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# Synchronizing Rural Students' Cognition:An International Case Study about Rural Education Gap in China

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**Abstract**
This primary qualitative study examines the impacts of curricular and non-curricular social learning experiences on rural middle and high school students in China, regarding their cognition about the world, themselves, and their missions. Through eight-week focus field interviews including students in rural schools and the ones studying in urban schools but had rural school experience, this study provides unusual insight to Chinese rural education from learner's perspective in a comparison model, which has rarely been done. The differences found about rural students' cognition suggest that "distance" to their learning "models", and limited access to learning recourses are the major issues with theoretical interpretations. Consistent visiting teaching programs from city and new information technologies are effective tools to help synchronizing the cognition of rural students in the current social context. This study involves further examination of the major learning theories: Social Learning Theory and Social Cognitive Theory.
**Keywords**: Social learning, cognitive learning behavior, student's cognition, rural education

## 1.Introduction

There have been increased concerns and media coverage regarding China's rural education challenges that were triggered by the nationwide debates about current migrant education - an extension of the subject of rural education. The watchers of public affairs and education keep asking: What's wrong in Chinese rural education system in the context of current rapid economic growth? What are the key issues in the field, and what are the most effective ways to solve the problems in the rural system. Besides the intensive media coverage and governmental policy discussions, social and educational scholars began to ask more in-depth and fundamental questions.

Unlike previous studies conducted mostly from a policymaker or an administrative standpoint, this study aims to answer the questions from a rationale and theoretical perspective with a focus on the learning process. Learners' cognition about the world, themselves, and their behaviors regarding their future mission are examined with a qualitative methodology by the study. The causes of the gaps and the possible solutions are discussed, and some fundamental learning theories such as Social Learning Theory, Social Cognitive Theory and Bloom's Taxonomy of Cognitive Levels are involved to interpret the findings and explain conclusions. This study brings a broader global vision to rural education research through a contemporary international case, and provides valuable qualitative data from the targeted educatee group that is typically hard to gain without special access. The research contributes meaningful non-experiment and "from-the-field" verification and supplement to some fundamental learning theories.

## 2. Literature Review

A review of the relevant studies about China's rural education history and current situation as well as related learning theories will be given here to help interpret the data from this study. The review will be divided into three sections: 1) Background about China's rural education; 2) Education of Migrant Children; 3) Theoretical perspectives and model that have been relevant to the analysis of this study.

### 2.1 Background about China's Rural Education

Since the 1980s, the Chinese government has been establishing a policy of nine-year compulsory education across China, in which all children are required to complete primary education and junior secondary

 

education. However, rural education is a major problem in China, where fewer and fewer rural children attend college, or even high school. This is due to high costs, distance, and lack of value in education.

2.2 Education of Migrant Children

China's population of 1.307 billion has a 43% rate of urbanization (Guo, 2009). Despite significant economic development, income gaps have been increasing. The education of migrant families' children is a critical social problem due to the fast growth of China's migrant population. Migrant parents either choose to take their children with them or leave them behind.

According to Guo, in 2005, left-behind children were estimated to number at 22.9 million. These children typically live with their grandparents, who often have low levels of education. They can take care of the children's personal safety and daily living, but not their educational, behavioral or spiritual needs. Thus, the children's education and socialization are jeopardized. At the same time, other families take their children with them. According to the China 2000 census, there were about 14 million migrants below 14 years and over 8 million were between 6-14 years, in their compulsory education period.

As the kids of a special working force, the migration workers, China's many migrant children, however, have limited educational opportunities due to the Hukou system, which prevents temporary migrants from attending schools in areas where they aren't registered in the school district. According to Liang and Chen (2004), migrant students' lack of Hukou status negatively impacts these children's schooling. Cities that do allow temporary migrant students to attend require special fees that migrant families cannot easily afford. Exclusion of migrant children occurs because Chinese city schools can only admit students who reside within and are registered in the local school district. These regulations exist because urban authorities allocate education resources based on the number of registered children of permanent residents within their jurisdiction (Shi, 2002). If temporary migrant children were allowed to attend local schools, the schools' financial burden would increase. Although there are schools that specifically cater to migrant children, they often suffer from poor infrastructure, and are sometimes illegal and prone to shut down by the government. Lack of time and support from family is another factor in migrant education problems. However, more research still needs to be done on migrant education due to lack of systematic data and the difficulty of locating study subjects (Liang, Guo, and Duan, 2008).

The Chinese government's migrant children education policy transformation suggested a change from an exclusive to inclusive perspective in migrant child education. With government policies (Compulsory Education Law, the 1998 Measure, and the 2003 Notice), city authorities must provide equal treatment for migrant kids in terms of academic standards and financial accommodation (Guo, 2009). However, the complex procedure and documents necessary to receive these benefits add a new difficulty for migrant families. Currently, there are still somewhere between 30,000 to 50,000 children attending migrant schools.

It is crucial to find the impact access to education has on such a large portion of the Chinese population. According to Zhou and Zhu (2006), UNESCO-IBE's analysis of 108 countries' national curriculums suggests that "while basic skills retain a strong place in national curriculum objectives, increased prominence is being given to values associated with citizenship and democracy, as well as to education as a human right and education for sustainable development" (UNESCO, 2005). Zhou and Zhu also state that access to relevant education ensures that children also learn good citizenship, human rights, and other social and cultural values, which are important in an increasingly global living environment. China's curriculum goals reflect a global shift in focus from utilitarian education to well-rounded education. For the world's largest school system, it is critical that such an ambitious goal is given decisive attention and action from the national government to ensure that this public good is protected as a human right and made available to all of its citizens though policy and curriculum reforms. One recent reform is the shift towards Learner-Centered Curriculum, in which school curriculums respond to suit students' diverse and changing needs. This inclusive elasticity ensures that all students receive a good education, not just a select few.

Guo (2009) echoes the need for involvement from the national government, since solving the major issue of Migrant child education is simply beyond local governments' financing and administrative ability.

2.3 Relevant Theoretical Perspectives and Models

A few theories and models have been relevant with the issues discussed in this study.

2.3.1 Social learning theory

Social learning theory, which can be considered a bridge between behaviorism and cognitive learning theories (Ormrod, 1999), regards learning in a social context, in which people learn from one another through observation, imitation, and modeling. People learn through observing the way others behave, and the results of these behaviors. Learning through such observation, however, doesn't necessarily change a person's behavior.

According to contemporary social learning theory, reinforcement indirectly influences the extent to which a learned behavior is performed. The expectation of reinforcement also influences the attention a person gives to

 

learn a behavior. Reinforcement (reward or punishment) for modeled behavior can from the model, from a third person, from the consequences of the behavior, or from vicarious reinforcement (in which the person observes the model receiving reinforcement for the behavior, in turn affecting the observer's behavior).

Modeling is done either through live models (actual people), Verbal Instruction models (description of behavior), or symbolic models (character or actions in another medium), and can teach behaviors such as aggression and moral judgments. There are four conditions necessary for learning through modeling: Attention to the model, Retention of the observed behavior, Motor Reproduction (ability to replicate the behavior), and Motivation to perform the behavior (Ormrod, 1999).

A key aspect of this study will be the unique settings of the studies. A common criticism of the social learning approach is that it relies heavily on research conducted in artificial laboratory settings. While this does facilitate isolation of the effects of different variables, such settings may also influence subject behavior in ways that result in inaccurate conclusions. For example, subjects in an artificial setting may deliberately produce behavior that they believe the experimenters are looking for. This study utilizes a natural setting, specifically a rural village, which calls for an analysis of the effects of natural settings on research and findings.

Social Development Theory, as a compliment to Bandura's Social Learning theory, maintains that social interaction greatly affects cognitive development (Vygotsky, 1978). One aspect of this theory is that full cognitive development requires social interaction, which allows for greater development than what can be achieved in isolation.

2.3.2 Social Cognitive Theory

Social Cognitive Theory considers learning as "an internal mental process that may or may not be reflected in immediate behavioral change" (Bandura, 1986). It assumes that learning is goal directed, and that individuals "function as contributors to their own motivation, behavior, and development within a network of reciprocally interacting influences" (Bandura, 1999, p. 169). It relies on three interrelated variables: Behavioral factors, environmental factors, and personal factors. In particular, this study utilizes the person-environment relationship as a tool of analysis. In a person-environment interaction, beliefs, ideas, and other cognitive processes are shaped by external factors ranging from other people's attitudes to the physical aspects of the environment. According to Redmond (2010), Social Cognitive Theory consists of four goal realization processes: self-observation, self-evaluation, self-reaction and self-efficacy.

Bandura (1995) explains that self-efficacy "refers to beliefs in one's capabilities to organize and execute the courses of action required to manage prospective situations" (p. 2). In other words, self-efficacy is what a person thinks they can accomplish in a particular situation. The basic principle is that a greater sense of self-efficacy for a particular activity leads to a higher chance of engaging in this activity than another activity with lower self-efficacy (Van der Bijl & Shortridge-Baggett, 2002).

2.3.3 Bloom's Model

According to Benjamin Bloom (1956), there are three types of learning: cognitive (mental), affective (emotional), and psychomotor (manual). Cognitive learning is "demonstrated by knowledge recall and the intellectual skills: comprehending information, choosing among alternatives in problem-solving, and evaluating ideas or actions" (Bloom, 1956). Bloom identifies 6 levels in the area of cognition: knowledge (recall information), comprehension (interpret information), application (use information in a new situation), analysis (separate information into component parts, distinguish between fact and inference), synthesis (put parts together into a new form), and evaluation (judge the value of an idea). According to Anderson & Krathwohl (2001), affective learning involves behaviors suggesting awareness, interest, attention, concern, responsibility, ability to listen and respond, and other attitudes. They explain that affective learning is composed of receiving phenomena (awareness), responding to phenomena (participation), valuing (attaching worth), organization (prioritizing), and internalizing values (characterized value system). Simpson (1972) states that psychomotor learning involve physical skills, such as coordination, dexterity, manipulation, grace, strength, speed, fine motor skills (precision), gross motor skills (use of the whole body). They are made of perception (ability to use sensory cues to guide motor activity), set (readiness to act), guided response (imitation, trial and error), mechanism (learned responses become habitual), complex overt response (skillful performance), adaptation (modification of skills to fit different situations), and origination (creation of new patterns for novel situations).

## 3. Research Design

This study attempted to collect rich data about the attempted to analyze the cognitive structure of rural students in current social-economic context by utilizing an extended "focused interview" technique. This approach uses face-to-face and one-to-one interviews to obtain in-depth information about the subjects (Merton, 1990), with in-depth add-on components. There are two reasons for this approach: 1) ensure the accuracy of the answers. It is

 

hard to get accurate/meaningful answers form children at this age and their answers are sometimes unexpected derived from the expected direction therefore not answering the questions. Interviewers need to try different follow-up questions to dig out the information; 2) this study attempts to find out children's cognitive state and these extended and open-ended questioning helps to get out depth information on some complicated issues from the children interviewed. It allows interviewers to build up rapport and earn the trust of the interviewees therefore the information derived from the focused interviews may therefore provide insights about their experience and feelings that hard to obtainable otherwise (Dominick, 1997).

Three research questions were proposed in this study: 1) Is there any difference between rural education and urban education in terms of the educatees' knowledge about the world, self-recognition, and goal-sets? 2) What causes and sets the difference, if any? 3) How can the gap be filled up at the rural education end and the urban end in the Chinese migrant education context? To answer these three research questions specifically, a questionnaire consists of 22 major questions that come up few sub-questions for each had been developed in June, 2012.

3.1 Questionnaire design and testing

Questionnaires are the most widely used data collection methods in educational and evaluation research. Systematic development of questionnaires with follow-up testing is a must to reduce many measurement errors and will enhance data quality and utilization of research (Radhakrishna, 2007).

To design the questionnaire, this study took certain steps including research background, questionnaire conceptualization to establish validity and reliability. First, a preliminary study was conducted, in which some key concepts were generated. In particular, view of the world and view of self are critical concepts to evaluate cognition of rural students, therefore, a cluster questions about knowledge of Geography at local, national, and international levels and knowledge historical/contemporary figure and events, were formed; similarly, for view of self, questions about intelligence and capacity as well as educational goal and career orientation were embedded into another cluster of questions.

To ensure reliability and validity, steps had been taken to design a questionnaire and conduct quality interviews to allow for minimal bias: 1) development of the questionnaire with carefully-crafted conceptualization of the content through relevant studies and expert feedback. 2) the content was then tested in a pilot and transformed into final questions. This took a few months but very essential to minimize measurement error; 3) an interview protocol was developed to guide the interviews. The protocol was in both English and Chinese to better facilitate the implementation of the field interviews; 4) all data collectors were properly trained with effective interview techniques to provide the detailed and quality data from respondents and they were also trained to follow the set criteria and guidelines to ensure reliability; 5) special ID numbers were assigned to each questionnaire copy to minimize measurement error.

A pilot was conducted with 8 qualified respondents in one migration schools in Guangzhou in May 2012. Several issues with vagueness and confusion caused by translation from English were brought to attention. The feedback and response were then analyzed by researchers and revised with both languages. The questionnaire was translated into Chinese for field interview convenience.

3.2 Access to respondents

Access to the targeted population was a critical element of this design. It was extremely difficult for international interviewers to get access to the targeted Chinese student interviewees because of the regulation issue for international researchers with topics involving minors. However, by embedding our research into the rural teaching project organized by local Chinese college students and their organization, the planned data collections were conducted successfully.

Accessing children in research is always a challenge everywhere. Reaching Chinese students as foreign researchers is still a sensitive request. In order to obtain access to the targeted population, this study has been bundled with a Chinese college volunteer group whom has access to schools of 2 different locations in ZunYi, GuiYang province, Southwestern China. With their local connections, the parent consent was well-taken care of since they had built a trust over the years with their own work and had done some health related study with the schools there.

3.3 Population and Sampling

This study selected participants from elementary and middle schools in ZunYi county, GuaiZhou Province and three big metro cities with a large migrant workforce. There are 450 K-12 schools in the county including 78,080 students in 304 elementary schools . GuaiZhou has over 370,000 migrant workers, which are about a quarter of its total population. Its individual average income is YMB 5,400 a year, among one of the less-developed provinces with large outbound population of migrate workers and families with left-behind children or migrate children who temporarily lived in the big cities with their parents.

 

A total of 50 respondents were included in final analysis. Students of the same grade have been interviewed in both a rural school in Province Guizhou in China and migrant urban schools in Nanjing, Shenzhen and Guangzhou between late-June and mid-August, 2012. Among these 100 students, 50 of them are from rural schools and 50 are rural kids who are living and attending schools in the cities. All of them were born in the rural areas and at least attended over two years of rural schools. Rural participants were chosen from 3 rural schools while migrant children were chosen from 5 urban schools in three major big cities, Guangzhou & Shenzhen, Guandong Province and Nanjing, JiangSu Province with large inbound migrant workers.

3.4 Interview Setting

A key aspect of this study will be the unique settings of the studies. A common criticism of the social learning approach is that it relies heavily on research conducted in artificial laboratory settings (Teddlie, Reynolds, & Sammons, 2000). While this does facilitate isolation of the effects of different variables, such settings may also influence subject behavior in ways that result in inaccurate conclusions. For example, subjects in an artificial setting may deliberately produce behavior that they believe the experimenters are looking for. This study utilizes a natural setting, specifically a rural village, which calls for an analysis of the effects of natural settings on research and findings.

Interviews of this study were conducted in the rural areas or the cities they live currently in order to provide the most natural environment and settings for this study. It was proved that such interviews with young kids in an isolated environment such as a lab setting would result in some inaccurate answers due to the pressure on the respondents to make researchers happy.

3.5 Data Collection

Intensive field interviews with Chinese rural elementary and middle school students were the key mechanism for data collection. While most behavior studies tended to use quantitative approaches, this study utilizes in-depth quantitative approach to better interpret the collected data about cognitive state of the respondents

The in-depth interviews the team has conducted encouraged responses to some important yet sensitive issues such as China's system and current problems as expected. Interviews also resulted in valuable information about "respondent opinions, values, motivations, recollections, experiences, and feelings" (Dominick, 1997), which can offer insight into the mindset of Chinese young children. It was proven that a qualitative research approach designed for this study collected more in-depth data that is extremely difficult to collect with the quantitative method.

3.6 Data Analysis

Two types of matrices were designed to analyze the data. One matrix sorted similar answers by quantity to generate themes and trends and provided a base for further qualitative analysis. Another extensive matrix categorized individual quotes in three ways: 1) extracting two to ten major points from the statements for each question including key words; 2) recording the frequency of each point; 3) logging and labeling significant quotations for easy identification when cited in the writing.

## 4. Findings

4.1 The Differences Exist, But Vary

The findings of the study suggested that the difference defined in the first research question occurred between the two selected student groups, in which one group consisted of students enrolled in three rural middle schools, and the other filled by urban middle or high school students from three selected major cities in China: Guangzhou, Shenzhen, and Nanjing, who had originally migrated from rural areas and had significant rural school experiences - though the difference found didn't equally reflect on all the three major aspects: knowledge about the world, self-cognition, and goal-sets. Based on the findings from the field interviews, the difference exists in the students' knowledge about the world; and the findings strongly implied that the difference was mostly caused by different "social learning environments", instead of regular school curriculums.

The data from one of the questions for the two group interviewees: "Tell me three locations that you want to visit most in the world, including those in China, if you had the chance", clearly indicated that rural students possess less knowledge and curiosity about the international locations. The data revealed that rural students' international location selections only have about 60% of the number of city migrant students' selections - 62 international locations versus 103 international locations - where both groups had three choices. Based on the open answers for "why" they wanted to pick up these international locations, the rural students demonstrated much less knowledge and much more uncertainty compared with the city migrant student group.

There were two major indications from the field data to back up this finding: 1) About 82.5% of rural students only selected the United States as their choice of international locations to visit, which demonstrated limited knowledge about the world compared with their counterpart group; and 2) almost the same percentage of the

 

students in the group gave the reason for their selections as "there are good food and fun places for me". Instead, the data from migrant student group showed a greater variety in international venue choices covering France, Greece, Germany, Mexico, Egypt, Finland, Australia, Japan, NASA, Apple headquarter, Wall Street, South Pole, Sahara Desert and etc., and most of them gave specific and much more rational reasons for their choices: "I like to visit Louvre Palace, since seeing those famous painting and arts has been my dream", "I like those historical sites in Greece and I love Aegean Sea", "I want to get the experience in the ruthless environment and see the original nature that has never been touched by human activities". Three students' explanations for why they chose the United States were similar: "since the country owns highest success in technology".

The same trend was exhibited by the data from another question to the both groups: "Tell me three people in the world that you would like to meet most if given the chance", in which only five rural interviewees picked international characters, and again their reasons were uncertain and unclear, whereas the city migrant students showed about five times the number of selections of the rural group.

The findings also suggested that the rural students had more interest and curiosity towards historical and classical characters, instead of contemporary figures. The data extracted from the same question mentioned previously about the people they like to meet indicated approximately three times (99 versus 35) more interest in historical perspectives in comparison with migrant students. Even in the international category, three of rural students picked Beethoven, whereas the migrant students illustrated much broader and more contemporary choices, in which Steve Jobs, John Cena, Obama, Kobe Bryant, Tiger Woods and aliens were their selections. One key phrase, "commercial success", appeared multiple times in data from migrant student interviews, but was not found in the data from the rural group. The same concept and key word was found from different questions and answers during the interviews with the city migrant student group.

The findings claimed that there was no significant difference to be found regarding self-cognition about their own basic intelligence or mental capacity between the two selected student groups. The students from both groups tended to make their self-assessments about their academic or non-academic intelligence in comparison with their own group of peers: "I think I am a smart one since I am always one of top students in our class room", "I am pretty much average in our class". The findings of study didn't support the assumption that the students from the two groups have difference on their self-confidence on the mental capacity through cross-group comparison; 29 students from the rural group answered "yes" to the question "Do you think you are a smart kid?", whereas 27 migrant students chose the same answers to the same question. However, there were differences found toward self-cognition between these two groups if some skill variables were added on. For example, one of open questions from the questionnaire asked: "If you are selected as a contestant for a local online game contest, do you want to go, and why?" The findings indicated a significant unconfident trend from the rural student group that showed only one fifth of students (eleven) in rural group picked "yes", while half of the students (29) from the city migrant group gave the same answer. The most frequent key words found in the rural group interview data on this topic were "access", "experiences", and "skills": "I didn't get a lot of chances online to try it"; and "I saw someone playing this, but I have not got access to play that yet"; "if I have computer at home I will choose to go".

It was suggested by the findings that there were goal-set differences between these two student groups in terms of education achievement and career orientation. Around 74% of city migrant student interviewees set college education as their educational goals, whereas only about 26% interviewees from rural group clearly indicated the same goal set. The most common reasons given by the migrant interviewees who picked high education as their goal focused on: "better life", "higher income", and "better personal future". In the meantime, the findings demonstrated significant differences on career orientation between these two interview groups, in which rural students tended to be 1) more uncertain – about 19.7% of interviewees answered "don't know", whereas around 4.9% migrant students chose the same answer; 2) more low-education career oriented - about 25.3% answers were given to the careers such as factory workers, cashiers, and etc., while only a little lower than 9.1% of migrant students selected the same orientation; 3) more traditional in career categories, in which teacher, scientist, doctor, musician and athlete were picked most in their answers.

A remarkable indication from the findings illustrated a significant trend from the city migrant student group about their career goals. Some emerging, untraditional and more urbanized career categories such as fitness consultant, white collar, entrepreneur, and volunteer project coordinator were mentioned and picked up by multiple interviewees as their choices, which were not covered by the rural group in any case. It was suggested that compared with their counterpart group, the city migrant students are more knowledgeable about what they want to do, and what is going on in the current mainstream job market that revealed roughly 37.9% of interviewees from this group specified the job titles they want to try such as mental therapist, family financial consultant, or customer experience engineer; and they had much more business and economic sense regarding

their career decisions. The data indicated about 4.5 times the selections from the migrant student group compared with the rural group to be given to entrepreneurship, business management, or professional service careers.

4.2 Social Learning Environment and Limited Accesses and Availabilities Were the Keys

The findings of the study claimed that the major reasons causing the differences in the cognition between the 2 student groups were:

1. Modeling availability – the findings indicated that the city migrant students took advantages in modeling availabilities. The data from a question - "Tell me 3 persons (adults) who are neither your family member, nor school teacher, but are highly educated and gave you a good impression in certain ways or you got the chance to talk with in the last 2 years", indicated that the city migrant students had greater chances than the rural students to reach a variety of well-educated people including doctors, engineers, Ph. D students, business managers, government officers, and etc. The data indicated 48 out of 50 migrant students provided at least two highly educated persons they got the chance to get in touch with. In contrast, only seven rural students gave even one such contact who was someone besides the student volunteers of the summer teaching program they were attending. About 81% of the rural student interviewees listed only the students they knew from the summer volunteer teaching program to all the three given options.

2. Access to resources – which involves both physical and non-physical, namely technological access to the learning resources. The findings revealed that the city migrant students had more than double the chance of rural students to visit either local public libraries or book stores within the last two years: 50 rural students confirmed 56 visits, while the same number of migrant students had 131 visits; and they got about three times as many chances to go to local theaters or stadiums as well. Responses included: "There is no public library or theater near to our village" and "We have to travel and stay overnight in a big city if we want to see a sport event…" The key word "distance" hereby was found to be the major hurdle preventing the rural young generation from accessing important learning resources when public resources and facilities are very limited in rural areas.

Limited technology access was another key barrier preventing these young kids from accessing learning resources. The findings displayed that about 45.5% student interviewees from rural group had no regular Internet access; more than 66.8% students from the same group had no email account; and 71.7% of them had no social media account, which represented approximately 4, 2, and 4.5 times the rates respectively in contrast to their counterpart group - city migrant students. The data also suggested that the city migrant students received more than double the influence from "symbolic models", like movies, books, TV, and online media, compared with their counterpart group in regards to their answers to the question: "Rank three from the five following sources that make impact to you on the knowledge about the outside world". In other words, the rural students were found to be more reliant on the traditional learning "models", their parents and teachers, to set up their cognition.

3. Access to social learning environment - this involved more complicated learning processes that included some key learning factors such as retention, reproduction, motivations, etc. The data showed that there was about four times the chance for migrant students to travel than rural students – nine rural students had travelled at least once within the last two years, while 41 migrant students reported the same experiences - and more than triple the chance of dining or partying in restaurants in the terms of the total times per year within last two years, which are considered important social learning experience and factors. The findings also exhibited that the rural students had less educated "live models" to imitate and received less meaningful "verbal instructions" to follow – data revealed 45 out of 50 city migrant students had at least one close contact who wasn't their teacher or family member but had at least college education background, in which only 7 out of 50 rural students had identical knowledgeable contacts.

4.3 Live Modeling and New Technology Reinforcements are Crucial

The findings of the study suggested that the learning environment, access to the new information technologies, and access to knowledgeable people are the three most important factors that need to be improved for these young learners' cognitions in Chinese rural education context. From the answers to a question for the city migrant students – "What do you think is most attractive to you about the urban schools attended, and rank them in an order of priority", the interviewees gave priority ranking to 1. "City life and environment" (43 out of 50), 2. "computer lab/network access" (39 out of 50), and then 3. "access to knowledgeable persons" (35 out of 50), in the case there were three other choices: "better school library", "better curriculums", and "other". For another question: "From your experience in both city and rural schools, can you tell if there is any difference in terms of teaching resources? If any, what are likely the missing part(s) at your previous rural school?" the city migrant interviewees ranked "access to knowledgeable people" (36 out of 50), "school library" (35 out of 50), and

 

"technology/networking equipment" (33 out of 50) as the top missing parts. From identical questions to rural students, they ranked "more accesses to Internet" (42 out of 50) and "knowledgeable people" (39 out of 50) as the two top choices over all other priorities: "more teachers", "new teaching facilities", "more books available in the school library", and "better instructional equipment".

It was proven by the findings that summer volunteer teaching programs consisting of a group of college students helped the rural students to learn about the world. The data revealed 44 out of 50 rural student interviewees agreed that the summer teaching program helped them in terms of 1) "set role models for me" (45 out of 50), 2) "learn more about the outside world" (43 out of 50), and 3) "learn more useful knowledge" (39 out of 50). 31 students out of 50 picked specific college volunteer students as their role models with answers: "Wang Lu (a summer volunteer teaching member) is very knowledgeable and smart, she knows everything, and knows more than our teachers about Hollywood, Jackie Chan and personal health care" and "Jerry is my role model, he taught the best English class, learned Chinese very quickly, he knows a lot of things I didn't know: US baseball, New York freedom tower, robots, North Pole and polar nights, he plays violin so well. I like him and he is my best friend".

The findings of the study indicated that the majority of city migrant students confirmed that their city life and learning experiences greatly influenced their personal mission-set for the future. About 65.1% of city migrant students picked "strong influences" in a one to ten scale, in which ten is the most influential and one is no influence. The most common key words collected from these interviewees about their city experiences were: "open up my vision", "get me more confident", and "more clear about the ways that I want to go…"

**5.Discussion**

Not surprisingly, there were the gaps found between rural and urban educations in terms of students' cognition. However, the notion and significance of the study were to find out the scope and nature of the gaps, the triggering factors and the most effective ways to fill the gaps in the new social context with theoretical perspectives and interpretation. Unlike other relevant research, this study set two interview groups in which all interviewees in the two groups had similar rural school experiences, but one had significant city school experience as the add-on variable to examine. It was proven that the city migrant students have advantages in the cognitive process. There were three important indicators found from the study that shaped the scope of the differences: global knowledge and visions, commercial and market senses, and contemporary focus, which represent the distinctions occurring at three major levels of cognitive behavior in Bloom's taxonomy of cognitive domains: knowledge, comprehension and application (Bloom, Englehart, Furst, Hill, & Krathwohl, 1956). According to Bloom's taxonomy, the first type or level of learning is "knowledge" that refers to learners' awareness and after knowing, their abilities to "recall or recognize information, idea, and principles **in the approximate form in which they were learned"**. The knowledge in this category covers mostly who, what, where, when, why and how; in which the first distinction identified – "global knowledge and vision" is the correspondence accordingly. In Bloom's six level cognitive modeling, knowledge is the foundation and the starting point that all other five cognitive processes have to be based on and start from. Thus the disadvantage in global knowledge is vital to the rural students for forming their high-level cognitive domain, since it actually produced the critical limitations at the starting line in their cognitive process. This disadvantage has drawn significant impacts on their cognitive behaviors covering self-cognition and goal-set according to Bloom's modeling.

The findings indeed significantly revealed the limitations from the rural group in the next two levels of cognitive processes – comprehension and application, in which the data showed the city migrant students tended to pay more attention on commercial and business issues, and were more focused on contemporary issues. These two indications reflected that 1) the rural students were behind in the comprehension and application levels in Bloom's modeling, in terms of familiarity to dynamic and transitional reality, and 2) the city migrant students had better "procedural knowledge", a more complicated knowledge dimension about how to do something, which requires longer times and closer distance to the learning sources in the learning process that the city migrant students took advantage of as well. However, it was verified that the city migrant students learned more conceptual knowledge about the world, and had a better establishment in procedural knowledge as well, and they interpreted what they learned - both conceptual and procedural knowledge - to their next two levels of cognitive process, and had their own comprehension and applications. The focus on commerce, market, and the contemporary exhibited that the city migrant students had developed a more knowledgeable, functional and globalized cognitive domain as shown in Figure 1

 

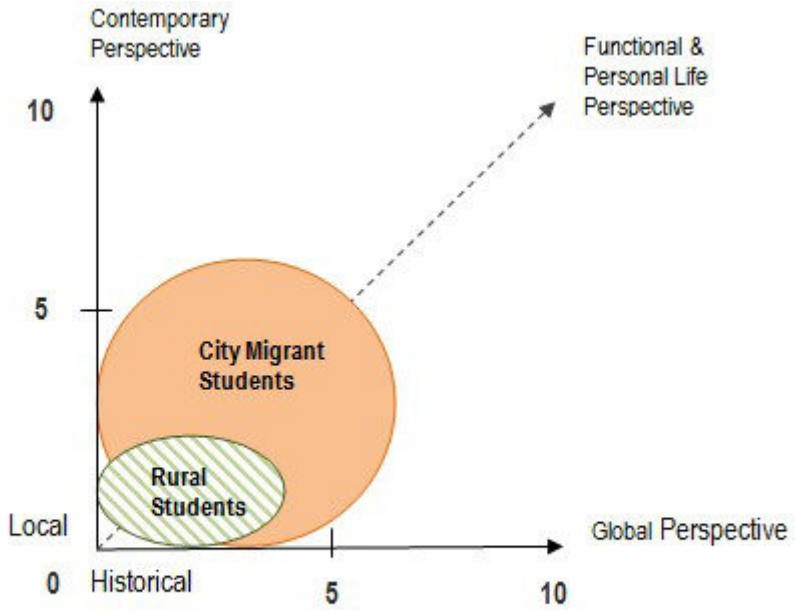


Figure 1: Differences between two student groups in selections toward international locations and contemporary figures

A significant finding of the study designated that the rural students didn't typically lose their confidence with their basic intelligent abilities if the extra skills or knowledge are not required. However, they lack confidence about themselves on tasks that they are less knowledgeable or trained on, which will lower their success rates to accomplish their future jobs, as indicated by existing researches (Brophy & Good, 1986). The lower confidence will greatly affect the students' goal-sets in many ways that cause it to be considered one of the major problems in rural education (Poole & More, 2001). One of the basic rationales of social learning theory is based on the fact that cognitive and motivational factors play important roles in people's behavior (*Teddlie, Reynolds, & Sammons,* 2000), which was proven in the findings of the study. It appeared that, based on the findings, the students' knowledge about the world and their mission-oriented confidence levels determined their goal-set a great deal. It is unsurprising that when a person knows what to do and how to do it, and he or she would be greatly motivated by the results, then he or she tends to set goals towards it. Based on this rationale, it was not difficult to comprehend that the city migrant student group showed much more ambition in both educational goals and career aiming as shown in Figure 2. In this case, a list of very specific job titles and some key words, such as "better incomes" "better life" were mentioned frequently by the group. In fact, this "thinking toward learning" model is covered by Cognitive Learning Theory as well, in which the cognitive and motivational factors as the major subjective driving forces from the learners become the most dynamic, intentional and manageable variable in the learning process, determining their goal-setting, behavior and performance as well.

 

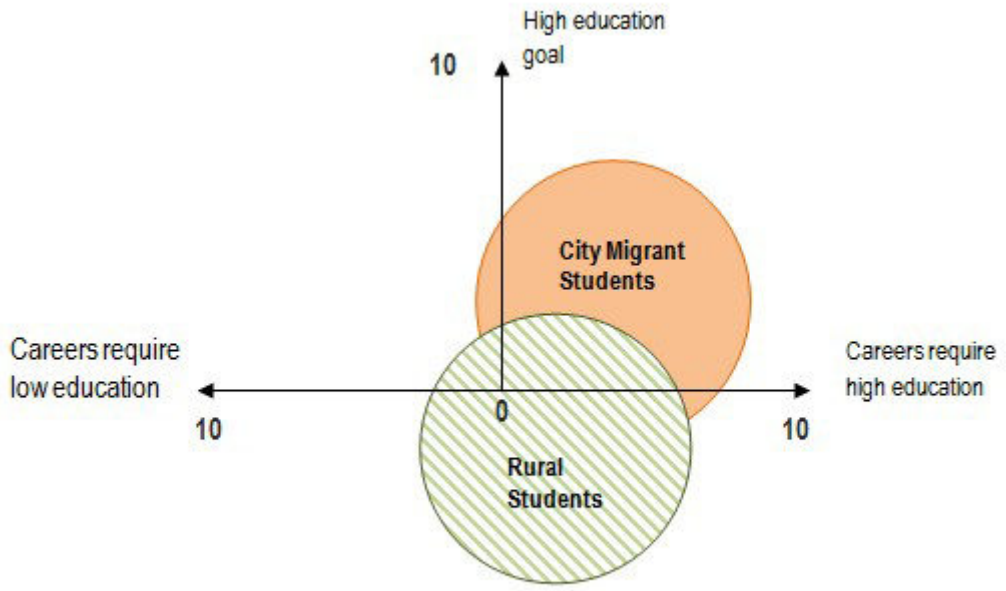


Figure 2: Distributions of two groups in educational and career goals

The study has a propensity for conclusion that the "gaps" identified and discussed previously were mostly caused by social learning environment, instead of regular school curriculum based on the scope and nature of the three major "differences." As one of indications, a list of specific names, locations, events and career titles mentioned by the interviewees, such as Steve Jobs, John Cena, UFO hot spot – Mexico, WWE (World Wrestling Entertainment), fitness consultant, and customer experience engineer, were not something typically learned from school curriculum. There are two additional hints found from the findings: 1) the new generation tended to more selectively learn instead of receiving information, which represents a metamorphism of the young students' learning orientation and learning patterns in the new social context. A key word "fan" found multiple times from the data: "wrestling fan", "iPhone fan" and "UFO fan" mentioned by interviewees, especially the city migrant student group, proved that the new generation tends to learn from non-curriculum learning sources with their selections. Social learning involving factual, conceptual, procedural, and even meta-cognitive knowledge (Anderson & Krathwohl, 2001), as well as tacit and explicit knowledge (Polanyi, 1958) as a learning behavior therefore becomes a much more important learning source than ever. 2) The interactive learning model becomes major preference in the learning process in which the new information technology and cyber-based social learning environment accelerated it and made it a favorite. The study concluded that some social activities, such as travel, gatherings, and popular events, play increasingly important roles in students' cognitive development process, and claims students are inclined to extend their learning scope to off-campus sources. One of the reasons that was suggested is that the complexity of some essential knowledge, including both conceptual and procedural knowledge, require longer time and interactive models to learn. Social learning in this case endows better options and preferences that were verified by this study – more city migrant students than rural students mentioned that "travelling" and "dinner parties" were important learning sources, which also helped to conclude that the current Chinese rural education in general has shortages on a more "dynamic feedback and adjustment mechanism", which is "generally missing from many learning systems" (Sabry & Barker, 2009 p.2).

The study identified two factors as the major "causes": modeling absence, and limited access to learning sources. According to Cognitive Learning Theory, people learn from someone or someone's behaviors because the objective catches their attention. It was verified by this study that the city migrant students paid more attention on the models and the behaviors that exist or occurred in close proximity. Distance and access herein were crucial for learners. The same thing actually worked on the three basic models of Social Learning Theory as well, especially on the "live model" and verbal instruction model" (Bandura, 1986). If there is either a noteworthy physical distance or an access barrier, the learning process won't start, since the key starting element "attention" that typically comes from "observation" is missing in the process, or the process starts but cannot continue to complete a required "retention" process that involves "imitation" and "modeling". In this case, the

 

learning process stops. Based on these analyses, the causation issues to these Chinese rural students are focused on distance that mostly caused modeling availability issues, and access that allows the process moving through the steps - attention, retention, reproduction, and motivations after all.

Another element that played an important role in the learning process was a "third person" (Ormrod, 1999) who provides the important verification and reinforcement to the learner. This element does not have to be just one person, or a person at all. Rather, it can be a third party verification and enhancement to the learners. The city migrant students got more such elements from their "richer" city environment, including parties, travelling and media, which contributed significant moving forces to their learning steps listed above.

To improve the situation Chinese rural education is facing in terms of the unbalanced learners' cognition, which determines students' behavior in a great extent (Sincero, 2011), shortening "distance" to the "models", and providing more accesses to learning recourses for both knowledge and "symbolic models" are the priorities based on the study. In current social context of the developing countries like China, consistently sending redundant city teaching resources to rural schools for monthly or yearly sustenance, and helping to leverage the emerging information technologies into the "last mile" in the rural areas have been considered and proven as beneficial and effective solutions (Yi & Pu, 2008). The current practices of consistent volunteer teaching happening in China quickly shorten the "distance" between rural students and "models". This was verified by the study, which becomes the starting point and lubricant for Chinese education reform to solve those historical black holes in education, and it is triggering a silent revolution in China education in terms of two way education – rural students gain more resources, whereas the new urban generation learns more about the reality and their goal-sets. This practice and approach, plus the revolutionary new technologies, are speeding up the pace of the rural education reform in the developing countries.

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