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**An Empirical Study of Contextual Factors  
on Chinese Female Access to Higher Education**

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**Abstract**

Accompanied with a rapid expansion of Chinese higher education system in the 1990s is a pressing concern on college access by female students. In this study, empirical data are analyzed to disentangle contextual factors behind Chinese female access to higher education in the late 1990s. As the quality of higher education gains more attention of education stakeholders around the world, this report highlights a long-lasting equality issue within Chinese society.

Caption: Chinese higher education, Data analysis

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Gender difference has a long history dated back to the very beginning of human being. The western creationists theorized that God took a rib from Adam and turn it into Eve. In Chinese mythology, a Goddess named Nu Wa first molded men out of clay, and afterward she sprinkled women out of water (Yi, 2000). Regardless of the variation between folk stories, it appears to be a general belief that both western and eastern societies are centered at men.

Among numerous factors behind human diversity, “the distribution of education by sex is frequently argued to be a key determinant of gender inequality” (Parish & Willis, 1993, p. 864). In particular, female access to higher education represents a key indicator differentiating developed and developing countries. For instance, almost equal in the land size, the United States and China appear to be a natural contrast of countries at different developing stages. According to Jacob (1996),

One of the striking features of education in the United States is the prominence of women among college students. In 1992, women represented 53.1% of men. ... By 1982, women surpassed men in the number of bachelor’s degrees earned. Women have garnered more bachelor’s degrees than their male counterparts ever since. (p. 155)

On the other hand, “Chinese education sustains the 17% of world school population with less than 1% of world educational expenditure” (Shi, 1998, p. 1). The lack of resources permitted only a small proportion of the Chinese population to receive higher education,

and thus, no census data have been gathered from the entire country to describe various factors behind the gender difference on college access (Lavelly, Xiao, Li, & Freedman, 1990). Consequently, some researchers acknowledged that “it is unfortunate that we were unable to examine the determinants of university enrollments” (Bauer, Wang, Riley, & Zhao, 1992, p. 345). The purpose of this investigation is to analyze a survey database from the Xiamen University to disentangle contextual factors behind the gender disparity in higher education. Whereas the attainment of gender balance is an achievable task evidenced in U.S. universities, the examination of Chinese approaches may help enrich the existing knowledge of female college access in the oriental culture.

### **Literature Review**

Higher education in China has witnessed an ongoing expansion throughout the 1990s. The vast student population comes from different families in various regions. Jacobs (1996) noted, “Classic studies of inequality in education typically have focused on disparities by social class among men. ... When gender equality is discussed, it receives relatively limited attention” (p. 154).

The oblivion of research literature seems to have escalated its impact on higher education. Jacobs (1996) asserted that “Gender disparities are highest at the tertiary level” (p. 157). Hooper (1984) concurred, “It is through education, particularly higher education, that young women will have the opportunity to secure jobs in the forefront of China’s modernization” (p. 319).

The lack of research is partly because of unavailability of appropriate data for an empirical investigation. Vogt (1999) observed that “About 2.04 million students enrolled

in China's 1,075 institutions of higher learning. Higher education comprises about 3.5% of the population" (p. 8). Due to the relatively small percentage, the Chinese Census Bureau was unable to include many gender equality items in its national data collection. On the other hand, Lavelly, Xiao, Li, and Freedman (1990) noted, "For a developing country such as China, it is rare to have statistical time series on a basic social indicator for a long period for the country as a whole as well as for its major regions" (p. 93).

In general, census and survey are two methodological approaches to gathering useful databases. Whereas no census indicator is available for the entire population, some researchers may choose to conduct survey investigations on part of the Chinese population. To date, national surveys often use an intact family as the sampling unit. Therefore, most college students are unreachable because of their residency in university dormitories. For this reason, the One-per-Thousand Fertility Survey conducted by the State Family Planning Commission of China does not include a higher education population (Lavelly, Xiao, Li, Freedman, 1990). Bauer, Wang, Riley, and Zhao (1992) also reported, "We were forced to restrict the analysis to this secondary-age group because most university students do not live at home and information on their families is therefore not included in One Percent Population Survey" (p. 345).

Unlike other nations, China has implemented a single child policy since 1979. Although the policy was strictly enforced for more than two decades, some discussions are now in place to loose the restriction for couples with advanced degrees ([http://news.163.com/editor/020726/020726\\_479691.html](http://news.163.com/editor/020726/020726_479691.html)). To reflect the social reality and the future trend, the 94 and 96 freshman classes seem to be an appropriate choice of the survey

sample to cover the birth cohorts right *before* and *after* inception of the single child policy.

The current policy also allows rural couples to have two children if the first child is not a boy. The regional gap is another factor that should be considered in the survey design. According to Xie and Hannum (1996),

Consideration of regional heterogeneity is significant, not only because economic activities in different parts of China are dictated by large regional variations in natural and human resources, but also, and more important, because the Chinese industrial reform has had a regional dimension. The reform has disproportionately benefited coastal provinces at expense of inland provinces. (p. 952)

To gather information across various geographical regions, it is desired to conduct the research at a higher education institution that enrolls students from different provinces. Xiamen University is one of such institutions that carry on a higher education responsibility beyond its local province. Designated as a key university by the State Ministry of Education, Xiamen University does not discriminate students in terms of their rural and urban backgrounds. Thus, the survey conducted at Xiamen University may help disentangle the community factor behind female access to higher education. The site choice is in line with what Lavelly, Xiao, Li, and Freedman (1990) observed, i.e., “Educational levels can be shown to have varied with degree of urbanization and rural development” (p. 61).

Regarding the survey items, Jacobs (1996) maintained that “The challenge is to situate gender inequality economically, historically, culturally, and politically” (p. 178).

At the policy level, “the introduction of the production responsibility system might be aggravating the situation [of gender inequality]. One reason given by parents for keeping children of both sex, but especially girls, away from school was to free their mothers for money-making activities or to use the youngsters as additional labor for growing and marketing of produce” (Hooper, 1984, p. 323).

As the compulsory education system does not cover university admission, economic resources are needed from individual families to support higher education. The financial competition often leads to less support for female students. Parish and Willies (1993) reported, “given the assumption that sons retain loyalty to their family of origin throughout their lives while daughters leave the family of origin upon marriage, daughters present a larger default risk than sons and should receive either less education or, alternatively, should invest in types of education with a quick pay-off so that they may repay implicit loans before marriage” (p. 867). Considering the weight among different social factors, Robinson (1985) argued, “Rather than blaming feudalism or China’s lack of development, I suggest that contemporary political and economic decisions have reinforced sex inequality in China” (p. 32).

Still, it is appropriate to acknowledge that “Chinese women suffered in the 2,000-year feudal society” (Da, 1996, p. 16). The historical tradition has some profound impact on parental decisions for the family resource distribution. In the 1990s, “Many Chinese hold that women should put a higher priority on their family than on their careers” (Yi, 2000, p. 13). Therefore, the access to higher education becomes a privilege, rather than a necessity, for some female students. “Even in urban areas, girls who are preparing for the

university examination sometimes lose out when it comes to the hiring of private tutors or freedom from helping with household chores” (Hooper, 1984, p. 323). Bauer, Wang, Riley, and Zhao (1992) also noted, “Although state policy in theory provides equal educational opportunities for men and women, the support of the family – in the form of fewer chores or more private tutoring for sons than daughters – influences the educational opportunities of sons and daughters differently” (p. 349).

Another factor linked to the resource commitment is the family cultural background. In the historical Chinese culture, “There are widely held views that daughters do not count as heirs, and ‘failure to have a male heir is one of the three major offences against filial piety’” (Robinson, 1985, p. 41). Under a single-child circumstance, however, parents do not have a choice to have more than one child, and thus, the cultural bias has little room to play a critical role. In other settings, parental attitudes also depend on education levels. Bauer, Wang, Riley, and Zhao (1992) reported, “Gender inequality is greater among households with less educated fathers. Therefore, higher educational attainment of fathers has stronger effects on the probability of school enrollment for young women” (p. 365).

In comparison to the well-received study of father’s role, what remains to be underreported is the impact of mother education. “As of 1996, Chinese women comprised 47% of the primary teachers, 36% of the secondary teachers, and 30% of the faculty in higher education” (Vogt, 1999, p. 16). Because students are less likely to encounter female instructors as they move up the education ladder, an educated mother can serve as a role model for girls to pursue higher education. For the same reason, parent career

development could be an important inspiration factor within the family context.

In summary, the existing literature clearly suggests a pressing need to conduct a study of gender equality on college access in China. The choice of studying cohort and site for this investigation is grounded on a thorough examination of Chinese contemporary policy and economic development. As a developing country, resource differences are evident among different regions. Family background, including parental education/career, financial resources, and individual home cultures, represents profound factors dominating distribution of the limited financial resources. These contextual variables are analyzed in this study using the empirical data gathered from Xiamen University.

### **Methodology**

To reach students of the 1994 and 1996 freshman cohorts, the survey was conducted in the 1997 Fall semester. A total of 1,500 questionnaires have been distributed, and 1,395 copies were returned. With the 93% return rate, permission was given to students for not responding to particular questions of their choice. This measure was designed to avoid having less accurate information from unwilling respondents (Fowler, 2001). As a result, non-response rates at the item level were no larger than 2.5%, the highest rate linked to a family income item.

Other important sources of information, such as the national gender ratio at college level as of 1997, were employed for post-stratification of the achieved survey data to ensure a balanced gender representation for the target population. As a result, the respondents included 876 males and 519 females with a female percentage of 37% to

match the national figure in the same year.

To help justify community representation of the respondents, an item was incorporated in the questionnaire to identify geographical communities that student families resided in. The community feature was classified in four categories, metropolitan cities/provincial capitals, middle/small cities, small towns, and rural villages. Other contextual factors integrated into the student survey were, p. father's education and career, mother's education and career, family income, as well as internal information on household management or communications. Grounded on a triangulation between the survey data and the existing literature, the empirical findings can help disentangle impact of the community and family factors undercutting female access to higher education.

### Results

The distribution of male and female students shows a substantial variation across different communities (see Figure 1). Students from rural villages account for 19.50% females and 33.18% males. A chi-square test show a result of  $\chi^2(3)=33.27$ ,  $p<.0001$ , which confirms the observed gender disparity across different regions.

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Insert Figure 1 around here

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The education levels of fathers and mothers are plotted in Figures 2 and 3 for both male and female students. Consistent with the pattern of fewer female students in higher education, mothers seem to have received less education than fathers.

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Insert Figures 2 & 3 around here

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Impact of parent careers is plotted in Figures 4 and 5 to depict the gender difference. Both plots agree that the largest gender gap is located in a category of having farmer parents. In these families, females have much less chance to enroll in higher education than males.

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Insert Figures 4 & 5 around here

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Family annual income is another home factor examined in Figure 6. Because the income is linked to the family size, relative socioeconomic status is also plotted in Figure 7 to differentiate conditions among upper, middle, and lower class families (Figure 7).

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Insert Figures 6 & 7 around here

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Figure 8 shows a designation of leadership roles among family members. Parental responsibility and student involvement are part of the scaled measures. In addition, family communications have been ranked to characterize the internal culture, and the responses are presented in Figure 9.

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Insert Figures 8 & 9 around here

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### Discussions

Cultural traditions that lasted more than 5,000 years have created a heavy burden of gender disparity in Chinese history. Jones (1996) reported, “China scholars have often suggested that the social disabilities suffered by Chinese women were never greater than in the late imperial period, i.e., the eighteenth and nineteenth centuries. Footbinding became more prevalent than ever, spreading down from the upper classes to peasant families” (p. 148). Following the imperial period, Chinese society has experienced a century-long strive for modernization. According to a UN report, the modernization levels are typically represented by a massive urban development (Prakash, 1982). To clarify the link between urbanization and gender equality, results in Figure 1 can be transformed into Table 1 to highlight gender gaps in college access for different communities.

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Insert Table 1 around here

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Inspection of Table 1 shows a pattern of reduced gender disparity along with the level of urban development. Partly due to lack of education resources, the gap between rural village and other communities is at least twice as large as the gaps among other urban communities. The large gender gap in rural areas seems to suggest a strong needs to improve the quality condition in the countryside. On the other hand, “While the gender gap in educational attainment among urban Chinese still exists, it has narrowed over time” (Bauer, Wang, Riley, & Zhao, 1992, p. 340). Figures 4 and 5 show that the largest gender inequity exists in families with farmer parents. These results agree to a

general assertion that “Being a farmer’s daughter is a greater disadvantage than being a farmer’s son” (Bauer, Wang, Riley, & Zhao, 1992, p. 365).

Parallel to the community gaps in gender inequity is a variation of college access across different family backgrounds. For the first part, parental education levels play an important role in child education. Fathers or mothers who received education below high school are less likely to have their daughters in colleges or universities. The lack of high school education is often linked to a rural setting because high schools are rarely established at small villages. In these circumstances, “A family investment made to improve son’s skills will likely have long-term benefits for the family whereas education and training for daughters may be seen as a less viable proposition since most daughters will leave the household upon marriage” (Robinson, 1985, p. 42). Thus, the family funding priority is unlikely designated for female higher education.

Figures 6 and 7 show that gender inequity is most visible in *low income families* or *families of low socioeconomic status*. In those families, the competition for limited education resources is most stiff, and few parents have leftover capitals for girls. Consequently, “if parents can only invest in one child, it is therefore more prudent to do so in sons, where they themselves will be able to benefit from the investments, than in daughters, who will marry into another family” (Bauer, Wang, Riley, & Zhao, 1992, p. 349).

Differences in gender equity are also related to family leadership settings. In a democratic family where students participate in decision-making, the college access figure shows the narrowest gender gap (see Figure 8). Otherwise, if parents are the only

decision makers, or if students have nothing to do with a family decision, female students show much less chance to access college education. Similarly, the pattern of internal communications is also important among family members. Frequencies of the communication are scaled into *often*, *rare*, and *no* categories in Figure 9, and the results indicate that frequent communications are much more effective than *rare* or *no* communications in terms of reducing the gender gap in higher education.

In summary, the lack of gender balance in student population is more severe in tertiary education, and the outcome depends on many contextual factors inherited within the family and community backgrounds. In this study, the survey data collection was based on an extensive review of various factors suggested by the research literature. The importance of narrowing gender disparity involves no arguments among education stakeholders. As was noted by Wen (1995),

Receiving education is a basic right for women, all would agree. Girls, who are the women and mothers of the future, must be properly educated so that they can protect their own interests and provide good educations to their descendants. (p. 15)

During the mid 1990s, more progress has been made to raise woman status in China. "In 1994 16 ministers and vice ministers of the State Council and 18 provincial governors and vice governors were women. Women deputies to the National People's Congress, the highest organ of state power in China, account for one-fifth of the total" (Da, 1996, p. 16-17). To prepare more women for these high-ranking positions, it is important to expand female access to higher education.

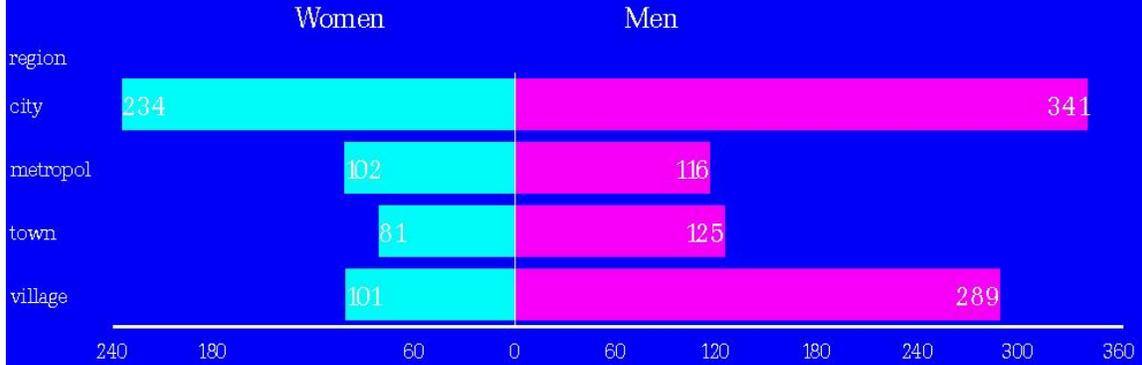
The United Nation's Fourth Congress on Women held in Beijing in 1995 has highlighted a common mission of strengthening gender equality around the world (Yi, 2000, p. 13). Contextual factors examined in this article characterized some of the key issues within the Chinese society. As the largest developing country in the world, China must learn from other nations to further improve the quality and equality of its higher education. Meanwhile, researchers in other nations may share the mutual interest of examining key contextual factors, such as those elaborated in this report.

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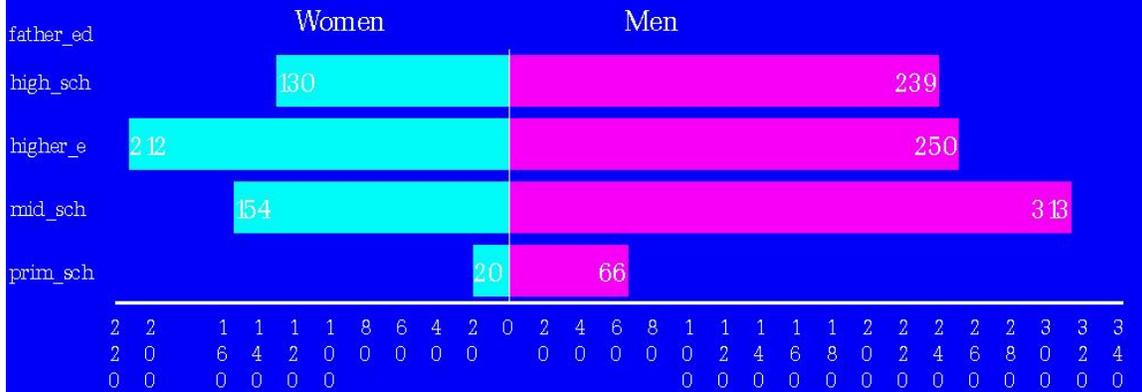
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## Figure 1 Student Distribution by Gender and Region



One female and five male students did not answer this item

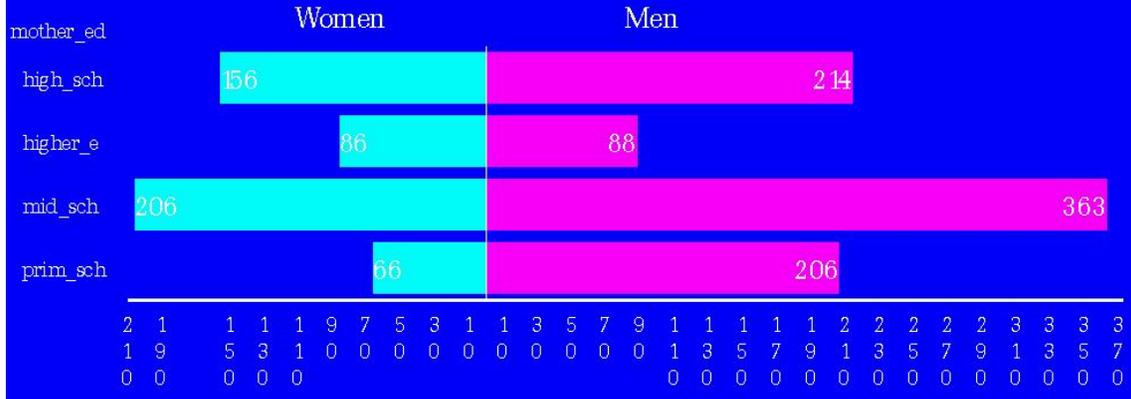
## Figure 2 Student Distribution by Gender and Father Education



Three female and eight male students did not answer this item

### Figure 3

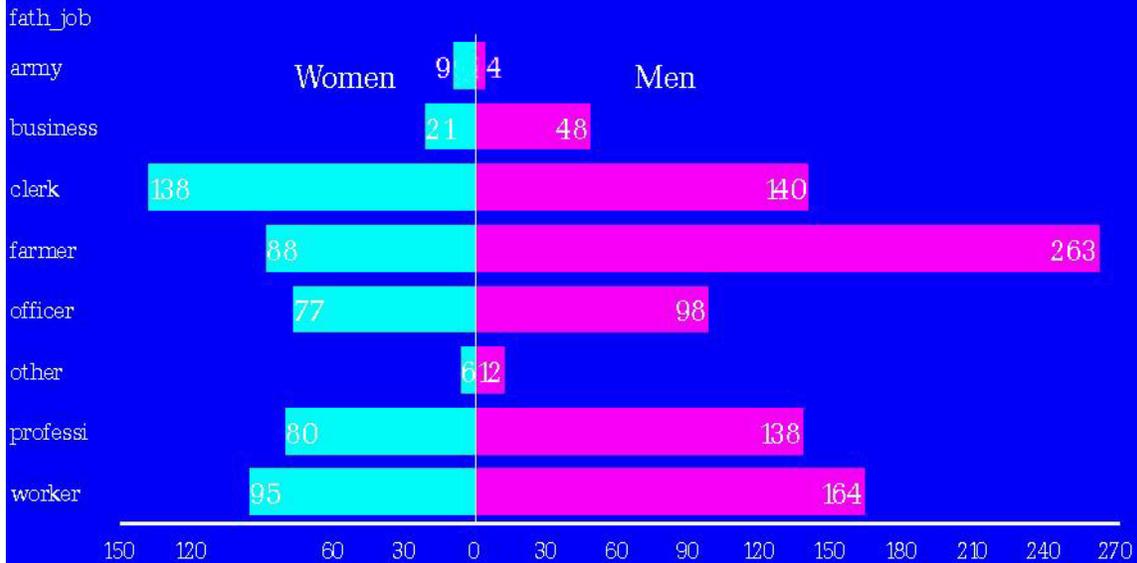
## Student Distribution by Gender and Mother Education



Five female and five male students did not answer this item

### Figure 4

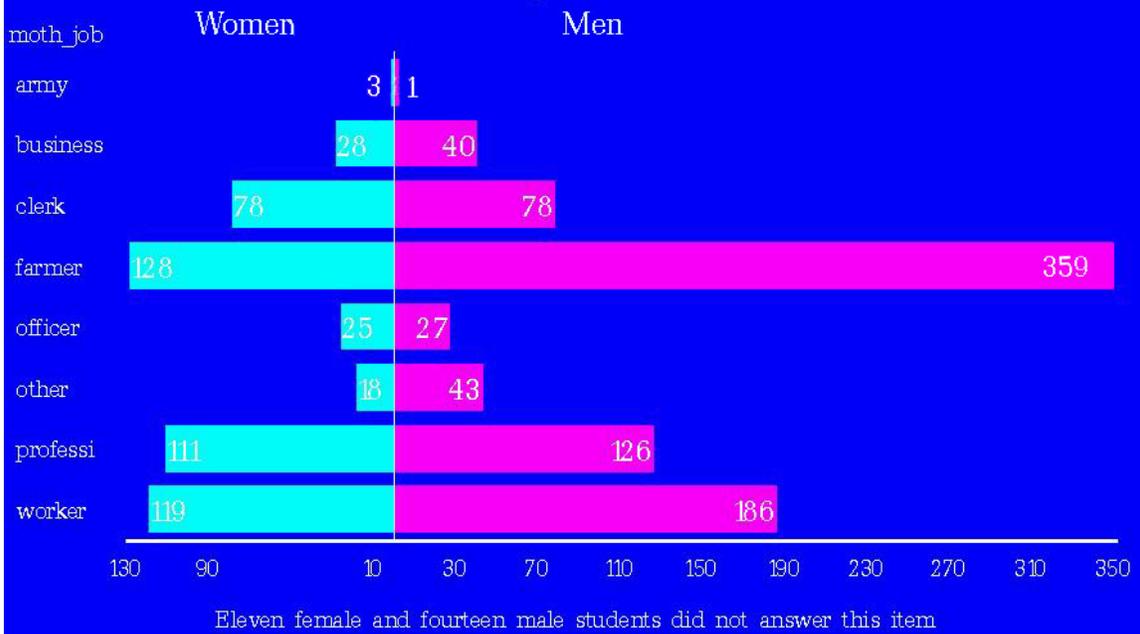
## Student Distribution by Gender and Father Job



Five female and nine male students did not answer this item

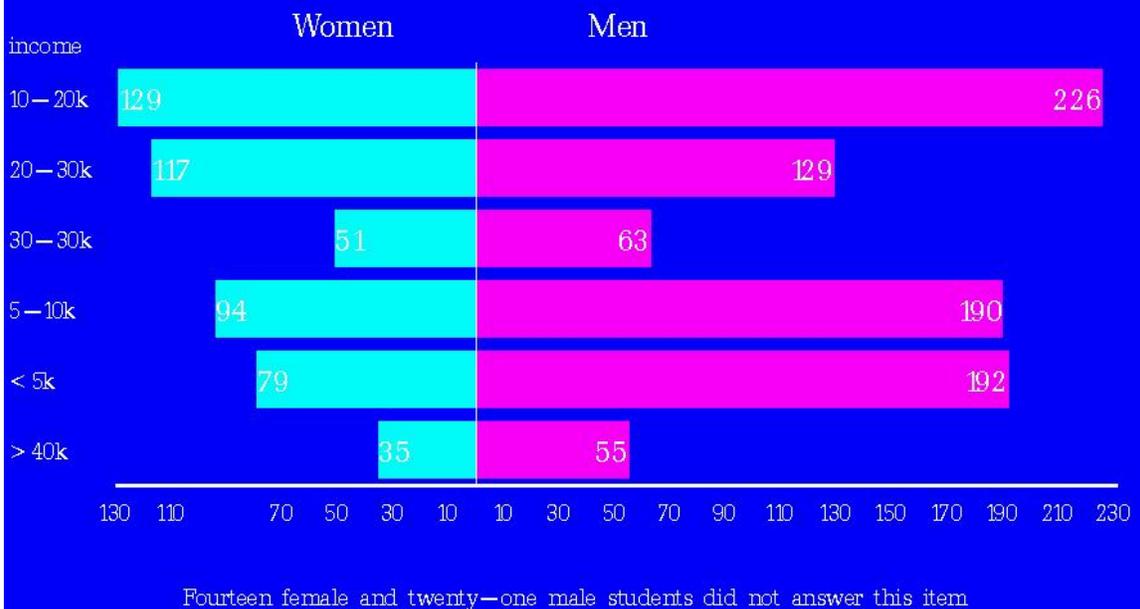
### Figure 5

## Student Distribution by Gender and Mother Job

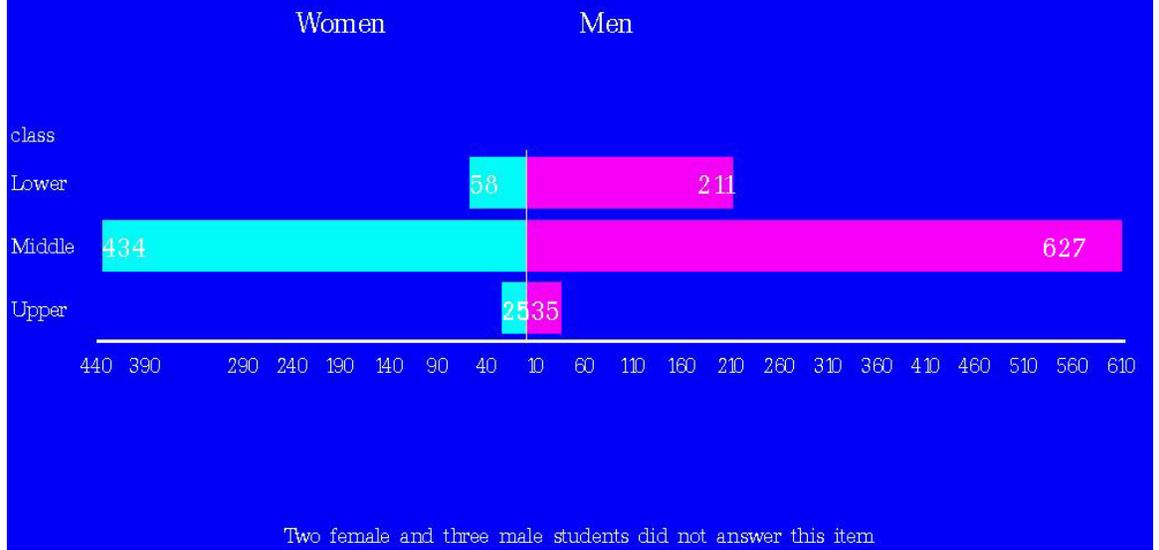


### Figure 6

## Student Distribution by Gender and Family Income



**Figure 7**  
**Student Distribution by Gender and Socioeconomic Status**



**Figure 8**  
**Student Distribution by Gender and Family Leader**



**Figure 9**  
**Student Distribution by Gender and Internal Dialogue**

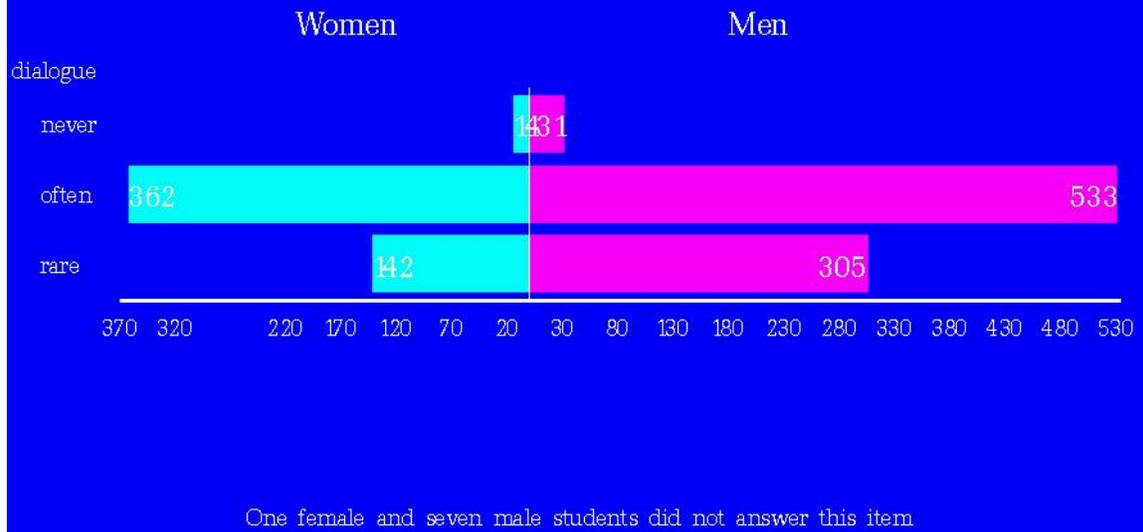


Table 1

Percentage gap of college access between male and female students

Community	Metropolitan/Capital	Middle/Small City	Small Town	Rural Village
Gap in %	6.42	18.60	21.36	48.20