

MENTORING EXPERIENCE AND MEANING: FROM THE SOCRATIC APPROACH TO THE NEW SCIENCE OF LEARNING¹

Liv Mjelde*

*Professor emeritus in Vocational Pedagogy at the Senior Centre, Oslo Metropolitan University. She is a sociologist by training and specialist in Sociology of Education, especially studying the changing relations between vocational and general education from psychological (forms of knowledge), didactic (workshop and classroom learning), and sociological (a division of mental and manual labour) perspectives. One of her research fields is gender divisions as they can be observed directly in vocational education, in male and female occupational fields, in relation to movements on the labour market and family ideology. She has published in several languages and has been the keynote speaker in many international conferences. Evaluation of Leonardo da Vinci programmes for the European Union Commission has been part of her work. She has been the Norwegian project leader at Kyambogo University, Kampala, Uganda (2007- 2011) building up a Master degree in Vocational Pedagogy with students from Uganda and Southern Sudan. She is a councillor in the European Association of Professors Emeriti. Her last book (2018) is from the Second World War: *Secrets in a Pair of Scissors. Wartime Russian Women's labour and Life in Prison Camps in Northern Norway 1942-1945*. Website: www.livmjelde.net. Oslo, Norway. E-mail: mjeldeliv@gmail.com

Received for publication on 5.29.2020

Approved on 6.26.2020

Abstract

Mentoring as a desired praxis in educational organizations has come to the forefront in discussions about learning and teaching in recent decades. Mentoring as a concept in educational theory in the European tradition is connected to what has been called The Socratic Method. Master-teacher is a person of experience with whom young people can converse. Questions and reflections should develop student's curiosity and engagement in the search for new knowledge. This understanding of knowledge and learning corresponds with an apprenticeship model of learning where "hands-on activity" is the basis for learning. Contradictions between outlooks on ways of learning are a central issue in our times. This article discusses this problematic here in light of the scientific work of John Dewey, Célestin Freinet, Paulo Freire, Maria Montessori, and Lev Vygotsky.

Keywords: The Social Division of Knowledge. Praxis and Stored Knowledge. Mentors and apprenticeship. Vocational Pedagogy. Pedagogy of Professions.

1. Introduction

In the past few decades, the development of sophisticated technology has brought revolutionary changes to the work of the hand and the mind. This is occurring in practical professions and provides a challenge to scientific work and the art of teaching. The expansion of education in formal institutions after World War II has created new fundamental questions about learning and teaching. The technological revolution based on ICT (Information and Computer Technology) is restructuring production at

an accelerating speed and is constantly changing labour processes, all the while creating new needs for skills in all trades and professions. Old trades vanish, and new trades develop. These developments challenge traditional practices in teaching and learning, and the traditional social division of knowledge; the division between mental and manual labour, between so-called theory and practice, between learning in schools and learning at work, and between academic classroom and master-apprenticeship learning traditions in the formal education. Will the twain meet? The complex contradictions between “hands-on learning” growing out of medieval guilds and the lecture traditions performed in classrooms growing out of the cathedral schools in the Middle Ages are the central question in this article.

The society's class structure is highly visible

In Norway 60 years ago, universities were the domain of a small elite. Most people had seven years of compulsory schooling.² With Norway's development of industrial capitalism, vocational education and training of the working class were carried out in technical/vocational schools where hands-on learning in workshops was central as it has long been in the case of apprenticeships in the workplace. Characteristic of the school system in Scandinavia in the post-war era is the quantitative expansion of public schooling and the professed aim of eliminating the class differences in society through the education system. The old academic gymnasiums and the vocational/technical schools were integrated under one common upper secondary education law in Norway in 1974³. “Equality through Education” was the slogan and expansion became the rule. Demand for social justice was also part of the argument.

Today young people are expected to complete thirteen years of formal schooling before entering the labor market and/or institutions of higher education. 50% of the cohort enters various academic fields and 50%, technical/vocational fields. This has been part of a global trend which, among other things, is built upon a belief that the expansion of equal access and rights to higher education would solve class differences. Reality has shown the complexities in these issues (BOURDIEU; PASSERON, 1964; GRIGNON, 1971; LIVINGSTONE, 1987; MJELDE, 1987, 1990, 2015).

The society's class structure is highly visible and one of the main factors which shape and reproduce class structure is the process of sorting and establishing distinctions through the education system. The working class has access to higher education if they follow academic pathways. These pathways give access to universities, while the vocational-technical pathways give access to skilled work in an ever-changing manual labor market. Young people choosing the vocational/technical route to become skilled workers do not have access to university education. Part of a long struggle conducted by the trade unions has been the demand for formal recognition of the importance and validity of vocational/technical education. The reskilling of workers takes place through adult education courses without awarding points which would give access to higher academic education. Royal commissions and proposals in Parliament on skills and competence have addressed this problematic again and again. The last proposal, called “Learning throughout life” was passed

by the government on April 22, 2020, and states that “The Competence Reform: Learning throughout Life has as a goal that no one should be left behind due to lack of competence” (NORWAY, 2020).

Part of the problematic in this expansion of schooling is the significant failure of many youngsters to adjust to the school system and find a foothold in the labour market. Learning difficulties and drop-out rates have been substantial both in secondary schools and in higher education during the past decades. For teachers and mentors of the coming generations, this has created new challenges and a need for developing revolutionary ideas and praxis in everyday lives. The question is how to make learning meaningful for all young people intent upon leading fulfilling lives in whatever profession or trade they are entering. This is at the core of discussions not only across Europe but also elsewhere in the world (MJELDE, 2015 a, 2017).

2. The Lisbon strategy and vocational education

In the current century, attention in Europe has been drawn to the advantages of education in regard to economic growth in a globalized economy. The Lisbon Strategy, also known as the Lisbon Agenda or Lisbon Process, was an action and development plan devised in 2000 to be applicable to the economy of the European Union between 2000 and 2010. Its aim was to make the European Union the most competitive and knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion. Key concepts used in these documents were “The Knowledge Society” and “The Learning Economy”. Innovation should be the motor of social change. But the economic crisis has shown that the goals are far from fulfilled. Part of the Lisbon Strategy was to reduce the drop-out rates in education. Research in Scandinavia as elsewhere shows that the drop-out rate in vocational and further education remains a challenge.

**Innovation should
be the motor of
social change**

But vocational education in schools and apprenticeship are in focus in a new way. The Lisbon papers stress a so-called knowledge economy, which in turn focused attention on vocational education and the drop-out rates. The Norwegian Minister of Knowledge introduced a parliamentary report on education in March 2013, by emphasizing that more attention will be paid to vocational subjects. The government intends to reduce today’s large drop-out problems. This Norwegian Official Report (NORWAY, 2013?) found that 30% of the students did not finish Upper Secondary School (the 16-19-year cohort) on time. The highest rate of drop-out happens in the vocational sector. The report pointed out that if the student completion rate increased from 70 to 80 per cent it would lead to an education cost reduction of between 5.4 and 8.8 billion Norwegian kroner per cohort (NORWAY, 2013?, p. 174). Research money was channeled toward educational matters both in lower and upper secondary education. There was a greater interest in what is now called evidence-based research in vocational education and new attention is being paid to

the fact that 13 years of schooling, remote from working life, has created a new set of problems (BAKKEN; ELSTAD, 2012; MJELDE, 2017).⁴

The main findings in my research in the vocational sector over past decades show that students and apprentices in the vocational trades prospered and learned when they were in activity in the workshop in the vocational school or in the workplace, while they found little meaning or relevance to the many hours spent in general education classrooms. They showed up in the workshop, but they failed to show up for the academic class (MJELDE, 1993, 2006).

3. The contradictory traditions in today's educational systems

Teaching in upper secondary education has, even today, been cast in two traditions which both arise from the way the instruction of the young was organized during the Middle Ages. On the one hand, the Schola traditions originating in the cathedral schools and on the other hand the Master/apprentice craft traditions with hands-on learning growing out of the guild system. The academic teachers were trained in their subjects in the universities while vocational/technical teachers were trained through apprenticeship and the labour market. The contradictions that may be observed between these different learning traditions are part of the social division of knowledge in today's capitalist society. But the rapid changes on the labour market demand new solutions in the educational systems. The prerequisite for change in all learning science and teaching today is the need for a deeper understanding of these complexities.

In pedagogy, the contradiction and need for changes have created many schools of thought and pedagogical experiments during the past hundred years. The search for "A Pedagogy for People" created new practices with a goal of transcending the contradictions in a deeply bifurcated world in the 1920s. One of the well-known European experiments was the Bauhaus school in Germany. Walter Gropius founded this German design school in Weimar in 1919, inspired by apprenticeship traditions. There would be "no teachers and pupils" in the Bauhaus school, but rather "masters, journeymen and apprentices" working and learning together in workshops. Praxis and cooperation were at the centre of learning. When the Nazis came to power in Weimar in 1925, Gropius moved the school to the industrial city of Dessau, Germany. In 1932, Nazi Storm Troopers occupied the school, destroyed much of what they found and set up an officer training site. The school briefly moved to Berlin, but a year later that site too, was raided and closed for good (CHIASSON, 2019).

But the ideas travelled fast to other countries. A young teacher, Josef Albers had enrolled as a student in the Bauhaus school in Weimar in 1920. In 1925, he was the first Bauhaus student to be asked to join the faculty. By 1933, when pressure from the Nazis forced the Berlin school to shut its doors, Josef Albers had become one of the Bauhaus' best-known artists and teachers. Josef and his wife Anni were invited in November 1933 to come to the newly established Black Mountain College

in North Carolina and share their experiences from the Gropius traditions. The Bauhaus school had been a training for professionals where the work of the hand, in craft-production was at the centre of learning. The Black Mountain College was a school of general studies, concerned with how to transcend the traditional learning traditions based on the division between “Hand, Mind, Heart”. Much of what Albers brought from the Bauhaus tradition in Germany was congenial with the ethos of the Black Mountain College: The principles of “practice before theory”, “learning by doing”, “the best education is one’s own experience”, and “experimenting surpasses studying”. Albers shifted his objectives from teaching professional skills to teaching the whole human being as he expressed it. He welcomed John Dewey’s assertion that art should be integrated into the general curriculum and to think for oneself is the primary goal of teaching. According to Adamson (2007), learning is achieved through the inductive experience of practice, and not through the mastery of theory.

To think for oneself is the primary goal of teaching

This way of thinking has a precursor in Master-Apprenticeship craft traditions in the Middle Ages and was an inspiration to educational scientists in the last century. “Learning by doing” has been one of the ways by which pedagogical reformers have tried to solve the inherent problems in the public-school systems of twentieth century industrial society. In the USA, John Dewey laid the groundwork for a reform movement on this basis, as did Célestin Freinet with his print shops in France. Dewey and Freinet sketched out their educational models based on activities and labour in workshops. Their models were based on a profound understanding of human beings as active agents who develop through activity both phylogenetically and ontogenetically. Another common trait of John Dewey and Célestin Freinet was the desire to practice what they preached. They both sought to have their theories tested in praxis. Dewey founded the Laboratory School in Chicago. Meanwhile, in France, Freinet started his printing schools. The two men had in common a pedagogical model based on a belief that learning takes place during people’s actual activity in their everyday life (MJELDE, 1997). “Learning by doing” is a well-known concept from John Dewey’s laboratory schools. He states: “There is a form of fruitless theory that stands opposed to practice. Real scientific theory is located within the bounds of practice and functions as the impetus for expansion; it provides direction toward new possibilities” (DEWEY; DEWEY, 1962). He presents a workshop model of learning based on praxis and cooperation. These complexities of theory and practice are part of the discussions, and mentoring is one of the newer concepts in the educational debate of today.

4. Mentoring and the Socratic method

The nature and methods of learning have been under discussion as far back as the time of the ancient Greeks when Aristotle, Plato, and Socrates were the most notable sources of inspiration. One may well ask: Why have the experiences of vocational

students and apprentices related to learning and meaning in the workshop setting and working life contrasted so sharply and so negatively with those of the school where learning takes place in classrooms? The practice in master/apprenticeship traditions and mentoring may be playing a key role in this regard. The concept mentor was inspired by Greek mythology. The character of Mentor in Homer's *Odyssey* brought the concept to life. Though the actual Mentor in the story is a somewhat ineffective old man, the goddess of War and Wisdom, Athena, takes on his appearance in order to guide young Telemachus in his time of difficulty. Through her actions, she is the wise Mentor to the young man, and she acted as a wise and trusted advisor and counsellor helping Telemachus grow in experience, maturity, and courage. The word appeared in the English language in 1750 when the story by the archbishop François Fénelon, *Les Aventures de Telemache* (*The Adventures of Telemachus*) was translated, wherein Mentor is the main character. Fénelon's book became the most reprinted book of the 18th century, leading to the word "mentor" being resurrected after the gap of nearly three millennia (PAVLOPOULOS, 2020).

The Socratic turn involved respect for competence and the work of practitioners

Mentoring, as a concept in educational theory today, is closely connected to what is called the Socratic Method. The role of the teacher was to be an interlocutor, a partner with whom young people could converse, discuss, and analyze. Questions and reflections should help to develop young peoples' curiosity and engagement in the search for new knowledge based on their material surroundings, on their actions, related ideas, and hypotheses. Through conversations and through posing and answering questions, participants' inherent understandings and insights are elaborated, clarified, and deepened. Thanks to Socrates' student, Plato, and Plato's famous student, Aristotle, the Socratic method has come down to us. Another part of his thinking, the Socratic turn, implied turning away from mere perceptual knowledge and attempting broader, comparative explanations of external things. The Socratic turn involved respect for competence and the work of practitioners in various walks of life. Aristotle, following Socrates and Plato, developed his thinking about learning by taking practical craft competence as his "self-evident" starting point and model. Aristotle's concept of *phronesis*, usually translated as "prudence" or "practical wisdom" or "judgment," is being rediscovered by many scientists within different disciplines in recent decades (EIKELAND, 2008). Linda Cooper (2018) at the University of Cape Town found there were ignorance and lack of awareness of various differing types of roads to knowledge in South African society. Formal education stresses conceptual knowledge whereas vocational education and workplace-learning stress contextual knowledge. She asks the important question: Does increasing digitalized production produce less racism and denigration of working-class life in our contemporary world? She also points out that with technical innovation, knowledge becomes ever more fragmented and the fragments are segmented increasingly into codified and experiential components. The contradictions are visible in the development of today's fragmented world.

The Norwegian philosopher and action researcher Olav Eikeland (2008) asserts that an Aristotelian view of learning and knowledge is congruent with an apprenticeship model of learning. Eikeland argues that this view should be central for researchers in action research. These questions are central in all research as well as in teaching in all educational settings (KOSLYN; NELSON, 2017). You encounter these contradictions whether you are a medical professor in a university setting or a carpentry teacher in upper secondary school from Boston to Rio de Janeiro or Cape Town to Oslo.

Socrates questioned whether the science and philosophy of his time were really in touch with the living course of human life. We can ask the same question today. With recent educational reforms, time spent in academic classrooms has increased and time in workshop learning has decreased. Students and apprentices in the vocational trades prospered and learned when they were in practice in the workshops, whether in vocational schools or in the workplace, conversely, many did not find much meaning or relevance in the academic classrooms. Meaning and motivation are two sides of the same coin. The students I observed, and those I taught, regarded academic classrooms as contributing little meaning for their future life, because the scientific underpinning of their practical learning was presented as phenomena far distant from the learners' practical reality. On the other hand, the hands-on learning they found in workshops stayed with them for life.

5. Mentoring in the apprenticeship model of learning

Workshop learning has its roots in apprenticeship learning as it was practiced in the guild system of feudal Europe. The guilds were organised into three ranks: master, journeymen, and apprentices. Older and younger people worked and learned together in workshops. Hands-on learning was the order of the day. The master demonstrates, instructs and explains. The apprentices train and repeat, assisting each other with the help of the master till they perform the tasks without assistance—in effect until they master the material they are learning. Vocational schools, as they developed in the industrial era, borrowed from the traditions of the guild system. Here, workshops were the main learning arena. On the other hand, there are the hierarchical traditions of the classical Cathedral Schools of the Middle Ages, where students sit in rows below the teacher who professes or lectures above them. Individual learners are disciplined by clock-hours and their comprehension is evaluated and graded in accordance with what they reproduce in exams (which are normally text-based). The reforms in education have tried to challenge these traditions and make “the twain meet”, although with notably little success.

These starkly contrasting traditions are present and visible in the educational system today. They are an integral part of the contradictions between the work of hand and mind, between intellectual and manual labour as it has developed in society in recent centuries. This contrast permeates our activities and is also fundamental to how we pose questions in scientific research (EIKELAND, 2008; MJELDE, 2016; SOHN-RETHEL, 1978).

6. New mentoring voices

New mentoring voices have come to the fore in recent decades. Women have entered the scientific world and, from the standpoint of gender, have posed new fundamental questions to the traditional social division of knowledge. Women have entered as participants in academic positions and they have presented critical theories of the prevalent ways of thinking in both social and natural sciences. One central question, posed by both men and women, is whether scientific paradigms have remained encapsulated within those intellectual traditions that emerged in Europe in the sixteenth century, the era which saw the increased dominance of science in Western capitalist societies. The philosopher Thomas Kuhn at the University of Berkeley, USA, in his book *The Structure of Scientific Revolutions*, called for a change of paradigms in both natural and social sciences (BIRD, 2000; MORIN, 2008). The Canadian sociologist Dorothy E. Smith calls for a shift of paradigms in her book *Institutional Ethnography. A Sociology for People* (SMITH, 2005). Pedagogues have searched for a hands-on, practical “Pedagogy for People” for the past 100 years.

One of the female pioneers, in both the medical profession and as a revolutionary in pedagogy, was the Italian scientist Maria Montessori. She was the first woman to be allowed into the study of medicine in Italy, in 1896. She is world-famous as a philosopher and practitioner in educational science. Her devotion to research and practice among deprived children has spread its influence far beyond Italy. There are Montessori-inspired kindergartens and schools in many parts of the world, in Scandinavia, as well as in Latin America and Africa. She became an inspiration and a mentor for many educational scientists in the twentieth century. She had a strong belief in everybody’s ability to learn and was deeply concerned about the teacher’s ability to adjust and redeem the inherent abilities in human beings. A teacher, she argued, should be a guide and a mentor (BEFRING, 2018).

Theory without practice would be mere abstract thinking

In the 1970s, the Brazilian researcher and liberation pedagogue, Paulo Freire, with his book *Pedagogy of the Oppressed* put new basic questions on the agenda in Europe again as well in other parts of the world. His book had a big influence in Scandinavia and was translated into Norwegian in 1974. Upper secondary academic education was attacked by students in Norway and new experiments were developed both in lower and secondary education. But concurrently, the traditional division between academic and vocational pathways continued in the public educational system in spite of new policies and official efforts to integrate academic and vocational education under one common law. The division between academic pathways and vocational/technical pathways took new forms with the expansion of upper secondary education, but the traditional social division of knowledge continued to be a conundrum. A central feature in Paulo Freire’s work throughout his life was the dialectic between theory and practice. Theory without practice would be mere abstract thinking, just as practice without theory will be reduced to naïve action (FREIRE, 1998; FREIRE; VITTORIA, 2007).⁵

Paulo Freire was of the opinion that the traditional school had “a banking concept of education” in which the student was viewed as a savings account to be filled with information obtained from the teacher— savings which students could withdraw from the bank at a later date. As an alternative, he suggested a Socratic approach: “A Pedagogy of Questioning”. In North America, Paulo Freire’s work in Brazil seems to be viewed as pertaining to marginalised groups and the idea of their empowerment. The European view of his work follows a more philosophically oriented tradition with influences from the work of the Frankfurt School both from the 1920s and today (STROBELT, 2018).

Critical pedagogy, from its development in the 1920s, was forgotten but came up as a concept again in the 1970s. Critical pedagogy arose from the search for alternative ways to organize teaching and learning in an expanding education system. Critical pedagogy had as a general goal to change society by increasing political consciousness and promoting active participation in the world. Praxis is the central concept which Freire adopts to capture the dialectical relationship between consciousness and the world. He was inspired by the works of Antonio Gramsci, Friedrich Engels, and Karl Marx (MAYO, 2020). The concept of praxis in this context dates back to the ancient Greeks and is central in Paulo Freire’s work. His writings, echoing Marx, generally refer to the process of consciousness, whereby people reflect on their world of action, of everyday life, to examine its various aspects and generated assumptions about it. Paulo Freire believed education could not be divorced from politics: the act of teaching and learning are considered political acts in and of themselves. He defined this connection as the main tenet of critical pedagogy.

This problematic is prominent in the work of Karl Marx, both in *Capital* and in his philosophical works. Marx and Engels were particularly concerned with the social division of labour they observed around them in the 19th century. They saw how the advanced modern society failed to develop the individual’s potential. Marx looked for alternative ways of developing the school which would abolish the social division of labour in the education of the future. He paid special attention to the schools of craft training, developed in France after the 1848 revolution, which attempted to establish a type of secondary education different from the academic kind provided by the lycées. The social division of knowledge, and the contradictions between learning in school and learning in workplaces, between general and vocational knowledge, between intellectual and manual labour in the training of the working class. Since Marx, we have gained more experience and understanding about this devastating social division of knowledge. Similarly, ongoing technological revolutionary changes demand new combinations between praxis and stored knowledge (MJELDE, 2006).

Some central questions are: Can we learn from the master/apprentice traditions in the development of the education of the future? How can stored knowledge be integrated into learning practices in schools and workplaces? How can we integrate

the academic subjects into the everyday learning life of vocational students, apprentices, and as well as students in lower and higher education?

The activity of learning in workshops and workplaces is based on a form of practical knowledge which, over the millennia, has been assembled and systematized. Learning takes place through the processes of one's own activities as well as from interacting and cooperating with others. In this model, the activity itself is the rotation point for learning, whether you are making a table, operating surgically on a patient, or writing a thesis. Learning through praxis is a revolutionary way of thinking

Learning through praxis is a revolutionary way of thinking about learning and teaching

about learning and teaching. Mentoring by the seasoned master and mentoring each other are central aspects of the learning processes. The master's role is to prepare the ground and provide conditions for interaction and cooperation among the students and to give guidance. The development of education systems is ripe with contradictions between "hands-on" and "academic" learning traditions, a fact which shows the continuing relevance of the Greek philosophers in today's discussions as it has been developed by great thinkers and doers during the past hundred years.

7. From Socrates to Vygotsky in the new science of learning

The questions posed by Socrates and Aristotle are central today in all scientific thinking. The scientific perceptions which evolved in Western Europe in the 16th century separated hand, mind, and heart, and separated craft knowledge from intellectual knowledge. One of René Descartes' philosophical reflections is the accentuation of a dualistic concept of the human being, stating first, that the human mind consists of non-matter (*res cogitas*), in other words, it is immaterial and that the body consists of matter (*res extansa*), and second, that these two are not only different but also separate entities. Human reasoning, and the phenomenon of the mind, were thus established as independent of the body (JOHNSON, 2008; BARATO, 2016). The understanding of the body was based on a biological model that separated body and mind. Scientists working within this tradition often regard knowledge as composed of logical lines of thinking, each relatively independent from people's bodies and lives at home and at work. This separation as a social construction is now being questioned both in natural and social sciences (MJELDE, 2016).

Paulo Freire expressed this false dualism in the following way:

"I write with my head, but actually I write with my whole body. I do not think with my mind, I rather think with my whole body, with all my emotions, my feelings, my intuitions. I think with my common sense experiences, with the lived facts, that although rarely perceived, are still present in my life, and I think with my reflexive consciousness as well" (FREIRE; VITTORIA, 2007, p. 110).

As Maria Montessori said: “Hands are the instruments of human intelligence” (BEFRING, 2018). This mirrors the work and insight of Lev Vygotsky from the 1920s (VYGOTSKY, 1962, 1978). The contribution of the Cultural-Historical Activity Theory (CHAT), initiated by the Russian psychologists, Lev Semenovich Vygotsky, Aleksei Nikolaevich Leontiev, and Alexander Romanovich Luria shed innovative light on the development and understanding of the scientific process and learning developed following the Russian Revolution⁶. They sought to establish an approach to psychology that would enable them to research on how the connections between natural processes, such as physical maturation and sensory mechanisms, produce the psychological functions of adults. Vygotsky and his colleagues referred to this new approach variably as “cultural,” “historical,” and “instrumental” psychology. These three labels all index the centrality of cultural mediation in the constitution of specifically human psychological processes, and the role of the social interactive environment in structuring the processes by which children appropriate the cultural tools of their society in the process of their ontogenetic development.⁷

These three researchers provided a historical and social analysis of the development of the higher mental functions of human beings. Lev Vygotsky was the leading scientist in this group. A major feature of Vygotsky’s thinking is that a human being learns from the social context to the individual context and that the development of human speech, consciousness, and thought must be understood in their concrete social and historical circumstances. People develop their mental and psychical activity inductively, by speaking to and communicating with other human beings. Thinking and language cannot profitably be studied by investigating individuals without their connections to others in society, but rather, they ought to be viewed interactively from a material and developmental perspective as members of a complex and living society. This point of view is of fundamental significance for all pedagogy. A. R. Luria and A. N. Leontiev further illuminated Vygotsky’s findings by showing the variation in the development of consciousness in relation to geographical conditions and social background.

Vygotsky criticized traditional teaching for having an atomistic view of learning. Among other things, he felt that both the splitting up of school subjects and the parcelling out of teaching content into individual subjects contributed to the elimination of the meaningfulness of the individual subjects. Knowledge, he argued,

cannot be taken out of its natural context and passed on in isolation; it can only yield its wealth of meaning and create motivation if it is taken up as a part of a whole. He laid the groundwork for a scientific understanding of how human beings learn through activity and cooperation. As Vygotsky said: Neither the mind nor the hand can do much alone. The deed is brought to fruition through activity and cooperation. This points towards transcending traditional perceptions in the present social division of knowledge in society.

The deed is brought to fruition through activity and cooperation

8. Final considerations

New knowledge and practices are evolving. Research from both neuroscience and social science on learning are entering critical debates in educational theory. The technological revolution based on ICT is changing labour processes, restructuring production, and creating new needs for skills in trades and professions. Overall knowledge in relation to work has weakened in recent decades. The gap between praxis from working life and theoretical learning in colleges and universities has widened. This gap is challenging learning and teaching both in upper secondary as well as higher education in our global world.

But the contradictions also provide the groundwork for asking new questions and challenging praxis in educational institutions. Learning theories rooted in master/apprentice traditions pose fundamental and disturbing questions about the unnatural separation educational systems bring, separating us from our own humanity. How to develop concepts from workers' experiential learning traditions? Mike Rose (2014) asks whether within the vocational education enterprise there has been scant attention paid to the intellectual dimensions of common work, to the cognitive possibilities of the hairdressing salon, the welding shop, the construction site. The problematic is present whether you train to be a nurse, a medical doctor, a car mechanic, engineer, or hairdresser (BARATO, 2011, 2016; MJELDE, 2015a, p. 22, 2020).

New concepts relevant to the present century are vocational pedagogy and vocational didactics. They are based on concepts and practices according to how youngsters in vocational school workshops learn through activities and in cooperation with a mentor and each other. These terms and practices have much in common with the learning processes found in the Dewey, Freinet, Freire, and Montessori traditions in line with the scientific understanding of Lev Vygotsky's activity theory. These are also ways of thinking about learning and knowing following the Socratic Method as described in the writings of Aristotle. The concept "pedagogy of professions" has developed in relation to these conflicts and contradictions in higher education, and new doors are opening towards adopting the master/apprenticeship traditions with mentoring and student cooperation. All this promises a brighter future for education everywhere.

Notes

¹This paper is an expanded version of a keynote speech on Mentoring presented at the 1st International Congress of the European Association of Professors Emeriti (EAPE), in Athens Greece, May 31, 2019.

²A compulsory seven-year public school was ratified by the Norwegian Parliament in 1889.

³In Norway, laws on educational matters are ratified by Parliament. Schools and universities are mostly public and free of charge.

⁴ Similar problems are also part of Swedish, Danish, and Finnish reality. These societies, as well as Norway, have developed with rather equal education systems in the postwar era (ALBÆK *et al.*, 2019; GOTTLIEB, 2018).

⁵ In this article, I use both of the discussed concepts practice and praxis. Workshop learning in schools has traditionally been called practice in Norway. I have replaced the concept “theory” in my discussions on “learning”. I call it “stored knowledge”.

⁶ It seems that different roads are being followed in North America and Scandinavia in relation to the contribution of the CHAT traditions. Research in the Americas seems to be directed towards marginalised groups while in Scandinavia is more oriented towards epistemology, vocational education, and labour market research (KVALE, 1993; ENGESTRØM, 1996; PORTES; SPENCER, 2011).

⁷ Jean Piaget worked on these questions in Switzerland at the same time from a biological vantage point. His point of departure for his research was the development of his children. I have discussed the contributions of Jean Piaget and Lev Vygotsky in my other work.

Acknowledgment

I thank Jarbas Novelino Barato and Peter Mayo for input to this article.

References

ADAMSON, Glenn. **Thinking through craft**. Oxford: Berg Publishers, 2007.

ALBÆK, Karsten *et al.* Better late than never?: how late completion affects the early careers of dropouts. **IZA Discussion Paper**, [s. l.], n. 12560, p. 1-39, Aug. 2019.

BAKKEN, Anders; ELSTAD, Jon Ivar. **For store forventninger: kunnskapsløftet og ulikhetene i grunnskolekarakterer**. Oslo: Norsk institutt for forskning om oppvekst, 2012. (NOVA Rapport, 7/12).

BARATO, Jarbas Novelino. Saber do trabalho, aprendizagem situada e ensino técnico. **Boletim Técnico do Senac**, Rio de Janeiro, v. 37, n. 3, p. 19-29, 2011.

BARATO, Jarbas Novelino. **Trabajo, conocimiento y formación profesional**. Montevideo: OIT/Cinterfor, 2016.

BEFRING, Edvard. **De pedagogiske kvalitetene: løfterike muligheter for barn og unge**. Oslo: Universitetsforlaget, 2018.

BIRD, Alexander. **Thomas Kuhn**. Chesham: Acumen, 2000.

BOURDIEU, Pierre; PASSERON, Jean-Claude. **Les étudiants et leurs études**. Paris: Walter de Gruyter, 1964.

CHIASSON, Dan. The man who built the Bauhaus. **The New Yorker**, New York, 29 Apr. 2019. Disponível em: <https://www.newyorker.com/magazine/2019/04/29/the-man-who-built-the-bauhaus>. Acesso em: 22 jul. 2020.

COOPER, Linda. Conceptual and practical knowledge in workers' education. In: VET CONFERENCE, 2018, Zürich. **Annals** [...]. Zurich, [s. n.], 2018.

DEWEY, John; DEWEY, Evelyn. **Schools of tomorrow**. New York: E. P. Dutton & CO., 1962.

EIKELAND, Olav. **The ways of Aristotle**: Aristotelian phronesis, Aristotelian philosophy of dialogue, and action research. Bern: Peter Lang, 2008.

ENGESTRØM, Y. Developing work as educational research: looking back ten years into the zone of proximal development. **Nordisk Pedagogikk**, [s. l.], v. 16, n. 3, 1996.

FREIRE, Ana Maria Araújo; VITTORIA, Paolo. Dialogue on Paulo Freire. **Interamerican Journal of Education for Democracy**, [s. l.], v. 1, n. 1, p. 96-117, Sept. 2007.

FREIRE, Paulo. **Pedagogy of the heart**. New York: Continuum, 1998.

GOTTLIEB, Susanne. How Denmark try to solve the problem of dropout in vocational education. **New Journal**, [Nagoya], n. 17, p. 48-57, 2018.

GRIGNON, Claude. **L'ordre des choses**: les fonctions sociales de l'enseignement technique. Paris: Edition de Minuit, 1971.

JOHNSON, Mark. **The meaning of the body**: aesthetics of human understanding. Chicago: University of Chicago Press, 2008.

KOSSLYN, Stephen; NELSON, Ben. **Building the intentional university**. Massachusetts: The Mit Press 2017.

KVALE, Steinar. En pædagogisk rehabilitering af mesterlæren?. **Dansk pædagogisk tidsskrift**, [s. l.], v. 41, n. 1, 1993.

LIVINGSTONE, David W. (ed.). **Critical pedagogy and cultural power**. [S. l.: s. n.], 1987.

MAYO, Peter. Praxis. *In*: Peters Michael A. (ed.). **Encyclopedia of educational philosophy and theory**. Singapore: Springer, 2016.

MJELDE, Liv. **Apprenticeship**: from practice to theory and back again. Joensuu: University of Joensuu Press, 1993.

MJELDE, Liv. From hand to mind. *In*: LIVINGSTONE, David W. (ed.). **Critical pedagogy and cultural power**. [S. l.: s. n.], 1987. p. 205-221.

MJELDE, Liv. Labour and learning: the apprenticeship program in Norway. **Interchange**, [s. l.], v. 21, n. 4, p. 34-48, 1990.

MJELDE, Liv. Learning through praxis and cooperation: Lev Vygotsky and vocational pedagogy. *In*: MARHUENDA-FLUIXA, Fernando (ed.). **Vocational education beyond skill formation**. Bern: Peter Lang, 2017.

MJELDE, Liv. **The magical properties of workshop learning**. Bern: Peter Lang, 2006.

MJELDE, Liv. Mentoring experience and meaning. *In*: COKKINOS, Dennis V. *et al.* (ed.). **The capital of knowledge**. Athens: Society for the Propagation of Useful Books, 2020.

MJELDE, Liv. **Mentoring our knowledge for the future**. Athens: European Association of Professor Emeriti, 2016. Keynote speech.

MJELDE, Liv. Mentoring vocational self-reliance: lessons from Uganda. *In*: MOLZBERGER, Gabriele; WAHLE, Manfred (ed.). **Shaping the futures of (vocational) education and work**. Bern: Peter Lang, 2015. p. 101-124.

MJELDE Liv. The promise of alternative pedagogies: the case of workshop learning. *In*: WATSON, K. *et al.* (ed.). **Educational dilemmas**: debate and diversity. London: Cassell. 1997. p. 331-340.

MJELDE, Liv. **Las propiedades magicas da la formacion en el taller**. Montevideo: OIT/Cinterfor, 2015a.

MORIN, Edgar. **On complexity**. New Jersey: Hampton Press, 2008.

NORWAY. Ministry Knowledge. **Kompetansereformen- Lære hele livet**. Oslo: Ministry of Knowledge, 2020. (Stortingsmelding, 14).

NORWAY. Ministry of Knowledge. **På rett vei. Kvalitet og mangfold i fellesskolen.** Oslo: Ministry of Knowledge, [2013?]. (Norwegian Official Report, 20).

PAVLOPOULOS, Prokopios. The Roots of learning: the mentor's role. *In*: COKKINOS, Dennis V. (ed.). **The capital of knowledge.** Athens: Society for the Propagation of Useful Books, 2020.

PORTES, Pedro. R.; SPENCER, Salas. **Vygotsky in 21st society:** advances in cultural historical theory and praxis with non-dominant communities. New York: Peter Lang, 2011.

ROSE, Mike. **The mind at work:** valuing the intelligence of the American worker. New York: Penguin, 2014.

SMITH, Dorothy E. **Institutional ethnography:** a sociology for people. Lanham: AltaMira Press, 2005.

SOHN-RETHEL, Alfred. **Intellectual and manual labour:** a critique of epistemology. London: Macmillan, 1978.

STROBELT, Michael. Kritisk pedagogikk - et svar på dagens kunstpedagogiske utfordringer? **Journal of Research in Arts and Sports Education**, Oslo, v. 2, n. 2, p. 4-18, 2018.

VYGOTSKY, Lev. **Mind in society:** the development of higher psychological processes. Cambridge: Harvard University Press, 1978.

VYGOTSKY, Lev. **Thought and language.** Cambridge: MIT, 1962.