

# Work, knowledge and education: a tribute to Mike Rose

Jarbas Novelino Barato <sup>1</sup>

<sup>1</sup> Doctor in Education from Unicamp (University of Campinas). Master in Educational Technology from SDSU (San Diego State University). UNESCO Consultant. Educator and manager at SENAC São Paulo – retired. Associate Professor at Universidade São Judas – retired.

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## Abstract

This paper was written as a tribute to Mike Rose, *BTS* advisor, who passed away on August 15, 2021. This text contains information about the life of the honoree, son of a waitress, and the first in his family to attend a university. Mike's life, who was raised in a poor area of Los Angeles, already introduces the reader to his work. Obstacles at the university and the decision to teach the underprivileged reveal the academic contributions of this UCLA professor. The following parts of the paper contain some of the ideas developed by Rose regarding public education, error, writing, tests, intelligence and poverty. It ends with an interview in which Mike Rose talks about the workers' knowledge. In this speech, he highlights some of the points of *The Mind at Work: Valuing the Intelligence of the American Worker*, book in which he develops ideas on know-how, in a sense that could help institutions and specialists in professional education valuing the acting knowledge of manual workers.

**Keywords:** Mike Rose; work; knowledge; know-how.

## Introduction

There is a very well-known character in American movies: the waitress. The stories change with each movie, but we know in advance how the waitress will be portrayed. She is always a young or adult woman who could not finish high school. She is often a single mother and lives in a small, disorganized house, lacking furniture, in need of a good cleaning. Rent is always late. Her love life is confusing. The dreams she has about love relationships with other beautiful and successful young people are just dreams, without any grounds in reality. Her boyfriends or lovers are men whose life borders on marginality and who often treat her violently. This young or adult woman is not very smart. This is why she is a waitress, an occupation that

requires little knowledge, little skill and no specific professional education. The restaurants and cafes in which she works are not sophisticated, they are places for meals that the Americans call *family restaurants*, or are popular snack bars. She may sometimes try another occupation, but unsuccessful in doing so. She lacks proper school education. She lacks training for occupations that are more demanding than restaurant service. She lacks intelligence. From what we see in movies, it seems that working as a waitress is an occupation destined to young women who cannot find any other way to make a living.

The waitress we see in movies is a character whose characteristics arise from deep prejudices against manual labor, and against women with little education. Her professional knowledge is ignored by the screenwriter. The knowledge that she has, born of the essential activities of her occupation, is invisible. And this invisibility doesn't just happen to those who write scenes for movies, it results from the perspective of our society. In fact, the labor of the waitress is not invisible. It just does not reveal itself to analysts who suffer from a very common nearsightedness: The one that defines the ways of seeing the content of socially undervalued labor. In Brazil, this type of invisibility regarding knowledge on labor, or, more precisely, this nearsightedness of the analysts, happens with the work of a bricklayer. For men with little education and no formal qualification for work, accelerated professional training social programs choose the bricklayer occupation as the best option. Such a choice assumes that the occupation does not require much intelligence, nor knowledge whose development requires a long learning time. I already wrote about it.

[...] I began to think about the professional training of bricklayers, painters, electricians, plumbers and carpenters when, in discussions about education, some friends who were also educators used the image of the bricklayer as a prototype of a rude and not very intelligent person. I never wanted to know the reasons why distinguished intellectuals chose the bricklayer as the symbol of a human being devoid of significant knowledge. At that time (early 1980s) I thought that it was not appropriate to challenge the logic of the aforementioned educators based on a biographical accident [I am a bricklayer's son]; I feared being accused of using my class origins in a naive and romantic manner. Today I have no such modesty anymore. I never accepted the perspective of my illustrious colleagues. Many old civil construction professionals, with whom I lived as a child, were sensitive, intelligent, educated. Uncle Waldomiro and Salvador used to draw as well or better than graduated architects. Marreco and Aristides, in addition to being respected workers, were musicians and performed erudite plays. Paulino was an excellent sculptor. My father, in addition to being a master of his craft, had a fine and witty perception of politics. (BARATO, 2004, p. 13).

I now leave the considerations on the phenomenon of choosing a bricklayer as a profession devoid of significant knowledge and go back to the waitress. Without the analytical blindness of those who cannot see the richness of the waitress' knowledge,

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**The waitress has an enviable mastery in planning, she knows how to distribute her work effectively, regarding aspects of time and space**

I try to specify what knowledge is shown by this professional in her daily work. The waitress masters an applied social psychology (which has nothing to do with the psychology from books) to facilitate her work towards relationships with various types of clients; in this sense, the professional prepares a taxonomy (a generalization) that allows her to predict what may happen in services regarding each category of a restaurant customer. Still in the field of psychology, she knows what conversations she can hold with different clients; for several reasons, a communication that is solely professional with the customers is not enough, it is often necessary to customize the conversation for those who are regulars. The waitress has an enviable mastery in planning, she knows how to distribute her work effectively, regarding aspects of time and space, serving at food courts with six or eight tables. She manages

to perform her services in a harmonious manner, avoiding redundant comings and goings when performing different tasks. This means, for example, serving customers who have just arrived and customers who are asking for the bill in one go. At peak hours, with an intense amount of customers, the waitress walks around the restaurant carrying plates, trays, cups and other objects with elegance and skill. Throughout her day, she has the control over the food court's orders, in order to avoid long waits and dissatisfaction; in addition, should any delay occur, she anticipates it and notifies the customers before any complaints may arise. The professional performing such service in restaurants reveals memory prodigies in controlling a great diversity of orders and customers. The waitress also has a remarkable ability to relate to her colleagues and kitchen staff, in order to keep the work flowing.

So far I have tried to describe some of the skills that require a lot of social intelligence from the waitress. I left out almost all aspects of service techniques in transporting food from the counter to the tables, as well as the service techniques for each type of food and beverage. Without the typical nearsightedness of analysts who cannot see the knowledge involved in manual labor, we are able to understand that the waitresses' work requires intelligence and applied knowledge that demands a long learning time. The waitress is not the unknowledgeable and helpless person we are used to seeing in movies.

The reader may be asking themselves: Why such reference to the waitress' work at the beginning of this article? And here is the answer: 'waitress' was the occupation with which Rose Meraglio put food in her family's table for over 30 years. This answer is still hardly revealing of anything. For the sake of clarity, it must be said that Rose Meraglio was the mother of Mike Rose, a great American educator, professor and researcher at the University of California, Los Angeles (UCLA) for many years. Mike Rose passed away recently – on August 15, 2021. He was a member of the International Editorial Board of *Senac Journal of Education and Work (BTS)*. The publishers of *BTS* decided that a tribute to Mike Rose was in order, by means of a paper that would show who this educator was and what were the most defining ideas

of his pedagogical thought. Here I try to accomplish such a task, writing information about who Mike Rose was and the ideas he came up with in the education field.

In 2005, I learned that an important book regarding work and education had appeared in the United States: *The Mind at Work: Valuing the Intelligence of the American Worker* (ROSE, 2004). I purchased this book and read it with a great admiration. It showed the different sides of knowledge in manual labor that need to be considered in professional education. It was the work of Mike Rose. The author presents a perspective of the worker's knowledge that most analysts of work/education relationships fail to see. And he does so in a captivating text, with a high literary quality, which is something rare in academic writings about education. Right after reading Mike's book, I was invited by the journal *Senac.sp* to interview an educator with an outstanding book on work and education. I decided to interview Mike Rose. I contacted him, fearing that a prominent UCLA educator would not be willing to talk to an unknown Brazilian professor. But that did not happen: Mike Rose was willing, with great sympathy, to answer the questions I wanted to ask him, and he even helped me by suggesting topics that might be covered in our conversation. The outcome of my conversation with him appeared in a special issue of the journal *Senac.sp*, commemorating 60 years of Senac (BARATO, 2006).

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**He was an activist and educator, always addressing the future of education in public debates**

*The Mind at Work* is today an important reference for educators working with professional education. For this reason, in 2016, the Inter-American Center for Knowledge Development in Vocational Training, a body of the International Labour Organization (ILO-Cinterfor), decided to translate Mike Rose's work into Spanish (ROSE, 2016), thus facilitating access to the book in Spanish-speaking countries. A few years earlier, *The Mind at Work* had been translated into Portuguese (ROSE, 2007). I had the privilege of participating in these initiatives, prefacing the Portuguese edition, and advising Cinterfor in organizing the collection that included Rose's work. The research interests of the UCLA professor were not, however, limited to the topic of work and education. Mike Rose has also produced relevant works on public school, adult education, writing, and education and poverty. In addition, he was an activist and educator, always addressing the future of education in public debates. Records of Mike Rose's interventions in discussions on everyday issues of education appear in a blog he maintained over the past few years (Mike Rose's Blog).

There is a lot to be said about the life and work of Mike Rose. In the following paragraphs, I will attempt to highlight some important points of the biography and works of this wistful *BTS* collaborator.

### **The Waitress' Son**

I'm sure Mike would be very proud to flaunt the condition with which I have decided to name this writing's current section. In several works, he made a point of emphasizing that his mother, who worked serving customers in popular restaurants, put food on

her family's table. This story of a "waitress' son" needs to be further detailed. And that is what I will do next.

Mike Rose's grandparents and parents came to the United States from Italy in the 1920s. Almost all members of that family earned a living as factory workers of the railway industry in Altoona, Pennsylvania. Rose thus describes the professional life of his grandparents and uncles:

It was tough work that my family did. I would later come to understand the dynamics of occupational status and social class, but I could sense early on how difficult the work was, and that without it, we'd starve. I also saw that people knew things through work. And they used what they learned. This experience was all very specific to me, not abstract, emerging from the lived moments of work I had witnessed, from all sorts of objects and images, from sound and smell, from rhythms of the body. These sensory particulars stay with me, resonant (ROSE, 2007, p. 21-22).

In his book on work and education, Mike dedicates one of the chapters to an uncle, Joe, who worked in the railway industry in Altoona and later worked in the automobile industry. Joe didn't go to high school. He learned skills related to maintenance of trains and painting cars during the work itself. It's worth giving Mike Rose the floor again:

Still, for Joe the shop floor provided what school did not; it was like "schooling", he said, "a place where you're constantly learning". The intellectual benefits of my uncle's work experience derive from his career path, the variety of jobs he had, with ever-increasing challenges and responsibilities (ROSE, 2007, p. 221).

Mike Rose's grandfather was also a railway worker and, in an accident at work, lost one of his legs. Such fact marked Mike's life and is one of the reminders of his entire family's hard work in Altoona. On the other hand, learning through practice, which allowed the Meraglios and Roses to exercise various occupations in the industry, is another memory that is always addressed in the works of the educator. But his father did not go through the same process. He lived for a time in Chicago, where he worked on precarious jobs. When he got married, after having returned to Altoona, he decided to open a pasta restaurant to serve the workers of the city's railway companies. Such business lasted a few years, but had to close its doors because of a crisis in the railway industry and the resulting unemployment of its workers. The Rose couple, Tommy and Rose, together with Mike, their seven-year-old son, decided to try a new life in California, for two reasons: they believed it would be easier to get a job there, in their new destination, and they hoped that the weather in Los Angeles would alleviate the health issues that Tommy was facing.

Mike's father, with poor health and no professional qualifications, found no regular job in the new land. His mother, with service experience developed in times when the couple had their own restaurant, was able to work as a waitress. She worked many daily hours in order to earn the resources to provide for the family. The couple went to live in a one-bedroom house at the busy Vermont Avenue, south of Los Angeles

(LA). The neighborhood was very poor. And the specific part where Mike lived had nothing to do with the American residential neighborhoods. It had few homes and many small businesses, such as barbershops, car repair shops and greengrocers. The furniture in the house had been purchased from thrift stores. Even so, Mike remembers that, on one occasion, much of this furniture was removed from his home due to lack of payment.

In that neighborhood there was only one child of the same age as Mike. Very close to the home of the future UCLA professor, there were small apartments occupied by middle-aged men, almost all of them unemployed or working in precarious jobs. Little Mike coexisted with all these people and spent a good amount of that time with his father who was almost always at home, since he was sick and unemployed.

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**For a year and a half, Mike took a course where the prospect of going to higher education was non-existent**

The Rose couple and their son went around in Los Angeles by bus. The mother, Rose Meraglio, in order to get to work, took two different lines of the public transport. Father and son did the same when they visited her at her workplace. This circumstance is an indicator of poverty, as in the United States, even people with few resources have their own vehicles and do not use public transport.

In *Lives on the Boundary* (ROSE, 2005), Mike tells that he got his first paid jobs early in life, when he was around 12 years old. His first job was at a pet store. As a child, and being quite small, it was easy for him to enter the cages of the animals in order to clean and change water and food containers. He escaped this unpleasant job as soon as the opportunity arose for him to sell strawberries door-to-door. He and four other children of the same age used to get out of a fruit vendor's truck carrying strawberry boxes, in order to offer these products to the residents of middle-class neighborhoods.

The waitress's son completed his primary level studies at a Catholic school not far from his residence. He was not a brilliant student. He also attended high school in a Catholic school. And he was admitted characterized by a circumstance that had consequences which were mentioned several times by Mike in his works and interviews: he was enrolled in the itinerary organized for students who would go to professional training institutions. For a year and a half, Mike took a course where the prospect of going to higher education was non-existent. However, a teacher found out that that student had been mistaken for another who had the same last name. The high school entrance exam indicated that Mike should be admitted to the academic, university-oriented itinerary. With such discovery, the school corrected that mistake, and Mike was transferred to the academic itinerary. The change of itinerary was not easy for him. When narrating what happened, Mike informs us that many subjects were common to both itineraries. Biology, for example, had the same course plan for both itineraries, and was taught by the same teacher. But there were fundamental differences between the two education proposals. The teacher would not delve deep into the subjects, nor would he insist on creating a scientific interest in the itinerary aimed at professional education. For the students of the academic itinerary, much was required in terms of learning science.

**When he was almost completing his master's degree, he started thinking about how that isolated world of literary studies made no sense**

Mike had a hard time keeping up with the academic itinerary in the second half of his high school. And it was likely that he would end up as a failed student. Nonetheless, the course of his story changed due to a young English language and literature teacher, Jack McFarland. With this teacher, he started refining his compositions, and developed a taste for literature and writing. Coexisting with McFarland convinced him that it was worth continuing his studies at a university. But Mike did not have the conditions for academic education and the financial resources to pursue being admitted in higher education. Jack McFarland convinced professors at Loyola University that his student deserved the chance to study there. Mike went to Loyola on a scholarship for a probationary year. He almost lost the scholarship because his performance was not brilliant in the first year. He overcame the difficulties and continued there until he graduated in literature. At Loyola University, he found some professors who were very supportive. At first, he did not believe he would achieve results that would lead him to obtain scholarships to further advance his academic education. Despite that, at the end of the course, he won the most coveted awards that the institution's students could hope for, including a generous scholarship to pursue a master's degree at UCLA.

In *Lives on the Boundary*, Mike Rose's narratives give us the impression that he was not a student who would be accepted at UCLA. But he was. He was admitted, with a demanding course plan of literature studies and with professors who value academic education, creating an intellectual world in which students distanced themselves more and more from the everyday lives of common people. Mike immersed himself in literature studies and continued writing poetry, an activity he had already been developing in his days at Loyola. When he was almost completing his master's degree, he started thinking about how that isolated world of literary studies made no sense. He then decided to abandon his graduate studies and declined a generous scholarship. He was not really sure of what he would do. He thought that the best path would be, perhaps, Teacher Corps.

Teacher Corps was a program dedicated to educate, through practice, teachers to work in schools in the poorest neighborhoods of the Greater Los Angeles area. The program lasted two years and included what we might call a pedagogical residency, with teacher candidates accompanying experienced teachers in peripheral schools and attending courses that could assist them in their education at the University of Southern California. In his second year at Teacher Corps, Mike was invited to take over the teaching activity in some classes. He felt that he was not well prepared for such undertaking, but he was convinced that he would learn a lot from it. And so he learned a lot about education by teaching reading and writing to poor children with serious educational needs. Here, it's worth giving Mike the floor about what happened:

Teaching, I was coming to understand, was a kind of romance. You didn't just work with words or a chronicle of dates or facts about the suspension of protein in milk. You wooed kids

with these things, invited a relationship of sorts, the terms of connection being the narrative, the historical event, the balance of casein and water. Maybe nothing was 'intrinsically interesting'. Knowledge gained its meaning, at least initially, through a touch on the shoulder, through a conversation [...] (ROSE, 2005, p. 102).

This record of Mike's early experiences with teaching activities reveals an approach he would develop in his works. Although he doesn't use such terms, the hand on the shoulder and a conversation are indicators of caring, of looking at others as persons who are capable and who can learn. In *Lives on the Boundary*, Mike refers to an educator and a philosopher who taught him to look at the other, Paulo Freire and Martin Buber. The latter was a source of admiration when he read *I and Thou*. The former impressed him at a conference, by placing, in a gesture of affection, a hand on the shoulder of a participant who had just asked him a question. In the many cases he narrates in his works, Mike always highlights these aspects of connection between educator and student, which I am placing under the umbrella of the Ethics of Care, recalling the motto that Don Milani placed on a poster at the School of Barbiana: "I care".

It is worth transcribing here some excerpts of an interview granted by Mike Rose to Bill Moyers about *Lives on the Boundary* ("Mike Rose: a conversation on poverty and education in Los Angeles"):

**[BM] You said in your book, "The more I come to understand education, the more I come to believe in the power of invitation". Why invitation?**

**[MR]** The way I view education, it's an invitation, it is an attempt to bring people into a kind of conversation, into a set of ideas, into ways of thinking and conversing, reading and writing, that's new to them.

[...]

**[BM] Do you remember some of those kids you taught 20 years ago, when you were a new teacher, poor kids like Dora, Jesus and-**

**[MR]** Yeah, I do. And...

**[BM] What did they teach you?**

**[MR]** Yeah, good question. It's one that's rarely asked.

**[BM] You had to learn from them.**

**[MR]** Did I ever learn from them. I learned that virtually any kid who has been written off, virtually any kid who has that thick cumulative folder full of failure, has an ability and a potential that we simply don't see. And what I found, again and again, was that they just had all this ability, the ability to tell stories and write them, the ability to talk to each other about the reading they did and create interesting kinds of connections between the readings. They had an ability to get very excited about language use in a way you could have never predicted from what the objective tests said and what the records in their cumulative folders said.



The excerpt above clarifies what Mike Rose defined as romance. It also clarifies what he learned from people who had a very poor formal education, but who could be captivated by knowledge if invited to do so!

Through his work, Mike developed a keen sense that education requires being closer to students, understanding them, knowing their living conditions, respecting their culture. All this in hopes of making them feel captivated by knowledge. And at the end of his time at the Teacher Corps, he didn't go back to his Masters. He looked for another job opportunity where he could learn more about helping people who wanted to pursue their education. He then became involved in a project that supported Vietnam veterans who were entering higher education but had some learning difficulties. In that program, Mike coordinated the work of the teachers who helped veterans returning to school. And he, in addition to the task of coordination, welcomed students who needed to improve their writing skills. Such project with the veterans depended on investments that decided according to political factors. There began to appear signs that the project would no longer have the necessary resources. Mike then had to look for a new job opportunity and found it at UCLA. Here is an evaluative statement he made of his time working with the veterans:

The Veteran's Program gave me both the incentive and the courage to try new things, to lead outward and follow my curiosities, many of which were being sparked by my teaching. I realize now that I was creating for myself the kind of rich interdisciplinary course of study I couldn't find at UCLA, one that was grounded in my work, that fused mind and world. In higher education, there is a politically load distinction between 'pure' and 'applied' study. Pure study is elevated because it putatively involves the pursuit of knowledge for its own sake – mathematics and literature are good examples; applied study (engineering, medicine, education), because it is situated in human affairs, is somehow tainted, is less – well – pure. What silly, bloodless dichotomy (ROSE, 2005, p. 155).

At UCLA, Mike took over the coordination of Tutorial Center, a program dedicated to support students with academic difficulties. In that process, he understood the difficulties faced by these students, referred to tutoring services. Most of them were performing poorly, with F to D grades, something unexpected at an intellectual elite university like UCLA. Other students lived life situations that created difficulties for them to study. In some cases, students' beliefs interfered with their efforts in understanding challenges in the field of science. And there were also students who failed because their written production were not those expected by very strict professors. These were not expected issues.

The University of California, Los Angeles has a selection process that screens out candidates who do not perform well in high school. Many teachers did not think well of the Tutorial Center. They felt that students with poor academic performance should leave UCLA. They had the understanding that these students' failure was not the University's problem. This issue is not something new. In many of his works, Mike Rose points out that the failure of students in elite universities, in the opinion of

leaders and professors, should be explained by the poor quality of basic education. This situation that led students to the center run by Mike reminded me of what usually happens in some elite universities in Brazil. It particularly reminded me of a case that I witnessed from a student in the computational mathematics course at Unicamp. For some reason, she could not achieve satisfactory grades. Within a few months, her personal tragedy made her cry constantly. Before completing the first year of the course, she left the university. It is worth noting that Unicamp does not have anything equivalent to UCLA's Tutorial Center. Students who fail are held accountable for their lower-than-expected academic performance.

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**He received students for tutoring services and devoted special care to students who faced difficulties in written communication**

In the Tutorial Center, there were several tutors to assist the students. Mike had no teaching or tutoring obligations. By its functional definition, his role was that of managing the center. Nonetheless, he received students for tutoring services and devoted special care to students who faced difficulties in written communication (Mike was an expert in teaching writing). In the words of Mike Rose, the Tutorial Center was a vibrant place, full of life.

In the new job, he was not a collegiate at UCLA. He was, on the contrary, an educator who was at odds with the ways of the academy. During his work as a tutor, he mainly guided students who faced some issues in terms of the production of written compositions. In the tutoring services he provided, he realized that unsatisfactory compositions at the university had several explanations. One of them was the understanding that essays at school, when dealing with texts studied, must be reading summaries. But, at the university, much more than that is expected from the students. It is expected from them more than summaries, syntheses and evaluation. Unfortunately, in many high school establishments, it prevails the understanding that compositions referred to as literary or scientific texts should be only well-made abstracts. The initial issue is in high schools. But, these students arrived at UCLA with very high writing grades. The issue is that high school teachers and higher education professors do not have the same expectations. Mike noticed issues like this and helped students overcome them.

It is worth highlighting one of the times that Mike Rose acted as tutor himself. A tutor could not assist a student of the psychology course, Lúcia. She was then referred to Mike for an urgent tutoring. Lúcia was not a student like most at UCLA. She was older and came from a community college, where she had attended the first two years of higher education. She got admitted at UCLA by means of inclusion mechanisms that favor admission of students from community colleges to elite universities. She chose psychology as the area in which she would focus her studies, and her record indicated that she had chosen a course suited to her interests and abilities. She had a small son and took him to the university, since that day she had not found anyone to take care of him while she attended her academic activities. In the interview with Mike, she held the child in her lap and made a rocking motion so that the child would sleep and they would not cause any difficulties during the conversation. Lúcia was

sent to the Tutorial Center because she had shown difficulties in understanding a psychology text, *The Myth of Mental Illness*, written by an author named Thomas Szasz. She was able to superficially understand the text, but did not understand it according to her professor's expectations. Mike found out that the problem was not one of text comprehension, but a lack of prior references to some concepts that Szasz assumed to be known by the readers. In addition, some of the author's explanations conflicted with Lúcia's Catholic beliefs. The case required some attention, so that she could overcome her conceptual deficiencies. It was possible to achieve such goal, and Mike helped her overcome the problem with reading strategies, which, in turn, helped her identify the barriers to her comprehension.

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### The possibility of insufficient financial resources for the continuity of the program led Mike to finally decide to pursue an academic career

In *Lives on the Boundary*, there are several stories like that of Lúcia, although the reasons by which the students were sent to the Tutorial Center were not the same. It would be worth analyzing each one of them and verifying how difficulties in academic life can be overcome with the necessary attention. But the space available here does not allow us to comment on each of the cases that Mike narrates in his book. I deemed Lucia's story to be enough for us to get a glimpse of Mike's role in supporting students who needed help progressing in the academic world.

Like the program for Vietnam veterans, the Tutorial Center was struggling with funding issues. There were many professors who felt that it was dispensable. But, for a long time, the center's survival was ensured by the university's internal policy decisions. In any case, the possibility that there would be insufficient financial resources for the continuity of the program led Mike to finally decide to pursue an academic career. He completed his master's degree and his doctorate at an older age than those students who prepare from an early age for a career in higher education and research. After twenty years as a teacher and tutor in programs aimed at people who needed special support to continue their education, Mike Rose became a professor at the UCLA School of Education & Information Studies. And there he continued until August 2021, when he died at the age of 76. The waitress's son, the first in the family to reach higher education, became a highly respected educator in the United States, publishing works that became best sellers, a rare achievement for texts on education.

### The paladin of public education

The term paladin suits Mike Rose well, as he was an advocate of public education throughout his life. And he was an advocate because he was born out of his experiences with poor people, who are often denied quality education. In addition, he was an activist who always fought against the neoliberal privatism that attacked public schools and that suggested solutions in which the pedagogical part was left behind in the name of miraculous management solutions. Such a neoliberal view of education is portrayed, for example, in the documentary *Waiting for Superman*

(2010), a movie that somehow discredits the public education that Mike advocated for. The movie introduces the charter schools, a hybrid form of school organization, with private administration and public funds, as a solution to public schools' bankruptcy. The issue is critically addressed by educators who see charter schools as a movement to disqualify public schools. Mike Rose, in a book he edited together with Michael B. Katz (2013), included a chapter on the issue – "The rhetoric of choice: segregation, desegregation, and charter schools", by Ansley T. Erickson (2013).

Mike Rose's activism in defense of public schools was not restricted to actions within the grounds of the university. It took place through participating surveys that gave visibility to successful projects in public schools across the country. To this end, for three and a half years, Mike visited different regions of the United States, following the work of teachers whose activities revealed how public schools can be a place of significant learning.

In *Possible Lives*, Mike records precious experiences and generates deep reflections about possible directions for public education. In the introduction he writes:

For all the hope we place in what school will do for our children – and we have always placed great hope in the benefits of education – we have a tendency of diminishing the day-to-day practice of schooling. This has been especially true for our intellectual elite. Few discussions of schooling in policy papers, in legislation, in the endless flow of books by nonteachers telling us how to make it right, few of these discussions take us in close to teaching and learning. They tend to work at a high level of generality and opinion, thereby relying more easily on one dimension portrayals of classroom. Class and race bias play into all this, keeping us from seeing the good in poor schools and orienting us toward stereotype and sweeping condemnation – and this distortion will get worse as public schools increasingly become the domains of working classes, immigrants, and minorities. Contributing as well to our disillusion which schools is the general loss of faith in public institutions and an idealization of private sphere and the free market. Finally, these tendencies have been skilfully manipulated during the last decade by legislators, policy analysts, and entrepreneurs who want to restrict funding to public education, subject it to market forces, and, ultimately, privatize it (ROSE, 1996, p. 2-4).

The cited excerpt, in addition to indicating the direction of Rose's research – the analysis of good practices in public schools – points out several issues that have not yet been overcome, and which, perhaps, are more acute today than when the author performed his investigation (first decade of the 1990s). Rose points out that academic studies on schools are at a level of generality that does not consider the daily work of teachers. He denounces a neoliberal movement that attacks public schools and promises miracles with management measures, ignoring teaching and learning. He reveals that poor schools – the schools that are commonly offered to the poor – are accused of not promoting the education that is expected by society. He recalls an aspect often forgotten in analyzes of schools and education, a class society, a

society that discriminates against minorities. Finally, he denounces a movement that drastically reduces the financing of public schools and its desire to carry out their privatization. In *Possible Lives*, the main focus is on the classroom, the actions of the teachers, the learning of the students. This focus, however, does not ignore the bigger picture of the real situations of each school in which Rose observed the day-to-day practice of schooling.

The study undertaken by the UCLA professor covered a large number of schools in all regions of the country. It is not possible to single out, in this paper, all the cases monitored and observed. Therefore, I chose to present a small sample of cases of good education taking place in public schools.

The research began in schools of the Greater Los Angeles area. Two experiences deserve to be mentioned. The first took place at a high school, with English teachers who had developed a video production program that connected several subjects being studied by the students. This video production, however, was not limited to a pedagogical strategy. It was defined by a desire to make professional videos. And such desire became tangible, as some videos made by the school's students won national awards. One of the situations observed was that of two students of Latin American origin, who spent two months making a documentary called *Civil Wars*. They were not well versed in film and video techniques. They almost gave up midway, but were encouraged to continue. And voilà, *Civil Wars* was a documentary of a superior quality in relation to many professional productions. In the process, the students didn't just learn how to make videos. They learned history, studying the civil wars in the Americas and synthesizing what they learned in the form of a documentary. The project also required a lot of text production in order to record their searches and write the script. It should be noted that the two students were the daughters of very poor immigrants who were still seeking ways of surviving in the USA.

The experience that Mike observed in this case of the video production project is not an isolated case. There are similar experiences in other public schools. A good example is the digital photography program developed at Lincoln High School in San Jose, California. This program, just like the video production program, was designed to produce works as good as those of professionals, and it generated motivation for the study of subjects other than technology-related ones. In San Jose, this was also a special program for high school students which was not offered exclusively to middle-class students. It was a program that democratically included all social classes and genders. The following is an explanatory excerpt on such feature:

The Digital Photography class, unlike classes that intensively employ high technology, was not to preserve of a small group of technically minded middle-class boys. It was full of girls, students from all social classes, and members of many ethnic groups. Many of the Digital Photography students did not have computer at home. A few had never used a computer before they took the course. None had used a program as sophisticated as Adobe Photoshop (NARDI and O'DAY, 1999, p. 157).

Back to *Possible Lives*. At another school in the region, Mike got to know the project of an academy of graphic arts, which could result in the professional training of students. Nonetheless, it was not just a professional training program for high school students. It was not what is called today the training itinerary of professional education. The students' graphic productions connected arts and communication, in addition to requiring knowledge of applied chemistry for the treatment of printing inks. The works produced by the students required the creation of texts and an attractive graphic presentation. The project was mainly used to attract students who would abandon school if they didn't otherwise engage in something motivating. The project involved not only teachers of graphic arts, but also teachers of the English and chemistry subjects. As with most of the public schools that Mike visited, the school housing the academy served very diverse and poor students.

The second region visited by Rose was that of Calexico, a city that borders the Mexican city called Mexicali. In Calexico, the majority of the population is bilingual, speaking fluent English and Spanish. Until the mid-1960s, children of Latin American origin had great difficulty in schools because they were not allowed to speak Spanish, which was the language they spoke in their homes. The solution to this issue began with the approval of a law authorizing bilingual education in public schools. However, bilingualism may be seen as a problem, since there are educators who understand that the preservation of the home language in school creates difficulties in teaching. The situation was very interesting for Mike's observations.

In the city's public schools, all education was carried out in both languages, taking care as to not exclude monolingual children. Mike mainly describes the observations he made in the field of oral and written communication. Teachers created various situations in which students were challenged to tell stories, orally and in writing, in Spanish and English. Bilingual students were asked to assist monolingual students in some tasks that required communication in both languages. What was being done in Calexico in the field of writing was very close to discoveries that Mike had already made based on his experience in teaching written communication. Communication and narrative were given more importance, regardless of grammar errors and poor vocabulary. Grammar and vocabulary only came into play when students had already created their stories in writing. This sometimes required individual attention to students from teachers who spoke both languages. Bilingual education in Calexico, instead of an issue, became a cultural wealth that was used by competent teachers.

Concurrently with what was happening in Calexico schools, there was a teacher training program developed on the local campus of the San Diego State University (SDSU). The program was coordinated by a teacher who had spent twenty years teaching in elementary schools in the region. She only pursued higher education after this whole experience. And, in teacher training, she emphasized appropriate approaches to bilingual education. The teacher training course was not academic, but focused on field work with pedagogical residency activities. The university selected experienced professors to exercise tutoring roles for students of their

courses and for teachers who were starting their teaching activities. In Calxico, the public school system and the university had a role that made local and public education a successful project. It is worth noting the performance of SDSU, favoring the training of teachers instead of providing its students with a typically academic course, disconnected from the region's needs. One does not often find public universities dedicated to the day-to-day teaching in public schools.

When I was commenting on the actions of a teacher, Orlando Nascimento, from a countryside school in Brazil (NASCIMENTO, 2020), I wrote the following note about one of the schools visited by Mike Rose:

Observations by the author [Orlando Nascimento] about these connections between community and school bring back what happened in a countryside school in Montana, USA, in the 1990s (ROSE, 1995). Mike Rose chose a school in Montana, where countryside educational institutions still exist, in order to observe education activities in the Polaris community. There, the countryside school still existed, with a single classroom, taking in students of different levels and ages. A teacher with various previous experiences in social projects took over the classes at the school. What he used to do was always negotiated with the local school board. And activities in areas he did not master were developed by volunteers capable of captivating students with interesting projects. Rose, during the weeks he was observing that countryside school, witnessed the volunteer work of a plastic artist who came to the school to teach techniques that she had mastered to the students (BARATO, 2020, p. 146).

In the quote above, I point out one of the characteristics of the countryside school of Polaris. It was one of the last examples of Little Red Schoolhouse, the one-room school that existed in every small village and rural community across the United States in the 18th and 19th centuries. In the 20th century, this type of school started disappearing with the predominance of urban schools with many classrooms, many teachers, many employees and specialists. In those schools, there was almost always a strong presence of the local community. A teacher taught students of different levels in the same space. American countryside schools were heavily criticized for their lack of resources and poor teacher training. On the other hand, romanticized accounts of such schools portray them as an example of democracy and success in elementary education. In Polaris, a very scattered rural community, Mike Rose found a teacher with a very solid and diverse qualification, students of different levels learning together, the connection of what was taught with observations made by the students in a nature environment, both around the school and in their homes. That school of Polaris provided an interesting counterpoint to mass teaching, which is excessively divided by age groups, and non-individualized. Polaris reveals a public school that, in addition to providing quality education to its students, was able to provide examples of cognitive cooperation between students of different ages.

Mike Rose observed activities of 63 teachers in several states, including the follow up of very diverse experiences in public schools. These experiences show us possibilities, the possibilities to provide public, democratic, inclusive, quality education. As I have already pointed out, it is not possible to present summaries of all of these observations in a paper like this one. I chose a few examples just to illustrate the direction followed by Mike Rose in his research. He said that there is no way of transferring experiences from one place to another. The cases described and analyzed are experiences that are able to enlighten local approaches. The connections between these various experiences are able to show some directions for education in public schools. One of these directions concerns the role of teachers:

As one teaches, one's knowledge plays out in social space, and this is one of the things that makes teaching such a complex activity. As studies on teacher cognition have shown, and as we saw in the classrooms we visited, teaching well means knowing one's students well and being able to read them quickly and, in turn, making decisions to slow down or speed up, to stay with a point or return to it later, to underscore certain connections, to use or forgo a particular illustration. This decision-making operates as much by feel as by reason: it involves hunch, intuition, a best, quick guess (ROSE, 1999, p. 419).

I wanted to summarize the paragraph that comes right after the quote I just made. I was not able to do so. Rose masterfully summarizes the consequences of what he observed regarding teaching in public schools. I had no other choice but to transcribe what Rose said.

There is another dimension to the ability to make judgments about instruction. The teachers we observed operate with a knowledge of individual students' lives, of local history and economy, and of social-cultural tradition and practices. They gain this knowledge in any number of ways living in the communities in which they work, getting involved in local institutions and projects, drawing on personal and cultural histories that resemble the histories of the children they teach, educating themselves about the communities and cultures of the students before them, connecting with parents and involving parents in schooling, seeing students as resources and learning from them (ROSE, 1999, p. 419).

## **Error, writing, tests, intelligence, poverty**

I have listed as the title of this section some topics that Mike Rose addresses in his works. I will make brief comments on each of them and, where appropriate, I will use the author's own words.

I will begin with error. Rose has a perfect phrase about it: "Error marks the place where education begins" (ROSE, 2005 p. 189). Errors are often a reason for an uproar on the outcomes of education. This is a deception that disregards current research on how we develop knowledge. Error is usually an unfolding of what we think and provides



us feedback to our thought. It works as an unconfirmed hypothesis, but one that we had to experiment with in order to advance in building knowledge. Hence the idea that it is the landmark from where educators have to start helping their students.

Mike's affirmation about error ends the paragraph in which he analyzes the students' issues with writing. Many of them compose writings, communication works that are far from the expected standard. These students are not illiterate. They are people who are able to communicate orally and in writing. Their texts, however, lack communicative fluency, lack structure; there are many loose sentences, incomplete paragraphs. And they are ridiculed for it. Mike describes a common situation in the United States, but that often happens in Brazil as well. Due to writing tests in college entrance exams and ENEM (Brazil's National High School Exam), we see in the media reports that our young people do not know how to write; and all of this is followed by examples and laughable (not always authentic) texts produced by those examined. The errors that are made indicate levels of written communication in which people find themselves, and not necessarily a failure in education. It is necessary to understand these levels, to understand them from the strategies that people use to communicate, understanding how the sociocultural situation of students interferes in their writings. By doing this, educators are able to help students move forward. Punishing or ridiculing a student due to an error is a mistake made by those who have not incorporated the advancements in knowledge science of recent times.

As he had been a teacher who analyzed writing issues in order to propose ways of solving them at school, Mike Rose not only pointed out aspects summarized in the previous paragraph, but also criticized the traditional solutions in the teaching of writing. For issues with writing, teaching grammar is what is prescribed, as the assumption is that only those who have mastered the standard variation of a language will manage to write well. In one of the cases narrated by Mike, students spent an entire semester studying grammar and writing very little, often just short excerpts in order to check their mastery of grammar rules, not favoring the development in written communication. At the end of such process, they did not develop their skills in terms of writing. This model that considers that a good grasp of grammar favors writing is a mistake that Mike criticizes, by showing examples of a fixation on grammar that is nearly absurd.

One of the examples provided by him is an assignment in remedial programs for students with written communication and reading skills that are considered lacking. In said assignment, there appears a word with its root underlined: *unhappy*. The following question then tests the student's knowledge: "Choose the word that corresponds to the meaning of the underlined part: very, glad, sad, not". This is a very strange type of question for people who need to improve their reading and writing. The most frequent answer was sad, a synonym for unhappy. The correct answer almost never appeared. Mike asks what people who need to improve their performance in the use of the most important academic communication tools – reading and writing – gain from this (ROSE, 2004; 2015).

There is another type of exercise recorded by him that deserves to be highlighted here. Rose found a material in which students were challenged to provide the meaning of the Greek roots of some words. This is an example of what appeared in such material:

In kilometer, the underlined part means:

- a) a thousand
- b) a hundred
- c) distance
- d) speed

The most common answers were “distance” or “speed”, as students sought answers based on their experience with traffic signals. Once again, just as Mike Rose did, it is worth inquiring how exercises like this can improve reading and writing. The author we are following in this paper was not opposed to learning the standard of a language, but saw it as something that should occur after the development of communication skills.

Back to writing. Mike observed several experiences in which students wrote at a higher level than expected for their age and schooling. This happened, for example, in schools in Calxico, where bilingual students wrote, in English and Spanish, stories that were interesting to them, whether they were fictional made-up stories, or narratives about their lives.

The media and most educators rely on standardized tests in order to evaluate how education is progressing. Poor results in such tests are understood as these schools having failed. Therefore, schools are increasingly preparing their students to achieve good test results. What had emerged as a tool to evaluate education thus became a reference point that defines what should be taught in schools. This is a topic that Mike Rose addresses in several of his works, showing that standardized tests reveal only one dimension of education: mastery of knowledge selected by educational systems, because such knowledge is what will be tested. I give Mike Rose the floor on this subject:

The current drive to enact and enforce standards by statistical measures dominates schooling. But what effects do such measure have on instruction? As people on many sides of current educational debates are saying – see Deborah Meier and Diana Ravitch’s blog “Bridging Differences” for example – standardized measures can limit the development of competence by driving curricula toward the narrow demands of test reparation instead of allowing the teachers to immerse students in complex problem solving and rich use of language (ROSE, 2009, p. 103).

Standardized tests do not take into account ability to appreciate art, learning to respect other cultures, developing an understanding of history as a way of understanding the present. These and many other dimensions that need to be

present in education do not integrate what is measured by standardized tests. And, as Mike Rose points out, an education guided by test results corrupts or devalues teaching in its essential role of supporting students so that they become captivated by knowledge.

The UCLA professor has written quite a lot about the issue of standardized tests. A synthesis of the analyzes he made on such issue appears in a chapter of *Why School: Reclaiming Education for All of Us: Standards, Teaching, Learning* (ROSE, 2009). I recommend this short text for those who want to delve into the issues of standardized tests.

Another topic that Mike Rose has addressed in several of his works is that of intelligence. Let us remember that he was, in a way, the victim of prejudices regarding intelligence when he was enrolled in the high school professional training itinerary. Upon being referred to such itinerary, he was considered as a person unable to pursue academic education. When he was in high school, Mike characterized what was thought of the intelligence of students not being educated to go to college in terms of an observation by one of his fellow students: "I just wanna be average". This idea that average intelligence challenges are enough for workers portrays what the school system offers to students on the professional training itinerary. Working-class students behave according to the expectations, and sometimes end up viewing school, ironically, as a place where, in fact, they have nothing to learn. This perspective from children of workers who reach high school is portrayed very clearly in a classic book on the subject: *Learning to Labour* (WILLIS, 1991). The teenagers followed by Willis, in an extensive research, based on ethnographic records, had the same desire as Mike Rose's colleague: "I wanna be average".

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**Mechanics who repair old motorcycles poses intellectual challenges that are much more demanding than those faced by academics**

Rose notes that the prevailing notion of intelligence is related to measures of verbal and quantitative skills. The IQ test is the most widely used reference to define intelligence. This situation changed somewhat with the contributions of Howard Gardner and Robert Sternberg, who have shown that our understanding of intelligence needs to be expanded. In this sense, Rose wrote a remarkable book on the intelligence of workers. And he did not write a book addressing only abstract generalities about intelligence. He made some field research in order to verify expressions of intelligence of workers such as: waitresses, hairdressers, plumbers, welders. He devotes a chapter to the work of the surgeon, as to show that manual labor requires intelligence, and is valued when it has high social status.

I dare to make a personal remark. For many years, the training course for cooks at Senac in São Paulo was aimed at students bordering on marginality and with very low education levels. Middle-class people didn't want to work in the kitchen. It was thought that working in the kitchen did not require much intelligence or intellectual preparation. This changed completely when the kitchen became a desirable occupational destination for middle-class students. Higher education courses were

created in the area and the middle class was glad to enter a space that was previously occupied by lower classes of society. Nonetheless, such change did not happen solely because of the creation of higher education courses in gastronomy. The old basic cooking course, once attended by very poor people, is now highly sought after by middle-class children, many of them with a degree from higher education. It is now an occupational destination for “intelligent” people.

I resume Mike Rose’s work with quotes of how he addresses the intelligence of workers. One of the analyses he makes is related to the rhetoric about the demands of a society that has been claiming that new technologies require intelligent workers, as they pose intellectual challenges that did not exist previously for the old workers of industrial society. For those who come closer to the manual work of the old days, which still continues to be exercised by many people, they realize that there are unsuspected intellectual developments in the actions of welders, carpenters, plumbers. Some time after Mike Rose’s studies, a very interesting piece of work appeared showing that the position of mechanics who repair old motorcycles poses intellectual challenges that are much more demanding than those faced by academics (CRAWFORD, 2009).

Rose’s considerations do not only place the issue of intelligence at the junction between ways of viewing knowledge on labor. He analyzes such issue also with regard to prejudices that lead us to think that minorities, immigrants, people living in adverse socioeconomic situations are less intelligent, which justify ideas that personal achievements are the result of merit. This way of seeing things contaminates education. In his studies, based on the observation of remarkable educational experiences, Rose shows that people who live in very unfavorable conditions are also able to learn. This can be seen in the many cases he presents in *Possible Lives* (ROSE, 1999), an inventory of successful experiences in public schools across the country.

During his practice, Mike Rose has always been aware of the consequences of poverty on education. It is worth quoting excerpts in which he addresses such topic.

The relationship between poverty and academic performance is an old issue in basic education and, unfortunately, in some recent debates about school reform, this relationship has turned into an unproductive dualism. One side claims that poverty harms students’ lives to such an extent that academic success is virtually impossible. The other side claims that if schools are well managed, poverty will not be a barrier to learning (ROSE, 2015, p. 177).

In another work, we can read that:

Poverty does not necessarily diminish the power of one’s mind, but it certainly draws attention to the competing demands of safety and survival; the day-to-day assaults of the neighborhood, just the tense navigating from home to school. [...] We need public talk that links education to a more decent and thoughtful, open society. Talk that raises in us as a people the appreciation

for deliberation and reflection, or for taking intellectual risks and thinking widely – for the sheer power and pleasure of using our minds, alone or in concert with others. We need a discourse that inspires young people to think gracefully and moves young adults to become teachers and foster such a development (ROSE, 2009, p. 28-29).

In this last sentence, Mike says that it is necessary to arouse, in young people, the interest in becoming teachers. It sounds like a romanticized idea, an utopia. But perhaps his thought is a memory of the cases he observed at Merea College, a higher education institution that qualified poor young people for being teachers. And more than that, it prepared them for teaching in poor schools (ROSE, 1999).

So far I have briefly presented some of the paths taken by Mike Rose in the field of education. These paths have two characteristics: they are academic development routes, while also being activism routes. Rose innovated a lot in the field of teaching writing. An article published on *The New Yorker* magazine's website, commenting on his death, recalls precisely this aspect, with the title "The teacher who changed how we teach writing" (DETTMAR, 2021). I hereby highlight the excerpt:

Mike, on the other hand, provided writing studies with a heart: he modelled a deep compassion that asked teachers to understand students as whole people, with very mixed feelings about academic writing, who are nonetheless trying to do a very difficult thing. He had a keen gift for uncovering, through intensive one-on-one work with writers, the deep (and often poignant) logic behind surface errors. His work heralded a paradigm shift in the way that writing is taught in our educational system, from elementary school through college.

The space available in this paper does not allow us to explore the four topics that I proposed in the title of this section. I hope, however, that my brief comments will serve as an incentive for readers to seek out the works of Mike Rose.

## The worker's knowledge

Throughout this text, several times I have referred to the important work of Mike Rose on the knowledge of manual workers – *The Mind at Work: Valuing the Intelligence of the American Worker*, which can be found in English, Spanish and Portuguese. I tried to offer an insight into what Mike Rose addresses in this book that has become a reference for those who work with professional education. But the author himself, in the aforementioned interview he gave me in 2006, briefly discusses the work. I thought it would be appropriate to hear Mike, instead of interpreting it. Therefore, in a gesture of homage to a great teacher and researcher, friend and BTS advisor, I decided to end this article with the text of this interview. I removed the title and introduction from the original article. There were only my questions (JNB) and Mike's answers (MR).

**[JNB] New technologies transfer intelligence from work to machines and systems. With this, do you think that professions are losing content and intelligence?**

**[MR]** Mass production brought the “disqualification” of many occupations. In some cases, this trend caused new qualified work to appear. In general, the phenomenon has significantly changed the nature of many professions in industry and service sectors. Our time is an interesting one in the occupational field. Along with the devaluation of certain professions, there is also a demand for more qualified front-line workers who can solve problems, take initiatives, read with a good understanding, master mathematical concepts. We then have two contradictory forces acting in the organization of labor: on one hand, devaluation, and on the other, demand for more qualification.

**[JNB] I grew up in a house where adults spoke proudly of their professions. It seems that this exposure to work culture is disappearing. Our children have no idea of what we do for a living. Do you think that we will lose interest in work as an important human activity?**

**[MR]** Your question makes us think about culture itself, about what we value, how we perceive each other and our work, what legacy we will leave to young people. Work is so central in our lives that I don't think it will cease to be an important human activity, as you suggest. But what really counts is what young people think about work, how they distinguish different types of work, the concepts of intelligence and merit they use in these distinctions, what meanings they draw from work. These are all important social issues, and educators need to keep them alive, in a public discussion that is not limited to the child's development, but that takes into account the type of society we want to build.

**[JNB] In your book, you quote J. Hoerr's observation, according to which, since the beginning of industrialization, the idea that paid workers did not have the ability to deal with complex issues or solve problems that required abstract knowledge and analytical skills gained strength in the US. Today, there are those who say that workers only need to learn general skills in schools. Isn't this rhetoric a new way of saying the same thing Hoerr criticized?**

**[MR]** Great question. Of course, we should avoid limited professional education that targets only basic skills for specific jobs. This focus has defined low-level professional education in the past, at least in the US. But it is also true that we learn to solve problems, to think abstractly, to communicate concepts through specific and concrete tasks – as it can be seen in any chemistry laboratory. We need to start a reform in professional education, considering recent discoveries on human knowledge and on how our minds work.

**[JNB] On the hairdresser's work, you say in your book: “She incorporates the technique in the planning and execution of the**

**haircut, solving the problems she encounters, thinking through the scissors in her hand". Could you elaborate on the role of tools?**

**[MR]** Tools (and many types of instruments and artifacts) are essential for building knowledge and learning new things. This is true either in a carpentry workshop or in a physics laboratory. By using the hammer, a carpenter learns things like quality of materials, principles of force and movement, body mechanics. This mutual relationship between tools and knowledge is essential to some social and psychological theories, such as those of Marx and Vigostky. What interests me is that, even when we accept this relationship at the theoretical level, we may not see how the connection between tool and knowledge happens in practice, on a daily basis. That is why we find it difficult to recognize, going back to my example, the intelligence of labor with fluent uses of a hammer.

**[JNB] In your opinion, where does the difficulty in understanding the knowledge that is produced by actions come from?**

**[MR]** In the West, since Aristotle, we have lived in a long cultural tradition that makes dichotomous distinctions between pure and applied knowledge, theory and practice, academic education and professional education, brain and hand. But, when you get closer to work – the work of a hairdresser or a surgeon – these distinctions start losing their meaning. There are many moments of abstract thinking, involving concepts and problem solving, in the work of a good hairdresser. I asked a professional of this field about what he does when someone shows up with a wrong haircut or a sloppy bleaching made by another hairdresser. "The first thing you have to do", he said, "is figure out what the other professional wanted to achieve". Consider all the knowledge and hypothetical thinking that comes into play in this case. Let us look at another example, the work of a surgeon. I spent a summer observing surgical residents and came across the fact that the considerable knowledge they had about anatomy and physiology, taken from textbooks, is of little use until they can convert it into usable practical skills. They have to develop a sensitivity to the appearance and consistency of tissues, as well as considerable manual dexterity. They need to convert the knowledge from the book into sensory knowledge. The concepts need to become concrete. They need to solve problems in a very concrete way involving a high degree of abstract learning on diseases. Looking at all of this, it is hard to say where theory and abstraction end and where manual and sensory skill begin.

**[JNB] What can be done to overcome prejudices against manual labor?**

**[MR]** Overcoming these problematic distinctions between types of knowledge is an enormous challenge. The distinctions between hand and brain are ingrained in culture and are reinforced by distinctions between social classes and occupational status. We, as educators, have to analyze our own prejudices, because we

grow up with them. We have to discuss the cognitive dimension of work, look at Vigotsky's activity theory, study recent discoveries in the knowledge and learning sciences, areas in which researchers are challenging simplistic ways of understanding work and classifying knowledge. Once they understand these issues well, educators can then turn to educational goals, purposes, and curricula. We already know that in good professional education programs, students develop insights, discover the capabilities and limitations of tools, improve their ability to plan and produce tasks, solve common routine problems, use and communicate with a variety of symbols, including mathematical symbols. They use mathematics to support their planning and problem-solving, and reading and writing to aid learning and task execution. They learn to communicate and work cooperatively. They reflect on their own actions in order to avoid losses and mistakes. They develop aesthetic and professional values. Our mission as educators is to put the cognitive dimension of work at the forefront. And make a great effort to influence public policies and promote discussions about the workers' intelligence and knowledge.

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