

Liberal Education in the American Context: Practical Trends

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Abstract. The concept of practical liberal education emphasizes integrated learning oriented to all student groups, practical problems in the real-world, project-based learning and experience exploration. The maturity of this concept indicates that traditional liberal education has entered a new historical stage in the United States, which is deeply rooted in external economic and socio-political changes, historical controversies of liberal and occupational-professional education, the theoretical outcomes of liberal education and the exploration experience of colleges and universities. The concept of practical liberal education is a result of a reorientation of traditional liberal education in the new historical context and culture of America, which provides creative solutions to tensions between “professional” and “general knowledge”, “teaching” and “research”, and the “individual” and “community”. This paper clarifies the concept and analyzes the generative dynamic mechanism of practical liberal education, aiming to provide insight into the development trends of liberal education and enlighten teaching integration and higher education reform.

Keywords: liberal education, practical, higher education, the US, d. school

Introduction

Liberal education is one of the quintessences of higher education development and talent cultivation in western higher education history. However, the concept of liberal education is among the most persistent and variable of academic traditions, and is filled with contradiction (Axelrod, 1998, p.1). In the context of pluralistic culture, economic globalization, and the development of discipline differentiation and specialization inside higher education, American liberal education shows a trend of self-adjustment and self-positioning. For instance, the Association of American Colleges & Universities (AAC&U), which comprises about 1,400 member institutions, asserted that supporters of liberal learning draw a clear-cut line between “practical” or career studies and the “true liberal arts” in the 20th century. They contended that removing that distinction and insisting that liberal education is

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practical, among its other virtues, is necessary nowadays (Schneider, 2009). In 2009, the University of Clark and the AAC&U cosponsored an extended seminar structured around questions related to the link between liberal education and “effective practice”. Thereafter, more institutions have responded to the “Building a New Liberal Education” issue in the publication of “Liberal Education”.

In addition to the AAC&U initiative, the data of occupational fields shows that they accounted for roughly 60% of bachelors’ degrees in 2005, up from 45% in the 1960s, and hundreds of institutions now award 80% or more of their degrees in occupational fields (Brint et al., 2005, p.151).

In recent years, the vigorous development of practical liberal education theory and participation has shown that this concept is not a transient trend, but a sign that liberal education in the US has entered a new historical stage. In the developing history of American liberal education, the rejection of classical languages, acceptance of modern science courses, implementation of classic reading models, and development of the core curriculum model were all historically important achievements that have had long-term significance. To understand the practical concept of liberal education in this new historical stage we must analyze: (1) the social background of its formation, (2) the logical starting point in the historical context of liberal education, (3) the theoretical preparation of the western academic community, and (4) the basic experience of American colleges and universities. Such analyses will be conducive to deeply understanding the essential characteristics and development trends of the idea of liberal education, as well as handling the balance between economic and intellectual reasoning, research and study.

1. The concept of practical liberal education

Powerful new ideas are rarely created by a few people or organizations but, on the basis of existing theories and experiences, a new perspective or a new vision of “consistency of history and logic” may be generated by the spiritual changes of the times. Practical liberal education does not mean abandoning all aspects of the traditional model, but better adapting to the diverse needs of American society more comprehensively. The AAC&U summarizes changes of liberal education on its website as follows. First, the educational object has been expanded from “a few lucky students in the elite class” to “all students.” Secondly, liberal education is seen as a necessity for all students, rather than a professional-unrelated option for the fortunate. None of us can be sure how technology will rewrite the 21st-century economy and life, but for an uncertain tomorrow, a liberal-arts education remains the best preparation (Salovey, 2018). Thirdly, liberal education pursues a combination of “breadth and depth” of subject knowledge. It highlights breaking through disciplinary limitations with regards learning outcomes, and promotes a more holistic process of learning, instead of being limited by the learning content of particular subjects at a certain stage. Fourthly, “individual development” and “community responsibility” are unified, emphasizing the integration of academic research and complex issues of the real-world. Drawing on research from the AAC&U (2020) in combination

with past information presented on their web pages, the changing nature of liberal education is more clearly shown in the following table:

Table 1. Changes in nature of liberal education (AAC&U, 2020)

	Liberal Education in the 20th	Liberal Education in the 21st
What	intellectual and individual development; frees the mind; a choice for the fortunate; non-vocational;	intellectual and individual development; frees the mind; a prerequisite for all students; essential for success in a global economy; informed citizenship.
How	through studies in arts and sciences disciplines (“the major”) and/or through general education in the initial years of college.	Engagement with contemporary and enduring “Big questions”; Intellectual and practical skills that be practiced extensively; Cultivation of personal and social responsibility; Integrative learning.
Where	liberal arts colleges or colleges of arts and sciences in larger institutions.	all types and sizes, as well as across all fields of study (recommended)

2. Genetic logic of practical liberal education

Genetic thinking is one of the ways to know something new, which means investigating realities, as well as their prerequisites and processes of generation. The idea of a practical liberal education did not come from nowhere. It is closely related to social context, the concept’s own historical development and theoretical outcomes, and is driven by shared experiences of institutional implementation.

2.1 Generative needs: The socioeconomic and political background

The first prerequisite of practical liberal education is continuous change since the end of World War II. According to statistics, “in 1963, ‘multinational corporations’ first appeared in the US Business Week” (Huang, 2010, p.56). By 1970, U.S. outbound investment had increased nearly six-fold since 1950. Due to the further expansion of the sphere of influence, international and global issues have become more and more closely related to people’s lives, and have gradually come into the scope of educational concerns. Also, immigrants from the third world began to account for a larger proportion of the immigrant community in the United States. Between 1931-1960, European immigrants accounted for 58% of immigrants, western hemisphere immigrants accounted for almost 36%, and Asian immigrants accounted for only 5%. Between 1971 and 1980, immigration from Europe fell to just 19% of the total, with 41% coming from the western hemisphere and 34% from Asia (Liang, 1997, p.89). Change in immigration patterns had a direct impact on American social and cultural structure. In addition, under the influence of various civil rights movements, people have been able to face their own national identity calmly. Strong national consciousness has sprung up in their communities, and the sub-cultural circle has entered public view. American mainstream culture presents the American

style of “political correctness” of equality, tolerance and freedom.

Under such changes in the social situation, a great shock occurred in higher education. Firstly, economic growth put the idea of traditional liberal education, with western culture at its core, under attack. Secondly, changes in the structure of immigration after the 1970s directly meant that around 2000, the proportion of second-generation immigrant students from different immigrant families with different cultural imprints greatly increased. The question of how to effectively promote the cultural diversity of students and achieve development is one of the important tasks of colleges and universities in this new era. Besides, the complexity of the student body structure in colleges and universities is also reflected in the student system and age span after the expansion of enrolments in the 20th century.

As enrollment in higher education almost doubled in recent 60 years, the characteristics of traditional liberal education oriented to the minority and elites were required to adapt to a larger and wider student group. In 2011, part-time students accounted for nearly 40% of all college students (Humphreys, 2009). “Even though the length of the bachelor’s degree is extended to 8 years for part-time students, the graduation rate for these students is 24 percent” (Vise, 2011). These numbers are shocking, but from a deeper perspective, relevant personnel need go beyond a focus on how students can complete their degree requirements in a reasonable time, and reflect on whether the intellectual or skills training that institutions are providing for students is helping them succeed in the complex and changing twenty-first century.

Political power is also one of the important factors to influence theoretical discussion in the field of higher education. In 1981, Terrell Bell persuaded Reagan to designate a commission on excellence in education. In 1983, as soon as the report titled *A Nation at Risk* was released it immediately became a big headline while arousing widespread concern and panic. With the establishment of the Reagan administration, the political and cultural forces of American conservatism gradually entered the stage of history, and discussions on liberal education and the humanities multiplied. The number of thematic articles and monographs published between 1975-1985 exceeded the previous decade, and this momentum continued until the mid-1990s.

After entering the 21st century, the Obama administration continued to “reaffirm the American Dream” and increase education funding. The Ministry of Education directly proposed a series of plans focusing on standardizing the evaluation system, improving the effectiveness of teaching, promoting the professional development of teachers, and transforming weak schools. The “Blueprint for recognizing educational success, professional excellence, and collaborative teaching” published in 2013, clearly stated the importance of student achievement, the development of educational practice skills, and shared responsibility.

2.2 Generative foundation: Historical challenges of liberal education

The emergence of practical liberal education in America not only stems from the responses to external

changes or objective requirements, but also disputes and problems in the historical development of liberal education in America. Reviewing the context of its development is helpful to clarify the logical starting point of practical liberal education.

It is undeniable that American liberal education has inherited the ideal essence of traditional European universities. Since the end of the 19th century, its decline or revival has been linked with the modern and traditional conflicts such as “specialty” and “general knowledge”, “science” and “humanities”. From the emergence of “professionalism” colleges such as land-grant universities, people have begun to question the effectiveness of classical European liberal arts courses. The classical colleges mainly focus on whether and how to integrate liberal arts courses such as humanities and classical languages with the new professional courses. Fundamentally, there were two contradictions in expectations of higher education: to promote the ideal of classical liberal education with full humanity, or the professionalism to cultivate useful vocational-professional skills?

It was under the influence and discussion of professionalism and the German research university model that many classical schools began to explore the curriculum model to balance these tensions. For example, by 1910, Wake Forest University had discarded its traditional liberal arts curriculum and substituted it with a “2+2” model including modern languages (sometimes) and social sciences. This new model was to provide broad-based liberal education, while reducing dropout rates and smoothing the transition to a more specialized curriculum in the junior year (Jones, 2016, p.46).

World War I to some extent contained apologies for liberal arts as defenders claimed that liberal education was necessary to defend European and American values and to develop student leadership during war or peace. In 1917, Contemporary Civilization in the University of Columbia designed a course named “War Issues” for GIs about European culture. In 1919, the title was changed to “Introduction to Contemporary Civilization” and began to be a mandatory course for all new students. To be clear, even as the idea that liberal education helps to “save western civilization” gained consensus, there were still contradictions and tensions between professionalism and liberal education. Advocates of the former believed in utility. They argued that redemption lay in an education that taught scientific management and “useful” sciences. The latter preferred permanent culture contained in great books. Among them, Hutchins established a “New Plan” in 1931, which pioneeringly split the university into four divisions: Humanities, Social Sciences, Physical Sciences, Biological Sciences (Stevens, 2001). As the social and political crisis deepened in the 1930s, the discourse of civic improvement within American colleges and universities intensified. A new rhetoric of liberal arts more interested in better society had emerged by the end of the 1930s. Lotus Delta Coffman, president of the University of Minnesota, demonstrated in the AAC Bulletin that “a liberal education is not a matter of studying certain subjects. One may graduate from a liberal arts college without having been liberalized at all. The most important coproduct of each subject of study should be a liberal mind... a mind that includes a standard of ethics and a sharp sense of responsibility” (Jones, 2016, p.46).

Some politicians and educational leaders favored utilitarian subjects needed for World War II. This led other scholars to be more vocal about a broader curriculum, with arguments such as “training people for the world beyond and after war rather than for war” becoming prominent. What is more, liberal educators strongly opposed this limited philosophy of higher education and constantly reaffirmed the individualized development of education and the social role of individuals. In 1943, Conant, President of Harvard, recognized that the changes of American education included expansion of educational objects, specialization of modern society and differentiation of disciplines in the preface of “General Education in a Free Society”. To clearly respond to the serious problems triggered by the democratization of American high schools and the need for generally educated citizens, the Red Book deliberately referred to “general education” instead of “liberal education” as they were concerned with providing a general education—a liberal education—not for the relative few, but for the masses (Harvard University, 1945, p.ix). Besides, there are two characteristic facts of democracy: members’ self-trust, discord and even the fundamental divergence of standards precisely due to its creativity. General education has mainly to do with the second characteristic. It was about common standards and common purposes in a society where education is to develop an informed responsible individual. General education also helps to improve “one’s understanding of limitations as a man”, as such a perception enhances the individual’s awareness of weaknesses and deficiencies in their respective majors and visions (Harvard University, 1945, p.v). This introspective “intellectual humility” helps to reconcile the contradiction between “liberty” and “loyalty” in a democratic society. As the Truman Commission report of 1947 confirmed: “long ago our people recognized that education for all is not only democracy’s obligation but its necessity. Education is the foundation of democratic liberties”.

Veterans’ enrollment and a surge in federal funding challenged liberal education in new ways. Veterans are more eager for higher education that will help them find employment and less interested in “impractical” courses. As students need to find “relevant” courses in the general curriculum, more courses are being offered, with some traditional liberal arts colleges even starting to add business subjects. This led to disarray in the general education curriculum and, in some cases, it was abandoned entirely. Since the 1960s, the contradiction between professional and general learning in higher education has become more prominent. Although general education is almost ubiquitous, its core meaning has been lost and has moved to focus on the upsurge of curriculum expansion. As the need for “relevant unity” of the curriculum has increased dramatically, support for broader liberal education has also declined (Carnegie Foundation for the Advancement of Teaching, 1985, p.31-33). Meanwhile, federal money has also encouraged competition between traditional liberal colleges and universities. Meanwhile the new paymasters began asking for more and more data on their investments, such as data on admissions and completions, which directly influenced the way higher education understood its roles. It is worth noting that institutions were allowed by the glut of faculty in the 1970s to slash the unit cost of the credit system using temps, who were only responsible for the

delivery of credit hours. There were a lot of voices of interest at the end of the 1970s. For example, the Carnegie Foundation for the Advancement of Teaching criticized general education as a “disaster area,” while Harvard University issued an appeal for general education reform. In 1985, the Carnegie Foundation claimed that “the number of liberal arts colleges had been cut in half since the classification’s beginning in 1970” (Carnegie Foundation for the Advancement of Teaching, 1985, p.31-33). In response, more and more taxpayers became critical of paying for higher education, demanding that it take greater responsibility to its stakeholders. This point is supported by the words of the newly elected Gov. Ronald Reagan: “we do believe that there are certain intellectual luxuries, but for a little while at least, taxpayers shouldn’t be funding intellectual curiosity” (Berrett, 2015). Reagan actually clarified what has since become the conventional concept of college. According to the Freshman Survey, in the first two years of the 1970s nearly three-quarters of freshmen said it was vital to them to cultivate a meaningful philosophy of life. Less than 40% considered being well off financially to be very important. However, the entirety of the 1970s witnessed a gradual shift in this data. The imbalance that existed between “learning for learning’s sake” and “preparing students for jobs” began to tilt toward utility in ways not even Reagan could not predict on that day in 1967 (Berrett, 2015).

In the 1995 reprint of *The Uses of the University*, Kerr asserted that during the three decades since the book was first published in 1963, liberal education had “been battered and never recovered” (Kimball, 1995, p.6). Kerr cautioned that this situation was restricted to the field of research universities and not all institutions, however, it cannot be ignored that “from 1963 to the 1990s, the number of research institutions with diverse ambitions expanded from about 20, led by Harvard and Berkeley, to 125. More than 100 universities accepted about twenty percent of college students. More importantly, the popularity of well-known universities led other institutions to fight to become ‘comprehensive’, and even some traditional liberal arts colleges set up comprehensive disciplines” (Kimball, 1995, p.XI). The transformation of American colleges and universities has hit the core issue of value competition among educators in different sectors of the American higher education system. “No matter what conclusions one draws on the larger issue of value, there is no doubt that the revival of practical art since 1970 has had a significant impact on academic organizations” (Brint et al., 2005, p.172).

Liberal education with broad knowledge characteristics is in decline in the dispute between “professionalism” and “general knowledge”. In this context, while emphasizing that liberal education is beneficial to the “good citizenship” of a democratic society and the differentiation process of modern disciplines, liberal education can’t help but fall into extensive malady. Against this backdrop, Ernest Boyer has led a groundbreaking proposal by a team of 75 researchers since the 1980s. He invoked integration of general education with undergraduate research, the major, better faculty compensation for teaching, and smaller classes. However, he did not explain how to implement these changes (Jones, 2016, p.50). It was at this point that institutions like the AAC&U started to inquire

about the practicalities of improving undergraduate education.

2.3 Generative preparation: Theoretical support

The pragmatic liberal education concept proposed by Bruce Kimball in 1994 provides theoretical support for a practical liberal education trend. According to the pragmatic historical method, “there is no necessary, universal, or essential meaning of liberal education... the meaning of liberal education is determined by how the terms are used” (Kimball, 1995, p.13). Kimball presents a unique thought: for thousands of years, two lasting traditions built up the theory and practice of liberal education: “Philosophical tradition” and “Oratorical tradition”.

Previously, academic research on liberal education and its historical context often began with definitional or descriptive purposes, clarifying its essence, and then sketching the linear development of the framework, either explicitly or implicitly. However, obsessing over definitions and descriptions as a means to evaluate the nature and significance of liberal education is a clear obstacle to clarifying its development history and current situation. Kimball argues that the longstanding twofold traditions, with their shifting emphases and accommodation between “orators” and “philosophers,” were being transformed into a new American tradition of liberal education, which was deeply rooted in the resurgent intellectual tradition of pragmatism (Kimball, 1995, p. XXIII). He maintained seven tenets of the pragmatic consensus: (1) multiculturalism, (2) new attention to values and service, (3) emphasis on community and citizenship, (4) emphasis on general education, (5) commonality and cooperation between all levels of education system, (6) learning and inquiry and (7) assessment. “After a long disjunction, pragmatism and liberal education now appear to be converging, US colleges and universities at the end of the century are thus yielding a view of liberal education...being rooted in or rationalized by pragmatic conception” (Kimball, 1995, p.99).

This rationalization may not be called “pragmatism” or considered a consistent philosophy or point of view. However, “pragmatism provides a framework of wisdom within which recent developments in liberal education have become meaningful in this era” (Velek, 1993). It provides a rational explanation and theoretical support for the trends of diversity, moral values, service, community participation, civic awareness, and inquiry-based teaching included in the practice of American liberal education, and for the direction of pragmatism and practice, it provides an important ideological basis. At a conference convened by the College Board in 1994, 25 academic leaders considered Kimball’s paper (Paris & Kimball, 2000, p.143). In 1995, The College Board published the idea.

After Kimball’s research results were published, Arabella Lyon and others wrote a long review of their research results. They generally affirmed the value and inspiration of his research. Robert Hariman contended that “the history of liberal education is the story of a debate between orators and philosophers” (Hariman,1988). This history, we might add, has not been told often enough, and is

seldom told well. On this debate, as Richard M Freeland claimed: “pragmatism won’t save us but it can help” (Freeland, 1995, p.158). Practice-oriented education has yet to create a typical curricular model, but its indispensable principles are apparent: “all undergraduates should have access to coursework that bridges the divide between liberal and professional education or even systematically integrates the two” (Freeland, 2004). Pragmatic liberal education is a way of responding to the demands of our time, emphasizing the needs of students, avoiding the idealistic and tradition-based singular vision of higher education when it was limited to a small elite.

Shirley Hune thought Kimball gave two significant reasons to explain the new influence of pragmatism on liberal education. The first could be “problems” in pragmatic terms. A series of recent changes in higher education, such as the growth in the numbers of undergraduates, the variety of backgrounds, the need for curriculum reform and “cautious vocationalism”, have challenged universities and colleges. Considering the uncertainty of the economy and the increasing fees, more and more people are concerned about the relationship between liberal education and the real world of work. The other reason was that “the return to pragmatism is the growing strength of universities and the academic profession, American intellectuals have begun to redirect their higher education away from European norms and to rebuild liberal education within American culture” (Hune, 1995).

Pragmatic liberal education is a way of responding to the demands of the present era, emphasizing the needs of students, avoiding the idealization of higher education when limited to an elite minority and based on a single traditional perspective. It is an idea to better serve society.

Of course, some historians do not agree with Kimball’s analysis of the two traditions and the history of liberal education. As there was “no consensus in sight” the idea seems “implausible” (Ryan, 1995). However, the historicity and complexity of the concept and implementation of liberal education are daunting. In order to provide an effective starting point for dialogue, it is necessary to sort out some meaningful content from the long and controversial discussion of liberal education. On this basis, when the changes in liberal education in recent decades have been rationally examined in the same way, the rationalized and orderly interpretation of the pragmatist framework provides academic support for liberal education while retaining its traditional essence and adapting to and repositioning within society.

2.4 Generative motivation: The experience of American universities

At the 90th anniversary meeting and other important meetings, the president of the AAC&U directly cited Kimball’s research results on the two paths of liberal education—*orator* and *philosopher*—and also contended that higher education is teeming with innovations such as program based learning, the new emphasis on interdisciplinarity, and teaching methods for the new student body. Since 1976, the AAC&U’s future goal has been to promote liberal education to “serve our entire nation as an instrument for shaping a future consistent with its highest ideals” (Schneider, 2005). Usually, some

reforms and innovations in higher education were not called liberal education, but rather in the name of certain kind of curriculum or pedagogical revolution: service-learning, undergraduate research, program work, global studies, etc. However, if we take a step back and understand these reforms from a more general perspective, a new blueprint for liberal education may come into focus. As the AAC&U has analyzed, the prevailing reforms in the academy since the 20th century were each related to the aims of traditional liberal education.

Table 2. Relationship between prevailed reforms and aims of traditional liberal education

1. Developing Intellectual and Inquiry Skills Across the Curriculum	2. Cultivating Social Obligation and Civic Engagement	3. Advancing Integrative Learning
Learning Outcomes; First-Year Experiences and Seminars; Writing Across the Curriculum; Undergraduate Research; Faculty-led Research; Instructional Technology; Academic Support Services; Active and Collaborative Learning	Big Questions; Field-Based Learning; Internships; Diversity, Global Learning, and Civic Engagement; Community-Based Research; Service Learning	Learning Communities; Portfolios and E-Portfolios; Individualized and Integrated Education; Competence-based Education; Liberal/Professional; Collaborations (among institutions, business, industry, and research labs)
Capstone Expectations and Projects: incorporate intellectual and practical learning, and also shows evidence of social obligation and integrative learning. (Schneider, 2005)		

The main goal of the first type of project is to cultivate students' intellectual ability and their ability to apply wisdom to solve problems. It helps students grasp complexity, then discover, evaluate, and apply evidence and knowledge to practical problems. Traditionally, these inquiry abilities have been called intellectual abilities, but in the contemporary knowledge system, these abilities are actually practical in the real world. The second project replaced the religious education, classical education, and moral philosophy education of the 19th century, and re-planned the path of cultivating students' sense of citizenship. The third column reflects a new dimension in liberal education: a strong focus on real-world topics, projects and practices leading students to integrate their skills and knowledge from different disciplines and experiences. Because the curriculum system was unified in the 19th century, integrated learning was less necessary. However, in the modern wider world, integrative learning that emphasizes the ability to solve big problems and strengthen learning and social ties have become a new feature of liberal education (Schneider, 2005, p.3).

In 2005, the AAC&U launched an initiative named Liberal Education and America's Promise (LEAP), which is a national public advocacy and campus (all types) cooperation action including higher level learning, intellectual and practical skills to lead the more challenging environment effectively and responsibly.

In addition to the above analysis and judgment based on the rational experience of individual organizations or individuals, there are indeed more facts that indicate a trend towards placing more emphasis on factors such as integrated learning, result-oriented learning, and assessment promotion.

In research from Hart Research Associates (2016, p.11), 76% of administrators agreed that their institution had clear learning outcomes on the features of general education. This is an improvement of 9 percentage points compared to the 2008 survey.

These goals focus on cultivating students' effective intercultural and interdisciplinary communication skills, analytical reasoning and scientific literacy, and moral life related to citizenship. Secondly, in terms of the specific implementation, most universities have integrated their curriculum resources according to their training goals. It is worth noting that in addition to general education in the traditional form of teaching, more and more universities have increased the content of experiential, project-based and internationalized teaching.

3. Case study

Based on the influence of Stanford University itself and the influence of its programs among students, this study takes Design College of Stanford University (d.school) as an example to elaborate the characteristics and the implementation methods of a new trend of liberal education. The school of design is not an independent school in the disciplinary sense, but an independent project that began in 2005. It is a training ground to take on the world's messy problems, as it "fosters creative confidence and pushes them beyond the boundaries of traditional academic disciplines" (Peter, 2015). From 2005 to 2016, the college has offered 279 credit courses and 132 temporary courses. Students from 7 schools of different disciplines have participated in the program. About 10% of Stanford students have participated in the program.

3.1 Program concept

This program builds on methods of the design field, providing students of all majors with the learning experience of tapping into their creativity and applying it in the real world to develop creative confidence and enhance their self-impact judgment. As problems are often disordered and complex—and need to be dealt with via thoughtful creative thinking—putting in the “design” instruments and methods to skillset often results in a remarkable transformation (A Place for Explorers & Experimenters at Stanford University, n.d.). Combining individual knowledge and skillsets with methods and thinking from the design field, and then applying them to complex and unstructured real-world problems, could provide new perspectives on problem-solving.



3.2 How?

Radical collaboration. To stimulate creative thinking the program brings together students, teachers, and practitioners from a variety of disciplines, viewpoints, and backgrounds. In 2014, it offered more than 80 courses to 1,250 students. Among them, some courses were for a full 10 weeks, others were four week “pop-up” or and weekend “pop out” courses (A Place for Explorers & Experimenters at Stanford University, n.d.). The collision of different viewpoints is the key to prompting students to improve design practice. When faced with chaotic challenges, cooperation and communication should be a consensus.

Real-world projects. The program tends to work with philanthropic organizations, businesses, and government to engage students in challenging real-world problems that are happening now, not textbook problems.

Unbounded problems. Like in life, the problems are complex and ambiguous. There is no single right answer or solution. This project is a wonderful groundwork for solving messy problems in the real world. It does not seek a standardized answer, but rather emphasizes giving students ample opportunity to experiment, try, take risks and accept the failure of their experiments. Participants are completely free to make their choices rather than subject to any external requirements.

3.3 Goals

The d.school aims to help students develop 8 core problem-solving skills:

Navigate Ambiguity: an awareness and comfort with the discomfort caused by uncertainty, such as ambiguity, and develop strategies for resolving uncertainty. This skill involves context analysis, problem clarification, and information reconstruction.

Learn from Others (People and Contexts): the ability to understand the different ways of thinking of all stakeholders, to accept different perspectives, to test new ideas with others, and to observe and understand unknown environments.

Synthesize Information: the ability to analyze information, identify solutions to problems and grasp opportunities for possibilities.

Experiment Rapidly: being able to rapidly develop strategies in text, graph, audio. Replacing the natural tendency to say “it doesn’t seem feasible” with open-mindedness.

Move Between Concrete and Abstract: understanding expectations and goals to define the outcomes.

Build and Craft Intentionally: thoughtfully constructing the most appropriate format to present your work.

Communicate Deliberately: the ability to communicate effectively by capturing and forming all types of information such as stories, ideas, concepts, feedback, reflections, videos and other

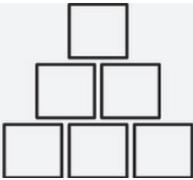
learning outcomes to the appropriate audiences.

Design your Design Work: understanding a project as a design difficulty and then lining up components needed to tackle it.

John L. Hennessy, president of the university, recognizes design thinking as the core of a new model of education for undergraduates. “Designing Your Life” and “Designing Your Stanford” are popular classes in d.school.

The d.school is exploring a new educational model for universities. In the exhibition project of “Stanford 2025”, a learning path called “Purpose Learning” imagined students’ identity would lie in a mission, not a major. For example, “my major is biology” was replaced by “I’m learning human biology to eliminate world hunger”. Or “I’m learning Computer Science and Political Science to rebuild how citizens engage with their governments” (Purpose Learning, n.d.).

Table 3. Key details of purpose learning (Purpose Learning, n.d.)

From	To
Students declared Majors and focused their studies around the set requirements.	Students declared Missions and coupled their disciplinary pursuit with the purpose that fueled it.
	
Students often declared a major without a clear reason; Many alumni worked in fields unrelated to their majors; Students deferred work on social issues until later in life.	Students pursued meaning and influence through studies and programs; Alumni cited missions as the compass that guided their careers; Global impact Labs extended platform for faculty research.

The AAC&U also sets d.school as a campus model for dealing with the divergence between general and major education. Although the conceptions of Stanford 2025 might not be reflected in existing programs elsewhere, many of the thoughts such as collaborative, project-based learning, crossdisciplinary knowledge and skills and emphasis on real-world problems are consistent with the AAC&U’s LEAP Challenge. It fits in with the new trend of liberal education that applies transdisciplinary learning and skills to ongoing projects to solve real-world problems that are of critical importance to students and society (Teaching “Creative Confidence”: The Hasso Plattner Institute of Design at Stanford University, 2015).

Conclusion

Practical liberal education's handling of the relationship between general education and professional education highlights integration and comprehensiveness. It can be seen that educators consciously seek theoretical and practical connections between different curriculum departments. It is this effort that will help rebuild liberal education as the intellectual foundation of all disciplines and reaffirm the importance of forming a shared learning vision in the field of higher education. At the same time, when we understand the integrated learning of practical liberal education as the unification of the same kind of knowledge sought by medieval philosophers, then practical liberal education does not lose its tradition, but is a learning path that is more suitable for today's society.

This study analyzes the generation logic of practical liberal education, the historical context of liberal education itself, its theoretical basis, and the practical promotion framework of colleges and universities. It is apparent that this new trend is by no means unprecedented. With the changes in socio-economic conditions and the structure of the student body, the traditional liberal education model, which extracts the essence of European culture and focuses on Western culture, needs to be replaced by ideas with American characteristics, originating from American culture. This also forced traditional liberal education to reposition itself in the new historical environment.

In addition, according to the Hart Research Associates' online survey of 400 employers, 88% of them consider it is important to guarantee all students are equipped with the skills and knowledge needed to complete an applied learning program. 73% think that asking college students to accomplish an applied project would improve the quality of their groundwork for careers (Hart Research Associates, 2015). It can be seen that a practical liberal education that focuses on integration and solves practical problems is the core of the times.

More importantly, the concept of practical liberal education which promotes rationality through integrated learning and the solution of practical problems may enlighten new directions in teaching and talent training and help domestic higher educators to further consider the methods and approaches for teaching integration and reform, coordinating the conflict between professional skills development and rational completion. Even as the theories and models of practical liberal education are still further maturing and developing, it is difficult to prove with certainty whether it is the setting sun or the dawn of the ideal of classical liberal education, and we must continue to evaluate how we move forward on this road and pioneer examples of where this model might go.

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