

## **Year 2 Annual Report for the Gansu Poverty and Education Project**

Submitted by Emily Hannum, October 2, 2001

### **I. Project Overview**

#### **A. Focus of research**

The Gansu Poverty and Education Project is a mixed-method, multi-level study designed to analyze the following issues:

- boys' and girls' development and schooling experiences (broadly defined) in a poor rural setting
- attitudes of children, families, and teachers about parenting and schooling
- the mechanisms (home, community, school) linking poverty and girls' and boys' education and development
- rural children's schooling experiences and social mobility

Larger goals are to inform the design of policies and interventions that will improve the quality of life for rural children and to attract the attention of a broader scholarly community to rural educational issues in China.

#### **B. Research Site**

The research site is an interior province of China characterized by high rates of illiteracy and prevalent poverty. Gansu is an appropriate research site for studying poverty-education linkages in rural settings because it is characterized both by high rates of poverty and by varying poverty conditions in flat, hilly and remote mountainous sites. Further, the barriers to schooling faced by families in Gansu are common to provinces and autonomous regions located in China's less-developed interior.

#### **C. Sample Design and Instrumentation**

Design of the survey component (the Gansu Survey of Children and Families, hereafter GSCF) was a collaborative effort involving researchers from University of Pennsylvania, Harvard University, University of Michigan, Northwest Normal University, the China and Gansu Education Ministries, the Chinese Academy of Sciences Institute of Psychology, and the China Statistics Bureau.

The sample design for the GSCF consisted of the following elements:

- a primary sample of 2000 children in 20 rural counties aged 9-12 in June 2000
- five linkable secondary samples of children's mothers, household heads, home-room teachers, school principals, and village leaders
- a census of primary school teachers and school principals in sampled villages

Instrumentation for the survey component of the project included detailed measurement of material resources and the human, social and cultural capital available to children, families, communities and schools. In addition, parent and teacher practices, attitudes and decision-making processes related to the education of children were directly measured. Measures of children's schooling experiences included external measures such as enrollment, attainment, grades, and tests of general skills and academic achievement. Subjective measures of educational experiences included mother's, child's and teacher's assessments of well-being, motivation, engagement, achievement, and behavioral problems.

The project also includes a qualitative interview sample of children, mothers, and teachers. The qualitative component of the Gansu Project, consisting of in-depth interviews, was tested in August 2001 and will be implemented in November 2001. The in-depth interviews will follow the lines of inquiry developed for the survey, in order to probe particular findings from analyses of survey data. Results will be incorporated into manuscripts that utilize the survey data. The in-depth interviews were delayed from August to November in order to provide an opportunity for testing procedures prior to collecting the full data and time for more of the researchers on the project to complete analyses of survey data.

### **II. Progress Report**

#### **A. August-December 2000**

Data entry, linking, and management proceeded through this period. Doctoral students Phil Brown (Michigan) and Liu Xiaodong (Harvard) and graduate students Chen Bohua and Yang Hong (both at Northwest Normal University) served as liaisons in Lanzhou, working with the Statistics Bureau on data

entry. Subsequently, Phil Brown and Xiaodong Liu worked through the fall on data linking, data cleaning, and variable construction.

The research team developed a proposal to the National Institutes of Health to pilot new measures of physical health and psycho-social welfare for follow-up waves. The proposal responded to an RFP by the Fogarty International Center (“International Studies in Health and International Development,” <http://www.nih.gov/fic/programs/econ.html>) for research linking health and economic development. In the coming waves of the survey, these modules will allow investigation of relationships between education, health, and socio-economic status of youth across the early life course.

Emily Hannum and Albert Park developed a proposal to Ford Foundation in Beijing to provide supplemental funding for an education research workshop for the Gansu Poverty and Education Project in Cambridge (hereafter the Gansu Workshop). Together with Spencer funding for two researchers’ international airfares, support from Ford Foundation-Beijing would enable participation in the workshop by Northwest Normal University Professors Wang Jiayi and Xu Jieying and graduate students Chen Bo Hua and Yang Hong, Deputy Director Zhou Mansheng at the National Institute for Education Development Research at the Ministry of Education, Directors Tang and Dong from the Gansu Statistics Bureau, and investigator Yanhong Zhang at UNESCO.

#### B. January-July 2001

Faculty and students completed a first round of papers based on the data (see titles in section III).

Emily Hannum made a trip to Beijing and met Dr. Jianxin Zhang at the Chinese Academy of Sciences Institute of Psychology to discuss collaborations on the psycho-social modules of the follow-up wave.

Emily Hannum and Albert Park prepared a proposal to the Harvard University Asia Center for a conference, “The Harvard Conference on Chinese Education Reform,” to be held in conjunction with the Gansu Workshop.

The education reform conference, July 14-15, brought together Gansu Project participants as well as China scholars in education, sociology, economics, and psychology. Presentations were also made by Deputy Director Zhou Mansheng from the National Institute for Education Development Research at the Ministry of Education and by the vice president of Tsinghua University. This conference provided an opportunity for discussion of analyses using the GSCF data, as well as other issues.

The Gansu Workshop, July 16-17, served as a forum for discussing the following topics: 1) lessons learned from the data collection and data entry procedures in wave 1; 2) strategies for future waves, including how to get political permission for the data collection; and 3) research in progress by faculty and students. Paper presenters also received feedback on their work from Deputy Director Zhou.

Albert Park and Emily Hannum submitted a prospectus for an edited volume based on the presentations at the education reform conference to the Harvard University Press Modern Asia Series. The book will contain several chapters about rural poverty issues related to Gansu Project themes, and one chapter based directly on GSCF data.

#### C. August-December 2001

Faculty and students are revising a set of papers for submission to journals by the end of fall semester. All are beginning work on additional manuscripts, including book manuscripts (see titles in section III).

In August, the research team put together a preliminary list of in-depth interview protocols. Xiaodong Liu traveled to Gansu to pretest these protocols. Pretest interviews were transcribed and are being analyzed.

International relations permitting, Emily Hannum, Albert Park, and Yanhong Zhang and Harvard Graduate School of Education doctoral student Peggy Kong will travel to Gansu in late November to collect in-depth interview transcripts that complement the survey data.

### III. **Products**

*Article-Length Manuscripts, Completed Drafts:*

Brown, Phil. (2001) Disentangling the Relationship between Parent Education and Child Learning in Rural China. (Paper presented at the Education Research Workshop for the Gansu Poverty and Education Project, Cambridge, July).

- Hannum, Emily and Albert Park. (2001) Families, Teachers and Children's Educational Engagement in Rural Gansu, China. (Paper presented at the Harvard Conference on Chinese Education Reform, Cambridge, July).
- Li Wen, Wang Sangui and Albert Park. (2001) Equity in School Finance in Rural Gansu. (Paper presented at the Education Research Workshop for the Gansu Poverty and Education Project, Cambridge, July, in Chinese).
- Liu Xiaodong. (2001) The Effects of Parental Warmth and Punishment on Children's Internalizing Behaviors: an Empirical Study in Rural China. (Paper presented at the Harvard Graduate School of Education Student Research Conference, Cambridge, February, and the Education Research Workshop for the Gansu Poverty and Education Project, Cambridge, July).
- Park, Albert and Emily Hannum. (2001) Teacher Influences on Child Learning in Developing Countries: Evidence from Rural China. (Paper presented at the Social Science Research Council Conference, "Rethinking Social Science Research on the Developing World in the 21<sup>st</sup> Century," Utah, June, and at the Harvard Conference on Chinese Education Reform, Cambridge, July).
- Zhang Yanhong. (2001) School Effects on Student Academic Performance in Rural Gansu. (Paper presented at the Education Research Workshop for the Gansu Poverty and Education Project, Cambridge, July).
- Article-Length Manuscripts, In Progress:*
- Adams, Jennifer. (2002) Local School Financing in Gansu, China: The Determinants of School Financing Decisions. (Paper proposal for the Comparative International Education Society Meetings, Orlando, March 2002).
- Hannum, Emily and Peggy Kong. (2002) Gender and Educational Aspirations in Rural Northwest China. (In progress, accepted for presentation at the American Association of Asian Studies, Washington DC, March, 2002).
- Liu Xiaodong and Emily Hannum. (2001) Spare the Rod and Spoil the Child? Parenting Practices and Children's Behavioral Problems in Rural Northwest China. (Manuscript).
- Book Manuscripts in Progress*
- Hannum, Emily. Poverty and Children's Schooling in Rural Northwest China. (Manuscript in progress, based on Gansu Project data).
- Part, Albert and Emily Hannum [eds.]. Education Reform in China. (Manuscript in progress, based on the Harvard Conference on Chinese Education Reform. A segment of the book will highlight issues of education and rural poverty; a chapter will feature Gansu Project data).
- Wang Jiayi. A Survey of Rural Education in Gansu. (Manuscript in progress, based on Gansu Project data, in Chinese).
- Dissertations and Qualifying Papers*
- Adams, Jennifer. Local Autonomy, School Finance, and Community Involvement in Schools in Rural Gansu, China. (Working title.) Dissertation, Administration, Planning and Social Policy, Harvard Graduate School of Education. (Proposal in progress).
- Brown, Phil. Investing in Children's Human Capital: Time and Money in Rural China. Dissertation Second Paper, Department of Economics, University of Michigan. (Dissertation in progress).
- Kong, Peggy. Gender, Socio-economic Status, and Parental Investments in Children's Schooling in Rural Gansu, China. Qualifying Paper, Administration, Planning and Social Policy, Harvard Graduate School of Education. (Proposal in progress).
- Liu Xiaodong. The Effects of Parental Warmth and Punishment on Children's Internalizing Behaviors: an Empirical Study in Rural China. Qualifying Paper, Human Development and Psychology, Harvard Graduate School of Education. (Qualifying paper submitted).
- Liu Xiaodong. Parenting Practices, School Environment, and Children's Adjustment in Rural Northwest China. Dissertation, Human Development and Psychology, Harvard Graduate School of Education. (Proposal in progress).

### *Grant Proposals*

- 1) “Chinese Participation in an Education Research Workshop for the Gansu Poverty and Education Project” (2001). Submitted by Emily Hannum, Albert Park and Wang Jiayi to the Ford-Foundation-Beijing. This proposal sought funding support for the expenses of eight Chinese investigators to participate in an Education Research Workshop for the Gansu Poverty and Education Project, held at Harvard University in Cambridge, Massachusetts for three days in early summer, 2001. The Education Research Workshop had the following goals: 1) to critically discuss preliminary research results, including data quality, measurement, methodology, and interpretation; 2) to discuss new ideas for further analysis of the survey data; 3) to discuss research plans and proposals for supplementary data collection and new waves of data collection in order to create a longitudinal dataset that follows the sample children as they grow up. The proposal also sought support for research activities for Professor Wang Jiayi and his graduate students in education at Northwest Normal University to prepare papers for the workshop. (\$25,000)
- 2) “Harvard Conference on Chinese Education Reform” (2001). Submitted by Emily Hannum and Albert Park to the Harvard University Asia Center. This proposal sought support for an international, interdisciplinary conference showcasing research related to critical reform issues. Session titles: priorities for basic education reform, teachers and school performance, student motivation and engagement, schooling in poor and minority areas, trends in education finance, higher education reform issues, education and social stratification, and education and the labor market. (\$20,000)
- 3) “Gansu Survey of Children and Families, Waves 2 and 3: Pilot.” (2001-2002). Submitted by Emily Hannum, Albert Park and Yanhong Zhang to the Fogarty International Center at National Institutes of Health. This proposal sought support to pilot new health-focused survey modules for follow-up waves to the GSCF. In follow-up waves, new modules will allow researchers to 1) examine the economic consequences of physical and psychosocial health, especially for future labor supply decisions and labor productivity; 2) evaluate the indirect effects of health on labor outcomes through its effect on education and learning; and 3) identify community, family, and individual factors that affect education, health and development. (\$100,000)

### *Conferences and Workshops*

“Workshop for the Gansu Poverty and Education Project” (Cambridge, July, 2001). (See the description of this workshop under proposal 1 in the preceding section).

“Conference on Chinese Education Reform” (Cambridge, July, 2001). (See the description of this conference under proposal 2 in the preceding section).

## **IV. Preliminary Findings**

Here, we summarize preliminary findings related to academic achievement, academic engagement, and gender disparities. A full report of key results, as well as papers and manuscripts, will be submitted with the final report.

### **A. Teachers and Academic Achievement**

Studies of the effects of teacher background and school investments on academic achievement have produced decidedly mixed results for both developed and developing countries, leading to considerable controversy. Capitalizing on unique aspects of the design of the GSCF project, China’s cohort system where teachers stay with students across multiple grades, and China’s unique system of monitoring teacher performance and assigning “quality rankings” to teachers, we are able to provide a new perspective on the question of teacher effects on student learning outcomes. Unlike the mixed results of many studies, we find that teacher differences matter. Further, to the extent that promoting achievement on curriculum-based tests is a goal of the education system, China’s system of teacher evaluations might serve as a useful example for other countries interested in monitoring and rewarding effective teaching. Key results include the following:

- Much of the variation in test scores (at least about one fourth) is likely due to teacher differences.
- For math scores, higher teacher quality rankings substantially increase test scores, but if teachers continue to teach students for multiple years, the increased teacher-student contact appears to substitute for teacher quality ranking, so that the quality effects diminish over time.

- For language scores, the effects do not appear to interact with years taught, but the average effect of the highest teacher rank is very substantial (nearly half of a standard deviation).
- Other teacher characteristics matter, too, in particular for math scores (including education, experience, wages, whether the teacher is a government employee, and whether the teacher is a native villager).
- In teaching math, less effective teachers tend to benefit relatively more from longer interaction with the same student cohort, suggesting that China's system of having teachers teach the same student cohort over multiple years may promote equity in education quality and be more appropriate when teachers are less qualified.
- The quality ranks contain a substantial amount of information about teacher effectiveness not contained in conventional measures such as teacher education and experience. This finding suggests that China may be a good setting for more in-depth studies of the evaluation and consequences of teaching quality.

#### B. Families, Schools and Academic Engagement

Educational research in developing countries often investigates school and family socio-economic influences on children's achievement and attainment. Less research has emphasized social and cultural resources that engage children in education. Because engagement influences subsequent attainment, the topic is particularly important in developing country settings where early school-leaving remains significant. Similarly, social and cultural resources loom large in settings where families and schools operate under extreme economic constraints over which they have little control.

We investigate four dimensions of engagement: aspirations, academic confidence, industriousness, and alienation. We consider the influence of conventional socio-economic controls and gender, as well as the social and cultural environment in the family and classroom. Results suggest that the degree of engagement is not simply a function of background characteristics, but can also be linked to social and cultural environmental factors at home and in the classroom. Together, our findings demonstrate significant mechanisms linking families and classrooms to the educational outcomes of children--mechanisms that might be obscured under conventional school and family effects research frameworks. Key results include the following:

- Echoing social disparities revealed in the many studies of children's enrollment and attainment in rural China, we find lower educational aspirations for girls. On a more positive note, we find that dimensions of engagement other than aspirations do not show large gender gaps, and where there are differences, girls are favored. The lack of a disadvantage for girls in confidence, industriousness, or alienation suggests the possibility that the difference in aspirations is linked to practical considerations, rather than to internalized norms about abilities.
- Also echoing results from studies of enrollment and attainment, we have documented a significantly lower degree of academic engagement, particularly in terms of lower aspirations and higher alienation, among children from disadvantaged socio-economic backgrounds.
- Among family social capital measures, we found little evidence that closure or community cohesion are relevant concepts in the rural Chinese context. This finding suggests that lack of community cohesion and closure, which figure prominently in US research on social capital, are not significant problems in the setting of rural villages. However, we found strong support for the notion that parent-child interactions support children's aspirations, confidence and industriousness.
- Among family cultural capital measures, we found no support for the notion that parental involvement in the schools is associated with children's engagement. However, we find strong support for the notion that the presence of books in the home, whether a dictionary or children's reading materials, support aspirations and confidence and detract from alienation. This result suggests that, unlike patterns that feature prominently in the US sociology of education literature, parents support children's learning less through interactions with schools and teachers and more through providing a stimulating home environment for learning.
- Finally, we find strong evidence that the environment in the classroom makes a difference for academic engagement. In our most conservative specification, interruptions in access to the classroom were associated with lowered aspirations, lower levels of industriousness, and higher levels of alienation; an environment where peers were engaged in disruptive activities was associated with reduced confidence and industriousness.

### C. Gender and the Family

The educational gender gap in poor rural settings in China has long captured the interest of policy makers and researchers. Explanations for the gap usually cite traditional attitudes about girls' and women's abilities and roles or different expected returns to the family for educating sons and daughters. Families could expect different returns because they anticipate old age support from sons more than daughters or because they perceive a gender gap in the earnings outcomes of schooling. Scholars have also suggested that girls' disadvantages diminish among wealthier families who do not need to consider future returns and for high-performing girls. Preliminary analyses of GSCF data suggest the importance of expected returns explanations for the gender gap. Key results include the following:

- The majority of mothers voice egalitarian attitudes toward male and female abilities. However, most report that families should rely on sons for old-age support and expect to receive financial support from their own sons.
- Expectations of support are significantly positively related to aspirations for girls, but not for boys, and mothers who expect support from daughters have higher aspirations for girls than mothers who expect support from sons.
- Further, half of mothers expect education to have a larger earnings effect for sons than daughters, and proponents of this perspective have significantly lower aspirations for girls.
- Finally, wealth and children's academic performance are associated with higher aspirations but not a reduced gender gap, perhaps because even wealthier families in rural Gansu remain poor and dependent on sons for old-age support.