

Teachers' Perceptions of Curriculum Reforms and Teacher Training Programs in Chinese Agricultural Schools

Xiaorong Shao

Research Associate

Agricultural and Extension Education Department

415 Agricultural Administration Building

The Pennsylvania State University

University Park, PA, 16802

E-mail: xzs100@psu.edu

Thomas Bruening

Associate Professor

Agricultural and Extension Education Department

335 Agricultural Administration Building

The Pennsylvania State University

University Park, PA, 16802

E-mail: Tbruening@psu.edu

Abstract

As Chinese agricultural schools have gradually transferred from ineffective academic institutions to vocational education, the need for renewing teachers' attitudes, knowledge, and skills to implement the curriculum innovations is evident. The purpose of this study was to describe teachers' perceptions toward teacher training and reforms of curriculum and instruction in agricultural schools in China. The population for the study was teachers in 12 agricultural schools. A systematic random sampling technique generated a sample of 398 teacher participants. The results revealed that teachers supported curriculum reforms and they were interested in trying new ideas in their teaching practice. They believed that high quality of teacher training and professional development programs would help them to carry out the reform initiatives in curriculum and instruction. They also thought that knowledge and skills of teachers, attitudes of teachers, and new facilities and equipment were important factors affecting the process of curriculum reforms in agricultural schools. Therefore, policy makers and administrators should seize this opportunity to develop effective teacher education programs and address the needs of teachers in the process.

Keywords: Chinese Agricultural Schools, Curriculum Reforms, Teacher Professional Development, Factors Affecting Curriculum Reforms

Introduction/Background

Since 1978, China has undergone a large transformation as its economic system has shifted from a centrally planned economy to a market-driven system. Agriculture as the basis of Chinese society is facing its greatest challenge to adjust and change its system to meet the needs of the market economy. In particular, agricultural education is playing an important role in preparing people for a new phase of rural development (Chen, 2000).

There were approximately 330 agricultural schools distributed among the provinces, autonomous regions, and municipalities throughout China. Typically, agricultural schools were residential schools that required students to pass standardized admission exams. Schools usually enrolled graduates from junior secondary schools and the academic programs taught for most students are residents. Their age ranges between 15 to 22 years old. The average enrollment for each school ranged from 1000-3000 students.

In the past, agricultural schools were academic institutions classified as secondary specialized schools. These schools taught a curriculum that was general in nature but the theory was quasi vocational. If these schools were compared to schools in the US, they would be considered residential community colleges. The mission of these schools was officially described to train intermediate-level specialists who were political and technical experts. Government policy indicated that students were required to master basic theory, to have specialized knowledge, and to develop practical technical skills. Graduates from these schools were graded as “middle-level specialists.” Students were usually trained theoretically and narrowly. Most subjects studied in the schools were academic and usually had little relevance to the students’ workplace and reality found in society.

Upon leaving school, graduates were often assigned jobs according to a centrally organized plan. Just like graduates from higher education institutions (or at least in theory)—every graduate would be assigned to a job position that could be characterized as “white collar” (Henze, 1984).

In recent years, significant changes have taken place to reflect the reforms and the development of the “socialist market economy.” Today, jobs for graduates are no longer guaranteed and the government can only hire approximately 30% of agricultural graduates (Chen, 2000). As a result, it has become increasingly difficult for agricultural graduates to find jobs in the public sector. Accordingly, graduates need to find their employment in the private sector or need to be self-employed. Students’ education became more purposive and selective, since it now must relate their training to employment opportunities in the labor market. Moreover, the feedback to schools has indicated that agricultural graduates have had difficulty finding jobs that reflect their educational knowledge and skills (Shao & Bruening, 2002).

In response to China’s continuous reforms in economic and agricultural systems, Chinese agricultural schools have taken actions to reform their existing educational programs and strengthen their vocational programs during the past ten years (Weng, 1998). In addition to modifying existing curricular by emphasizing practical training and job-related skills in the workplace, reform efforts have been strengthened by the information obtained from educational systems outside China. Competency-based education, modular teaching approach, and student-centered instruction have been tried in some schools since 1994. Competency-based education has been practiced in some industrial countries for many years and it has been seen as a means of providing well-

trained and productive workers for the workforce (Rockler, 1979).

Teachers have been identified as key players in the educational reform movement. Traditionally, agricultural teachers in China have not required to be certified in teaching, therefore most of them lacked systematic education in pedagogical knowledge and instructional methodology. In addition, most agricultural schools do not have a well-defined in-service training and professional development program for their teachers. All these challenges have aggravated changes agricultural schools would like to implement. If systematic professional development of teachers is not addressed it will retard the reform movement (Chen, 2000).

Literature Review

Significant curriculum change is more than just a curriculum matter; it extends into most other facets of schooling, including teaching, learning, administration, and the culture of the school. Major change demands the attention of community and the full range of school personnel (Reed, 2000).

In many places in the world, it is nearly universally accepted that the teacher is the most important player regarding changes within schools. School improvement efforts and educational reforms will only happen when teachers are identified as a key link in the reform process (Gordon & Yocke, 1999).

Teachers are the final decision makers in the policies they choose to implement and the educational leaders they choose to follow. Therefore teachers' knowledge and involvement are extremely important in determining what can or cannot be successfully implemented. As Reed (2000) indicated, teachers need to be intimately involved in the conceptualization and direction of school reforms. This means that a teacher in isolation, a norm in the

profession, must give way to a shared decision-making process. Teachers need to share what they know with leaders and policymakers. Teacher knowledge needs to be an integral part of the process. Fine and Raack (1994) noted:

When analyzing the failure of educational research and best practices in improving classroom instruction and student achievement, educators were often overlooked for an obvious reason. That is, most systems lacked an adequate teacher professional development program. An effective professional development system must be in place for teachers to translate research into classroom practice. When the systems fail, it is because they have not provided teachers with ongoing opportunities to study, reflect upon, and apply the research on teaching and learning. (¶ 1)

Time is another important factor affecting teachers' participation in the reform process. Cuban (1993) indicated that changes in classroom traditions (from teacher-centered to student-centered) impose a direct, unrelenting obligation upon the teacher to invest far more time and effort than is invested by teacher-centered colleagues. Erickson (2001) noticed that curriculum and instruction were critical points for educational change. This job cannot be effectively completed without providing quality time for professional dialogue, training of staff, and curriculum development. Teachers deserve quality-planning time to develop an effective curriculum framework that allows them to raise intellectual and academic standards.

Pierce (1981) revealed in his study that "support of administration" as one of three factors attributed to a teacher's attitude toward innovative practices. He found those who had administrative support were more

likely to adopt changes and innovations in their teaching.

Purposes and Objectives

The purpose of the study was to describe teachers' perceptions toward teacher training and curriculum reforms in Chinese agricultural schools. The study also attempted to identify the important factors contributing to curriculum reform. The objectives were to:

1. describe the demographics of teacher respondents;
2. describe teachers' perceptions regarding policies, management strategies, and resources in teacher training programs;
3. examine teachers' working conditions and their attitudes toward curriculum reform initiatives within competency-based education; and
4. identify the most important factors affecting the process of curriculum reform.

Methods and Procedures

The population for the study included teachers from 12 agricultural schools in China. These 12 schools had been involved in curriculum reform initiatives launched by the Food and Agriculture Organization of the United Nations and Ministry of Agriculture during the years 1994-2000. The total number of teachers obtained from the 12 participant schools was 1,299. A systematic random sampling technique was used to select teachers from each school. Every third teacher from the official teaching roster was selected, which yielded a sample size of 398 participants (Cochran, 1977).

A survey questionnaire was constructed for data collection. The questionnaire was developed based on an extensive literature review. In the questionnaire, two parts collected respondents' perceptions toward policy,

management, resources, and working conditions regarding curriculum reforms and teacher training programs. One section was devoted to rating factors contributing to curriculum reform and the last section gathered demographic information about the respondents. A five-point Likert scale was used to measure the respondents' perceptions: 1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree, and 0 = don't know.

The survey questionnaire was translated into Chinese and the translation was verified by Chinese professors both in the United States and China. The reliability was established through a pilot study in China. Twenty-seven teachers in Beijing Agricultural School participated in the pilot test. The reliability of Cronbach's coefficient alpha for the section on policy, management and resources regarding curriculum reforms was 0.72 while the section of teachers' perceptions toward working conditions and reform initiatives had an alpha of 0.81.

Three hundred ninety-eight survey questionnaires were sent to selected teachers through a contact person in each participant school. There were 350 surveys returned, which yielded a response rate of 88%.

Results/Findings

Demographic Information on Respondents

The majority of the respondents were male (61%) while the female respondents accounted for 39%. A substantial number of the respondents (70%) taught agricultural subjects, 29% taught academic subjects, and 1% taught both vocational and academic subjects.

The respondents' age ranged from 23 to 60 years old, 72% fell between 27 and 40 years old. Their work experience ranged from one to 38 years and a large number of teachers (82%) had worked between five to 20 years. Years of the respondents' teaching

experience were similar to years of their work experience. The majority of the teachers (80%) taught between three to 20 years.

A large number of respondents (83%) were bachelor degree holders and only 17% had other educational backgrounds. Eight percent of the teachers had a masters degree, another 8% received a college diploma (equal to an associate degree in the U.S.), and 2% were middle level diploma recipients.

Policies, Management, and Resources in Teaching Training

The examination of the perceptions toward policies, management, and resources in teaching training programs included 14 items in the instrument. Table 1 presents means and standard deviations for all 14 items.

Table 1

Descriptive Statistics Regarding Perceptions toward Policies, Management, and Resources in Teacher Training Programs

Policies/Management/Resources	<i>n</i>	<i>M</i>	<i>SD</i>
Teachers need high quality in-service training activities to keep updated in instructional methods.	341	3.56	.57
The current reforms emphasizing Competency-Based Education is in the right direction.	339	3.50	.54
Agricultural universities need to provide pre-service pedagogical training programs for agricultural teachers.	339	3.44	.66
Teachers need to play a greater role in curricula development.	341	3.40	.57
Teachers need to be better prepared to implement a new curriculum through ongoing training.	338	3.38	.66
In service teacher training programs need to address problems encountered in new curriculum implementation.	336	3.38	.60
Adequate financial support is the key to teacher training programs.	336	3.34	.64
My school rewards those who have tried new methods in their teaching.	310	3.09	.82
My school evaluates teaching reform on a regular basis.	326	3.09	.66
My school has a long-term plan for teacher professional development.	281	3.03	.84
My school provides adequate funds to train teachers to implement a new curriculum.	305	2.96	.90
My school allocates time for teachers to work on developing new curriculum.	284	2.75	.90
Training on Competency-Based Education organized by the Ministry of Agriculture in the past few years was very helpful.	258	2.62	.72
Current teacher professional development programs conducted at my school are adequate in enabling teachers to implement new curriculum in the classroom.	316	2.49	.80

Note. 1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree; 2.60 ≥ agree, 2.60 < disagree.

The mean values for 14 items ranged from 3.56 to 2.49. Data showed that respondents tended to agree with the first 13 items. Only one item received a mean value below 2.50.

The item “Teachers need high quality in-service training activities to keep updated in instructional methods” received the highest mean score ($M = 3.56$), followed by “The current reforms emphasizing competency-based education is in the right direction” with a mean value 3.50. The other eight items received means above 3.00, and these means ranged from 3.44 to 3.03. Four items received mean scores that fell between 2.96 to 2.49. The respondents tended to

disagree with the statement “Current teacher professional development programs conducted at my school are adequate in enabling teachers to implement new curriculum in the classroom” as it was rated the lowest mean ($M = 2.49$) among 14 items.

Working Conditions and Competency-Based Education

To identify teachers’ working conditions and their perceptions toward competency-based education, 21 items were presented in the instrument. Table 2 contains means and standard deviations regarding these 21 items.

Table 2

Perceptions toward Working Conditions and Competency-Based Education

Work Conditions/Competency-Based Education	<i>n</i>	<i>M</i>	<i>SD</i>
Competency-based education is an effective system for each school to adopt.	338	3.42	.61
I support curriculum reform.	339	3.35	.58
I believe training is a very powerful tool to prepare me for innovative teaching.	327	3.24	.64
I can use competency-based education if I am properly taught.	339	3.23	.59
I am not interested in new teaching methods.*	338	3.15	.69
I plan to try some new methods in my teaching next semester.	307	3.14	.56
There are very limited new teaching materials that I can use in my class.	338	3.08	.72
I have too much work at the present time.	334	3.06	.78
I understand the concept of competency-based education.	325	3.00	.53
I usually get instructional support from peers.	330	2.98	.59
I incorporated new ideas from competency-based education in my teaching.	299	2.98	.70
I feel my school would support me to introduce new ideas.	302	2.96	.69
I know how to develop a new curriculum.	316	2.90	.58
I don’t have autonomy in my teaching.*	329	2.88	.76
I am satisfied with my teaching performance.	327	2.81	.61
I don’t have time to try a new curriculum.*	330	2.81	.77
I have access to the Internet to obtain new materials for my teaching.	310	2.77	.82
I want to try something new in my teaching but don’t feel prepared to do so.	327	2.69	.74
I don’t know how to use competency-based education in my teaching practice.*	331	2.69	.75
I get extra salary for developing new curriculum materials.	248	2.58	.82
My teaching heavily depends on a textbook.	340	2.52	.79

Note. 1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree; $2.60 \geq$ agree, $2.60 <$ disagree. *Items reverse coded.

The mean values for all 21 items ranged from 3.42 to 2.52. The item “Competency-based education is an effective system for each school to adopt” received the highest mean value ($M = 3.42$), followed by “I support curriculum reform” with a mean value of 3.35. Another seven items received mean values above 3.00, and these means ranged from 3.24 to 3.00. The respondents tended to disagree with four reversed coded items: “I am not interested in new teaching methods” ($M = 3.15$), “I don’t have autonomy in my teaching” ($M = 2.88$), “I don’t have time to try a new curriculum” ($M = 2.81$), and “I don’t know how to use Competency-based education in my teaching practice” ($M = 2.69$). The respondents tended to slightly agree with the items “My teaching heavily

depends on a textbook” ($M = 2.52$) and “I get extra salary for developing new curriculum materials” ($M = 2.58$). These two items were rated as the lowest mean values among 21 items.

Important Factors in Curriculum Reforms

To identify the most important factors that contribute to curriculum reforms, 13 factors were included in the instrument. The respondents were asked to choose three factors they perceived as the most important factors that affect the process of curriculum reform. A multiple response table was used to determine the top factors among 13 factors (SPSS Inc. 1998). Table 3 shows the frequencies of each factor rated by the respondents.

Table 3

Frequencies Regarding 13 Factors Contributing to Curriculum Reforms

Factor	<i>f</i>	%
Knowledge and skills of teachers	266	77.6
New facilities and equipment	167	48.7
Attitudes of teachers	161	46.9
Autonomy of making needed decisions	91	26.5
Administrative support	82	23.9
High quality teaching materials	74	21.6
Students’ interest in new curriculum	74	21.6
Administrative incentive	73	21.3
Flexibility in teaching time assigned	38	11.1
Technical assistance	30	8.7
Time to prepare and teach new curriculum	25	7.3
Peer support	8	2.3
Community support	7	2.0

Note. $N = 343$. Percentages do not equal 100 because respondents were asked to select at least three factors.

The respondents rated the knowledge and skills of teachers (77.6%), new facilities and equipment (48.7%), and attitudes of teachers (46.9%) as the top three factors needed in curriculum reforms. Another five factors also received relatively high responses. They were: administrative support (23.9%), high quality teaching materials (21.6%), administrative incentives (21.3%), students' interest in new curriculum (21.6%), and autonomy of making needed decisions (26.5%).

The four factors thought to be less important by respondents were: flexibility in teaching time assigned (11.1%), technical assistance (8.7%), peer support (2.3%), and community support (2.0%).

Conclusions and Discussions

Demographics

The results indicated that most teachers surveyed were middle aged with more than ten years teaching experiences and most desired to update their knowledge and skills. These teachers represent the main force of agricultural education in the reform movement. They are experienced and capable of changes. They are also technically trained and should know how to work within the system to promote changes. Moreover, these teachers appear to be interested in change as they continue to participate in professional development activities. Therefore, policies should be devised to use their talents and experiences in reforming the agricultural educational system.

Policies and Resources

In the past, local agricultural schools had no opportunity to develop school policies. All policies were developed in the central government and were passed down to schools for implementation. In this study, the respondents indicated that policies, resources, and management strategies began

to form to strengthen teacher professional development programs and activities in agricultural schools. This is a major step forward for autonomy at local schools. However, teachers also thought that these policies and resources were not sufficient to address the problems and challenges that they face to complete the reform process. In addition, most respondents believed that teachers deserved high quality in-service training to keep updated and they need to play a larger role in curriculum development.

The respondents indicated that the adoption of competency-based education during past years was the correct approach. However, teachers perceived that current training and professional development opportunities were inadequate in helping them to implement new curriculum initiatives. They also supported the idea that agricultural universities should provide pre-service training for agricultural teachers.

This study found that teachers perceived that it is important for high quality and timely in-service training and professional development activities to sustain reform efforts. Therefore, policies, resources, and management strategies should be formulated to strengthen both the quality and quantity of teacher training and professional development programs.

Working Conditions and Competency-Based Education

In general, respondents perceived their working conditions related to reforms were unfavorable. Teachers indicated that they were overloaded by a heavy teaching load and beset with inadequate technical and administrative support. They also encountered obstacles due to insufficient equipment and funding. However, teachers expressed support regarding reform initiatives and they were positive about the

prospects of using competency-based education in agricultural schools.

Despite the inadequacy of administrative and technical support, teachers were willing to participate in the reform movement. The problems and difficulties teachers faced in their work did not seem to discourage them and they still believed the reform was important. Moreover, they perceived training was a very powerful tool to assist teachers for innovative teaching.

In fact, the results have challenged a traditional Chinese concept that teachers are not interested in reforms and they are unwilling to devote time to new curriculum development and teaching methods. It appears these teachers in this study would be interested in carrying out reform initiatives if they were properly taught and supported by administration and resources.

Important Factors in the Process of Curriculum Reform

The top three factors affecting curriculum reform process rated by the respondents were knowledge and skills of teachers, new facilities and equipment, and attitudes of teachers. These results again confirmed the findings from other similar studies that the knowledge, skills, and attitudes of teachers, resources, and administrative support were critical to the success of educational reforms (Cuban, 1993; Klein, 1991).

Implications and Recommendations

In this era of educational reforms, “teachers are being asked to assume new roles and adopt new practices that emphasize teaching for understanding” (Anstrom & Barrerra-Capistran, 1995, ¶ 1) and creativity rather than a routine driven by traditionally accepted practices. As teachers have been put in the forefront of the educational reform movement, teacher training and professional development activities have become an essential function to prepare teachers to implement curriculum and instructional innovations. In addition, teachers’ enthusiasm, willingness, and motivation found in this study can be an important contribution to the success of reform efforts. Thus, it is critical to devise new strategies and allocate resources to explore all possible opportunities to enhance reform efforts.

Administrators should seize this opportunity and move quickly forward to develop professional development opportunities, and at the same time, improve working conditions for teachers. Both administrative and technical support should be put in place for teachers to fulfill their potential to improve students’ learning through innovative curriculum and instruction.

It is strongly recommended that teachers be given the opportunities and support to attend professional development programs, which should increase their current knowledge base and enable them to successfully implement curriculum innovations. In addition, universities should begin pedagogy training for vocational agricultural teachers. Until teacher education in agriculture is a part of higher education, any reform efforts in teacher training would be merely a temporary solution.

References

- Anstrom, K., & Barrerra-Capistran, J. R. (1995). Redefining the role of the professional development. *Forum*, 18(3). Retrieved December 12, 2004 from <http://www.ncela.gwu.edu/pubs/forum/1803.htm>
- Chen, X. A. (2000). A few thoughts on the reform and development of agricultural schools. *Journal of Agricultural Vocational Education (in Chinese)*, 36(2), 4-6.
- Cochran, W. G. (1977). *Sampling Techniques*. New York: John Wiley and Sons, 72-88.
- Cuban, L. (1993). *How teachers taught: constancy and change in American classroom 1890-1990* (2nd ed.). New York: Teachers College Press.
- Erickson, H. L. (2001). *Stirring the head, heart and soul: Redefining curriculum and instruction* (2nd ed.). Corwin Press, Inc., USA.
- Fine, C., & Raack, L. (1994). Professional Development: Changing Times. *NCREL's Policy Briefs*. Retrieved January 12, 2004 from <http://www.ncrel.org/sdrs/areas/issu/s/envrnmnt/go/94-4over.htm>
- Gordon, H. R. D., & Yocke, R. (1999). Relationship between personality characteristics and observable teaching effectiveness of selected beginning career and technical education teachers. *Journal of Vocational and Technical Education*, 16(1). Retrieved November 18, 2002 from <http://scholar.lib.vt.edu/ejournals/JVTE/v16n1/>
- Henze, J. (1984). Developments in vocational education since 1976. *Comparative Education*, 20(1), 117-140.
- Klein, M. (1991). *The politics of curriculum decision-making: Issues in centralizing the curriculum*. Albany, NY: State University of New York Press.
- Pierce, A. J. (1981). *Should you be putting innovations into use in your industrial arts facilities?* Paper presented at the Annual Conference of the American Vocational Association, Atlanta, Georgia.
- Reed, C. J. (2000). *Teaching with power: Shared decision-making and classroom practice*. New York: Teachers College, Columbia University.
- Rockler, M. J. (1979). Competency and creativity-can we do both? *Curriculum Review*, 18, 366-37.
- Shao, X. R., & Bruening, T. B. (2002). Changing the curriculum and teaching methods to meet the evolving needs in Chinese agricultural schools. *Journal of Association of International and Extension Education*, 9(3), 69-76.
- SPSS Inc. (1998). *Survey research using SPSS*. SPSS Inc. 444, Training Department: North Michigan Avenue, Chicago, Illinois 60611.
- Weng, M. D. (1998). Reflection on the practice of Competency-Based Education in agricultural schools (in Chinese). *Journal of Instruction Research*, 8, 1998.