

# Undergraduates' Self-reported Learning Outcomes of General Education Courses: A Case Study of a Chinese Elite University

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**Abstract.** Based on a conceptual framework of college impact, this article studies the impact of gender, graduation paths, family cultural capital and disciplines on undergraduates' self-reported learning outcomes of general education courses. The conclusions are as follows: female students report significantly higher learning outcomes of general education courses than male students; students who will enter the labor market after graduation report significantly higher learning outcomes of general education courses than students who will enter graduate school; students majoring in social sciences report higher learning outcomes of general education courses than students from other disciplines. Familial cultural capital has no significant influence on undergraduates' self-reported learning outcomes of general education courses. This article makes exploratory explanations of the above results from two perspectives.

**Keywords:** general education, general education courses, learning outcome, elite university

## Introduction

The emergence of “general education courses” was embedded in the reform process of general education. In the 1980s and 1990s, with the great transformation of China's society and economy, Peking University, Fudan University, and other Chinese top research universities successively carried out general education aiming to correct the deficiencies of excessive specialization (Chen, 2004). Since 2000, the residential college system, tutor system, honorary degree system and other British undergraduate education models were introduced to Chinese Universities (Shen, 2018). Therefore,

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the ways to carry out general education became more diverse, but in general, “General Education Courses” are still the most direct and important carrier of general education. Based on a conceptual framework of college impact and a survey about the quality of undergraduate education in Peking University, this article tries to explore the following questions: do the undergraduates with different personal, family, and disciplinary characteristics report learning outcomes of general education differently? What are the reasons for these differences?

## Literature review

Liberal education has a long history in the west, but in the democratic society of 20<sup>th</sup> century, liberal education lost the connection with nobles and became synonymous with “general education” (Shen, 2008). In 1945, *General Education in a Free Society* published by Harvard University pointed out that citizens had replaced nobles as the rulers of the government and that general education should open to all citizens (Conant, 1946). With the implementation of general education in American universities, the evaluation of the learning outcomes of general education has attracted the attention of scholars since 1980s and 1990s.

In 1985, the American Association of Colleges and Universities (AAC&U) issued a report calling for universities and colleges to create coherent, well-organized general education programs (McLawhon & Phillips, 2013). In 1994, the AAC&U pointed out that general education should not only be the mixture of various fields but also should improve students’ abilities of critical thinking, rational reasoning, written and oral communication and problem solving (McLawhon & Phillips, 2013). In 2015, a survey about recent trends in general education indicated that 68% of administrators at AAC&U member institutions thought their institutions assessed student achievement of learning outcomes (Hart Research Associates, 2016). How to evaluate the achievements that students develop in general education also became a point of focus in academic circles. The United States now has a relatively mature assessment scheme of general education, which include various dimensions. Assessment procedures (Aloi, Gardner & Lusher, 2003), assessment tools (Bers, 2000), assessment methods (McLawhon & Phillips, 2013) and assessment strategies (Lau et al., 2009) are all included in the scheme. However, it is not enough to evaluate learning outcomes merely from the perspective of objective abilities. Therefore, some scholars pointed out students’ self-reported learning outcomes should also be a key part of the evaluation (Hompson, Eodice & Tran, 2015).

The Chinese general education has been developing for nearly 40 years since the 1980s. It has the elements of Chinese tradition but is deeply influenced by the American model and the British model (Shen, 2018). Studies on Chinese general education included theoretical studies, historical studies, comparative studies, and empirical studies. Theoretical studies focused on the definition of general education (Lu & Xu, 2016); Historical studies focused on the developmental process of Chinese general education under domestic and foreign influence since 1980s and 1990s (Chen, 2004).

The comparative studies focused on the practical measures of general education in western developed countries as well as Hong Kong and Taiwan (Pang & Yu, 2016).

Empirical studies about general education focused on the following two themes. The first theme concerned problems in the learning process of general education courses. For example, Chen Xiangming investigated the Yuanpei Program of PKU. According to the survey, the students of Yuanpei Program benefited from the freedom of choosing majors and courses, but they also faced the problem of the disconnection between general education and professional education (Chen, 2006). Zhang Donghui made a systematic study on the general education reform of Renmin University of China with the theoretical framework of organizational culture. In the terms of physical regulations, RUC has formulated a plan for general education courses reform. Speaking of shared norms, most teachers and students also held a positive attitude towards the general education courses reform. However, teachers and students still attached more importance to education and curriculum in their majors (专业), since the majors were closely and directly related to students' job prospects and teachers' promotion. This was exactly the deep dilemma of general education reform (Zhang, 2012). Lyu Linhai took advantage of the Chinese version of SERU (Student Experience in the Research University) questionnaire developed by the Higher Education Research Center of University of California, Berkeley, to investigate the students' learning status of general education in Nanjing University, and found that undergraduates' learning engagement in the general education courses was not high (Lu & Lv, 2015).

The second theme was about the assessment of students' objective abilities after receiving general education. For example, Li Manli et al. (2012) thought the assessment of general education was mainly the assessment of the "general education abilities" of undergraduates. In order to do this, she developed the General Ability Assessment Questionnaire for Undergraduates which is suitable for the background of Chinese universities. With this assessment tool, she assessed the students of department E in university A and of department M in university B. Department E spent nearly half of its credits on general education, while department M implemented general education in accordance with uniform regulations recommended by the Ministry of Education. However, it was found that there was no significant difference in the abilities of innovation, information integration and decision making, value discrimination, expression, and communication of students from the two departments (Li et al., 2014).

To sum up, in contrast to the United States and other western countries, studies on general education in China did not focus on the self-reported learning outcomes of students. In recent years, under the background of student-centered undergraduate education reform, researchers have begun to pay attention to the development of students (Zhao & Gao, 2017). The development of students is also becoming a hot topic in educational assessment. But the development of students is usually indicated by objective abilities rather than the self-reported outcomes. However, self-evaluation of students is a necessary supplement to the objective assessment of ability and is also an important index

to evaluate learning outcomes.

Based on the conceptual framework of college impact and a survey about the quality of undergraduate education in Peking University, this article will explore the self-reported learning outcomes of undergraduates and focus on the following questions: (1) how do undergraduates think of their gains in general education courses? (2) how do undergraduates' personal, family, and disciplinary factors influence their views? (3) why do undergraduates have different views? What are the reasons for these differences?

On the basis of existing research on objective ability assessment, answering the above questions can outline different students' self-reported learning outcomes and provide another important perspective on the reform of general education in mainland China.

### **Background: The reform and structure of general education in Peking university**

Peking University (PKU), founded in 1898, was China's first national comprehensive university. After institutional adjustment in 1952, PKU was still a comprehensive university which focused on teaching and research of basic arts and sciences. Since the reform and opening up, PKU has entered an unprecedented period of great development and construction. In general, PKU is the banner of China's higher education and also a leader in general education reform in mainland China.

As early as 1981, the undergraduates in PKU were encouraged to take courses in other fields (Archives of Peking University, 1981). In 1990, PKU stipulated that students majoring in social sciences or humanities should take no less than 4 credits in natural science courses (except the courses of computer science) and students majoring in natural sciences should take no less than 4 credits in courses of humanities or social sciences (except the courses of ideological and political theory). In addition, the students majoring in natural sciences, social sciences and humanities were all required to take 2 credits in art courses (Archives of Peking University, 1990).

PKU became the national base of *Wenhua Suzhi* education<sup>1</sup> in the mid to late 1990s. In the autumn of 2000, PKU launched 31 courses for *Wenhua Suzhi* education. These general education courses were distributed in five fields, namely mathematics and natural sciences, social sciences, philosophy, history, language, literature, and art. Students were required to obtain at least 16 credits in these five fields.

In the Undergraduate Teaching Conference of 2001, PKU put forward the idea of "general education for junior undergraduates and wide-range professional education for senior undergraduates" (Archives of Peking University, 2001). As a result, the general education courses turned from a supplement to a prerequisite of professional education courses. PKU was the first university in mainland China to formally adopt the concept of general education as the curriculum policy. At the

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<sup>1</sup> *Wenhua Suzhi* education(文化素质教育) is regarded as the localized expression of general education.

same time, PKU established the Yuanpei Program to carry out the idea of general education. By 2002, the number of general education courses in PKU reached 256 (Archives of Peking University, 2002).

However, at that time, the quality of the general education courses was uneven. According to one survey, high-quality general education courses only accounted for 25% of all general education courses. Moreover, some professors believed that the increase in the proportion of general education courses reduced the proportion of professional courses and shook the foundation of undergraduate education. In order to solve the problem, PKU proposed the organic integration model of general education and professional education and strived to exclude general education courses which did not meet the requirements (Zou, Ding & Cao, 2019). More than 500 courses were examined and only 267 courses were identified in 2009 (Archives of Peking University, 2006). In the meantime, the credit requirement of general education courses was reduced from 16 to 12 and the science of social sustainable development was also added to the general education module.

In 2010, the Overall Plan of the 985 Project proposed a system of general education curriculum which included general education courses, core courses of general education and courses of social practice. In the years that followed, PKU attached importance to developing the core courses of general education and launched 13 core courses in 2015. These courses aim to provide undergraduates with a common knowledge base and are characterized by depth and difficulty. According to the Guidance on Comprehensive Reform of Undergraduate Education in 2016, the system of general education curriculum changed, and general education courses, courses of ideological and political theory and core courses of general education were incorporated.

Although the system of general education curriculum in PKU now contains many types, the general education courses are more representative and appropriate to analyze. The courses of ideological and political theory do not exist in other countries or regions, and the core courses of general education are not available for all undergraduates. Compared to these courses, the general education courses have been carried out for 20 years and are open to all students. In addition, the credits, and categories of general education courses that the undergraduates take are the same. This is an important control variable in the regression model. The changes of the structure of general education courses since 2000 are summarized in Table 1.

**Table 1. The changes of the structure of general education courses since 2000**

	2000.9-2009.6 (Total credits: 16)	Since 2009.9 (Total credits: 12)
The Structure of General Education Courses	Mathematics and Natural Sciences Social Sciences Philosophy History Language, Literature and Art	Mathematics and Natural Sciences Social Sciences Philosophy and Psychology History Language, Literature, Art, and Aesthetic education Social sustainable development

Note: The "Philosophy" section was renamed as "Philosophy and Psychology" in 2003

## Conceptual framework

The learning outcomes of general education courses is one aspect of “college impact”. According to the conceptual framework of college impact, the background characteristics and college characteristics of students can influence their learning outcomes. In general, the background characteristics include gender, race (ethnicity), parental income and education, and the college characteristics include the organizational environment, academic environment (curricular emphases, the student’s major) and extracurricular environment (Chickering, 1969; Tinto, 1975; Astin, 1977; Weidman, 1984; Smart, 1986; Smart & Pascarella, 1986).

In mainland China, does gender affect undergraduates’ learning outcomes? Some studies concluded that female students performed significantly better than male students in terms of academic performance and self-reported learning outcomes (Zhao, 2017), while other studies found that gender had no significant effect on students’ academic performance but had a significant effect on students’ self-reported learning outcomes (Sun et al., 2012). What are the differences between male students and female students in self-reported learning outcomes of general education courses?

In the context of marketization of higher education, the idea of general education faces severe challenges (Ferrall, 2011). One of the main voices against the general education courses is that these courses do not have enough practical value in the labor market. Under this circumstance, how do students who will enter the labor market after graduation evaluate the learning outcomes of general education courses? This question is worthy of study.

The impact of family capital is also complex in mainland China. Existing studies found that students with rich family capital had more opportunities to receive higher education, but the impact of family capital on students’ academic performance tended to weaken in the stage of higher education (Wu, 2013; Quan & Bian, 2017). In order to be more precise, this article analyzed the relationship between family cultural capital and the self-reported learning outcomes of general education courses, while controlling for the influence of family economic capital and family social capital. This article used the concept of cultural capital as conceived by Bourdieu. Compared to the embodied state and the objectified state of cultural capital, Bourdieu pointed out the institutionalized state of cultural capital (academic qualification) conferred on its holder a conventional, constant, legally guaranteed value with respect to culture (Bourdieu, 1986). This article used the highest parental academic qualification to represent the family cultural capital.

Among the college characteristics, this article focuses on the academic environment. The most important factor of the academic environment is the discipline. Different disciplines have different paradigms and cultures. The members of different disciplines also have different values and behavior. For example, the knowledge development of physics is linear and cumulative, with a tree-like structure, and the academic tribe of physics exhibits characteristics of convergence. On the contrary,

the development of historical knowledge is repetitive, “like a flowing river”, and the academic tribe of history has the characteristics of divergence (Becher, 1989). To sum up, students immerse in different paradigms and cultures at the stage of undergraduate education, which will affect their mental structure and habitus. Therefore, the relationship between the discipline and students’ self-reported learning outcomes of general education courses is worth exploring.

Based on the above theories, literature and questions, this article will consider the influence of gender, graduation path, family culture capital and discipline on students’ self-reported learning outcomes of general education courses.

## The data and method

### *Data sources*

The data were taken from the 2016, 2017 and 2018 Surveys on the Quality of Undergraduate Education in PKU. More than 9000 students graduated in these years (excluding the students at Peking University Health Science Center). From 2016 to 2018, 3494 students participated in the survey.

As shown in Table 2, the distribution of gender, graduation path, family cultural capital and discipline was basically consistent with the population, so the sample was well representative.

**Table 2. The distribution of the sample**

Types		Number	Percentage
Gender	Male	1998	57.2%
	Female	1496	42.8%
Graduation path	Graduate school	2716	77.7%
	Labor market	504	14.4%
	Undetermined	274	7.8%
Parental highest degree	Junior high school and below	400	11.4%
	High school	590	16.9%
	College and university	1859	53.2%
	Graduate school and above	645	18.5%
Discipline	Natural sciences	1132	32.4%
	Engineering	560	16%
	Humanities	612	17.5%
	Social sciences	978	28%
	Yuanpei College	212	6.1%

To explain the conclusions of the quantitative study, this article tried to combine interview data from the Survey on the Quality of Undergraduate Education. Table 3 highlights the basic information of the interviewees used in this paper.

A stratified sampling method was adopted to recruit interviewees. Firstly, the number of interviewees from different disciplines was determined to ensure the distribution of the sample was

consistent with the population. Secondly, specific interviewees were selected according to their comprehensive performance (top 30%; 30%-70%; and bottom 30%). Each discipline contains these three types of students. The semi-structured interviews were conducted one-to-one and face-to face and lasted from an hour to an hour and a half. A purposive sampling method was used to select a representative sample to explain the quantitative results.

**Table 3. Basic information of interviewees**

Interviewee	Gender	Discipline	Graduation path
Student W	Male	Social Science	Graduate school
Student F	Female	Social Science	Graduate school
Student L	Female	Natural Science	Graduate school
Student X	Male	Engineering	Graduate school
Student S	Female	Humanities	Labor market
Student Y	Male	Yuanpei College	Graduate school
Student Z	Male	Yuanpei College	Graduate school
Student T	Female	Social Science	Labor market
Student P	Male	Humanities	Labor market

### *Variables*

In this article, the dependent variable was the students' self-reported learning outcomes of general education courses. The data was assigned as 0-3 in regression analysis, in which 0 was "no gain", 1 was "a little gain", 2 was "a lot of gain", and 3 was "a great gain".

According to above conceptual framework, there were four independent variables in this article: gender, graduation path, family cultural capital (the parental highest academic degree) and discipline. The control variables included the ethnicity, ways of selection, parental occupation, provinces of origin, hukou status, place of residence, family income, credits, and categories of general education courses.

### *Method*

This article used the explanatory sequence design of mixed methods. Firstly, through regression analysis, this article estimated the impact of gender, graduation path, family cultural capital and discipline on undergraduates' self-reported learning outcomes of general education courses. Secondly, this article used theories and interview data to further explain some results from quantitative analysis and discuss the possible reasons for these results.

### **Results of data analysis**

In general, the average value of self-reported learning outcomes of general education courses was 2.04, that meant the general education courses played an important role in learning from the students' point



of view. However, undergraduates reported the learning outcomes of professional education courses (2.26) significantly higher than learning outcomes of general education courses ( $P < 0.05$ ). In detail, different students had different views of general education courses.

### *Descriptive results*

Female students (2.09) reported higher learning outcomes of general education courses than male students (2.00). The students who would enter labor market (2.13) after graduation reported higher learning outcomes of general education courses than students who would enter graduate school (2.03) or undetermined (1.95). Comparatively speaking, students with weak family cultural capital reported higher learning outcomes of general education courses than the average value, while the students with rich family cultural capital reported lower learning outcomes of general education courses than the average value. Students majoring in social sciences (2.13) reported higher learning outcomes of general education courses than students from other disciplines. The average value of students from other disciplines was 2.01 (natural sciences), 2.00 (humanities) and 1.98 (the sciences of engineering) from high to low. Yuanpei College was founded in 2007 and its predecessor was the Yuanpei Program mentioned above. Yuanpei College was the product of PKU exploring a new mode of cultivating undergraduates in a comprehensive and high-level research university (Yuanpei College of Peking University, 2020). Given Yuanpei College is different from the other professional departments, it is necessary to make the special analysis of its students. The result showed that the students from Yuanpei College reported relatively low learning outcomes of general education courses (1.99).

**Table 4. The self-reported learning outcomes of general education courses**

Variables		No	A little	A lot	A great	Average
Gender	Female	0.7%	23.6%	41.7%	34.0%	2.09
	Male	2.4%	26.6%	40.0%	31.0%	2.00
Graduation path	Labor market	1.4%	20.9%	41.3%	36.4%	2.13
	Graduate school	1.7%	25.6%	41.1%	31.6%	2.03
	Undetermined	2.2%	31.1%	36.0%	30.7%	1.95
Parental highest degree	Junior high school and below	1.3%	23.6%	40.4%	34.8%	2.09
	High school	1.0%	24.7%	42.2%	32.1%	2.05
	College and university	1.9%	25.2%	40.5%	32.4%	2.03
	Graduate school and above	1.9%	27.4%	40.3%	30.5%	1.99
Discipline	Social science	1.0%	22.0%	39.9%	37.1%	2.13
	Natural science	2.4%	26.1%	39.6%	31.9%	2.01
	Humanities	1.6%	26.4%	42.1%	29.8%	2.00
	Yuanpei College	1.0%	27.3%	43.5%	28.2%	1.99
	Engineering	1.6%	27.6%	42.0%	28.8%	1.98

### Regression analysis

This article converted the categorical variables into dummy variables. To be specific, “Male students”, “students entering labor market after graduation”, students whose parental highest academic qualification is “junior high school and below” and “students majoring in social sciences” were treated as reference groups in regression analysis.

As shown in Table 5, female students reported significantly higher learning outcomes of general education courses than male students. The students who would enter the labor market after graduation reported significantly higher learning outcomes of general education courses than students who would enter graduate school after graduation. Family cultural capital had no significant influence on students’ self-reported learning outcomes of general education courses. Students majoring in social sciences reported significantly higher learning outcomes of general education courses than students from other disciplines.

**Table 5. The OLS regression of self-reported learning outcomes of general education courses**

Independent variables		Self-reported learning outcomes of general education courses
Gender (Reference group: Male students)	Female students	0.097** (0.032)
	Graduation path (Reference group: Labor market)	
	Graduate school	-0.104* (0.043)
	Undetermined	-0.160* (0.066)
Parental degree (Reference group: Junior high school and below)	High school	-0.056 (0.054)
	University and College	-0.087 (0.056)
	Graduate school and above	-0.082 (0.077)
Discipline (Reference group: social science)	Natural science	-0.079* (0.040)
	Humanities	-0.154*** (0.043)
	Yuanpei College	-0.132* (0.064)
	Engineering	-0.127** (0.040)
Control Variables	Y	
Sample Size	3494	
R <sup>2</sup>	0.016	

Note: “\*\*\*\*” represents P<0.001; “\*\*\*” represents P<0.01; “\*\*” represents P<0.05, The number in brackets is the standard error

## Qualitative explanations of the quantitative results: evidence from the interviews

### *Disciplinary culture, citizenship, and curriculum evaluation: Chinese students' understanding of general education courses*

The quantitative analysis indicated that students majoring in social sciences reported significantly higher learning outcomes of general education courses than students from other disciplines. In the interviews, students majoring in social sciences also held positive attitudes to general education courses. In their opinions, the general education courses could give them important perspectives to view their majors and that could benefit their professional learning.

Student W, majoring in economics, had a high evaluation of general education courses of sociology. In his view, the classical theories and middle-range theories of sociology could provide him with new perspectives on economic issues. Student F, majoring in sociology, thought the general education courses of political science were very helpful for her professional learning. As she said, “many classical sociologists had works on political thoughts. Therefore, it is necessary to read these works to get a comprehensive understanding.”

In contrast to students majoring in social sciences, students majoring in natural sciences and humanities tended to think the general education courses had little significance for their professional learning. Student L, majoring in biology, argued that there were huge differences between the ways of thinking of social sciences and biology. “The ways we drew the conclusions are very scientific, since our conclusions are usually supported by experiments. But I feel the conclusions of social sciences is not reached by rigorous methods. Therefore, these conclusions could not convince me and I got nothing from the general education courses of social sciences,” she said.

Student X, majoring in artificial intelligence, thought the general education courses had little to do with his professional learning. He took the professional education courses seriously and had excellent performance in the field of artificial intelligence. But he took a casual attitude to the general education courses. As he said, ‘I feel these courses are nothing to do with my major, so I took some well-known easy courses and just relaxed myself in class. If I were busy with my professional courses or research, I would skip the classes.’

Student S, majoring in Chinese Language and Literature, focused on folk literature of the Ming and Qing dynasties. She disliked the general education courses. Although she took a widely known course of sociology, she got nothing, ‘a lot of people like this course, but I was not inspired by it. For example, sociological studies carry out with the theoretical frameworks, which is not quite the same as our major.’

Tony Becher divided the disciplines into four categories according to the two dimensions of “pure-applied” and “soft-hard” (Becher, 1989). On the one hand, in contrast to pure disciplines (such as humanities and natural sciences), the knowledge of social sciences is more applicable. On the

other hand, in contrast to hard disciplines (such as natural sciences and the sciences of engineering), the logical connection of the knowledge of social science is not very direct. Therefore, social science has a strong interdisciplinary nature. Learning and understanding the theories of social science especially requires a combination of different disciplines. From this perspective, it is easy to understand why students majoring in social sciences usually hold a positive attitude toward general education courses.

However, among the different evaluations of students from different disciplines, we could glimpse the deep dilemma of general education reform in the context of mainland China.

In the context of the Western countries, especially in the United States and Britain, general education has two dimensions. On the one hand, it provides a broad knowledge base to prepare students for professional training, and on the other hand, it is to train citizens in a free and democratic society (Shen, 2013).

On the contrary, general education in Chinese universities is biased towards knowledge from the beginning. Under the influence of long-term Soviet professional education, PKU designed general education courses to broaden the views of students in 1990s. Since then, the categories of general education courses have expanded and the quality of these courses has improved, but the basic starting point of these courses is still providing students with multi-dimensional knowledge base for their professional learning. For Chinese students, general education courses are also regarded as preparation for professional learning. In terms of professional learning, students majoring in social sciences can obviously get more from general education courses than students from other disciplines.

Similarly, the low self-reported learning outcomes of general education courses by students from Yuanpei College was also due to their reasoning about knowledge. The students from Yuanpei College have the freedom to choose high-quality courses in other departments. These courses are usually lectured by the star professors and could give students the positive impact in terms of knowledge. For example, Student Y from PPE thought the courses he took all had a positive impact on the improvement of his comprehensive ability. As he said, “the courses I took can cultivate my comprehensive ability. Firstly, the professors of these courses usually have a high academic level, they also devote themselves to teaching enthusiastically. Secondly, the requirements of these courses are very high, that meant you can’t pass by rote. If you want to pass or even get the higher scores, you have to work hard on bi-weekly essays and weekly seminars. Hence, your ability will be fully exercised after taking classes.” Compared with the courses of high quality distributed in different departments, the university-wide general education courses have lower knowledge standards. Student Z from PPE thought the academic training of the university-wide general education courses was not strict, so he did not gain much from these courses. He said: “I could easily get high marks in university-wide general education courses that are less rigorous after receiving the rigorous academic training in field of philosophy and political science. I did get the high marks in these general education courses, but the gains were not that much.” From the perspective of knowledge, it was

easy to understand why the students from Yuanpei College had lower self-reported learning outcomes of university-wide general education courses.

*Useless learning and useful learning: general education courses in the context of marketization of higher education*

Instead of “liberal education”, which is connected with nobles and has the implication of “elegance”, “general education” in the 20<sup>th</sup> century has the implications of “freedom” and “liberation”. However, there is no difference between the “general education” and “liberal education” in terms of “Tong”, which means not imparting the practical knowledge and skills.

As the *General Education in a Free society* stated, education aiming to cultivate active, responsible, intelligent citizens should clearly belong to general education rather than professional education (Conant, 1946). In the early 1980s of PKU, the general education courses of “Aesthetics”, “General history of China”, “General history of the world”, “Contemporary literature”, “Modern physics” and “Astronomy” also had a strong color of “useless learning”.

With the development of higher education marketization in the United States since the 1970s, Brint found that the undergraduate education in the United States had a tendency to transform from basic liberal arts education to vocational education (Brint et al., 2005). In the 1980s and 1990s, China also embraced the market economy due to the tide of globalization and its own reform needs. General education that had a strong color of “useless learning” faced severe challenges under the tide of marketization. As “useless learning”, general education seemed unable to adapt the demands of the labor market and to provide the students with the necessary skills to find jobs.

However, the result of quantitative analysis indicated that the students entering labor market after graduation reported the significantly higher learning outcomes of general education courses than students entering graduate school after graduation. This phenomenon reflected the internal transformation of general education in the context of higher education marketization: from education of basic liberal arts and science to the education of transferable skills. In recent years, general education was regarded as the “high-impact teaching practice” that could cultivate transferable skills and the non-cognitive abilities of undergraduates. Through a series of teaching practices such as comprehensive courses and extracurricular practical activities, general education enables students to master the transferable knowledge and skills that will be necessary for their future study, work, and life (Bridges, 1993; Kuh, 2019). A survey of general education in 2015 showed that there was significant agreement across AAC&U member institutions about the learning outcomes they have adopted for all students. These outcomes include a broad range of transferable skills, such as writing skills, critical thinking and analytic reasoning skills and quantitative reasoning skills (Hart Research Associates, 2016).

As a top research university, PKU still has a strong academic tradition in general education

courses, but compared with professional education courses, the general education courses lay more emphasis on the cultivation of transferable skills. For instance, Student T from the law school reported the learning outcomes of general education courses significantly higher than that of professional education courses. As she said, “as far as I can see, the undergraduate education of law in PKU should have more practical courses, such as legal document writing. Because not all students from law school will have the academic career in the future, a lot of us will enter the society and engage in practical work. We need some skills that we can use in our actual work or even daily life in the future. In my opinion, the general education courses gave me more these skills than professional education courses.” Student P, majoring in philosophy, planned to work in a large internet enterprise after graduation. He criticized the academic tendency of philosophy undergraduate education in PKU: “our department encourages all students to pursue academic careers. The professional education courses are also academically oriented,” he said. Compared with professional education courses, general education courses give students a variety of knowledge and skills. Possessing this knowledge and skills, the students have more opportunities to explore diverse possibilities.

## Discussion

This section offers discussion of the empirical implications of the findings and possible future research directions. Firstly, as mentioned above, general education courses in China tend to be knowledge-oriented, so these courses can only have a positive impact on students from certain disciplines (especially social sciences). In order to have a positive impact on all students, general education courses should have the function of training citizens. However, in the context of mainland China, the question of how to cultivate the judgement, social-understanding and moral sense of students as modern citizens in the general education courses still needs more empirical studies and serious discussion.

Secondly, with the saturation of the academic labor market and the increase of other job opportunities, a growing number of students in elite universities are also engaging in practical work. According to professors of PKU, only a few students devote themselves to academic work in the end. “Take our department as an example. There are approximately 200 students graduating each year, among which only 10 students have academic aspirations,” Liu Bin, a professor in School of Mathematical Sciences, said in a public interview (Liu, 2018). In this context, the general education courses may need more reform to meet the diverse demands of undergraduates. When professional education courses adhere to the academic tradition of elite universities, general education courses should undertake the function of cultivating transferable skills. The abilities of critical thinking, rational reasoning, written and oral communication and problem solving should be developed in general education courses. More empirical studies are needed to figure out how to design and

implement general education courses that can cultivate the transferable skills of students effectively.

In addition, this article also found that the female students reported significantly higher learning outcomes of general education courses than male students. These subjective learning outcomes could also be supported by objective academic records. Take the data of the Survey on the Quality of Undergraduate Education in PKU of 2018 as an example. The female students' 4-year GPA (grade-point average) of general education courses was 3.51, significantly higher than that of male students (3.38). However, more empirical research and analysis will be needed to explore the reasons for the above phenomenon.

The relationship between family cultural capital and learning outcomes of general education courses revealed in this article supported previous research conclusions. Family culture capital did have an impact on students' self-reported learning outcomes of general education courses. The students from higher-educated family thought the gains from general education courses were relatively low, while the students from family without higher education thought the gains from these courses were relatively high. However, the impact of family cultural capital on students' self-reported learning outcomes was not statistically significant. As an aspect of learning outcomes, this result could partly support previous conclusions that the influence of family capital on academic achievement and learning outcomes of students tended to weaken in higher education.

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