



# The Rise and Fall of Factory-based Schools in China

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### ABSTRACT

After 1949, the Chinese government built a massive adult education system—based largely in factories and rural communes—that at times enrolled more students than the entire regular education system for youth. This paper focuses on one part of this system—adult schools inside factories. These schools provided workers with education and technical training, but were also designed to train workers to replace incumbent factory managers, diminish class differences based on education, and reduce the gap between those who labored with their minds and those who labored with their hands. Mao Zedong emphasized these radical goals as he pushed for the rapid expansion of factory-based schools, especially during the Great Leap Forward and the Cultural Revolution. Although these radical goals were eventually abandoned, state-owned factories continued to run schools for employees well into the post-Mao era, until the industrial restructuring process that began in the 1990s. This paper considers the causes of the rise and fall of China’s factory-based education system based on official publications and interviews with factory leaders and workers, including many who participated in these schools.

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## Introduction

On July 21, 1968, in the midst of the Cultural Revolution, Mao Zedong proposed a radical experiment that would upend how China’s colleges and universities recruited students:

We must still run colleges. Here I must stress that we should still run physics and engineering colleges, but the period of schooling ought to be shortened, the education revolutionized, proletarian politics put in command, and the way of training technical personnel from the ranks of the workers advocated by the Shanghai Machine Tool Factory adopted. Students must be selected from workers and peasants with practical experience, and after their study at school for several years they should return to practical production.<sup>1</sup>

Two years before Mao’s pronouncement, college entrance examinations had been suspended, and following his pronouncement these were eliminated. This profoundly impacted China’s secondary school system, which had been organized around training students to pass the exams, with the ultimate prize being a coveted spot in a top

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<sup>1</sup>Mao Zedong cited in: 中国共产党大事记 1968 年 (Zhōngguó gòngchǎndǎng dàshìjì 1968 nián, Major Events of the Communist Party of China in 1968). Accessed March 25, 2025: <http://cpc.people.com.cn/GB/64162/64164/4416085.html>.

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# 中国工厂办学体系的兴衰

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### 摘要

1949 年后，中国政府建立了一个庞大的成人教育体系——主要设在工厂和农村公社——该体系有时招收的学生人数甚至超过了整个正规青少年教育系统。本文重点关注该体系的一部分——工厂内部的成人学校。这些学校为工人提供教育和技术培训，但也旨在培养工人以取代现任工厂经理，减少基于教育的阶级差异，并缩小脑力劳动者和体力劳动者之间的差距。毛泽东在推动工厂办学快速发展时强调了这些激进目标，尤其是在大跃进和文化大革命期间。尽管这些激进目标最终被放弃，但国有工厂在后毛泽东时代仍继续为员工开办学校，直到 20 世纪 90 年代开始的工业结构调整进程。本文基于官方出版物以及对工厂领导和工人的访谈（包括许多曾就读于这些学校的人），探讨了中国工厂办学体系兴衰的原因。

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## 导言

1968 年 7 月 21 日，在文化大革命期间，毛泽东提出了一项激进的实验，它将颠覆中国高等学校的招生方式：

大学还是要办的。这里我还是着重讲理工科大学还要办，但学制要缩短，教育要革命化，实行无产阶级政治挂帅，走上海机床厂从工人中培养技术人员的道路。学生要从有实践经验的工人农民中间选拔，他们学几年以后，又回到生产实践中去。<sup>1</sup>

在毛泽东发表此番言论的两年前，高考已经暂停，他的言论发表后，高考被取消。这深刻影响了中国的中学教育体系，该体系一直围绕着培养学生通过考试而组织，最终目标是在一所顶尖学府获得一个梦寐以求的名额

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university. Under the new policies, which became known as taking the “July 21 Road,” there was no direct path from middle school to college. Instead, all middle school graduates went to work, some in factories or other urban work units, and others in rural collectives. After two years, they became eligible to be recommended for further education. Under this recommendation system, a relatively small number of young people were selected by their urban work units or village collectives to attend regular colleges and universities. A far larger number, however, took classes in rapidly expanding schools connected to their own workplaces, including what became known as “July 21 workers universities” in factories.<sup>2</sup>

The Chinese Communist Party (CCP) leadership had long had an ambivalent attitude towards the entrance examination system. On the one hand, these examinations were a cornerstone of the country’s education system, regulating entrance not only into college, but also into the upper grades of primary school, lower middle school, and upper middle school.<sup>3</sup> The exam system provided a centralized, rationalized, and in some ways fair and impartial means to select talented young people for higher levels of education. On the other hand, this system guaranteed that the classrooms of universities and the best middle schools would continue to be filled with children from old educated elite families, who were far better prepared for examination competition than were children of workers and peasants. The system, thus, facilitated social reproduction, contradicting the CCP’s declared commitment to egalitarian class leveling, and hampering its efforts to train young people of more humble class origins, who were considered to be more politically reliable, to take over positions in the top echelons of society.

Most scholarship about the elimination of the college entrance exams has focused on the impact this had on regular colleges and universities.<sup>4</sup> This paper focuses on the impact on factories. I place this radical experiment in the context of a longer history: the rise and fall of factory-based education at all levels in the decades since the foundation of the PRC. The July 21 workers universities that were established during the Cultural Revolution (1966-1976) were part of a much larger system of adult education—both urban and rural—that was developed by the CCP after it took power in 1949. This system extended from literacy training and primary school to secondary and tertiary classes, and was massive: at some moments, there were more students enrolled in the adult education system than in all of China’s regular primary, secondary, and tertiary schools combined.<sup>5</sup>

During the Mao and early post-Mao decades, the urban part of China’s adult education system was largely based in factories and other workplaces. Despite the scale and importance of factory-based education in China, it has received relatively little scholarly attention. Factory-based schools have been largely overlooked in both scholarship about the Chinese education system and scholarship about Chinese industry. Presumably part of the reason for this neglect is that these schools do not fit into the traditional confines of either of these two fields, the first of which focuses on regular

大学。在新政策下，这被称为“七二一道路”，中学毕业生不再有直接升入大学的途径。相反，所有中学毕业生都参加工作，有的进入工厂或其他城市工作单位，有的进入农村集体。两年后，他们才有资格被推荐接受进一步的教育。在这种推荐制度下，相对少数的年轻人被其所在城市工作单位或农村集体选中，进入正规院校学习。然而，绝大多数人则在与自己工作单位相关的迅速扩张的学校中上课，其中包括工厂内被称为“七二一工人大学”的学校。<sup>2</sup>

中国共产党（CCP）领导层长期以来对高考制度持矛盾态度。一方面，这些考试是国家教育体系的基石，不仅规范了大学入学，也规范了小学高年级、初中和高中入学。<sup>3</sup> 考试系统提供了一种集中化、合理化且在某些方面公平公正的手段，以选拔有才华的年轻人接受更高层次的教育。另一方面，这个系统也保证了大学和最好的中学课堂将继续由来自旧有知识精英家庭的孩子占据，他们比工农子弟在考试竞争中准备得更充分。因此，该系统促进了社会再生产，这与中国共产党宣称的平等阶层化承诺相矛盾，也阻碍了其培养被认为政治上更可靠的出身贫寒的年轻人接管社会高层职位的努力。

大部分关于取消高考的学术研究都集中在这一举措对普通高校和大学的影响上。<sup>4</sup> 本文关注其对工厂的影响。我将这项激进的实验置于更长的历史背景中：自中华人民共和国成立以来的几十年间，各级工厂办学的兴衰。“七二一工人大学”在文化大革命（1966-1976）期间建立，它是一个更大的城乡成人教育体系的一部分，这个体系是中国共产党在1949年执政后发展起来的。这个体系涵盖从扫盲培训、小学到中学和大学课程，并且规模巨大：在某些时期，成人教育体系中的学生人数超过了中国所有普通小学、中学和大学的总和。<sup>5</sup>

在毛泽东时代和毛泽东时代后的早期几十年里，中国成人教育体系的城市部分主要设在工厂和其他工作场所。尽管工厂办学在中国规模庞大且重要，但它受到的学术关注相对较少。在关于中国教育体系的学术研究和关于中国工业的学术研究中，工厂办学基本上都被忽视了。这种忽视的部分原因可能是这些学校不符合这两个领域中的任何一个的传统范畴，其中第一个领域关注的是正规的

<sup>2</sup>Andreas 2009. Also see, for example, *People’s Daily* (1974c), *People’s Daily* (1976a), and *People’s Daily* (1976b).

<sup>3</sup>During this period, Chinese primary and secondary education was generally divided into lower primary school (grades 1-4), upper primary school (4-6), lower middle school (7-8), and upper middle school (9-12).

<sup>4</sup>Andreas 2009; Chen 1981; Pepper 1996.

<sup>5</sup>Of course, many adult education programs were part-time, while the regular education system for youth involved full-time study.

<sup>2</sup>Andreas 2009. 另见，例如，《人民日报》(1974c)、《人民日报》(1976a) 和《人民日报》(1976b)。<sup>3</sup>在此期间，中国的初等教育和中等教育通常分为小学低年级（1-4 年级）、小学高年级（4-6 年级）、初中（7-8 年级）和高中（9-12 年级）。<sup>4</sup>Andreas 2009；Chen 1981；Pepper 1996。<sup>5</sup>当然，许多成人教育项目是非全日制的，而针对青少年的正规教育体系则涉及全日制学习。

society-based schools, and the second of which is oriented by conventional understandings of industrial development and industrial relations.<sup>6</sup>

Even in the scholarship specifically about the history of China's adult education system, factory-based schools have not received adequate attention and many scholars have treated the Mao era in a relatively cursory fashion.<sup>7</sup> Moreover, it is common in the Chinese-language scholarship, as well as in much of the English-language scholarship, for scholars to dismiss the Cultural Revolution as a period of chaos when adult education was shut down. For instance, Guo (1996) asserts that during the entire decade, "adult education, like all other education, came to a standstill."<sup>8</sup>

The limited scholarship that has included significant discussion of factory-based adult schools can be divided into works published before and after the restructuring of industry that began in the 1990s, which resulted in many of these schools being closed and most of the rest being spun off by the enterprises that had sponsored them. Two works written during the earlier period, a dissertation by Vincent Tsing Ching Lin (1963) and a master's thesis by Dongyi Wang (1991), provide substantial information about factory-based schools as part of broader examinations of China's adult education system.<sup>9</sup> These accounts are largely matter of fact and descriptive, rather than evaluative. In contrast, retrospective studies published more recently are not only evaluative, but are highly polarized. Songmin Guo (2015) and Andrea Piazzaroli Longobardi (2018) extol the radical policies of the "July 21 Road," while Angyi Wang (2015) denounces the poor quality of these schools and argues that the idea of locating schools in factories was inappropriate.<sup>10</sup> This polarization reflects wider scholarly debates about the restructuring of Chinese industry between those who lament the elimination of the social functions that had been the responsibility of Chinese factories in the past and those who argue that these social functions had diverted industrial enterprises from focusing on production and efficiency.

In sum, the existing scholarship on factory-based schools in China leaves us with a discontinuous and disjointed history. It is not possible to understand the July 21 schools established during the Cultural Revolution without looking into the institutions that came before them, and it is just as problematic to skip over or simply denounce the education policies and practices of the Cultural Revolution. Because the existing scholarship is so fragmented, it fails to reveal not only the radical changes but also the profound continuities in China's adult education system and it is unable to adequately explain the shifts between more radical and more conventional approaches.

In this paper I examine the development of factory-based adult education programs in China during the five decades that followed 1949, from the 1950s through the early 2000s, and consider the reasons for their massive expansion and subsequent decline. A major part of this explanation is structural, as factory-based schools rose and fell along with the socialist work unit (*danwei*) system of industrial organization; these schools served

社会办学, 而第二种则以对工业发展和劳资关系的传统理解为导向。<sup>6</sup>

即使是在专门研究中国成人教育史的学术著作中, 厂办学校也没有得到足够的关注, 许多学者对毛泽东时代的处理也相对草率。<sup>7</sup> 此外, 在中文学术界以及许多英文学术著作中, 学者们普遍将文化大革命视为成人教育停滞的混乱时期。例如, 郭 (1996) 断言, 在整个十年间, “成人教育, 如同其他所有教育一样, 陷入了停滞。”<sup>8</sup>

少数对厂办成人学校进行过重要讨论的学术著作可以分为两类: 一类是在 20 世纪 90 年代开始的工业重组之前出版的, 另一类是之后出版的。这次重组导致许多这类学校被关闭, 其余大部分则被其赞助企业剥离。早期有两部著作, 即林清靖 (Vincent Tsing Ching Lin) 的博士论文 (1963) 和王冬怡 (Dongyi Wang) 的硕士论文 (1991), 作为对中国成人教育系统更广泛考察的一部分, 提供了关于厂办学校的大量信息。<sup>9</sup> 这些叙述大体上是实事求是的描述性内容, 而非评价性的。相比之下, 近期出版的回顾性研究不仅具有评价性, 而且观点高度两极分化。郭颂民 (Songmin Guo) (2015) 和安德里亚·皮亚扎罗利·隆戈巴尔迪 (Andrea Piazzaroli Longobardi) (2018) 颂扬了“七二一道路”的激进政策, 而王安义 (Angyi Wang) (2015) 则谴责这些学校的低劣质量, 并认为将学校设在工厂中的想法是不恰当的。<sup>10</sup> 这种两极分化反映了关于中国工业重组的更广泛学术争论, 一方哀叹过去中国工厂所承担的社会职能的消除, 另一方则认为这些社会职能分散了工业企业对生产和效率的关注。

总之, 中国现有的关于厂办学校的学术研究留给我们的是一段不连续且脱节的历史。如果不考察“文革”前存在的机构, 就不可能理解“文革”期间成立的“七二一”大学; 同样, 跳过或简单地谴责“文革”的教育政策和实践也是有问题的。由于现有的学术研究过于碎片化, 它未能揭示中国成人教育体系中不仅有激进的变革, 也有深刻的延续性, 并且无法充分解释从更激进到更传统方法的转变。

在本文中, 我将考察中国厂办成人教育项目在 1949 年后的五十年间 (即从 20 世纪 50 年代到 21 世纪初) 的发展, 并探讨它们大规模扩张和随后衰落的原因。这一解释的一个主要部分是结构性的, 因为厂办学校的兴衰与社会主义工业组织中的工作单位 (*danwei*) 制度息息相关; 这些学校服务

<sup>6</sup>This includes my own work; my first book, *Rise of the Red Engineers* (Andreas 2009), deals with tertiary education, and my second book, *Disenfranchised* (Andreas 2019), deals with factories and industrial relations, but in neither do I analyze factory-based education.

<sup>7</sup>Cf. Duke 1984; Guo 1996; Hunter and McKee Keehn 1985; Jin 1993; Li 1998; Min 1987; Sun 2008; Wang 2014; Yan 2019; Zhang and Stephens 1992; Zhou 2020.

<sup>8</sup>Guo 1996, 22.

<sup>9</sup>Lin 1963; Wang 1991.

<sup>10</sup>Guo 2015; Longobardi 2018; Wang 2015.

<sup>6</sup> 这包括我自己的作品; 我的第一本书《*Rise of the Red Engineers*》(Andreas 2009) 探讨了高等教育, 我的第二本书《*Disenfranchised*》(Andreas 2019) 探讨了工厂和劳资关系, 但在这两本书中我都没有分析厂办教育。<sup>7</sup> Cf. Duke 1984; Guo 1996; Hunter and McKee Keehn 1985; Jin 1993; Li 1998; Min 1987; Sun 2008; Wang 2014; Yan 2019; Zhang and Stephens 1992; Zhou 2020. <sup>8</sup> Guo 1996, 22. <sup>9</sup> Lin 1963; Wang 1991. <sup>10</sup> Guo 2015; Longobardi 2018; Wang 2015.



the work units with which they were affiliated and were dependent on these communities. Because the work unit system was based on permanent employment, investments in in-house training programs were attractive to both factory leaders and workers, and the decline and demise of the system of permanent employment with industrial restructuring led to the decay and dissolution of factory-based education programs.

Even during the decades that the work unit system existed, however, the development of these educational programs was highly volatile and had shifting objectives. To analyze the causes of these shifts, I identify distinct types of goals that inspired CCP leaders to develop factory-based education (Figure 1). Conventional goals were similar to those of adult education programs in many countries; these were not intended to alter existing social hierarchies. But radical goals harnessed factory education to an agenda of radical political and social change. China’s factory-based education endeavors can also be divided into those designed to train a select group of elites and those designed to educate the masses.

At the elite level, factory-based education programs were designed to train a select group of workers to become enterprise leaders, managers, and technicians. To the extent that the aim was simply to promote workers to gradually supplement the ranks of incumbent factory leaders, this was a conventional endeavor. As a revolutionary party, however, the CCP intended to replace or subordinate existing leaders whom it did not trust, and for this purpose it trained politically sympathetic workers to take over these positions. It pursued this radical goal more aggressively at some moments than others, particularly when it took over factories from former owners and managers

	Conventional goals	Radical goals
Elite education	Train workers to supplement the ranks of incumbent factory leaders, managers, and technicians.	Train politically sympathetic workers to replace incumbent factory leaders, managers, and technicians.
Popular education	Raise the general education level of factory workers.	Eliminate social hierarchies based on education and diminish the differences between mental and manual labor.

Figure 1. Goals of factory-based education in China.

他们所隶属并依赖的社区。由于工作单位制度是建立在终身雇佣制基础上的，因此对内部培训项目的投资对工厂领导和工人都有吸引力，而随着产业结构调整，终身雇佣制度的衰落和消亡导致了工厂办学项目的衰败和解体。

然而，即使在工作单位制度存在的几十年里，这些教育项目的发展也高度不稳定，目标不断变化。为了分析这些变化的原因，我确定了激发中共领导人发展工厂办学的不同类型目标（图 1）。传统目标与许多国家的成人教育项目相似；这些目标无意改变现有的社会等级制度。但激进目标则将工厂教育与激进的政治和社会变革议程相结合。中国的工厂办学尝试也可以分为旨在培养少数精英群体和旨在教育大众的。

在精英层面，厂办教育项目旨在培养一批精选工人成为企业领导、经理和技术人员。如果目标仅仅是提拔工人以逐步补充现有工厂领导的队伍，这是一种常规做法。然而，作为一个革命党，中共打算取代或从属那些它不信任的现有领导，为此，它培养了政治上同情的工人来接替这些职位。它在某些时候比其他时候更积极地追求这一激进目标，尤其是在接管前所有者和经理的工厂时。

	Conventional goals	Radical goals
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Popular education	Raise the general education level of factory workers.	Eliminate social hierarchies based on education and diminish the differences between mental and manual labor.

Figure 1. Goals of factory-based education in China.

in the 1950s and when it replaced incumbent factory leaders (including veteran Communist Party officials) during the Cultural Revolution.

At the popular level, factory education programs were intended to raise the educational level of the broader workforce. This was in many ways a conventional goal, one which progressive managers of capitalist enterprises might also embrace under amenable conditions. The CCP, however, was committed to eliminating the differences between mental and manual labor. The socialization of private property in the means of production was only the first step toward achieving a classless society, which Marxist doctrine maintained would ultimately require closing the gap between mental and manual labor. This more radical goal could not be satisfied by simply providing workers at the bottom with a modicum of education; instead, it required eliminating the vast educational differences in factories and in society. Factory-based education was a critical element of this endeavor. This more sweeping agenda came to the fore during the Great Leap Forward and the Cultural Revolution, moments when Mao pursued more radical objectives.

My analysis in this paper spans the entire era in which Chinese enterprises were organized as work units, from the 1950s through the early 2000s. While factory-based school systems for adult employees is my main focus, I also examine the CCP's school system for children and young people and analyze how changes in both impacted hiring and promotion in factories.<sup>11</sup> The paper is divided into three chronological parts. The first part describes the development of factory-based education between the CCP's seizure of power in 1949 and the beginning of the Cultural Revolution in 1966. The second part analyzes the changes brought about by Mao's "July 21 Road" policies, which upended the regular education system and profoundly impacted workplace-based education as well as hiring and promotion practices in factories. The third part examines the reorganization of factory-based education following Mao's death in 1976 (and the subsequent restoration of the entrance exam system in the regular society-based school system) through the restructuring of industrial enterprises, which fundamentally altered the relationship between factories and their employees and undermined the foundations of factory-based school system by the early 2000s.

I rely on three types of primary sources: documentary materials, statistical data, and personal interviews, most of which is part of a broader study about industrial management and politics in Chinese factories from 1949 to the present.<sup>12</sup> The documentary materials include policy statements by political leaders, laws, and regulations, factory gazetteers, and contemporary periodicals and pamphlets. I found most of the statistical data in collections published in the 1980s, including historical numbers compiled during the Mao era.<sup>13</sup> Finally, I interviewed scores of workers and cadres who were employed in Chinese industrial workplaces at some point during the five decades examined in this paper, including many who taught or studied in factory-based adult schools.<sup>14</sup>

在 20 世纪 50 年代，以及在文化大革命期间取代了在职工厂领导（包括资深共产党员）时。

从大众层面来看，工厂教育计划旨在提高更广泛劳动力的教育水平。这在许多方面是一个传统目标，是资本主义企业中进步的管理者在有利条件下也可能采纳的目标。然而，中国共产党致力于消除脑力劳动和体力劳动之间的差异。生产资料私有财产的社会化只是实现无阶级社会的第一步，马克思主义学说认为这最终需要弥合脑力劳动和体力劳动之间的差距。这个更激进的目标不能仅仅通过为底层工人提供一点点教育来满足；相反，它需要消除工厂和社会中巨大的教育差异。工厂教育是这项努力的关键要素。这一更宏大的议程在大跃进和文化大革命期间浮出水面，当时毛泽东追求更激进的目标。

本文的分析涵盖了中国企业以工作单位（work units）形式组织运作的整个时期，从 20 世纪 50 年代到 21 世纪初。虽然本文主要关注针对成年职工的厂办学校系统，但我也考察了中共为儿童和青少年设立的学校系统，并分析了两者的变化如何影响了工厂的招聘和晋升。<sup>11</sup> 本文分为三个按时间顺序的部分。第一部分描述了从 1949 年中国共产党掌权到 1966 年文化大革命开始期间厂办教育的发展。第二部分分析了毛泽东“7·21 指示”政策带来的变革，这些政策颠覆了常规教育体系，并深刻影响了以工作场所为基础的教育以及工厂的招聘和晋升实践。第三部分考察了 1976 年毛泽东逝世后（以及此后常规社会学校体系中高考制度的恢复）厂办教育的重组，直到工业企业重组，这从根本上改变了工厂与其员工之间的关系，并在 21 世纪初瓦解了厂办学校系统的基础。

我主要依赖三种原始资料：文献资料、统计数据和个人访谈，其中大部分是我关于 1949 年至今中国工厂工业管理和政治的更广泛研究的一部分。<sup>12</sup> 文献资料包括政治领导人的政策声明、法律法规、工厂志以及当代期刊和小册子。我发现大部分统计数据都收录在 20 世纪 80 年代出版的合集中，其中包括毛泽东时代编制的历史数据。<sup>13</sup> 最后，我采访了几十名工人干部，他们在本文研究的这五十年间，曾在中国工业企业工作过，其中许多人曾在厂办成人学校任教或学习。<sup>14</sup>

<sup>11</sup>In this paper I do not examine the primary and secondary schools that many enterprises built for the children of their employees.

<sup>12</sup>See Andreas 2019.

<sup>13</sup>Thomas Rawski (2000), a leading analyst of Chinese statistical data, has concluded that while data published during the Great Leap Forward is notoriously problematic, data published before or after those years (pre-1958 and post-1961) is reasonably accurate (including revised data for 1958 to 1961). See also Rawski 1976.

<sup>14</sup>For details about my interview methods and a list of the people interviewed, see Andreas 2019. I assigned pseudonyms to all my interviewees. Factory-based education was an important element of my broader study; of the 128 workers and

<sup>11</sup>在本文中，我没有考察许多企业为其员工子女建造的中小学校。<sup>12</sup>参见安德烈亚斯 2019。<sup>13</sup>托马斯·拉斯基 (Thomas Rawski) (2000) 是中国统计数据的主要分析师之一，他得出结论，虽然大跃进期间发布的数据存在臭名昭著的问题，但那些年份之前或之后发布的数据（1958 年之前和 1961 年之后）是相当准确的（包括 1958 年至 1961 年的修订数据）。另请参见拉斯基 1976。<sup>14</sup>有关我的访谈方法和受访者名单的详细信息，请参见安德烈亚斯 2019。我给所有受访者都分配了化名。厂办教育是我更广泛研究的一个重要组成部分；在 128 名工人和

## Developing two parallel school systems (1949-1966)

When the CCP took control of Chinese factories in the late 1940s and early 1950s, some seventy percent of workers were illiterate and others only had a few years of education.<sup>15</sup> The majority had been recruited from villages, where there were few schools, and even working class children in urban areas seldom attended more than a few years of primary school. Access to education was limited by the exclusive nature of the school system, which was organized as a steep pyramid, with admission at each step determined by entrance examination scores as well as by the means to pay tuition and other expenses.

During the 1950s and early 1960s, the CCP greatly expanded the country's public school system. Particular attention was given to expanding access to basic education, especially in rural areas, and by 1965 four times as many children were attending primary schools as in 1949 and eleven times as many children were attending secondary schools. The number of students enrolled in higher education grew by six times (Table 1). Private schools were brought into the public system and tuition was kept very low, with no tuition at the college level.<sup>16</sup> The CCP also built, largely from scratch, an adult education system based in workplaces. These policies greatly enhanced access to education, yet contributed to the continuation of social stratification.

Upper middle schools, colleges, and universities only accommodated very small proportions of graduates from lower-level schools, and access continued to be determined by highly competitive entrance examinations. Moreover, key middle schools were established to prepare the most successful students for the national college entrance exam, while most students were funneled into general and vocational schools. At the top, colleges and universities were also steeply stratified, with more resources directed to the most elite schools. The system was designed to provide basic education for all children, while selecting a relative handful for elite training. The more elite schools were largely populated by students from the old educated elite classes.<sup>17</sup>

Thus, the primary and secondary education system continued to function as a central mechanism for social stratification and class reproduction, as it had before 1949. In fact, the stratifying role of formal education was enhanced as the new regime expanded the education system, centralized entrance examinations, nationalized all enterprises and other places of employment, and rationalized employment and promotion policies, in part based on educational qualifications.

As noted above, the CCP built a parallel adult education system for those unable to test into the secondary and tertiary levels of the regular system. Based largely in workplaces, this system was primarily remedial and vocational. By the mid-1950s, tens of millions of urban and rural adults were taking literacy classes and millions more were enrolled in primary, secondary, and tertiary adult schools, many of which were

## 发展两种并行的学校体系 (1949-1966)

在 1940 年代末和 1950 年代初中国共产党掌控中国工厂时，大约 70% 的工人是文盲，其余人也只受过几年教育。<sup>15</sup> 大多数工人是从学校稀少的乡村招募来的，即使是城市地区的工人阶级子女也很少能上几年小学。受教育的机会受到学校系统排他性的限制，该系统呈陡峭的金字塔形组织，每一步的入学都由入学考试成绩以及支付学费和其他费用的能力决定。

在 1950 年代和 1960 年代初，中国共产党极大地扩展了全国的公立学校系统。特别注重扩大基础教育的普及，尤其是在农村地区，到 1965 年，上小学的儿童数量是 1949 年的四倍，上中学的儿童数量是 1949 年的十一倍。高等教育的在校学生人数增长了六倍（表 1）。私立学校被纳入公共系统，学费保持非常低廉，大学阶段免收学费。<sup>16</sup> 中国共产党还在很大程度上从零开始建立了一个基于工作场所的成人教育系统。这些政策极大地促进了教育普及，但也助长了社会分层的持续存在。

高级中学、大专院校仅能容纳极少部分低年级学校毕业生，入学机会仍由竞争激烈的入学考试决定。此外，重点中学旨在为最优秀的学生准备全国高考，而大多数学生则被分流到普通学校和职业学校。在顶层，大专院校也存在显著分层，更多资源流向最精英的学校。该系统旨在为所有儿童提供基础教育，同时选拔极少数人进行精英培养。越是精英的学校，其学生也主要来自旧有的受过教育的精英阶层。<sup>17</sup>

因此，中小学教育体系继续作为社会分层和阶级再生产的核心机制发挥作用，一如 1949 年之前。事实上，随着新政权扩大教育体系、集中入学考试、将所有企事业单位收归国有，并部分基于教育资历来合理化就业和晋升政策，正规教育的分层作用得到了加强。

如上所述，中国共产党为那些未能通过考试进入正规教育体系中等和高等教育阶段的人群，建立了一个平行的成人教育体系。该体系主要基于工作场所，以补习和职业培训为主。到 20 世纪 50 年代中期，数千万城乡成年人正在参加扫盲班，另有数百万人就读于成人小学、中学和高等教育学校，其中许多学校是

cadres I interviewed as part of that study, 71 provided information that was important for the analysis contained in this paper.

<sup>15</sup> Although Chinese data is far from perfect, it has widely been regarded as reasonably accurate. See Wang 1991, 57.

<sup>16</sup> Pepper 1996.

<sup>17</sup> Andreas 2009.

我在那项研究中采访的干部中，有 71 位提供了对本文分析至关重要的信息。<sup>15</sup> 尽管中国的数据远非完美，但它已被普遍认为是相当准确的。参见 Wang 1991, 57.<sup>16</sup> Pepper 1996.<sup>17</sup> Andreas 2009.



**Table 1.** Regular Education in China, 1949-1983 (Enrollment in thousands).

Year	Tertiary schools	Secondary schools	Primary schools	Kindergartens	Total
1949	117	1,268	23,683		25,068
1950	137	1,566	24,391	140	26,234
1951	153	1,964	28,924	382	31,423
1952	191	3,145	43,154	421	46,911
1953	212	3,629	51,100	430	55,371
1954	253	4,246	51,164	481	56,144
1955	288	4,473	51,218	562	56,541
1956	403	6,009	53,126	1,081	60,619
1957	441	7,081	63,466	29,501	100,489
1958	660	11,198	64,283	21,722	96,863
1959	812	12,903	86,403	29,331	129,449
1960	962	14,873	91,179	2,896	109,910
1961	947	10,344	93,791	1,446	106,528
1962	830	8,335	75,786	1,472	86,423
1963	750	8,378	69,239	1,589	79,956
1964	685	10,195	71,575	1,713	84,168
1965	674	14,318	92,945		107,937
1966	534	12,968	116,209		129,711
1967	409	12,545	103,417		116,371
1968	259	14,051	102,243		116,551
1969	109	20,253	100,363		120,725
1970	48	26,483	100,668		127,199
1971	83	31,494	105,280		136,857
1972	194	36,167	112,112		148,743
1973	314	34,947	125,292	2,450	163,003
1974	430	37,137	135,704	2,638	175,909
1975	501	45,368	144,814	6,200	196,883
1976	565	59,055	150,941	13,955	224,516
1977	625	68,488	146,176	8,968	224,257
1978	856	66,372	146,240	7,877	221,345
1979	1,020	60,249	146,629	8,792	216,690
1980	1,144	56,778	146,270	11,508	215,700
1981	1,279	50,146	143,328	10,562	205,315
1982	1,154	47,028	139,720	11,131	199,033
1983	1,207	46,347	135,780	11,403	194,737

Source: Department of Planning, Ministry of Education 1985, 27-28

established by factories. Then, during the Great Leap Forward (1958-1960), participation in the workplace-based adult system surged, with enrollment nearly reaching that of the regular system (which was also growing rapidly). The numbers dropped sharply during the post-Leap crisis, but gradually recovered in the early 1960s (Table 2).

These parallel systems were described as “walking on two legs,” and this approach was initially endorsed by party leaders, including Mao. In many ways, this approach was consistent with the two broad conventional goals of CCP education policies: elite training to produce scientists, engineers, and other specialists with the expertise required to help rapidly modernize the country, and mass education to quickly elevate the educational level of the entire population.

The development of distinct elite and popular systems, however, was at odds with the party’s egalitarian principles and class-leveling goals, as children of working class and peasant families continued to be slotted into manual labor positions and children of more educated families into positions that required higher levels of education. Even factory-based schools faced this conundrum.

**Table 1.** Regular 中国教育，1949-1983（在校生数，单位：千人）.

Year	高等学校	中等学校	小学	幼儿园	总计
1949	117	1,268	23,683		25,068
1950	137	1,566	24,391	140	26,234
1951	153	1,964	28,924	382	31,423
1952	191	3,145	43,154	421	46,911
1953	212	3,629	51,100	430	55,371
1954	253	4,246	51,164	481	56,144
1955	288	4,473	51,218	562	56,541
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1957	441	7,081	63,466	29,501	100,489
1958	660	11,198	64,283	21,722	96,863
1959	812	12,903	86,403	29,331	129,449
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1967	409	12,545	103,417		116,371
1968	259	14,051	102,243		116,551
1969	109	20,253	100,363		120,725
1970	48	26,483	100,668		127,199
1971	83	31,494	105,280		136,857
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1974	430	37,137	135,704	2,638	175,909
1975	501	45,368	144,814	6,200	196,883
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1977	625	68,488	146,176	8,968	224,257
1978	856	66,372	146,240	7,877	221,345
1979	1,020	60,249	146,629	8,792	216,690
1980	1,144	56,778	146,270	11,508	215,700
1981	1,279	50,146	143,328	10,562	205,315
1982	1,154	47,028	139,720	11,131	199,033
1983	1,207	46,347	135,780	11,403	194,737

来源：教育部计划司 1985, 27-28

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由工厂建立。随后，在大跃进期间（1958-1960），基于工作场所的成人教育系统的参与人数激增，入学人数几乎达到常规系统（该系统也在迅速增长）的水平。在大跃进后的危机期间，这一数字急剧下降，但在 20 世纪 60 年代初逐渐恢复（表 2）。

这些并行的系统被描述为“两条腿走路”，这种方法最初得到了包括毛泽东在内的党领导人的认可。在许多方面，这种方法与中共教育政策的两个广泛的传统目标是一致的：精英培养，以培养具有帮助国家快速现代化所需专业知识的科学家、工程师和其他专家，以及大众教育，以迅速提升全体人民的教育水平。

然而，精英教育与大众教育各自独立系统的发展，与党的平等原则和阶级平整目标相悖，因为工人和农民家庭的孩子继续被安排从事体力劳动，而受过更高教育家庭的孩子则被安排到需要更高教育水平的职位。甚至以工厂为基础的学校也面临着这个难题。

Table 2. Adult Education in China, 1949-1983 (Enrollment in thousands).

Year	Tertiary schools	Secondary schools	Primary schools	Literacy classes	Total
1949	0.1			13,268	
1950	0.4			23,138	23,138
1951	2			51,080	51,082
1952	4	256	1,375	31,904	33,539
1953	10	405	1,523	18,810	20,748
1954	13	946	2,088	25,047	28,094
1955	16	1,362	4,538	79,329	85,245
1956	64	2,799	5,195	51,426	59,484
1957	76	3,302	6,267	52,352	61,997
1958	150	5,643	26,000	90,000	121,793
1959	300	11,162	55,000		66,462
1960	793	19,740	76,160		96,693
1961	410	3,760	3,200		7,370
1962	404	3,480	2,052		5,936
1963	418	5,581	4,043	5,871	15,913
1964	435	8,480	7,906	6,299	23,120
1965	413	8,540	8,237		17,190
1966					
1967					
1968					
1969					
1970					
1971					
1972	17	810	18,248		19,075
1973	146	1,235	32,979	60,000	94,360
1974	214	2,396	46,976	33,045	82,631
1975	729	3,858	95,915	29,231	129,733
1976	2,629	3,252	127,302	30,521	163,704
1977	1,739	2,359	96,407	23,926	124,431
1978	1,408	2,989	46,605	18,077	69,079
1979	1,722	6,105	4,870	16,363	29,060
1980	1,554	8,045	4,252	12,209	26,060
1981	1,346	8,207	3,523	6,213	19,289
1982	1,173	10,804	3,606	3,960	19,543
1983	1,128	9,748	2,885	5,288	19,069

Source: Department of Planning, Ministry of Education 1985, 4  
(NOTE) Despite the lack of data for the years 1966 to 1971, other sources indicate that adult schools functioned during this period. For instance, one source reported that forty-nine July 21 workers universities were established in Shanghai alone during the years 1968 to 1970 (Wang 2015, 98).

Building China’s factory-based school system

The factory-based school system was supposed to train a select group of workers to become managers and technicians while raising the education level of the workforce as a whole. Both goals were connected to, and made possible by, the CCP’s restructuring of industrial employment. As the new regime transformed factories into socialist work units, it turned unstable jobs into permanent positions and precarious workers into permanent work unit members. This gave both factory leaders and individual workers reasons to value workplace training programs designed to give workers more responsibility for factory affairs.

Formal and informal factory-based education

The formal adult education system, like the regular school system, was composed of a pyramid-like structure with basic literacy, primary, secondary, and tertiary levels. By

Table 2. Adult Education in China, 1949-1983 (Enrollment in thousands).

Year	高等院校	中等学校	小学	扫盲班	总计
1949	0.1			13,268	
1950	0.4			23,138	23,138
1951	2			51,080	51,082
1952	4	256	1,375	31,904	33,539
1953	10	405	1,523	18,810	20,748
1954	13	946	2,088	25,047	28,094
1955	16	1,362	4,538	79,329	85,245
1956	64	2,799	5,195	51,426	59,484
1957	76	3,302	6,267	52,352	61,997
1958	150	5,643	26,000	90,000	121,793
1959	300	11,162	55,000		66,462
1960	793	19,740	76,160		96,693
1961	410	3,760	3,200		7,370
1962	404	3,480	2,052		5,936
1963	418	5,581	4,043	5,871	15,913
1964	435	8,480	7,906	6,299	23,120
1965	413	8,540	8,237		17,190
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1975	729	3,858	95,915	29,231	129,733
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1983	1,128	9,748	2,885	5,288	19,069

Source: Department of Planning, Ministry of Education 1985, 4  
(NOTE) Despite the lack of data for the years 1966 to 1971, other sources indicate that adult schools functioned during this period. For instance, one source reported that forty-nine July 21 workers universities were established in Shanghai alone during the years 1968 to 1970 (Wang 2015, 98).

构建中国的厂办学校体系

厂办学校体系旨在培养一批精选的工人，使其成为管理人员和技术人员，同时提高整个劳动力的教育水平。这两个目标都与中国共产党对工业就业的重组息息相关，并因此得以实现。随着新政权将工厂转变为社会主义工作单位，它将不稳定的工作岗位转变为永久性职位，并将不稳定工人转变为永久性工作单位成员。这使得工厂领导和工人个体都有理由重视旨在赋予工人更多工厂事务责任的岗前培训项目。

正规与非正规的厂办教育

正规成人教育体系，像常规学校体系一样，呈金字塔状结构，包括扫盲、小学、中学和高等教育层级。到





1958, some ninety million adults were enrolled in literacy programs and by 1960 over seventy-six million were enrolled in adult primary schools, almost two million in adult secondary schools, and 793,000 in adult universities (Table 2). Many of these schools and programs were based in industrial enterprises. Factories began operating colleges for employees in 1956 and by 1958 about 150,000 workers and staff members were taking classes in 265 workers' colleges. Factories also offered lower-level classes and by 1960 some seventeen million workers were enrolled in training programs.<sup>18</sup>

Some factory-based programs were part-time, offering evening classes, while others were full-time. All classes were free and workers received their salaries while attending classes. Factory-based schools provided formal degrees, which allowed workers to continue to higher grade levels. They typically offered the same basic curricula as regular schools, while also providing vocational training. Wang Miaoxin, who began working in a Beijing electronics factory in 1956, described the formal program instituted by his enterprise. "The factory ran many night schools, from primary school to university." Workers, he explained, had to take a test to get into the middle school program. "They gave you formal degrees, just like regular schools. ... I went to high school classes; I chose to study math and literature."<sup>19</sup>

When the Communist Party took power, it dispatched a small number of party cadres to individual factories. Because party leaders did not trust the old factory managers, it recruited and trained sympathetic and capable workers and placed them in positions of leadership at all levels. Many early party publications focused on concrete problems involved with training workers to take on managerial responsibilities so they could oversee incumbent managerial and technical leaders.<sup>20</sup>

This emphasis on what the party called "red over expert" continued through the early decades of the PRC. Newly hired college graduates (most of whom continued to be from old elite families) were assigned technical work, but were not placed in leadership positions, which were reserved for workers or demobilized military officers (who were typically of peasant origin).<sup>21</sup> "The cadres were all promoted from among the workers," Chen Zhongfa, who had been a shift leader in a textile mill, told me in an interview. "They used working class people, people without education, to manage people with education."<sup>22</sup> Deng Zhiwen, who worked in an electronics factory, echoed this, explaining, "university graduates became technical employees; they never became workshop directors. They were not assigned to positions where they managed people."<sup>23</sup> By the late 1950s, as the CCP consolidated its control over factories, it moved even more aggressively to place sympathetic workers in positions of power in order to further marginalize and subordinate the leaders and technical personnel inherited from the old regime. This made factory schools even more important.

When new factory leaders organized schools to train workers, the most difficult problem they faced was finding qualified teachers. They brought in middle and even primary school students as volunteers to teach adult literacy classes, and used factory

1958 年, 约 9000 万成年人参加扫盲计划, 到 1960 年, 超过 7600 万人参加成人小学, 近 200 万人参加成人中学, 79.3 万人参加成人大学 (表 2)。这些学校和项目中, 许多都设在工业企业中。1956 年, 工厂开始为员工开办大学, 到 1958 年, 约有 15 万工人和职工在 265 所工人大学上课。工厂还提供低级别课程, 到 1960 年, 约有 1700 万工人参加了培训项目。<sup>18</sup>

一些工厂办学项目是兼职的, 提供夜间课程, 而另一些则是全日制的。所有课程都是免费的, 工人在上课期间可以获得工资。工厂办的学校提供正规学历, 这使得工人可以继续升学。它们通常提供与普通学校相同的基础课程, 同时提供职业培训。Wang Miaoxin, 1956 年开始在一家 Beijing 电子厂工作, 描述了他所在企业设立的正规项目。"工厂办了许多夜校, 从小学到大学都有。" 他解释说, 工人必须通过考试才能进入中学项目。"他们给你颁发正规学历, 就像普通学校一样。……我上过高中课程; 我选择学习数学和文学。"<sup>19</sup>

中国共产党掌权后, 派遣了少量党政干部到各个工厂。由于党的领导人不信任旧的工厂经理, 他们招募并培训了认同党路线且有能力的工人, 并把他们安排到各级领导岗位上。许多早期党刊着重探讨了培训工人承担管理职责的具体问题, 以便他们能够监督现任的管理和技术负责人。<sup>20</sup>

这种党所称的 "又红又专" 的强调贯穿了中华人民共和国成立后的最初几十年。新招募的大学毕业生 (其中大多数人仍旧来自旧的精英家庭) 被分配从事技术工作, 但未被安排到领导岗位, 这些岗位是为工人或复员军人 (他们通常出身农民) 保留的。<sup>21</sup> "干部都是从工人中提拔的," 曾在一家纺织厂担任班组长的陈忠发在一次采访中告诉我。"他们用工人阶级出身的人, 没有文化的人, 来管理有文化的人。"<sup>22</sup>

在一家电子厂工作的邓志文也呼应了这一点, 解释说: "大学毕业生都成了技术人员; 他们从未担任过车间主任。他们没有分配到管理人员的职位。"<sup>23</sup> 到了 20 世纪 50 年代末, 随着中共巩固对工厂的控制, 它甚至更积极地采取行动, 将同情工人安排到权力职位, 以便进一步边缘化和分化旧政权遗留下来的领导者和技术人员。这使得工厂学校变得更加重要。

当新的工厂领导组织学校培训工人时, 他们面临的最困难的问题是找到合格的教师。他们请来中学甚至小学的学生作为志愿者来教授成人扫盲课, 并利用工厂

<sup>18</sup>Wang 1991, 41, 57.

<sup>19</sup>Interviewee A2.

<sup>20</sup>Anshan Steel Company Education Department 1955; Cheng Ze 1954; Northeast People's Publishing House 1953.

<sup>21</sup>Andreas 2019.

<sup>22</sup>Interviewee H25.

<sup>23</sup>Interviewee B5.

<sup>18</sup>Wang 1991, 41, 57.<sup>19</sup> 受访者 A2。<sup>20</sup> 鞍山钢铁公司教育部门 1955; 程泽 1954; 东北人民出版社

1953。<sup>21</sup>Andreas 2019。<sup>22</sup> 受访者 H25。<sup>23</sup> 受访者 B5。

engineers and other technical employees to teach classes. They also enlisted regular workers who had relatively high levels of education. When Zheng Chengyi started working in a Beijing electronics factory in 1956, he had an upper middle school diploma, and he soon began taking classes after work in the factory's recently established university. Given his relatively high level of education, Zheng was asked to teach primary school classes in the evenings for workers recruited from nearby villages. I asked Zheng if he was paid. "No!" he replied, "there was not that kind of thinking then."

In addition to formal schools, which enrolled only a minority of workers, factories also organized popular education campaigns and short term programs that encompassed the entire workforce. During the early years after the new regime came to power in 1949, articles about popular education in factories emphasized the practical importance of increasing the level of literacy and basic educational knowledge among the workforce. Over the course of the next decade, however, publications increasingly emphasized eliminating the differences between mental and manual labor. During the Great Leap Forward, Mao pushed for more radical education policies, declaring in 1958 that "education must be combined with labor."<sup>24</sup> He also insisted that "schools should operate factories and factories should operate schools."<sup>25</sup>

The Great Leap Forward was intended to bring about a massive learning boom. A wave of articles about factory-based schools stressed the importance of elevating the educational level of the entire workforce, with authors criticizing the assumption that culture was an elite domain and scornfully criticizing the maxim attributed to Mencius that "Those who labor with their minds govern others, while those who labor with their strength are governed by others."<sup>26</sup>

All workers were expected to join in some kind of study and classes were scheduled on a rotating basis so that all workers could participate. "Workers had to participate in study," Wang Miaoxin recounted. "Three times a week, two hours a day. They had to go, but they were also willing. You were also expected to have a hobby—sports, or literature and art, or writing. If you didn't study and have a hobby, you were considered backwards, not active."<sup>27</sup>

With the economic collapse of the Great Leap Forward in 1960, however, the learning boom that had accompanied it also collapsed and classes in many factories were abruptly cancelled. Nevertheless, adult education classes soon resumed, albeit on a smaller scale, and gradually expanded until 1966 (Table 2).

### Radical education policies of the Cultural Revolution (1966-1976)

The Cultural Revolution began in 1966 with the suspension of entrance examinations and the closing of all schools. Many, especially at higher levels, remained closed for years, seriously setting back educational goals for individuals and for the country. By the end of the Cultural Revolution in 1976, however, both the regular and the adult systems had been massively expanded (Tables 1 and 2).

<sup>24</sup>Mao Zedong 1958.

<sup>25</sup>Cited in Wu 2022.

<sup>26</sup>East China Normal University 1958; Liu Jie 1960; People's Education Publishing House 1959; Zhengzhou Textile Machinery Factory 1958.

<sup>27</sup>Interviewee A2.

工程师和其他技术员工教授课程。他们还招募了受教育程度相对较高的普通工人。1956年郑诚毅在北京一家电子厂工作时，他拥有高中毕业文凭，很快就开始在工厂新成立的大学里下班后上课。鉴于他相对较高的教育水平，郑诚毅被要求在晚上为从附近村庄招募来的工人教授小学课程。我问郑诚毅是否得到了报酬。“不！”他回答道，“那时没有那种想法。”

除了只招收少数工人的正规学校外，工厂还组织了普及教育运动和短期项目，覆盖了全体员工。新政权于1949年掌权初期，关于工厂普及教育的文章强调了提高工人识字水平和基本教育知识的实际重要性。然而，在接下来的十年里，出版物越来越强调消除脑力劳动和体力劳动之间的差异。大跃进期间，毛泽东推行更激进的教育政策，于1958年宣称“教育必须与劳动相结合”。<sup>24</sup>他还坚持“学校要办工厂，工厂要办学校。”<sup>25</sup>

大跃进旨在带来一场大规模的学习热潮。大量关于工厂办学的文章强调提高全体职工教育水平的重要性，作者们批评了文化是精英领域这一假设，并轻蔑地批评了孟子所说的“劳心者治人，劳力者治于人”的格言。<sup>26</sup>

所有工人都被要求参加某种学习，课程安排实行轮班制，以便所有工人都能参与。“工人必须参加学习，”王苗新回忆说。“每周三次，每天两小时。他们必须去，但也都乐意。你还被要求有一种爱好——体育，或者文学艺术，或者写作。如果你不学习，也没有爱好，你就会被认为是落后分子，不积极。”<sup>27</sup>

然而，随着1960年大跃进的经济崩溃，伴随而来的学习热潮也随之消退，许多工厂的课程被突然取消。尽管如此，成人教育课程很快恢复，尽管规模较小，并逐渐扩大，直到1966年（Table 2）。

### 文化大革命（1966-1976）时期的激进教育政策

文化大革命于1966年开始，以暂停高考和关闭所有学校为标志。许多学校，特别是高等教育机构，关闭多年，严重阻碍了个人和国家的教育目标。然而，到1976年文化大革命结束时，普通教育和成人教育系统都得到了大规模扩展（表1和2）。

<sup>24</sup>毛泽东 1958。<sup>25</sup>引自 Wu 2022。<sup>26</sup>华东师范大学 1958；刘杰 1960；人民教育出版社 1959；郑州纺织机械厂 1958。<sup>27</sup>受访者 A2。

At the outset of the Cultural Revolution, Mao harshly criticized the existing education system as elitist and called for a “revolution in education.”<sup>28</sup> Although primary and secondary schools reopened the following year, Mao did not come up with a plan for reorganizing tertiary education until he issued his July 21, 1968 directive, inspired by a report about engineering training classes for workers at the Shanghai Machine Tool Factory.<sup>29</sup> What subsequently became known as the “July 21 Road” entailed a radical break with previous education policies and also transformed hiring and promotion practices.

### *The regular education system during the Cultural Revolution*

From 1966 to 1976, entrance examinations at all levels of the regular education system were eliminated. The educational hierarchy—key schools for those with top exam scores and general education and vocational schools for those who did not test as well—was also eliminated. All schools were formally designated to be of equal status, and teaching personnel and other resources were redistributed in accordance with this agenda.

The July 21 Road policies were intended to reshape the regular education system so that instead of resembling a pyramid it would be flatter and much larger. All children, both rural and urban, were supposed to complete middle school, which meant nine or ten years of education.<sup>30</sup> Between 1965 and 1976, the number of children attending primary schools increased from about ninety-three million to over 150 million, making primary school nearly universal. Universal secondary school education was only partially accomplished, but enrollment numbers grew rapidly, from approximately fourteen million in 1965 to nearly sixty million in 1976 (Table 1).

Given the radical egalitarian ethos of the Cultural Revolution, reopening regular colleges and universities was a much more controversial endeavor, as there was no possibility of making tertiary education universal. Although some colleges and universities began to reopen in 1970, by 1976 enrollment had only reached 565,000, less than the 1965 figure of 674,000 (Table 1). To replace entrance examinations, a recommendation system was developed in which quotas were assigned to urban workplaces, rural communes, and military units to recommend worker-peasant-soldier students. Young people with at least two years of manual labor experience were eligible for recommendation; if accepted as students, they were expected to return to their workplaces after graduation. Degree programs were cut from six to three years, and colleges and universities developed a variety of shorter training programs.<sup>31</sup> Curricula were revised to put greater emphasis on combining theory with practice and on practical learning. Schools sent teachers and students to learn in factories, and many schools built their own small factories.<sup>32</sup>

Hiring and promotion practices also changed radically. Before the Cultural Revolution, factories had received a steady stream of new employees with advanced education and technical training from universities, vocational colleges, and vocational secondary

在文化大革命伊始，毛泽东严厉批判了现有的教育体系是精英主义的，并呼吁进行一场“教育革命”。<sup>28</sup> 尽管小学和中学在次年重新开学，但毛泽东直到1968年7月21日发布指示才提出了重组高等教育的计划，该指示的灵感来源于一份关于上海机床厂工人工程培训班的报告。<sup>29</sup> 此后被称为“七二一道路”的做法，标志着与以往教育政策的彻底决裂，也改变了招聘和晋升方式。

### *文化大革命期间的常规教育体系*

从1966年到1976年，常规教育体系各级的入学考试被取消。教育等级制度——为考试成绩优异者设立的重点学校，以及为考试成绩不佳者设立的普通教育和职业学校——也被取消。所有学校都被正式指定为平等地位，教学人员和其他资源也根据这一议程重新分配。

七二一道路政策旨在重塑正规教育体系，使其不再呈金字塔状，而是更扁平、更广泛。所有儿童，无论城乡，都应完成中学教育，这意味着九到十年的学制。<sup>30</sup> 1965年至1976年间，小学在校儿童人数从约9300万增加到超过1.5亿，使小学教育接近普及。普及中学教育仅部分实现，但入学人数迅速增长，从1965年的约1400万增至1976年的近6000万（Table 1）。

鉴于文化大革命的激进平等主义思潮，重新开放正规高等院校是一项更具争议性的举措，因为不可能实现高等教育的普及。尽管一些大专院校于1970年开始恢复招生，但到1976年，招生人数仅达到56.5万人，低于1965年的67.4万人（Table 1）。为取代入学考试，建立了一套推荐制度，将名额分配给城市工作单位、农村人民公社和军队，以推荐工农兵学员。具有至少两年体力劳动经验的年轻人有资格获得推荐；如果被录取为学生，他们毕业后须返回原工作单位。学位课程从六年缩短到三年，大专院校还开发了各种更短的培训项目。<sup>31</sup> 课程进行了修订，更加强调理论与实践相结合以及实践学习。学校派遣师生到工厂学习，许多学校还建立了自己小型工厂。<sup>32</sup>

招聘和晋升实践也发生了根本性的变化。文化大革命之前，工厂源源不断地接收来自大学、职业学院和职业中等学校的、受过高等教育和技术培训的新员工

<sup>28</sup>Andreas 2009, 58.

<sup>29</sup>Shi Ke 2019.

<sup>30</sup>Before the Cultural Revolution, completing upper middle school had required twelve years of schooling.

<sup>31</sup>Andreas 2009; Pepper 1996.

<sup>32</sup>Andreas 2009. Also see *People's Daily* (1974a); *People's Daily* (1974b).

<sup>28</sup>Andreas 2009, 58. <sup>29</sup>ShiKe 2019. <sup>30</sup>文化大革命前，完成高中毕业需要十二年教育。 <sup>31</sup>Andreas 2009; Pepper 1996. <sup>32</sup>Andreas 2009. 另见 *People's Daily* (1974a) ; *People's Daily*(1974b) 。



schools. Now this stream was cut off. Instead, virtually all managerial, political, and technical positions had to be filled from within by promoting workers.<sup>33</sup> In order to provide workers with more advanced education and technical training, factory leaders had two choices. On the one hand, they could recommend young workers for admission to colleges and universities, after which these workers were expected to return to their work units. However, the quotas that factory leaders received for recommending students were small. On the other hand, they could further develop their own schools. Under these conditions, the number and size of factory-based schools, including July 21 workers universities, multiplied and became much larger.

### **Factory-based schools during the Cultural Revolution**

During the later years of the Cultural Revolution, the adult education system grew much more rapidly than did the regular education system for youth. This growth reflected not only a radical push to popularize education, but also a need to provide remedial training for new hires who had missed out on months or years of primary and secondary school education due to Cultural Revolution disruptions. Between 1965 and 1976, nationwide enrollment in the public school system grew from approximately 108 million to over 224 million, while enrolment in adult education programs increased from 17.2 million to 163.7 million.<sup>34</sup> By 1976, over thirty million workers and peasants were enrolled in literacy programs, while over 130 million more were taking classes in adult primary and secondary schools (Tables 1 and 2).

The most unprecedented growth in adult education was at the tertiary level. Although by 1976 the number of students in regular colleges and universities had reached 565,000 (close to the pre-Cultural Revolution number), nearly five times that number (2.6 million) were enrolled in adult tertiary schools (Tables 1 and 2). This included 1,485,000 workers who were studying in classes organized by 33,374 factory-based July 21 universities.<sup>35</sup> Because factory leaders were being pushed to create these schools rapidly, some were rudimentary, but the trend was sharply upward.

The rapid growth of factory-based schools at all levels, and July 21 universities in particular, was due to wide support from above and below. At the top, the drive to build factory-based schools was supported by both the more conservative wing of the CCP leadership, led by Zhou Enlai and Deng Xiaoping, and the more radical wing, led by the so-called Gang of Four. The former were most concerned with conventional goals, as they sought to rejuvenate higher education, especially technical education, in order to rebuild China's corps of technical experts in the wake of the Cultural Revolution. "After Deng Xiaoping came back [in 1973], he wanted to improve education," explained Wang Miao Xin, who had been a conservative stalwart during the Cultural Revolution. "He promoted production, economic accounting, and cultivating talent (*péiyāng réncái*)." Wang followed politics closely and he believed Deng's initiative was not his alone. "Zhou Enlai and Mao Zedong also agreed," he said.<sup>36</sup>

<sup>33</sup>A small number of new cadres were demobilized military officers of village origins.

<sup>34</sup>The enrollment numbers in regular and adult schools are not entirely comparable, as many adults only took part-time or short-term classes.

<sup>35</sup>China Education Yearbook Editorial Department 1984.

<sup>36</sup>Interviewee A2.

学校。现在，这条路径被切断了。取而代之的是，几乎所有的管理、政治和技术职位都必须通过提拔工人从内部填补。<sup>33</sup> 为了向工人提供更高级的教育和技术培训，工厂领导有两种选择。一方面，他们可以推荐年轻工人进入大学学习，之后这些工人预计将返回其工作单位。然而，工厂领导获得的推荐学生的名额很少。另一方面，他们可以进一步发展自己的学校。在这些条件下，包括“七二一工人大学”在内的厂办学校的数量和规模成倍增长，并变得更大。

### **文化大革命期间的厂办学校**

在文化大革命后期，成人教育系统的发展速度远超青少年常规教育系统。这种增长不仅反映了普及教育的激进推动，也反映了需要为因文化大革命中断而错过了数月或数年中小学教育的新员工提供补习培训。1965年至1976年间，全国公立学校系统招生人数从约1.08亿增长到2.24亿以上，而成人教育项目的招生人数从1720万增加到1.637亿。<sup>34</sup> 到1976年，超过3000万工农参加了扫盲项目，另有1.3亿多人参加了成人中小学课程（Tables 1 and 2）。

成人教育前所未有的增长体现在高等教育层面。尽管到1976年，普通高校的学生人数已达56.5万人（接近文革前的水平），但成人高等院校的学生人数几乎是其五倍（260万）（表1和2）。其中，有148.5万名工人正在由33,374所工厂开办的“七二一”大学组织的班级中学习。<sup>35</sup> 由于工厂领导被要求迅速创办这些学校，一些学校条件简陋，但这种趋势急剧上升。

各级工厂办学，特别是“七二一”大学的迅速发展，得益于上上下下的广泛支持。在高层，兴办工厂学校的动力得到了中共领导层中较保守一派（以周恩来和邓小平为首）和较激进一派（以所谓的“四人帮”为首）的共同支持。前者最关心传统目标，他们力求振兴高等教育，尤其是技术教育，以在文革后重建中国的技术专家队伍。“邓小平回来后 [在 1973]，他想改善教育，”王妙新解释说，他曾是文革期间的保守派坚定分子。“他提倡生产、经济核算和培养人才（*péiyāng réncái*）。”王密切关注政治，他认为邓小平的倡议并非他一人所为。“周恩来和毛泽东也同意，”他说。<sup>36</sup>

<sup>33</sup>少数新干部是出身农村的复员军官。<sup>34</sup>普通学校和成人学校的招生人数不完全具有可比性，因为许多成年人只参加了兼职或短期课程。<sup>35</sup>中国教育年鉴编辑部 1984。<sup>36</sup>受访者 A2。

Members of the radical wing of the CCP were particularly strong proponents of factory-based schools, which they saw as a means of advancing their political and social goals. Both the pre-1949 factory leaders and engineering staff and the new leaders who had taken the reins after 1949 were targets of the radical wing of the party and rebel workers during the early upheavals of the Cultural Revolution. Radical leaders saw factory-based schools as sites for training a new generation of working class leaders to replace distrusted incumbents. In terms of popular education, they were the foremost proponents of Mao's vision of diminishing the differences between mental and manual labor, a goal stressed in a wave of publications promoting the July 21 university model.<sup>37</sup> The fundamental purpose of educational programs for workers and peasants, from this perspective, was to break "the monopoly of culture and science by the privileged few."<sup>38</sup>

At the base, factory leaders had their own compelling reasons to develop the capacity to train workers in technical fields. July 21 universities grew especially rapidly in 1975 and 1976. One reason for this growth was that factory leaders were disappointed that many of the workers they had recommended to attend regular colleges and universities had failed to return. As factory leaders could no longer rely on the regular education system to send new technical personnel to meet their need for technical expertise, they invested in their own in-house training programs.<sup>39</sup>

As a result of July 21 Road policies, the differences between regular and workplace-based tertiary schools diminished. Both systems trained worker-peasant-soldier students recommended by their workplaces. As noted above, regular colleges and universities eliminated postgraduate education, cut the years required for an undergraduate degree from six to three years, and offered shorter-term training programs. Moreover, all schools were expected to combine theory with practice and send teachers and students to factories and farms to learn from and teach workers and peasants. For all these reasons regular universities were no longer able to offer highly elite education.<sup>40</sup> At the same time, factories took advantage of increased resources and a more educated workforce to expand and improve factory-based tertiary education. In both the regular and factory-based systems, much of the curricula was highly politicized, especially during periods when and in places where pro-Mao radicals held sway. Nevertheless, the main purpose of factory schools continued to be the provision of conventional education and technical training.

Some workers who went to July 21 universities insisted that they were as good or better than regular universities. Zhu Longwen, who started working in a railroad car factory after finishing high school in 1975, recalled:

They had technical classes in the evening. I attended those classes and studied drafting. The workshop recommended me because I was a new worker. Our workers university sent graduates back to the factory well-trained and ready to work. The graduates were better than university graduates. The drawings of the university students were not as good as

中共党内的激进派是厂办学校的特别强烈的支持者，他们将其视为推进其政治和社会目标的手段。1949 年前的工厂领导和工程技术人员以及 1949 年后掌权的新领导，都在文化大革命初期动荡中成为党内激进派和造反工人的攻击目标。激进领导人将厂办学校视为培养新一代工人阶级领导人以取代不受信任的在职人员的场所。在普及教育方面，他们是毛泽东关于缩小脑力劳动和体力劳动之间差异愿景的最主要倡导者，这一目标在推广“七二一大学”模式的一系列出版物中得到了强调。<sup>37</sup>从这个角度来看，工人与农民教育项目的根本目的是打破“少数特权阶层对文化和科学的垄断”。<sup>38</sup>

在基层，工厂领导有他们自己的充分理由来发展培训工人技术领域的能力。七二一大学在 1975 年和 1976 年发展得特别快。这种增长的一个原因是，工厂领导们对他们推荐去普通大专院校学习的许多工人未能返回感到失望。由于工厂领导无法再依靠正规教育系统输送新的技术人员来满足他们对技术专长的需求，因此他们投资了自己内部的培训项目。<sup>39</sup>

由于七二一道路政策的推行，普通高校和厂办高校之间的差异逐渐缩小。两种体系都培养由工作单位推荐的工农兵学员。如上所述，普通高校取消了研究生教育，将本科学位所需学制从六年缩短到三年，并提供短期培训项目。此外，所有学校都被要求理论联系实际，将师生送往工厂和农村，向工农学习并教育工农。鉴于以上种种原因，普通大学不再能够提供精英教育。<sup>40</sup>与此同时，工厂利用增加的资源 and 受过更高教育的劳动力，扩大和改进了厂办高等教育。在普通高校和厂办高校两种体系中，许多课程都高度政治化，尤其是在亲毛激进分子掌握大权的时期和地区。尽管如此，工厂学校的主要目的仍然是提供常规教育和技术培训。

一些就读七二一大学的工人坚称，它们不亚于甚至优于普通大学。Zhu Longwen, 于 1975 年高中毕业后开始在一家铁路车辆厂工作，回忆道：

他们晚上有技术课。我参加了那些课，学习了制图。车间推荐了我，因为我是一名新工人。我们的工人大学把毕业生送回工厂时，他们都训练有素，随时可以工作。那些毕业生比大学毕业生更优秀。大学生的图纸不如

<sup>37</sup>People's Education Publishing House 1975; Shanghai People's Publishing House 1975; Shanghai People's Publishing House 1976; *People's Daily* 1974c; *People's Daily* 1976a; *People's Daily* 1976b.

<sup>38</sup>*Peking Review* 1975, 8.

<sup>39</sup>Cf. Jilin Province Gazetteer Compilation Committee 1996, 301.

<sup>40</sup>Andreas 2009; Bratton 1979; Chen 1981; Pepper 1996.

<sup>37</sup> 人民教育出版社 1975；上海人民出版社 1975；上海人民出版社 1976；人民日报 1974c；人民日报 1976a；人民日报 1976b。<sup>38</sup> 北京周报 1975, 8.<sup>39</sup> 参见吉林省地方志编纂委员会 1996, 301。<sup>40</sup>Andreas 2009；Bratton 1979；Chen 1981；Pepper 1996。

ours. ... After [the workers university] graduates returned, they played a big role; they helped the factory develop.<sup>41</sup>

Other workers were more circumspect when comparing July 21 universities to regular colleges and universities. Pan Wencai, who began working in an electronics plant after graduating from high school in 1969, recalled that his factory opened a July 21 university, which enrolled two or three hundred of the factory's four thousand workers. "The best students became teachers at the school, others became cadres, and some returned to the workshops as regular workers," he said. Many of those who attended the school, however, only had a lower middle school education. In his assessment, "It was not really at a university level, it was more like a high school." While Pan thought the school did not measure up to university standards, he did appreciate the value of the training programs the factory developed:

Starting in the mid-1970s, the workshops began organizing technology classes. The purpose was to raise the workers' culture and technical understanding. They taught the theory behind the manufacturing processes we used. The classes were taught by the engineers and other technical staff. All the workers participated in rotating groups. Classes were held during working hours, two to three hours a week. Everyone was happy to participate. The younger workers had to take tests, the older workers didn't. This was a very good program; it was good for workers to understand the principals behind the production process."<sup>42</sup>

There was a great deal of variation among July 21 universities. Some programs consisted of evening classes, while others were half-work/half-study or full-time. Some adopted standard college curricula, while others used middle school materials. Some required workers to have upper middle school diplomas, while others accepted lower middle school diplomas or required some kind of admissions test. Many also offered other educational programs that were open to all employees. All programs were free and workers were paid to attend. Programs that involved release from work typically required a recommendation from a worker's workgroup or factory leaders. As with worker-peasant-soldier students who were recommended to attend regular colleges, the recommendation process inevitably reflected personal relations with co-workers and supervisors to some degree.<sup>43</sup>

### Closing the July 21 Road after 1976

Soon after Mao's death on September 9, 1976, the CCP abandoned the radical class-leveling goals that had animated education policy during the Mao era and moved to fundamentally shift education priorities, curtailing popular education and expanding elite education. The entrance examination system was restored, closing the "July 21 Road."

### Reforming the regular school system

Restoration of the entrance examinations in 1977 immediately transformed the regular education system, bringing back the selection logic and orientation of the pre-Cultural

我们的……之后 [工人大学] 毕业生回来后, 他们发挥了很大的作用; 他们帮助工厂发展起来。<sup>41</sup>

其他工人在比较七二一大学和普通高等院校时更为谨慎。潘文才于 1969 年高中毕业后开始在一家电子厂工作, 他回忆说, 他们厂开办了一所七二一大学, 招收了工厂四千名工人中的两三百人。他说: “最好的学生留校当老师, 其他人当了干部, 还有一些人回到车间当普通工人。”然而, 许多上过这所学校的人, 只有初中文化水平。在他看来, “那根本不是大学水平, 更像是一所高中。”尽管潘文才认为这所学校未达到大学水平, 但他确实很欣赏工厂开发的培训项目的价值:

从 20 世纪 70 年代中期开始, 车间开始组织技术培训班。目的是提高工人的文化水平和技术理解能力。他们教授我们所用制造工艺背后的理论。课程由工程师和其他技术人员教授。所有工人轮流分组参加。课程在工作时间进行, 每周两到三小时。每个人都很乐意参加。年轻工人必须参加考试, 年长的工人则不需要。这是一个非常好的项目; 它有助于工人理解生产过程背后的原理。”<sup>42</sup>

七二一大学之间存在很大差异。有些项目是夜校课程, 有些是半工半读或全日制。有些采用标准大学课程, 而另一些则使用中学教材。有些要求工人具备高中学历, 而另一些则接受初中学历或要求进行某种入学考试。许多学校还提供向所有员工开放的其他教育项目。所有项目都是免费的, 工人带薪学习。涉及脱产的项目通常需要工人所在工段或工厂领导的推荐。正如工农兵学员被推荐进入普通高校一样, 推荐过程在某种程度上不可避免地反映了与同事和管理人员的私人关系。<sup>43</sup>

### 1976 年后关闭 “七二一道路”

毛泽东于 1976 年 9 月 9 日逝世后不久, 中共放弃了在毛泽东时代推动教育政策的激进阶级平等目标, 并开始根本性地转变教育重点, 限制大众教育并扩大精英教育。高考制度得以恢复, 从而关闭了 “七二一道路”。

### 改革常规学校系统

1977 年高考的恢复立刻改变了常规教育体系, 带回了文革前的选拔逻辑和导向

<sup>41</sup>Interviewee W2.

<sup>42</sup>Interviewee A4.

<sup>43</sup>For a detailed discussion of how the recommendation system functioned from the perspective of a regular society-based university, see Andreas 2009, 188-210.

<sup>41</sup> 受访者 W2。 <sup>42</sup> 受访者 A4。 <sup>43</sup> 关于推荐系统如何从一所常规的社会型大学的角度运作的详细讨论, 请参阅 Andreas 2009, 188-210。



Revolution years. Restoring entrance exams was the very first item on Deng Xiaoping's post-Mao agenda. "This year," he declared in the spring of 1977:

... we must make up our minds to restore direct enrollment of middle school graduates through entrance examinations and stop the practice of having the masses recommend candidates for admission to colleges and universities ... it is necessary to establish key primary schools, key secondary schools, and key colleges and universities. It is necessary to bring together, through stiff examinations, the outstanding people in the key secondary schools and the key colleges and universities.<sup>44</sup>

Mao's flat education system was quickly reshaped into a steep pyramid, with entrance exams and key schools at every level, and preparation for the college entrance exams once again came to orient middle school education.<sup>45</sup>

Deng and the education reformers in his camp contended that popularization had gone too far, and that the base of the regular education system had expanded too rapidly, especially in the countryside. Resources, they figured, would be better spent on elite education. Over the next several years, from 1976 to 1983, kindergarten enrollment was cut from nearly fourteen million to just over 11.4 million, primary school enrollment was cut from over 150 million to 136 million, and secondary school enrollment was cut from over sixty-eight million in 1977 to a little over forty-six million by 1983. Meanwhile enrollment in regular colleges and universities more than doubled, from 565,000 to 1,207,000 (Table 1).

### *The gradual decline of factory-based schools*

In the adult system, the same basic logic of curtailing popular education prevailed, but with somewhat different results. Between 1976 and 1983, the number of workers and peasants enrolled in literacy programs fell from over thirty million to just over five million, enrollment in adult primary schools fell from over 127 million to under three million, and enrollment in adult colleges and universities was cut by more than half, from more than 2.6 million to just over 1.1 million. However, enrollment in adult secondary schools almost tripled, from 3.3 million to 9.7 million. These contrasting numbers reflect the historical context as well as sharp changes in the policy goals of the post-Mao leadership.

Enrollment in the remedial adult education system (literacy programs and primary schools) declined partly due to the intensive efforts during the preceding years to develop basic education. Among workers, illiteracy had fallen from an estimated seventy percent in 1949 to about five percent in the years immediately after Mao's death. By 1976, most new factory hires had completed at least lower middle school in the greatly expanded regular school system.<sup>46</sup> While these accomplishments diminished enrollment at the lower levels of the adult system, they resulted in a spike in enrollment in adult upper-middle school programs, as large numbers of workers who had recently completed lower-middle school classes, either in regular schools or in factory-based schools, were now ready for the upper-middle school classes offered in factories (Tables 1 and 2).

革命年代。恢复高考是邓小平后毛时代议程上的第一项内容。“今年，”他在1977年春天宣布：

……我们必须下决心恢复中学毕业生通过入学考试直接录取的制度，停止群众推荐入学大学的做法……必须建立重点小学、重点中学、重点大学。必须通过严格的考试，把重点中学和重点大学中的优秀人才集中起来。<sup>44</sup>

毛泽东的扁平教育体系迅速被重塑成一个陡峭的金字塔，各级都有入学考试和重点学校，高考准备再次成为中学教育的导向。<sup>45</sup>

邓和其阵营中的教育改革者认为，普及化走得太远了，常规教育体系的基础扩张太快，尤其是在农村地区。他们认为，资源最好用于精英教育。在接下来的几年里，从1976年到1983年，幼儿园入学人数从近1400万削减到略高于1140万，小学生入学人数从超过1.5亿削减到1.36亿，中学生入学人数从1977年的超过6800万削减到1983年的略高于4600万。同时，普通高校的入学人数增加了一倍多，从565,000人增加到1,207,000人 (Table 1)。

### *工厂附属学校的逐渐衰落*

在成人教育体系中，限制普及教育的相同基本逻辑依然盛行，但结果却有所不同。1976年至1983年间，参加扫盲项目的工农人数从3000多万下降到500多万，成人小学入学人数从1.27亿以上下降到300万以下，成人高等院校入学人数减少了一半以上，从260多万下降到110多万。然而，成人中等学校的入学人数几乎增加了两倍，从330万增加到970万。这些对比鲜明的数字反映了历史背景以及后毛泽东时代领导层政策目标的急剧变化。

补习性成人教育体系（扫盲项目和小学）的入学人数有所下降，部分原因是前几年为发展基础教育所做的密集努力。在工人中，文盲率已从1949年估计的70%下降到毛泽东逝世后几年的大约5%。到1976年，大多数新招的工厂工人至少在大幅扩大的正规学校系统中完成了初中教育。<sup>46</sup>虽然这些成就降低了成人教育体系低级别的入学人数，但它们却导致成人高中课程的入学人数激增，因为大量近期在正规学校或工厂附属学校完成初中课程的工人，现在已准备好进入工厂提供的高中课程学习（表1和2）。

<sup>44</sup>Deng 1984a, 53-54.

<sup>45</sup>Andreas 2004.

<sup>46</sup>Andreas 2004, 18; Wang 1991.

<sup>44</sup>Deng 1984a, 53-54.

<sup>45</sup>Andreas 2004.

<sup>46</sup>Andreas 2004, 18; Wang 1991.

Despite this increased enrollment in factory-based upper-middle schools, the July 21 workers universities that had been established over the previous decade became a particular target of the post-Mao leadership. Between 1976 and 1978, their number was cut by almost ninety percent, from 33,374 to 3,477, and enrollment declined from 1,485,000 to 103,000.<sup>47</sup> This sharp contraction was in part connected with the systematic purge of party radicals that followed Mao's death. Radicals had been particularly strong in factories and had played an important role in the expansion of July 21 universities.<sup>48</sup> Rather than renounce the idea of industrial tertiary schools, CCP leaders under Deng derided the quality of these schools. In subsequent years, the system was consolidated and rebuilt, but with entirely conventional goals. This ideological shift was reflected in the renaming of the Bureau of Workers and Peasants Education to the Department of Adult Education. By 1986, enrollment had rebounded to 1.8 million, but there were far fewer schools—only 952 in the entire country—reflecting a shift to larger, more centralized schools.<sup>49</sup>

The schools that survived this shakeup became more standardized. At the tertiary level, the “July 21” moniker was dropped in 1984, and reorganized workers universities adopted a uniform curriculum similar to that in specialized colleges. In addition, workers were required to have upper-middle school diplomas and pass an entrance exam to enroll. These schools nevertheless retained some of the basic features of the factory-based tertiary schools of the Mao era. Workers continued to receive their salaries while enrolled in courses and were expected to return to their factories after completing their training. Moreover, these schools continued to receive most of their funding from the industrial enterprises with which they were associated, and they often used factory facilities and machinery for training.<sup>50</sup>

Nevertheless, the market reform agenda of Deng Xiaoping and other CCP leaders, and the priority they gave to elite education, did not bode well for workers universities or for factory-based education in general. Now that the exam system had been restored, the new leadership was much more interested in developing regular colleges and universities. Deng declared that although it was necessary to operate various types of schools, including adult schools and vocational schools, the central task had to be “concentrating forces and strengthening key colleges and universities and key primary and secondary schools, thus raising their level as quickly as possible.”<sup>51</sup>

Although some factories continued to run their own schools, the prestige and importance of these schools steadily declined. Factory leaders had less incentive to develop factory-based education programs, as they were once again receiving graduates with technical training from secondary and tertiary schools. In the past, factory leaders had distrusted these graduates, who were disproportionately from families that were part of the pre-1949 educated elite, but after Deng's ascension to power the party leadership began to embrace intellectuals of all class origins.

In the early 1980s, the state began codifying formal education requirements for all cadres, whether technical, managerial, or political. This particularly impacted two

尽管以工厂为基础的高中入学人数有所增加，但过去十年间建立的“七二一工人大学”成为毛泽东逝世后领导层的重点目标。在1976年至1978年间，其数量削减了近九成，从33,374所减少到3,477所，入学人数从1,485,000人下降到103,000人。<sup>47</sup>这种急剧的萎缩部分与毛泽东逝世后对党内激进分子的系统性清洗有关。激进分子在工厂中势力尤其强大，并在“七二一大学”的扩张中发挥了重要作用。<sup>48</sup>

邓小平领导下的中共领导人并未放弃工业高等院校的理念，而是嘲笑这些学校的教学质量。随后的几年里，该体系得到了整合和重建，但目标完全回归传统。这种意识形态转变体现在“工农教育局”更名为“成人教育部”上。截至1986年，入学人数已反弹至180万，但学校数量却大大减少——全国仅有952所——这反映出向规模更大、更集中的学校转变的趋势。<sup>49</sup>

在这场改革中幸存下来的学校变得更加标准化。在高等教育层面，“七二一”的称谓于1984年被废止，重组后的工人大学采用了与专业学院相似的统一课程。此外，工人被要求拥有高中毕业文凭并通过入学考试才能入学。然而，这些学校仍然保留了毛泽东时代工厂附属高等院校的一些基本特征。工人在学习期间继续领取工资，并有望在完成培训后返回其工厂。此外，这些学校的大部分资金仍来自与其相关的工业企业，并且它们经常利用工厂设施和机械进行培训。<sup>50</sup>

然而，邓小平和其他中共领导人的市场改革议程，以及他们对精英教育的优先考虑，对工人大学或一般的工厂附属教育来说并非好兆头。随着考试制度的恢复，新的领导层对发展普通高等院校更感兴趣。邓小平宣称，虽然有必要开办各种类型的学校，包括成人学校和职业学校，但中心任务必须是“集中力量，加强重点大专院校和重点中小学，尽快提高其水平。”<sup>51</sup>

尽管一些工厂继续开办自己的学校，但这些学校的声望和重要性稳步下降。工厂领导者发展厂办教育项目的积极性降低了，因为他们再次开始接收来自中等和高等院校的技术培训毕业生。过去，工厂领导者不信任这些毕业生，他们主要来自1949年前的知识精英家庭，但在邓小平上台后，党的领导层开始接纳所有阶层出身的知识分子。

在20世纪80年代早期，国家开始规范所有干部的正式教育要求，无论是技术、管理还是政治方面。这尤其影响了两种

<sup>47</sup>Li 2020, 147-148; 261-263. <sup>48</sup>Andreas 2019. <sup>49</sup>Wang 1991, 43. <sup>50</sup>关于20世纪80年代工人大学的描述，参见 Duke 1984; Wang 1991, 60-68. <sup>51</sup>Deng 1984b, 124.

<sup>47</sup>Li 2020, 147-148; 261-263.

<sup>48</sup>Andreas 2019.

<sup>49</sup>Wang 1991, 43.

<sup>50</sup>For descriptions of workers' universities in the 1980s, see Duke 1984; Wang 1991, 60-68.

<sup>51</sup>Deng 1984b, 124.

groups of factory employees. One group was made up of worker-cadres (*yǐ gōng dài gàn*) who had been promoted in the 1960s and 1970s to positions that entailed responsibilities conventionally assigned to managerial, political, or technical cadres, but who had never been promoted to formal cadre status. They were now required to pass exams that determined whether they would be accorded formal cadre status or be demoted. The other group was made up of older employees, including veterans of the 1949 revolution and workers recruited in the 1950s, who had formal cadre status but did not have the educational credentials required by the new cadre policies. Members of the latter group were encouraged to retire, as the party now preferred cadres with different credentials. In 1980, Deng declared, “We should see to it that our cadres are younger on the average, better educated, and better qualified professionally.”<sup>52</sup>

There was no longer a route from the shop floor to upper levels of management. Workers were still promoted to shop floor managerial positions, but generally not above the level of workshop director. With the pipeline from regular colleges and universities reopened, higher-level managerial, political, and technical positions were increasingly reserved for individuals with college degrees. While in the past, managerial and political leadership positions in Chinese factories had been dominated by revolutionary cadres with rural origins and workers promoted from below, these positions were now increasingly filled with college graduates. “Before 1980, most cadres were promoted workers. ... From the workshop director to the factory head, to the party secretary, they all came from the workers,” recalled Lin Zheyang, a small group leader in a roller bearing factory. “Now they require cadres to have degrees.”<sup>53</sup>

The radical goals that had spurred the growth of factory-based education during the Mao era were no longer of interest to the post-Mao leadership. Not only were they no longer interested in replacing incumbent leaders and technicians with workers, they had also abandoned the communist vision of diminishing the differences between mental and manual labor. Slogans associated with this goal, such as requiring “cadres’ participation in manual labor” and insisting on “workers’ participation in management,” disappeared after Mao’s death. The handful of references in subsequent years typically involved criticism of the radical faction for having misused these slogans during the Cultural Revolution.<sup>54</sup>

Immediately after Mao’s death, CCP leaders moved to elevate the respect, social status, and compensation accorded to those who performed mental labor. “The erroneous attitude of not respecting intellectuals must be opposed,” Deng declared in 1977, adding, “All work, be it mental or manual, is labor.”<sup>55</sup> Differences in material compensation grew slowly at first, but took off in the late 1990s, with privatization and industrial restructuring. “The wage levels of key management and technical positions and positions that require high quality and scarce talents,” declared a 2001 State Council directive, “must be raised.”<sup>56</sup> The highly condensed range of wages and benefits of the past grew immensely. By the early years of the new century, the industrial labor force had become highly differentiated, not only in terms of compensation but also in terms of

工厂员工群体。其中一个群体是由工人干部（*yǐ gōng dài gàn*）组成，他们在 20 世纪 60 年代和 70 年代被提拔到通常分配给管理、政治或技术干部职位，但从未被提升为正式干部。他们现在被要求通过考试，以确定他们是否会被授予正式干部身份或被降级。另一个群体由年长的员工组成，包括 1949 年革命的退伍军人和 20 世纪 50 年代招募的工人，他们拥有正式干部身份，但没有新干部政策所要求的教育资质。后者被鼓励退休，因为党现在更喜欢拥有不同资历的干部。1980 年，邓小平宣布：“我们应该使我们的干部平均年龄更轻、受教育程度更高、专业素质更强。”<sup>52</sup>

从车间到管理高层的晋升之路不复存在。工人仍然可以晋升到车间管理职位，但通常不超过车间主任的级别。随着正规大学的培养渠道重新开放，更高级别的管理、政治和技术职位越来越多地留给拥有大学学位的人。过去，中国工厂的管理和政治领导职位主要由出身农村的革命干部和从基层提拔的工人担任，而现在这些职位越来越多地由大学毕业生填补。“1980 年以前，大多数干部都是提拔上来的工人。……从车间主任到厂长，再到党委书记，他们都来自工人，”一家滚珠轴承厂的小组长林则阳回忆道。“现在他们要求干部有文凭。”<sup>53</sup>

毛泽东时代推动工厂办学发展的激进目标，对后毛泽东时代的领导层而言已不再有吸引力。他们不仅不再热衷于用工人取代在职领导和技术人员，而且也放弃了共产主义关于缩小脑力劳动和体力劳动之间差别的愿景。与这一目标相关的口号，例如要求“干部参加体力劳动”和坚持“工人参与管理”，在毛泽东逝世后便销声匿迹。随后几年中提及这些口号的少数情况，通常都涉及批评激进派在文化大革命期间滥用了这些口号。<sup>54</sup>

毛泽东逝世后，中共领导人立即着手提高脑力劳动者的尊重、社会地位和报酬。邓小平在 1977 年宣称，“不尊重知识分子的错误态度必须反对”，并补充道，“所有工作，无论是脑力还是体力，都是劳动。”<sup>55</sup> 物质报酬方面的差异起初增长缓慢，但在 1990 年代后期随着私有化和产业结构调整而迅速扩大。2001 年的一份国务院指令宣称，“关键管理和技术岗位以及需要高素质稀缺人才的岗位的工资水平，必须提高。”<sup>56</sup> 过去高度压缩的工资和福利范围大幅增长。到新世纪初，产业劳动力已经高度分化，不仅在报酬方面，而且在

<sup>52</sup>Deng 1984c, 308.

<sup>53</sup>Interviewee H15.

<sup>54</sup>Andreas and Liang (forthcoming).

<sup>55</sup>Deng 1984a, 54.

<sup>56</sup>State Council of the PRC 2001.

<sup>52</sup>Deng 1984c, 308.<sup>53</sup>Interviewee H15.<sup>54</sup>Andreas and Liang (forthcoming).<sup>55</sup>Deng 1984a, 54.<sup>56</sup> 中华人民共和国国务院 2001.



the social distance between higher-level managers and engineers who occupied enterprise offices and workers on the shop floor.

### **Industrial restructuring and the divestment of factory-based schools**

The restructuring of industry that began in the mid-1990s, which entailed dismantling the work unit system, eliminating permanent job tenure, and laying off tens of millions of workers, brought about the definitive decline of factory-based education. As part of restructuring, industrial enterprises were pushed to spin off units that were not part of their core profit-making endeavors. In order to create a “modern enterprise system,” a 2003 State Council directive declared, it was necessary to “separate enterprises from their social functions.”<sup>57</sup> These included medical clinics and hospitals, housing blocks, primary and secondary schools, and schools for employees.<sup>58</sup> By 2005, Chinese authorities were insisting that factory-based tertiary schools be divorced from their sponsoring institutions and change their missions so that they aligned with those of regular schools.<sup>59</sup> A few large industrial enterprises and industrial bureaus continued to operate workers schools, but the number of employees enrolled was a tiny fraction of past numbers and continued to fall.<sup>60</sup>

In the past, when industrial work units had been communities of lifelong members, it made sense for factory leaders to be highly interested in educating and training their employees, but after industrial restructuring, enterprise leaders had much less reason to invest in educating their labor force. Deng Zhiwen, who had attended middle school classes organized by his electronics factory in the 1970s, wistfully contrasted the current situation with the situation when he joined the factory. “Back then, we all participated in classes. ... The purpose was to raise the education level of all the workers,” he recalled. “Today, study is everyone’s private business.”<sup>61</sup> The marketization of employment and adult education developed hand in hand. As jobs became more precarious, employees became more mobile. Enterprises had little commitment to their current employees, many of whom would be laid off if orders declined and most of whom were not expected to stick around long in any case.

As factory-based schools were severed from the factories that had established and supported them, some were closed, while others were taken over by local municipalities. Many were eventually privatized and all were expected to become “market-oriented,” which often meant being converted into profit-making, tuition-extracting enterprises.<sup>62</sup> Many young people now find that attending some kind of vocational school is necessary to get an industrial job (or even temporary employment), but these schools are widely scorned for being more concerned about tuition than training. “Before, the evening university was free,” recalled Zheng Chengyi, who had taken classes in his factory in the

高层管理人员和占用企业办公室的工程师与车间工人之间的社会距离。

### **产业结构调整与厂办学校的剥离**

始于 20 世纪 90 年代中期的产业结构调整，包括解体单位制、取消终身雇佣制以及裁减数千万工人，导致了厂办教育的最终衰落。作为结构调整的一部分，工业企业被要求剥离非其核心盈利业务的单位。2003 年国务院的一项指令宣称，为了建立“现代企业制度”，有必要“将企业与社会职能分离”。<sup>57</sup> 这些包括医疗诊所和医院、住宅区、中小学以及员工学校。<sup>58</sup> 到 2005 年，中国当局坚持认为厂办高等院校必须与其主办机构脱钩，并改变其办学使命，使其与普通学校保持一致。<sup>59</sup> 少数大型工业企业和工业局继续开办职工学校，但职工入学人数仅为过去的一小部分，并持续下降。<sup>60</sup>

过去，当工业工作单位是终身制成员的社区时，工厂领导对员工的教育和培训高度重视是理所当然的，但经过工业重组后，企业领导几乎没有理由再投资于员工教育。邓志文在 1970 年代曾参加他所在的电子工厂组织的初中课程，他惆怅地将当前状况与他刚进工厂时的情景进行了对比。“那时候，我们都参加课程……目的是提高所有工人的教育水平，”他回忆道。“今天，学习是每个人的私事。”<sup>61</sup> 就业和成人教育的市场化是同步发展的。随着工作变得越来越不稳定，员工的流动性也越来越大。企业对现有员工的承诺很少，许多人会在订单下降时被解雇，而且无论如何，大多数人都不能被期望能长期留下。

随着厂办学校与创办并支持它们的工厂分离，一些学校被关闭，另一些则被地方市政当局接管。许多学校最终被私有化，并且都被期望变得“市场化”，这通常意味着被转变为营利性、收取学费的企业。<sup>62</sup> 现在许多年轻人发现，要找到一份工业工作（甚至是临时工作），上某种职业学校是必要的，但这些学校因更关心学费而非培训而广受鄙视。“以前，夜校是免费的，”郑承义回忆道，他曾在他工厂的

<sup>57</sup>State Council of the PRC 2003.

<sup>58</sup>Oi 2004.

<sup>59</sup>Sohu.com 2005.

<sup>60</sup>By 2022, the number of individuals enrolled in workers’ colleges had declined to 143,705 and most were in short cycle courses. While enrollment in adult technical education had expanded, by then it was mainly organized in various types of correspondence schools, most of which were private and for-profit businesses. See Ministry of Education of the PRC 2023.

<sup>61</sup>Interviewee B5.

<sup>62</sup>Li 2020.

<sup>57</sup> 中华人民共和国国务院 2003.<sup>58</sup>Oi 2004.<sup>59</sup>Sohu.com 2005.<sup>60</sup> 到 2022 年，工人院校招生人数已降至 143,705 人，且多数为短期课程。尽管成人技术教育的招生人数有所增加，但到那时主要以各种函授学校的形式组织，其中大部分是私立营利性企业。参见中华人民共和国教育部 2023.<sup>61</sup> 受访者 B5。<sup>62</sup>Li 2020.

1950s. “Now they want money. They are private. Not only do they want money, that’s the main reason they exist.”<sup>63</sup>

By the early 2000s, factory leaders had grown accustomed to finding new employees with various levels of educational and technical qualifications in the labor market, which had become highly differentiated, with distinct steams of potential employees produced by different types and levels of schools. By then, virtually all higher-level managerial and technical personnel were recruited from colleges and universities, and there was little reason to consider training workers for these positions. The hierarchy of positions within factories had become much steeper and the gap between those at the bottom and those at the top had grown to unprecedented proportions, in terms of compensation, working conditions, status, and social interaction.

## Conclusion

For nearly half a century, from the 1950s through the early 2000s, Chinese factories operated a system of adult education that was remarkable in terms of its scale as well as its ambitions. Despite the importance of the system, however, it has received relatively little attention from scholars. Moreover, the existing scholarship is fragmented, with scholars examining different time periods, and some focusing on conventional characteristics of China’s factory-based education system, while others have focused on the moments when more radical policies were implemented. Thus, the existing scholarship has provided only partial and one-sided understandings of the history of these schools.

In this paper I have offered a more comprehensive history, examining the entire work unit era, from the 1950s through the 1990s, during which industrial enterprises were expected to provide education for their employees. I have looked at both the conventional and radical aspects of these programs.

The main content of the training offered by factory-based schools during the entire era was always quite conventional, in that it was largely the same as the content offered in the state education system for children and young people, with added vocational components. The goals of these schools were also, for the most part, quite conventional, with elite education programs designed to train workers to supplement the ranks of factory leaders and engineers, and popular education programs designed to eliminate illiteracy and raise the cultural and technical level of the wider workforce. During the Mao era, however, adult education in factories was at times animated by more radical goals.

At the elite level, during two periods—during the 1950s and again during the Cultural Revolution—factory classes trained workers not simply to supplement incumbent leaders, but to replace them. Starting in 1949, the CCP used intensive factory-based classes to train sympathetic workers to help the party take over the administration of factories from old regime capitalists and managers, while during the Cultural Revolution radical party leaders used these classes to train a new generation of rebel workers to replace and supervise the earlier generation of party leaders who had taken over factory administration in the 1950s.

In terms of popular education, although the content of classes remained largely conventional, radical impulses during the Great Leap Forward and the Cultural Revolution

20 世纪 50 年代。“现在他们想要钱。他们是私立的。他们不仅想要钱，那才是他们存在的主要原因。”<sup>63</sup>

到 21 世纪初，工厂领导者已习惯于在劳动力市场中寻找具有不同教育和技术资质的新员工，该劳动力市场已高度分化，由不同类型和不同层次的学校培养出独特的潜在员工群体。届时，几乎所有高级管理和技术人员都从大专院校招聘，很少有理由考虑为这些职位培训工人。工厂内部的职位层级变得更加陡峭，底层与顶层之间的差距在薪酬、工作条件、地位和社会交往方面已扩大到前所未有的程度。

## 结论

在将近半个世纪的时间里，从 20 世纪 50 年代到 21 世纪初，中国工厂运营着一个成人教育体系，该体系的规模和抱负都令人瞩目。然而，尽管该系统很重要，但它很少受到学者的关注。此外，现有的学术研究是零散的，学者们研究不同的时间段，一些人关注中国厂办教育体系的传统特征，而另一些人则关注激进政策实施的时刻。因此，现有学术研究对这些学校的历史提供了片面和不全面的理解。

在本文中，我提供了一段更全面的历史，考察了从 20 世纪 50 年代到 90 年代的整个“单位”时代，在此期间，工业企业被要求为其员工提供教育。我考察了这些项目的常规方面和激进方面。

在整个时期，厂办学校提供的培训主要内容始终相当传统，因为它在很大程度上与国家教育体系为儿童和青少年提供的课程内容相同，并增加了职业教育成分。这些学校的目标在很大程度上也相当传统，精英教育项目旨在培养工人以补充工厂领导和工程师队伍，大众教育项目旨在扫除文盲，提高更广泛劳动力的文化和技术水平。然而，在毛泽东时代，工厂里的成人教育有时会受到更激进的目标的激励。

在精英层面，在两个时期——20 世纪 50 年代和文化大革命期间——厂办培训班培养工人，目的不只是补充现有领导，而是取而代之。从 1949 年开始，中国共产党利用密集的厂办培训班来培养支持党的工人，以帮助党从旧政权资本家和管理者手中接管工厂的管理权；而在文化大革命期间，激进的党领导人则利用这些培训班来培养新一代造反工人，以取代和监督 20 世纪 50 年代接管工厂管理权的早期党领导人。

在普及教育方面，尽管课程内容大体上仍是传统的，但大跃进和文化大革命期间的激进思潮

<sup>63</sup>Interviewee A1.

<sup>63</sup>受访者 A1。

pushed enrollment to unprecedented levels. Mao and his radical followers harshly criticized the regular education system, and the examination system in particular, for reproducing social hierarchies based on educational qualifications. Thus, the aim of the massive expansion of factory-based schools during these periods was driven by an urgent imperative to diminish the differences between mental and manual labor and end the monopoly on knowledge held by educated elites.

Factory-based schools survived the purge of the radical faction that followed Mao's death in 1976, but the radical goals of the project did not. Deng Xiaoping and his supporters were not interested in the wholesale replacement of factory leaders or in eliminating social hierarchies based on education. Nevertheless, for the next two decades Chinese factories continued to operate a robust system of schools, as factory leaders continued to appreciate the conventional education and training that these schools provided for employees.

It was the industrial restructuring that began in the 1990s—which did away with the work unit system—that led to the demise of China's factory-based education system. Because it was based on permanent employment, the work unit system gave factory leaders a strong incentive to create education and training programs for their employees. With the end of this system (and permanent employment), factory leaders had much less reason to dedicate resources to employee education, especially as they were increasingly compelled to maximize profits.

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**Joel Andreas** is a professor of sociology at Johns Hopkins University, where he studies political contention and social change in China. His first book, *Rise of the Red Engineers: The Cultural Revolution and the Origins of China's New Class* (Stanford 2009), analyzes the contentious merger of old and new elites following 1949. His second book, *Disenfranchised: The Rise and Fall of Industrial Citizenship in China* (Oxford 2019), traces the radical changes that have fundamentally transformed industrial relations in the PRC. He is currently investigating the ongoing transformation of China's rural society and efforts to diminish the differences between mental and manual labor in Mao-era China.

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将招生人数推向了前所未有的水平。毛泽东及其激进追随者严厉批评了常规教育体系，尤其是考试制度，认为它再生产了基于学历的社会等级。因此，这些时期工厂办学大规模扩张的目标，是由一种紧迫的需要驱动的，即缩小脑力劳动和体力劳动之间的差异，并终结受教育精英对知识的垄断。

工厂办学在 1976 年毛泽东逝世后激进派被清洗的过程中幸存下来，但该项目的激进目标却没有。邓小平及其支持者对全面更换工厂领导或消除基于教育的社会等级不感兴趣。尽管如此，在接下来的二十年里，中国工厂继续运作着一套健全的学校系统，因为工厂领导者仍然重视这些学校为员工提供的传统教育和培训。

是始于 20 世纪 90 年代的工业结构调整——它废除了工作单位制度——导致了工厂办学体系的消亡。由于工作单位制度是基于永久雇佣的，它为工厂领导者提供了强大的动力，去为员工创建教育和培训项目。随着这一制度（以及永久雇佣）的终结，工厂领导者投入资源用于员工教育的理由大大减少，特别是当他们越来越被迫追求利润最大化时。

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