complete many tasks; they are overloaded with classroom and home work. Marie Curie hated it so much that she said as follows:

I keep thinking that it is better to drown the children than send them to contemporary schools (Ève Curie, 288).

Marie Curie was glad that in his time, Pierre had not set foot in any school, and due to this fact his mind had not been scattered but remained healthy. She thinks that a child with this kind of mentality will be simply crushed by endless lessons and tasks. When she faced the problem of bringing up her daughter, the reality of the French school education worried her greatly, and she didn't feel like sending her children to school. So Marie Curie initiated the creation of a new educational cooperative; together with her closest friends, she organized a school for a dozen children.

The cooperative was attended by the children of wonderful scholars and painters who had similar views on education and started

teaching their kids themselves with pleasure. The cooperative realized the dream of Marie Curie: the children had short lessons and limited volume of material but learned with great interest. There was only one lesson a day, at which one or two parents acted as teachers-specialists in various fields of science and culture. Math was taught by Paul Langevin, chemistry – by the famous chemist Jean Perrin, physics – by Marie Curie herself in her own laboratory. The children were also taught literature, history, foreign languages, drawing, sewing, and even gardening. The future famous physicists Francis Perrin and Jean Langevin, and, of course, Irène Joliot-Curie, the elder daughter of Marie Curie and the future Nobel Prize laureate for chemistry went to this "school".

Marie Curie and other pedagogues-innovators taught the children for two years and then sent them to school. Nevertheless, the study in the cooperative was successful – the children had learned many things and, what is still more important, their interest to science had been awakened, and the basic skills of independent work had been developed.

It is quite clear that the experience of the cooperative can hardly be repeated; rigorous conditions are needed for this: first, it is necessary that the parents were highly educated, capable of guarding the personal values of their children and willing to save their children from chaotic piling of lessons; second, wise parents will always find time for educating their children. In addition to what has been said, understanding and acceptance on the part of the society is also needed. Marie Curie clearly saw this herself. According to the memoirs of Ève Curie, she stopped its existence because the children had to pass compulsory graduation examinations and learn the officially recognized subjects, and the parents were very busy people, too (Ève Curie, 290).

Nevertheless, this does not mean that the cooperative was important for only those parents and children who participated in it. It demonstrated the negative aspects of the school education such as compulsoriness, disregard of the personality, hard learning, etc. It seems that public education institutions are always liable to the problems that worried Marie Curie.

## 3. Principles and methods of family education

In her autobiography, Marie Curie mentioned, not without regret, that her younger daughter Ève had no chance to learn in the cooperative. Still, Ève received her primary education under the guidance of her mother. Marie Curie wanted to give her daughters the best kind of education; no matter how busy she was, she tried to find as many opportunities to influence her children as she could.

And what principles did she observe?

First of all, Marie Curie stressed the im-

portance of creation of a warm and free family atmosphere. She had felt this atmosphere both in the family of the Skłodowskis and in the family of her husband. She had realized its value and consciously kept this family tradition. She found the guarantee of the child's healthy development in this atmosphere. "I believe, that the child's education should meet the needs of his physical and spiritual development, i.e. the needs of his growth", she wrote (Marie Curie. *Autobiography*, 32). By the way, Marie Curie could create a positive atmosphere not only in the family but also among her students and colleagues. The only Chinese student of Marie Curie, the physicist Shi Shiyuan recollects that the life in the laboratory of his scientific advisor was full, accurate, and not without romance (Marie Curie, "Izbrannye stat'i", 185).

Creation of a free family atmosphere does not mean passivity in the child's education in any way. On the contrary, Marie Curie always had a conscious influence upon her daughters, and actually played the leading role in their development. She tried to make her daughters independent and sometimes it seemed that she took rather strict measures. Her daughters were to spend an hour a day in spiritual or physical work and take long walks – Marie Curie paid much attention to the daughters' physical development and taught them different kinds of sport, for example, swimming and skiing. Ève Curie recollected how mother did her best to help them get rid of various bad feelings, including fear and anxiety. For example, during a thunderstorm, she forbade them crying or hiding their heads under the pillow. But it was work that Marie Curie considered to be the best remedy for all negative feelings and moods.

Her education was a success. Both daughters possessed the best personality traits, just as she had wished. The most important of them, according to Ève Curie herself, were the love of work, without thirst for fame or money, and, finally, seeking freedom and independence.

Of course there was something that had

escaped the great mother's attention. Ève Curie wrote that mother did not teach them at all social etiquette, so later on they were absolutely unaware how to behave with other people around and had to learn everything from the start. This reproach is quite understandable: Marie Curie paid little attention to unnecessary communication.

Everything said above allows us to make the conclusion that Marie Curie is an outstanding pedagogue-practitioner who understands the real essence of education, and realizes its social and personal significance. She firmly believes that the purpose of education consists in bringing up a healthy, independent and industrious person. So while bringing up and educating the child, it is necessary to preserve his personality, promote his willpower and health, awaken his desire to cognize the world, and make this process motivated from the inside of the little person. She feels sorry when she sees that the school education often deviates from this purpose, or even opposes it. The pupils are made to learn much and for a long time, due to which they become subjects of the process of education in which little depends on their own will. The children suffer from daily overload which has a bad effect on their souls.

Marie Curie is not a pedagogue-theoretician; she is an outstanding practical worker who knows not only the what but also the how. She sees many educational problems eye to eye with many specialists in the theory of education, for example, with John Dewey who said that the value of school education consisted in the degree to which it managed to motivate the child's further growth, and in whether it succeeded to create the methods promoting this motivation (John Dewey, 62). It is a pity that today, Chinese education repeats everything that Marie Curie was so bitterly opposed to. We are still on the long way to the educational reform, and hope that we have found the right direction to follow.

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