

AN HISTORY OF MANUAL WORK FOR BOYS WITHIN PRIMARY SCHOOL IN FRANCE

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SUMMARY:

The history in this paper focuses on the description and the understanding of manual work for boys defined such as a school subject from 1882 to 1923. It examines contents during the period of school building for lower class people and their evolution. Three specific methods are described: “the method of technical elements” founded on the occupations’ apprenticeship, “the method of usual artefacts” founded on the discovering the technical practices in domestic and handicraft areas, “the method of geometrical elements” designed from an intellectual concept of this education. This evolution is marked by the different concepts of manual work without vocational purposes. At first, manual work is introduced at school because it is necessary to extend previous Fröbel exercises in the kindergarden and to prepare apprenticeship school after the primary school. Progressively it becomes mainly educational without relationships with the technical practices. The initial tension between its practical or educational purposes seems to be the weakness of this school matter. In 1923 it becomes only a pedagogical mean to the concrete teaching-learning of geometry applied or sciences applied.

KEYWORDS:

School subject, History, Curriculum, Technology Education

1. AN HISTORICAL INQUIRY

In France, the primary school is widely organised by the school laws in 1882 : primary schools becomes free, compulsory and laic. But these laws don’t create manual work at school. They generalize several attempts in France and in some countries especially in Sweden and United States. The official texts of 1887 organised the contents of each school matter. This period corresponds to the time of the republican structure building with progressive curriculum; kindergarden, elementary school, upper primary school. The primary school is these three levels with the same purposes: to give to lower class the rudiments for their daily life. But there are a tension between this useful and practical concept and another concept more educational such as in the secondary school addressed for upper classes. In 1923, the new texts evoke the initial foundation of primary school and integrate progress of school (Prost, 1968).

This historical inquiry is realized from the analysis of different sources: textbooks, political discourses, ministerial papers and programs (Buisson, 1887; Leblanc, 1889; Panthier, 1906). It enlightens this school matter existence and its foundations but also the fundamental tensions integrated in the school version of manual work (Lebeaume, 1993, 1996, 2004).

During these forty years, manual work is defined such as a general education for young pupils. The aim of this paper is to describe and to analyse the evolutions of it, its purposes or aims, its concepts, its constraints and its contents. The paper proposes some explication of these changes. At first it analyses the beginning of this school matter at the intersection of the two discourses of apprenticeship and of education. Next, it analyses the transformation of manual work in an intellectual school matter. At last it discusses some main points of this history.

2. THE ENCOUNTER OF TWO DISCOURSES

2.1. The manual work within kindergarten

In the second part of XIX century, the concept of child changes (Badinter, 1980). This change is due and is the consequence of several pedagogical propositions for the French nursery school. Rousseau, Fröbel and Pestalozzi are mainly mentioned in the pedagogical literature which advocates drawing and handling of materials and objects in order to develop intellectual children aptitudes (de Crombrugghe, 1860). These first activities are considered very useful for the learning of reading, writing, counting and geometry. Three aspects are directly in relationship with manual work: “art of measure”, “technical ABC” and the “spielgaben and occupations”.

For Pestalozzi, the “art of measure” is the main component of capacity to draw and to write. The distinction of lines, angles and arcs enables children to analyse shapes and characters. He proposes different games with elementary shares in order to learn simultaneously the form and its name. Fröbel’ “spielgaben” are the same proposal with building blocks. The gradual exercises use volumes, surfaces and lines. There are cubes, blocks, squares, triangles and sticks. Children may build usual objects such as table, chair or decorative arrangements. This knowledge of forms is jointed with knowledge of elementary gestures. This Pestalozzi’s “technical ABC” is composed with the elementary actions: to strike, to bang, to carry, to bring, to throw, to push, to pull, to turn, to brandish, to wring... In this pedagogical concept, the practical skill is defined such as the composition of elementary gestures and actions. Fröbel considers in the same spirit that hands exercises and fingers games enables children to become more and more physically agile. In the same time, Fröbel proposes specific exercises to develop tact and knowledge of objects with a sensorial approach. The view, the hearing and the touch are simultaneously excited in order to appreciate and to know qualities and characters of things. This base of intellectual development completes the visual knowledge of forms.

A fundamental principle of teaching-learning at home and at kindergarden is to propose games with shares and objects. This educational concept focuses on the three aspects of education: physical, intellectual and moral. If “spielgaben” are mainly building games, Fröbel also proposes others activities of objects realizations. These activities give an idea of adults occupations and of labour. These objects made by children contribute to development of moral education because making enables children to know labour. It’s not really and innovation from Fröbel because these occupations are traditional. But Fröbel’s contribution is

the pedagogical analyse of these manual activities. The weaving of paper bands or the folding of paper chips are exercises in order to learn vocabulary, comparison of forms or surfaces and sensorial experiences. These paper works enables children to learn others aspects: the economy when they use scraps of papers; the technical process when they need to cut, to assemble; the esthetical aspects when they have to do something beautiful; the moral signification when they offer objects to their parents.

These educational concepts are implemented in “French kindergarden”. The different manual works are the basic education for children who mainly are children of poor families. These activities are useful for their development and for the practical preparation of daily life. Without any vocational perspectives manual work is introduced in the kindergarden which is a component of the school of French Republique (Dajez, 1994; Plaisance, 1986).

The different institutional texts prescribe manual activities: sewing, knitting, folding, weaving, plaiting. But in 1881, handicrafts that could tire children are forbidden. This orientation confirms the school’s purposes without vocational perspectives and different of a workshop. At this date, the German propositions are not perceived such as good orientations for French schools in reason of the last war. Gréard (1887) or Pape-Carpantier criticize the German method and its mainly geometry centred concept. The French method then fits games and occupations to the French context and philosophy: the educational handicrafts.

The manual exercises are pedagogical means in order to develop children, to educate their eyes and fingers, their good taste and to progressively enable them to copy and then to design. With these principles, geometrical knowledge is not a main value. There are three sorts of educational handicrafts: to develop actions and fingers skill (handling and fingers games and songs), to discriminate sensations (sensorial exercises); to make artefacts in respond of children need of making. Several books propose these activities, for example the “world in paper” (Köning & Durand, 1889) but follow the geometrical progression from points to lines then to surfaces.

This first concept of handicrafts for kindergarden valorises game against labour. This distinction is regularly commented in pedagogical discourses. At school, children have to discover the world of occupations. Learning by playing and by doing is the fundamental principle of school.

2.2. The discourses for young people apprenticeship

The initial issue is the question of apprenticeship particularly studied by Legoux (1972) from the very complete question “the question of apprenticeship” discussed by Gréard (1872). According to this study, the school for apprentices is the first answer at the problem of learning an occupation from a skilled employer. Indeed, it’s important to protect young people who are the future of nation. Yet in the tradition, the apprentices don’t learn and are not trained to a vocational work. Generally, they are in a bad environment in the moral, intellectual and physical aspects. Gréard (1872, p. 14), who is the chief of school in Paris says that “*workshop wears away his body before nature has finished to form it, send to sleep his intelligence that school has begun to wake up, withers his imagination and his heart, damages the spirit of occupation...*”.

The comparison between the several previous solutions guides Gréard to retain the example of the school of apprenticeship that has been experimented in the north of France, in Le Havre

from 1866. This concept of apprenticeship is founded on a particular point of view of the relationships between school and workshop or firms. Until there was three concepts : integration of primary school within workshop such as in a few great industrial firms; putting the workshop in schools such as in a few religious institutions; or jointing primary school and workshop with a daily vocational training in alternation.

In 1872, Gréard creates a new school “l'École-type” at Paris (La Villette avenue) in order to test his solution. Two principles are in this special school: a conciliation of the physical, intellectual and moral development of apprentices; an equilibrated theoretical and practical teaching-learning. The relationships with employers contribute to recognize this vocational training with a first acceptable wage. This first vocational school contributes to develop the primary school and to transform the apprenticeship within an useful period for the children development and their knowledge and skills.

This choice is determined and validated by the development at this date of the working-class thought. This ideological position is guided by the acknowledgment of labour in its different technical forms. It also is a will to create solidarity between workers, developed during the first years of primary school.

The new apprentice schools imply pedagogical choices of contents and methods. Indeed these schools purposes are not only vocational but also are general training in order to be useful for the whole of occupations. This orientation is founded on the perspective of preparing to one occupation but with the possibility of change in the future, according to the evolution of employment. It's a preparatory apprenticeship that is adapted to the new law about labour in order to protect the workers. The training in the same school to different specialised technical occupations imply determination of the unity among diversity of the human productions with materials and tools. Guémied (1865) had proposed an organisation of contents as a sort of summary of industrial arts. This trainer considers that woodworking and metalworking enables apprentices to know the others technical process. He proposes a categorisation of materials, principles of tools, gestures, elementary principles of actions and fundamental technical operations. In this organisation of contents, geometry is central. Indeed, artefacts are composed with elementary forms and their quality depends on layouts and measures. This geometrical point of view permits to define technical operations in order to obtain elementary forms. Planning, adjusting, turning and drawing up are the selected operations because they define process implemented to obtain the arrangement of artefacts' shapes. It's important to know materials, their characteristics and their making possibilities. They are classed according to technical process: their possibility of modelling with or without fire, of forging as metal, of melting as glass or rubber; of wet building as the clay; of cutting as the wood or the leather; of reducing as the stone. In the same spirit, five principal types of tools are selected: the percussion tools, the cutting tools with blades or teeth, the rasps and the lathe. Using these five elementary sorts of tools is for Guémied a mean of the discovering the whole of different tools. But the using of tools implies knowing how to use them and learning gestures. The common gesture is defined as a measured, checked, rhythmical and regular muscular exercise. The use of a plane is considered as the best exercise because it supposes a good corporal posture and a regular movement. The skill of numerous gestures with fingers precision or hands coordination may be acquired with some specific and complementary exercises.

The vocational training is defined from these technical points. This selection permits to define for technical education, general contents at school and specialized contents at workshop. The

woodworking and the metalworking are chosen in reason of intellectual aspect of these works which imply geometrical knowledge.

2.3. Manual work for primary school

The existence of handicrafts within Kindergarden and apprenticeship in specialized schools for young people aged 11-12 justify the idea of need to develop manual work within primary schools. But this possibility is a political option. Two positions are opposed. Gréard, the chief of school in Paris considers that primary school is fundamentally the school of children development. He thinks that school is gradually organised according to children ages and that apprenticeship just beginning after the first general education. At this date of designing of compulsory school, he thinks that the introduction of manual work would be a confusion and would be the reason of absenteeism. Salicis (1886), general inspector, considers that *“learning is important to children but that it is more important to not distract them but to keep their taste of vocational work”*. He also thinks that the school reform has to integrate this introduction in order to build, such as in Germany, an industrial army capable to resist to economical crisis after the military defeat of the 1870 war.

In this opposition, Greard admits this teaching-learning only in post-school time and on Thursday in order to propose useful activities for young boys and to avoid their bad frequentation. This manual work is the first stage of its introducing for children aged less 12. Salicis creates the preparatory apprenticeship school in Paris in 1873 (33 Tournefort Street). This school becomes the lieu of experimentation of adjusted manual work for young pupils. The school subjects are on the one hand general contents and in the other hand, practical contents: linear drawing, objects lessons at workshop, technology. There are five specialized courses: modelling and sculpture, joinery, wood and metal wheel, locksmith and forge. So, it is an education in technical areas of wood and metal with an approach of volumes and shapes. This practical education is given by masters-workers and it progresses according to children age (age 6-7: 2 hours per week; age 8-9: 4 hours per week; age 10-11: 5 hours per week; age 12-13: 7 hours per week; age 14-15: 10 hours per week) (Bougueret. & Laubier 1886).

In this school, the pedagogical method is a workshop method. Pupils have to use tools and to make or to try to make some practical elements. This training focuses on physical competencies and checked gestures. The exercises enable pupils to meet materials, tools and equipment in order to try, to practice and to initiate the first technical knowledge and the first competencies.

This first experience is extended in Paris. In 1879, the municipal council of Paris votes a budget in order to create others manual workshop within primary schools. In 1880 a commission is organised for study the question of workshop within school and school within workshop. Corbon, senator, gives the report which concludes that *“it would be appropriate to joint at each primary school a workshop in order to propose manual exercises to pupils; it's necessary to create apprenticeship schools such as the first one at la Villette avenue”* (Corbon, 1880). These conclusions are very important because they clarify the function of manual work at school. They essentially are manual exercises in complement of rational education and without direct vocational perspectives. Corbon and his colleague Tolain defend the project of the apprenticeship schools creation with the distinction between manual exercises within primary school and vocational training within special schools.

For primary school, manual work only is defined with exercises without vocational apprenticeship. But this specificity is completed by the jointed development of vocational education in special schools.

At the time of republican school edification manual work is prepared and becomes a shared idea. Four arguments are defended. The three first are in the discourse at the national assembly of Paul Bert (1880) who proposes the idea of manual work for all pupils and who say that he don't agree with the proposal of an optional teaching:

“Learning the use of plane, saw... the child will acquire manual skill which it'll always be useful for him and will keep him ready for the whole of apprenticeships. Intellectual benefit also because the numerous small difficulties that he'll meet will familiarize him with observation and reflection. At last, social benefit because after having himself experimented he'll appreciate necessary qualities in order to succeed in vocational exercises and to become an habile worker, there is not any fear, if he becomes a wealthy man, and regardless of his high situation, he don't despise his friends who always work with their hands.”

During 1870 years slowly manual work is formed under the ambition of the working class in order to prepare an industrial army and to develop an integral education of men. The institutionalisation of apprenticeship organise the school structure according to three specialised and gradual levels: the first education at kindergarten, the second at primary school and the third after. Then it becomes inconceivable to not keep compulsory manual work at school. This consensus also benefits of this international preoccupation. Salicis regularly mentions the “slöyd” experience in Scandinavia (Salicis, 1882, 1886a, 1889a, 1889b).

3. THE ELEMENTARY MANUAL WORK

3.1. The generalization of manual work

In 1882 the school laws prescribe “manual work” and Gustave Salicis is the general inspector for this new school subject. He is charged by the ministry to design a pedagogical method and to organize a normal school for teachers training. This teachers special school is established in Paris in 1883 and in 1885 is jointed with the sciences teachers training school. Salicis is assisted by René Leblanc, a primary teacher who is became graduate teacher in physics and chemistry and by Philippon who is specialized in natural history. With his colleagues, Salicis develops a curricular approach with the contents, the teachers' training, the equipment and their financial aspects. He defines new instructions in 1885. There are four categories of contents (Salicis, 1885):

1. *woodworking;*
2. *adjustment, lathe, forge;*
3. *drawing, modelling, moulding, sculpture oriented by a decorative and geometrical approach;*
4. *handling, scientific experiences in chemistry, physics and natural history.*

The manual work is structured by these contents near of the apprenticeship contents: woodworking and metalworking, shapes identification, scientific principles knowledge. But in 1885, Jules Ferry is not the minister and there is a political change that stops the implementation of manual work. Salicis has to simplify his concept of manual work in order to argue the necessity of beginning with pupils aged 6. His main arguments are the development of skills, intellectual capacities and taste and love in labour. He has to persuade primary teachers that manual work is useful for pupils and that manual work is not really a

vocational training. He repeats that *“teaching of manual work within primary school has to keep its primary ambition and that it don't aim more: to give to future worker the hands dexterity, to join the rectitude of senses, experimental notions of milieu and the taste of manual work”* (Salicis, 1886, 1889a). His new official text (1886) precises these pedagogical foundations.

There are two main types of exercises. The first one essentially is centred on modelling with the perspective of industrial drawing. The second is centred on dexterity development. Two main purposes are developed: order and precision.

3.2. A compulsory school matter

Manual work is a part of physical education but it is separated of intellectual education. Like the whole of school matters it also contributes to moral education. In the spirit of the time (Ognier, 1988), manual work for girls and for boys are very separate in order to respect the repartition of social roles.

The school organisation distinguishes kindergarden, elementary schools, and upper schools. The elementary school is divided in three courses. In the official texts (1887) the syllabus for each level contributes to a gradual teaching-learning. For childish section (age 5-7) exercises are Fröbel exercises: weaving, braiding, folding. For elementary course (age 7-9) the two types of exercises are prescribed: cutting out papers and cardboards with pair of scissors in order to build geometrical volumes. The modelling repeats this knowledge of shapes. The middle course (age 9-11) is the level which joints the previous and the upper levels. The pupils build boxes with cardboard and wood and they model volumes and decorative forms with clay. The first realizations with wire of iron and tools are proposed for example to craft cages or grids.

But Salicis notes in his report (1889a) that equipment of schools don't enables primary teachers to implement manual work in its original version. He defines the “manual work without workshop” which is a reduction of the initial project.

With these programs, manual work is a general education. It aims general skills and competencies useful for any occupation. It is practical and useful and it responds to the purposes of primary schools designed for pupils of lower class. The main point of view focuses on the explication of the geometry of made artefacts.

The textbooks edited from 1887 propose different activities in order to implement manual work (Brudenne, 1887; Dumont & Philippon, 1887; Faivre, 1887; Planty, 1887). The authors (Baudrillard, 1888) encourage primary teachers about facilities for implementation and the weak cost. In parallel a new specific method is defined. Schmitt (1887) considers that the artefacts realization is the main orientation of primary school activities. This *“method of usual objects” enables pupils to understand how the real objects are made. This method is different than the previous method used in apprenticeship school only organised around the “method of technical elements”*.

But manual work at primary school is not always implemented. Its main difficulty is the fact that this school matter is contested. Primary school teachers don't agree this implementation because they think that primary school exists for the pupils development and in order to enable lower class to access at a best state. In 1885, a great meeting of teachers union has

proposed to implement manual work in primary schools only by primary school teachers and not masters-workers in order to control the aims of this school matter and the school purposes (Rougier-Pintiaux, 1988). In the different districts the positions also are different. For example, concerning the implementation of stages during summer holidays in 1886, 1887 and 1888 in order to initiate primary teachers to manual work, the political opinions clearly are mentioned. Some political persons in charge of education in districts consider that the main problem of school is the irregular frequentation. Others declare that the nation' need is more the scientific agriculture training than manual work. Others also think that the basic education is to learn reading and writing in order to develop lower class and that school is not a vocational school. These considerations evoke the initial and fundamental discourses about the existence of manual work within primary school (Lebeaume, 1993).

4. THE MANUAL WORK WITHOUT WORKSHOP

4.1. The intellectual education

Salicis is dead in 1889. Leblanc is general inspector in 1890. In order to organize manual work, Leblanc develops a new method titled by "manual work without workshop". His arguments only are pedagogical in order to definitively install it at school:

"Among the different possible school works, it's necessary to choose (...); this choice has to depend of school requirements and school needs." (Leblanc, 1891b)

According to this ambition, he considers that "manual work of elementary school are for mathematical notions what are experiences are for physics and natural sciences with this benefit, for manual works that they exercise each pupil's eye and hand in constraining him to observe, to compare and to measure, these lessons are the object of a double and excellent discipline of senses and of spirit." Leblanc defines manual work like an intellectual school subject.

In this concept, manual work is designed in relationship with science education and is included within intellectual education. In the movement of "New school" Leblanc (1888, 1891a) precises that manual work is jointed with scientific teaching-learning in bringing them the concrete feature. Handling contributes to observe "*the truth of principles and the exactitude of formula*". The paper folding and cutting out are the means for understanding of "geometrical truth". The practical aspect of manual work disappears simultaneously. With its integration among the other school matters, manual work takes the school form. Extracted of physical education, it affirms its educational character.

4.2. The new manual work

This orientation becomes official in Paris with the programs of 1891 and the new programs for primary teachers training. New textbooks propose activities (Jully & Rocheron, 1892) which were described in the journal "the manual and experimental teaching-learning" published from 1888 to 1892 by Leblanc.

The new manual work keeps out wood and metal work. Only the operations of laying out, cutting out and modelling are retained. School realizations don't evoke technical practices. There is a change of words sense. The "work with paper" becomes the science with paper that may be legitimate by the science of labour. At this date, the school manual work finds its

school accessories. There are notebooks in which pupils note the formula and they glue exercises, folded papers and geometrical drawings.

The “method of geometrical elements” is organised with elementary and graduated exercises. This manual work soon is simplified. There are not any exercises in the workshops available in a few schools. In the same sense, the modelling disappears. Manual work is summarized in elementary works with paper and boardcard. The new textbook (Jully & Rocheron, 1902) with a new title “manual work and geometry” only proposes folding paper in relationship with the knowledge of metric system. Manual work is presented such as an experimental teaching-learning because the concrete activities and observations enable pupils to discover the scientific principles. Savineau (1897) proposes to use colour papers in order to identify forms and to educate taste.

The experience in Paris is honoured in 1900 at the time of international exposition. He becomes the norm for the other districts. The authors (Cazès, 1895; Coste & Lapassade, 1892; Martin, 1894, 1895, 1920) propose textbooks with mixed “manual work, drawing and geometry”. The relationships between these three activities are clearly defined. The manual work is summarized by learning of geometrical drawing: “*this genuine industrial language, useful for everybody but in particular for future workers*” (Jully & Rocheron, 1892, p.6). Some authors also propose a mixed teaching with experimental sciences and several examples of applied sciences are available.

At the beginning of XXth century, a major change bumps the balance between manual work, drawing and geometry. Indeed, a new concept of drawing is developed without its geometrical basis (1909). The drawing teaching-learning then favours individual expression, nature and freedom. The official text precises that it is important to distinguish “the things of geometry and the things of nature” (Azaïs & Michard, 1910 ; Quenioux, 1910). This change implies the rupture in the trinity. The drawing teaching becomes independent. But manual work is without support and is only a pedagogical mean for geometrical activities.

After the first world war, the new school orientations define the French change in particular the industrial development. Science education is mentioned such as the best mean and manual work only is mentioned such as a concrete mean to teaching-learning. Its practical orientation is definitively deleted.

4.3. The change of technical teaching-learning

The understanding of this change depends on the orientations of primary school. Indeed the position of Leblanc is in relationship with the defence of the spirit of primary school in competition with secondary school.

In France, with the laws of 1882, two schools are organised. The primary school is the school for lower class and the secondary is for the other social class. Only the first is free. Its concept is to be useful and practical in order to prepare pupils for social roles predetermined. But it is organised in order to enable pupils to access higher states in particular with the upper course. This course becomes in competition with the secondary courses in reason of possibilities to join these courses, in particular in the vocational sections (Martel, 1889).

In 1892, a new demand of business and industry ministry is to train qualified workers in these areas. New schools then are created: “practical schools of business and industry”. They

prepare young people to technical competencies for trade and workshop. But this training essentially is practical without a scientific background. There are then the same discourses than in 1870 with the creation of apprenticeship schools. The partisans of primary school are opposed to these new practical schools because they think that there will be a development of underpaid workers. They consider that vocational training has to begin after the upper course of primary school. It is said at this date that it also is the new start for primary school in its fundamentally graduated organisation. Leblanc is a main actor of this reorganisation of school and he participates at this political debate with a report about the vocational education in France.

In this spirit, manual work within primary schools is defined by Leblanc such as a first level of intellectual education useful to access in upper courses and to avoid the premature vocational education.

5. DISCUSSION

This history is a contribution for school matters' history (Chervel, 1988). It shows the evolution of contents and methods and proposes some elements in order to analyse this curriculum. The introduction of manual work such as a compulsory learning is a political decision and the existence of it depends on the nature of its ideological concepts. At the beginning there are two political options about vocational training in France. The question is about its beginning: after primary school or during primary school. The ambitious to protect children and to develop their skills and intellectual, physical and moral competencies define that primary school at first has not any vocational purposes. This fundamental choice implies the invention of a school version of technical practices. But this concept entails certain consequence: there is a reduction or an abbreviation of technical practices and a separating between school and workshop.

This inquiry also proposes some intellectual tools useful to examine curriculum and school matters. Indeed the three specific methods are identified by the relationships between three components: the pupils' tasks, their purposes and their references (Lebeaume, 2000, 2004). The main difference between "methods of technical elements, usual artefacts and geometrical elements" is about references: technical practices or knowledge area. The balance of each method depends on the coherence of the relationships between for example little handicrafts at school and the genuine technical practices or between folded paper and geometry. This tool enables researchers to determinate the changes from tasks, purposes or references. This school matter like technology education for junior high school in France (Lebeaume, 1996, 2000) underlines the main issue of technical or technological introduction within school and the balance between global approach with making and syllabic approach with elementary gestures or notions. It's always a major question in order to design curriculum without denaturing a school matter in spite of the constraints of school form (Vincent, 1998).

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