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The university entrance examination system in China

Gareth Davey[a*], Chuan De Lian[b] and Louise Higgins[a]
[a]*University of Chester, UK;* [b]*Beijing Information Technology University, China*

Every year, millions of high school students sit the Chinese national university entrance exam, and their results determine entry into universities or alternatives such as employment. Limited information about the exam is available in the Western literature even though it determines the future of millions of young people, and is increasingly of relevance to Western university educators. This article reviews Chinese and Western reports to provide an up-to-date overview of the exam's key features, including the registration and application procedure, exam content/structure, and use of exam results in determining entry into higher education. There is also an analysis of the exam system's limitations, and implications for Chinese and Western educators.

Introduction

The importance of the Chinese university entrance exam is increasing as China undergoes modernisation. In order to meet the needs of the country's growing economy, there has been a marked increase in the number of students entering Chinese universities, and a concomitant increase of higher education provision. From 1985 to 2003 the number of universities increased by 536, and the number of new students enrolled in them rose from 61.9 to 382.2 per 10,000 people (China Statistical Yearbook, 2004). There were seven million candidates in 2005. The exam also plays an important role in society. A university education markedly increases life chances in China, where society, including the job market, is very competitive. The number of applicants far exceeds available places; competition is fierce, particularly for entry into prestigious universities. The competitiveness of the exam means that teachers and parents place considerable pressure on their children to succeed in school, and exam preparation begins at an early age. It has been reported that children spend all of their time studying, and this situation has recently been linked to psychological problems and even suicide amongst school children (Davey & Higgins, 2005; Dai *et al*., 2007). There is also pressure upon schools and teachers

*Corresponding author. Psychology Department, University of Chester, Parkgate Road, Chester CH1 4BJ, UK. Email: g.davey@chester.ac.uk

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whose reputations ultimately hinge on the number of their students who succeed in the exam (Lewin & Xu, 1989; *China Daily*, 2005; Zhuoqiong, 2005; Dai *et al.*, 2007). The entrance exam also plays a pivotal role in the education system where it shapes pedagogical practice because developments in secondary education are determined by the university entrance exam rather than *vice versa* (Zhang, 1995; Mi, 1998). Despite the importance of the exam in Chinese society, there is limited information available in the literature, and there is a need to review its main features.

A review of the Chinese university entrance exam will also benefit Western educators. Increasing numbers of Chinese students choose to study at Western universities, and China has more students studying abroad than any other country. Therefore, insights into the Chinese education system will be useful for admissions officers in British universities, and will enable Western educators to better understand their Chinese students. For example, it has been shown that the academic skills of Chinese students may differ from their Western counterparts as a result of different educational frameworks across countries. Thus Chinese students' needs may differ from their Western classmates, and an understanding of these differences will allow teachers in the West to offer appropriate support to their Chinese students (Davey & Yuenong, 2005). Further, problems commonly faced by Chinese students in overseas universities—such as communication difficulties, weak social skills, and tendency to conform with groups of students from the same country (Edwards & Ran, 2006)—may be partly attributed to the types of skills developed in preparation for the university entrance exam.

In addition to the high numbers of Chinese students abroad, there are many examples of collaboration between Chinese and Western universities. British universities are entering China's private education market by forming partnerships with Chinese universities. There are about 100 joint programmes that allow students to obtain British-accredited degrees at Chinese universities. These programmes may attract students who did not pass the Chinese university entrance exam and were not eligible to enter Chinese universities. Another recent development has been the creation of a British university campus in China, and selection criteria for the courses include good performance in the exam. Therefore, the Chinese university entrance system is an important factor influencing interaction between Chinese students and British universities, and a review of the exam's main features will be useful for Western universities that are entering China's education market.

This article critically reviews the Chinese and Western literature to provide an overview of the main features of the exam system. It begins by providing a brief overview of the Chinese education system, and then describes the features of the university entrance system, including the exam application procedure, structure, content and results. Next, the exam system's limitations are discussed. The information is then drawn together to discuss implications and provide recommendations for both Chinese and Western educators and future research.

Education in China

A general overview of education in China is necessary in order to put the university entrance exam in context. Education has been highly valued in China since classical times. Confucianism (traditional Chinese philosophy) emphasises education beyond other values, and the early Chinese state established a feudal imperial exam system to select government officials (Zhang, 1995). The traditional focus on learning continues to play a prominent role in society; a high standard of education is associated with social status, and it is customary for parents to hold high expectations with regards to education; failure in school is traditionally associated with individual, family and even national shame.

In China the Compulsory Education Law stipulates that each child must receive at least nine years of schooling. Learning begins in kindergarten (ages 3–6), and continues through primary school (6–12), middle school (12–18) and then, for the privileged few, higher education. There are two different levels of Chinese universities; the first category awards undergraduate diplomas and bachelor degrees following four years of study (and includes prestigious universities such as Beijing University and Qinghua University), whereas the second group awards undergraduate diplomas after two or three years. To enter these universities students must sit the Chinese university entrance exam, known colloquially in China as the '*gaokao*'. It was created in 1952 and, apart from its suspension throughout the ten-year Cultural Revolution (a political movement during 1966–1977 when education was disrupted and universities were closed; Unger, 1980), the principle of examination as a main access route to university has existed to the present day. The exam in China is ultimately under the control of the National Examination Authority within the Ministry of Education. The Ministry of Education co-ordinates and oversees the writing of exam questions, whereas lower-level government is responsible for printing and delivering the exam papers, as well as arranging exam centres, marking and reporting results (Liu, 1994).

Main features of the Chinese university entrance exam

Prior to sitting the exam, candidates must first register with the national exam organisation, and complete an application form to select the universities they wish to attend. However, the time of application to universities differs between provinces as it can take place either before or after exam results are published.[1] Information required during registration includes personal and family details, previous school attendance and educational achievement, a medical certificate confirming satisfactory health, and also a moral and political assessment (a record of a candidate's attitudes towards political policies, a criminal record check, and membership of cults). This information forms a personal file for each student, and is used to determine eligibility to enter the exam—for example, applicants who have previously opposed the government, or participated in illegal activities, may not be permitted.

Candidates must also complete another application form to choose the university they want to study at. It consists of four sections according to the type and status of

university to be selected. The first section is for special universities such as army and police academies; the second part concerns applications to prestigious universities and others authorised by the Ministry of Education; section three is for most of China's remaining universities that are not as prestigious; and the fourth part of the application form is allocated to lower-level universities that only offer undergraduate diplomas. Every year the Ministry of Education publishes a list of universities that can be entered into the different categories on the application form. Students are permitted to choose two universities from section 1, and three universities from each other section; within each college three to five departments or subjects can be chosen. However, universities tend to give preference to students that list them as their first choice; for example, in Beijing's prestigious universities in 2002, 80% of the student population chose their university as first choice (China News, 2002). Applicants must also confirm if they would like their details to be considered by other universities not listed on the application form (if their exam result is lower than expected); alternatively, students can state their preference to resit the exam and re-apply the following year.

The exam consists of three compulsory subjects—Chinese, English and mathematics—and optional subjects (biology, chemistry, geography, history, physics and politics). Since 1998 the exam has become known as the '3 + X' system that allows students to choose one or more additional subjects from the list of six. In some provinces the 'X' can also represent a combined subjects exam that consists of several subjects.

Exam papers are divided into two sections: Part I, an objective test that consists of multiple-choice questions and is marked by computers, and Part II that contains filling in blanks, calculation, essays and writing and an English oral test (Liu, 1994). Most exam papers contain between four and eight sections, and some subjects (biology, chemistry, mathematics and physics) have an additional question that is considered only in applications to prestigious universities (Lewin & Lu, 1990).

It is instructive to ask if the intellectual demands of the Chinese exam differ from university entrance exams in other countries. In order to gain an insight we compared a recent mathematics paper from the Chinese exam with the British equivalent (A-level). We found that the level of the Chinese paper, which is compulsory for all students regardless of the subject they wish to study at university, is between A-level and further maths A-level. It consisted of pure maths (that is, no mechanics or statistics), and was dominated by geometry, trigonometry and conics, and there was a notable lack of calculus. Therefore, the Chinese paper seems to be equivalent to entry into a good British university to read mathematics but higher than the British requirement (GCSE) to support the study of another subject.

All students throughout the country sit the exam during the same period. It takes place in the summer over two to three days, and each subject exam lasts between 2 and 2.5 hours. The exam date recently changed from 7 July to 7 June to avoid the hottest days of the year. It is a tradition for parents to accompany their children to the exams and to wait outside the exam room (Mullins, 2005; Zhuoqiong, 2005).

Exam results are available within two to three weeks following the exam period and can be obtained via telephone or the Internet. Each year the Ministry of Education agrees two cut-off points for exam scores depending on the availability of university places and the number of applications; one is the minimum expected for entry into any university, whereas the higher borderline is for consideration by prestigious universities. Interestingly, China's most prestigious universities are located in major cities such as Beijing, and candidates resident in these cities are eligible to enter with lower exam scores than students resident in other areas. For example, data supplied by Beijing University show that Beijing residents constituted 16% of the university's new enrolments in 2003, whereas the proportion of students from each other province ranged from 0.2 to 5.1% (Table 1).

There are policies that allow certain groups of students to enter university with lower scores. They include ethnic minority groups,[2] sportspeople, children of army personnel, and disabled applicants. There may also be additional criteria—for example, in 2003 priority was awarded to children whose parents played a significant role in fighting against severe acute respiratory syndrome (SARS). The Chinese higher education system also caters for minorities in other ways, including a different entrance exam, examination in native languages, scholarships and financial aid, and special universities that cater for minority groups, termed 'universities for nationalities' (Zhao, 1988; X. Huang, 1995; J. Huang, 2000).

Although entry into Chinese universities is generally determined by the entrance exam, there are exceptions. It is possible for students to be recommended to universities, although the number of students entering through this route, and universities that consider them, is very small. In 2001, for example, only 3408

Table 1. Proportion of new student enrolment at Beijing University according to geographic region (data supplied by Beijing University)

Region	**% of student population**	**Region**	**% of student population**
Anhui	3.0	Jiangxi	2.8
Beijing	16.7	Jilin	3.2
Chongqing	3.0	Liaoning	3.6
Fujian	3.1	Ningxia	1.0
Gansu	1.1	Qinghai	1.0
Guandong	2.6	Shandong	4.3
Guangxi	1.7	Shanghai	3.2
Guizhou	1.7	Shanxi	2.6
Hainan	1.2	Shanxi	3.2
Hebei	3.2	Sichuan	4.6
Heilongjiang	3.1	Tianjin	3.2
Henan	3.7	Xinjiang	1.5
Hubei	4.4	Xizang	0.2
Hunan	3.7	Yunnan	1.9
Inner Mongolia	1.4	Zhejiang	5.1
Jiangsu	5.0		

students entered universities based on recommendation, whereas 4,535,000 entered via the entrance exam. Criteria for recommendation vary from year to year but usually include outstanding students in each region, recommendations from high schools affiliated with universities, awards and certifications from activities such as national school competitions, and children of police officers who are recommended to police colleges.

The number of university places in China is limited and a large proportion of candidates do not succeed. Students are allowed to resit the exam the following year, whereas others seek employment. Alternatives include studying part-time during summer and winter vacations for an alternative entrance exam (the Adult Higher Education Examination), via distance learning, or at some teacher training colleges. However, these routes are generally regarded as less useful for securing employment. Another option is to study at a private university where an entrance exam is not required, and this avenue is becoming more popular due to the recent development of private higher education in China, and a growing middle class who can afford it (Qiang, 2002). Private higher education includes the option of studying overseas, and Western universities are entering China's private education market, mainly to recruit students to study abroad, and also to provide courses in partnership with Chinese universities. Another option is for high school students to study a Western university exam system, such as British A-levels, in China or overseas, in preparation for entry into overseas universities (Qiang, 2002; Whittaker, 2005).

The number of candidates attending the exam, and their success rate, has changed in recent years. There were 2,975,000 candidates (success rate of 36.3%) in 1998, and this figure increased to 5,270,000 (success rate: 52%) in 2002; 6,130,000 in 2003; and over 7,000,000 in 2004 (success rate: 45%; China Statistical Yearbook, 2004). The number of universities has generally increased since 1985, although there were some decreases during the 1990s as a result of mergers; for example, Beijing Medical University merged with Beijing University (Table 2).

Slightly more male applicants (52.9%) take the exam and this gender difference is representative of the country's demographic profile, where there is a greater proportion of men in the overall population (China Statistical Yearbook, 2004). Although the age limit was recently abolished, few students over 25 sit the exam. In 2001, for example, only 1924 people in this age group were successful (Qu, 2001). The most popular academic major in universities is engineering (33%), followed by management (16.5%), literature (16%), and science (9.2%; Table 3; China Statistical Yearbook, 2004).

Criticisms of the exam system

The university entrance exam system has limitations. First, there are concerns about the fairness of the system and equality of opportunity for all candidates. As mentioned above, students who live in the same city as a prestigious university can enter it with lower scores than students from other regions. This means that students

Table 2. Number of higher education institutions in China since 1985, and the number of new students enrolling at them (data from the China Statistical Yearbook, 2004)

Year	Number of higher education institutions	Number of students enrolled (per 10,000)	No. of new students enrolled (per 10,000)
1985	1016	170.3	61.9
1986	1054	188	57.2
1987	1063	195.9	61.7
1988	1075	206.6	67
1989	1075	208.2	59.7
1990	1075	206.3	60.9
1991	1075	204.4	62
1992	1053	218.4	75.4
1993	1065	253.6	92.4
1994	1080	279.9	90
1995	1054	290.6	92.6
1996	1032	302.1	96.6
1997	1020	317.4	100
1998	1022	340.9	108.4
1999	1071	413.4	159.7
2000	1041	556.1	220.6
2001	1225	719.1	268.3
2002	1396	903.4	320.5
2003	1552	1108.6	382.2

from outside certain cities are not admitted to prestigious universities even though their scores are higher than students that are admitted.

Chinese educators have also criticised the style of exam questions because they test subject knowledge and theory rather than the ability to solve problems or carry

Table 3. Number of new students enrolling at higher education institutions during 2003 in relation to academic major (data from the China Statistical Yearbook, 2004)

Subject	Total	Regular college course	Specialised subject (three years)
Total	**3821701**	**1825262**	**1996439**
Philosophy	1520	1446	74
Economics	221410	114545	106865
Law	185999	91920	94079
Education	218575	69682	148893
Literature	612021	297002	315019
History	16330	11496	4834
Science	329656	220157	109499
Engineering	1242426	595398	647028
Agriculture	81619	41637	39982
Medicine	257681	119270	138411
Management	654464	262709	391755

out practical tasks. This has led to complaints that students can only solve theoretical problems and not practical ones, and some schools lack facilities and apparatus for practical lessons, even in subjects such as science (Zhang, 1995).

Another problem is the immense psychological pressure on students to excel in the exam. As mentioned earlier, university education markedly increases life chances in China because society is very competitive and the number of university applicants far exceeds available places. Competition is fierce, especially for entry into prestigious universities. There were seven million candidates in 2005 and many examinees (40%) did not secure university places. Therefore, preparation for the university entrance exam begins at an early age, and parents place considerable pressure on their children to succeed in school (exacerbated by the one-child policy because parents put all their hopes on their only child). As a consequence, preparation for the entrance exam begins at an early age. Chinese children spend all of their time studying, and this situation has been linked to heightened fear of failure, psychological problems and even suicide amongst school children (Dong *et al.*, 1994; Davey & Higgins, 2005; Dai *et al.*, 2007). Davey and Higgins (2005, p. 32) interviewed a Chinese school student who reported:

> I spend my waking hours studying and even my spare time is dedicated to after-school curricula. Life is hard and all my friends worry about failing our exams. Sometimes I feel I can't cope but I just don't want to let my parents down.

There is also pressure upon schools and teachers whose reputations ultimately hinge on the number of their students who succeed in the exam (Lewin & Xu, 1989; *China Daily*, 2005; Zhuoqiong, 2005). This has led to a situation in which the aim of school teaching in China is to prepare students for the university entrance exam rather than to develop their abilities.

Concerns have also been raised about corruption. In previous years it has been claimed that the contents of the entrance exam were revealed to prospective students, and some teachers have even phoned students during exams to help with tough questions (Plafker, 1997; Hewitt, 2001). Entry into prestigious universities can be aided by senior officials; recently, one of China's top science and technology universities published a list of its students who were either related to authority figures, or recommended by them. Although there is no evidence of wrongdoing by the judges and government officials listed, the case certainly raised public concerns about the fairness of university entry in China.

Implications for educators and future research

The review of the Chinese university entrance exam system reveals implications for Chinese educators, Western educators and future research. Implications for Chinese educators centre on criticisms of the exam. Recently in China there have been heated debates in the media about the criticisms of the exam. In response to criticism, major exam reforms were undertaken in the early 1990s by the Ministry of Education to modernise the exams, increase their fairness and objectivity, and standardise the process nationwide; also, the age limit was abolished as the exam was

only previously available to unmarried students under 25, but is now open to everyone with a high school graduation certificate (Liu, 1994). There are also plans to place greater emphasis on students' previous performance during university selection, particularly if the government decides to overhaul current teaching methods (*The Economist*, 2003), and to introduce question styles that test use of knowledge. Further research can focus on these changes.

Teachers should also address the issue of stress and psychological pressure amongst schoolchildren. Teachers could arrange support services for students, such as stress management, recreational activities, counselling, and study skills development such as time management, coping with pressure, and good study habits (Dai *et al.*, 2007) Support can also be offered to parents to enable them to help support their children, and to increase awareness of the importance of a good balance between study and relaxation.

The analysis of the Chinese university entrance exam also aids Western educators who recruit students and provide courses in partnership with Chinese universities. A better understanding of the exam system will help Western universities to recruit more students, and offer more appropriate support to existing students. With regards to student support, the review pointed out that the skills and therefore abilities of Chinese students may differ from their Western counterparts as a result of different educational frameworks across countries. For example, our comparison of the Chinese maths paper with its A-level equivalent shows that Chinese high school graduates have higher abilities at maths compared to most of their British counterparts. Further, the exam questions in the Chinese exam only require students to solve problems theoretically, and practical work is limited; also, there is little emphasis on the relationship between real life and the subjects studied (Zhang, 1995). As Lewin and Lu (1990) state, 'the principal activities of students in the classroom are listening, taking down notes, and reading the textbook. Active involvement, designing, exploring, problem solving, collecting evidence and experimentation are rare events' (p. 171). Research elsewhere has shown that the Chinese education system does not emphasise study skills, and therefore Chinese students tend to be weaker at study skills such as critical analysis, oral presentation, and problem solving (Davey & Higgins, 2005; Davey & Yuenong, 2005). This suggests that the abilities of Chinese and Western students in the same classroom differ, and raises important issues about the preparedness of Chinese students, who are the product of the Chinese education system, who study within Western frameworks. Western educators should place extra emphasis on understanding these variations in students' skills and modify courses accordingly. A good example where this takes place is on courses offered by the University of Central Lancashire which accredits undergraduate degrees that are franchised to a partner university in China. The course offers extra English language support to reflect Chinese students' weaker English skills, and reduces emphasis on the mathematical component of the syllabus to account for students' higher abilities of theoretical mathematics (Davey & Yuenong, 2005). The university also offers staff exchanges to promote understanding of educational systems in both China and Britain.

The present review also highlights the importance of the Chinese university entrance exam in the recruitment of Chinese students by British universities. The number of applications to study at Chinese universities is higher than available places. An alternative and increasingly popular option for students is to study at Western universities. Chinese students report the accessibility of overseas universities as an important motivation for studying abroad (Davey, 2005). An important implication for Western universities is how to market their courses to students who cannot enter Chinese universities. Indeed, British universities have been quick to take advantage of the situation and many universities employ international officers who are briefed to recruit overseas students.

Limitations and future research

The analysis presented in this article also provides a foundation for future research. All of the areas covered in the review—exam application, content, structure, and results—present interesting avenues for further research. There is also no information presented in this review about other aspects of the exam, such as the work of the national examinations authority, and the main policies and procedures for developing the examinations.

The exam system, like other aspects of China's education system, is changing, and future work can explore these changes and assess their effectiveness. Reforms are planned and are currently being implemented. For example, responsibility for the creation of exam questions is being moved from the Education Ministry to the regional level, and some regions—such as Shanghai, Shangdong and Guangdong—now construct their own exam papers. The recent increase in higher education provision in China has been accompanied by other changes in higher education, including diversification, a shift from serving political needs to catering for economic and social development, decentralisation of control from government to individual universities, abolition of government monopoly on student recruitment and job assignment, and an increase in international educational exchange and collaboration (Zhou, 1994; Hannum & Park, 2006). All of these changes are interesting avenues for research.

The analysis presented in this article is limited in other ways. In particular, there is no data collection from students or educators, and future work could use interviews to provide useful data. For example, a comparison of the perspectives on examination reforms amongst Chinese specialists and students could reveal interesting information. Also, further comparison between the Chinese exam and its equivalent in other countries is needed in order to understand how the needs of Chinese students differ from their counterparts in other countries.

Conclusion

This article has critically reviewed and drawn together the main elements of China's university entrance exam, from the initial application process through to the options

available following publication of exam results. The Chinese university entrance exam is intriguing and unique, and serves millions of candidates every year. However, the exam system has several limitations. Problems include a shortage of university places, stress amongst schoolchildren as a result of exam pressure, easier university access for students in certain areas, and corruption. These issues need to be addressed to improve the fairness of the exam. There are also implications for Western educators, particularly those involved in recruiting and teaching Chinese students. The differences between Chinese and Western university entrance exams may mean that the skills of Chinese high school graduates differ from their Western classmates, and therefore extra support may be required. All of these areas offer interesting avenues for future research.

Notes

1. The People's Republic of China consists of 22 provinces, 5 autonomous regions, 4 central administrative municipalities, and 2 special administrative regions (SARs). The present article is not applicable to the SARs (Hong Kong and Macau) because these regions developed different educational frameworks during colonial rule by Britain and Portugal respectively.
2. In China there are over 50 ethnic groups that differ in their customs and traditions; the dominant group is the Han that constitutes over 90% of the population (Dillon, 2001).

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