A Case Study in an Ohio Middle School Using Wiki Technology in Chinese Language Classes to Improve the Students' Achievement and Parent Communication

TANG Xiaosu[a],*

[a]Lecturer, Education, Academic Office, Nanchong Staff University, Nanchong, China.
*Corresponding author.

Abstract

Recent research has suggested as well as demonstrated that student success and achievement can improve if there are better communication opportunities provided within the learning community, i.e., parents, students, teachers, administrators, and the community at large. This research was a case study of a Chinese foreign language class in Perkins School District (Sandusky, Ohio) to show if technological applications such as Wiki and the use of I Pods can help improve student achievement and success through its use as a communication vehicle between parents, teachers, and other members of the learning community. This was accomplished through survey/questionnaire development and the analysis of academic achievement before and after the implementations of Wiki and I-Pod technologies into the classroom setting. The results showed that although parental involvement did not independently improve children's learning, some involvement activities did prevent behavioural problems. The interaction analyses suggested that the involvement of parents with low socioeconomic status might be more effective than that of parents with high socioeconomic status. By using digital tools in class, technology does support family-school collaboration and promotes parental school involvement especially in high-risk or disadvantaged communities.

Key words: Technology applications; Communications; Parental involvement; Students' achievement

INTRODUCTION

Beginning with the 2011-2012 school year, the Perkins School District (Perkins Township (Sandusky), Erie County, Ohio, USA) created a Wiki website under a technology grant for Chinese classes in Perkins School District. The purpose was to solve the problem of involving the parents and to create an effective learning community between teachers, students and the parents in order to promote the academic success of the middle school students taking the Chinese language classes.

1. BACKGROUND

1.1 Rationale of Study

In 1996, the Clinton administration reauthorized the *Elementary and Secondary Act* (20 USC 70/ Public Law No:114-38). It was well-established in this article that parental school involvement had a positive influence on school-related outcomes for children (Domina, 2005). Many researchers had shown consistently that with the increase in parental involvement, there was an increase in student achievement (Epstein, 1995; Flaxman & Inger, 1992; Hickman & Miller, 1995; Lee, 1994). For young children, parental school involvement is associated with early school success, including academic and language skills and social competence (Grolnick & Slowiaczek, 1994; Hill, 2001; Hill & Craft, 2003). Research has

consistently shown in the same article that with the increase in parental involvement, there is an increase in student achievement (Epstein, 1995; Flazman & Inger, 1992; Hickman & Miller, 1995; Lee, 1994). Consequently, many schools throughout the United States have begun to introduce strategies to increase parental involvement in schools to include parents as partners (Epstein, 1995; Rioux & Berla, 1993). Parental-involvement initiatives had been a mainstay of federal education policy since the Reagan administration's 1986 *Goals 2000: Educate America Act* (7 USC 2270a/ Public Law No:103-227).

For example: Requesting the nation's poorest schools to spend at least 1 percent of their Title I supplementary federal funds to develop educational "compacts" between families and schools was a new provision from the Clinton administration.

Increasing parental involvement in schools was one of the six central goals of the Bush administration's 2002 *No Child Left Behind Act* (20 USC 6301/Public Law No: 107-110).

Do all the parents get involved in school work? The answer is no. Some parents work more than one job because of bad economy. They just do not have time to be involved in the schools' activity, and they were very tired when they got home. Therefore, they do not have time to check the children's work either. Some parents do not feel able or willing to help their children with homework or be involved in the school because they felt lower-graded or not well educated. They would rather let the school do all the work. Some parents feel it is the school's responsibility to educate the students; not theirs. Some parents just thought it is not very important for them to be involved.

When technology like Wiki is used in classroom, the increased the amount of information becomes available because students share during class time with teams as well as the parents. The parents do not need to go to the school or talk to the teachers at the exact time, but instead, they can easily see what their children are doing in class with accessing the Wiki provided by the teacher and their children.

1.2 Research Questions

For the purpose of this project, the research would be only conduced on parental involvement. In order to provide a more clear picture of the relationship between parent involvement to student academic and also create an awareness of achievement toward this important topic. Three questions stand central in this research:

a) What relations exist between parent involvement and the children's academic work?
b) What difficulties do schools face getting parents associated well with the school?
c) How can schools benefit by getting more parents involved?

1.3 Limitations

There are some limitations toward this study. First, a cross-culture study is needed. Special needs students or students from different culture backgrounds, especially in America being such a melting pot, have different values and concepts of education due to their different culture backgrounds. The second is technology. Not all families have inter-net access or a computer at home. It is really hard to generalize a broad population by only interviewing 15 people from Northern Ohio. Some exceptions have not been studied yet, like: Those students whose parents who do not get involved much in school and who have high achievements in schools. In contrast, some students whose parents are involved a lot in schools still have low achievement at school.

Replicating this study seeking a larger and a more balances sample of gender, socioeconomic status and race issues are suggested.

2. METHODS AND PROCEDURES

2.1 Rationale

Most studies were showing positive relationship between parental involvement and students' academic. There was not a great deal of studies about what difficulties that the school was facing to get more parents involved, or what suggestions that can be provided to the schools to enhance parental involvement.

2.2 Methodology

Integration of technology with curriculum and professional growth increases student achievement. Significant student achievement gains for technology integrated with standards were demonstrated by an eight-year longitudinal study of SAT I performance at New Hampshire's Brewster Academy (Bain & Ross, 1999). Students participating in the technology integrated school reform effort (School Design Model) demonstrated average increases of 94 points in combined SAT I performance over students who participated in the traditional independent school experience. In a pioneer "laptop school," where all students and faculty carry portable computers and access a campus network, Brewster's extensive school reform effort involved "rethinking the way we teach, how we build curriculum, and the way we support and evaluate faculty" (Bain & Smith, 2000).

A study of a comprehensive effort to integrate technology into schools showed an increase in test scores related to the use of technology. In West Virginia (Mann et al., 1998), curriculum objectives for basic skills development in reading and mathematics were integrated with instructional software. This curriculum was reinforced with teacher instruction and the achievement tests used to evaluate student performance. Gains in student test scores on the SAT-9 (for 950 fifth graders

in 18 schools) were attributable to the alignment of the targeted curriculum objectives with the software, teacher instruction, and the tests.

In a randomized study in Virginia, which used digital video clips to supplement instruction, the technology use resulted in increased student achievement (Boster et al., 2002; Boster et al., 2004). In this study case, video segments were selected from a commercially available library (United Streaming $_{TM}$) to align with particular standards in science and social studies addressed by all participating schools in the third and eighth grades. The assessments (pre and post) were likewise specially developed to examine student's knowledge of those standards.

Intelligent tutor systems software that supports the curriculum has been shown to improve learning. In Pittsburgh, an algebra curriculum, which focused on mathematical analysis of real-world situations and the used computational tools were supported by an intelligent tutor software program as part of the regular curriculum for 9th grade algebra. On the average, 470 students in the experimental classes outperformed students in comparative classes by 15% on standardized tests and 100% on tests targeting the curriculum-focused objectives (Koedinger et al., 1997). At that time, the algebra curriculum (PUMP) and intelligent tutor (PAT) were used in 70 schools, nationwide.

Teachers observed significant changes in student skills and knowledge acquired after their first multimedia project. The Just in Time model for multimedia training enabled university content and instructional design specialists to provide teachers with skills as they were needed for completion of specified products and projects. After student completion of the first multimedia project, teachers reported increased student knowledge in: a) research skills, b) research skills to locate content resources, c) capability to apply learning to real world situations, d) organizational skills, and e) interest in the content (R. Cradler & J. Cradler, 1999).

Commitment to technology infusion, which means easy access to equipment, the use of software emphasizing basic skills, and teacher development, can translate to higher test scores. Documented student achievement gains were realized in West Virginia within the context of the State's eight-year objectives-focused Basic Skills/ Computer Education project. Beginning with kindergarten classes in 1990-91, the State provided every elementary school with enough equipment so that each classroom serving the grade cohort of children targeted that year would have three or four computers, a printer, and a schoolwide networked file server. Each year, there were successive waves of new computer installations as well as grade appropriate integrated learning software and intensive professional development for teachers (Mann et al., 1998).

2.3 Research Design

The theoretical approach of this qualitative research study was phenomenology. This research could present evidences to show readers the achievement involved parents' could bring to the children, what difficulties the schools were facing to get parents to associate well, and what ways the schools could get more parents beneficially involved by interviewing selected participants. It sought to understand the phenomenon of parental involvement as an elementary school in Northeast, Ohio.

2.4 Participant Selection

Two public schools which had an Excellent with Distinction designation from Ohio state report card (OGT), four classroom teachers from each school whose students had high achievement in the state tests and who had students who were all well behaved in their class were selected.

2.5 Procedures of the Data Collection

A survey was made of all the students in their classes to address how much their parents' involvement benefited them. The survey for students was designed for all the students in classes of the selected classroom teachers. The data was categorized into three parts in order to analysis the survey: a) the student who lives with their two biological parents, b) the student who lives with a single biological parent, and c) the student who lives with guardians or foster parents. The parents/guardians were selected from the classes who took the survey. Five participants who were willing to take part in the program in each category of the survey were randomly chosen for the interview. These 15 selected participants were interviewed individually in the school's meeting room at a scheduled time. Then there were interviews for the teachers.

After identifying the survey pool, all the selected participants' (parents/guardians) were emailed the purpose of the study and a notification of what documents they need to provide for interview. The first fifteen parents/guardians who emailed back were chosen for the interview on their available time. Records and notes taken during the whole interview were shared with the participant. Emails and telephone calls helped the participant and researchers know each other better, and both knew the other side's expectations. After all the preparations were finished, the researchers interviewed the participant at the scheduled time in the teachers' meeting room. The interviews were an hour; some follow-up interviews took place later on. When the interviews were conducted, participant were asked to answer about 15 questions, and they were asked to provide available documents or materials that had already been notified in the emails to support their statements. All the information that had been taken

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during the interview will remain confidential and only be used for data analyzing and to address all research questions stated in the introduction.

Notes were taken to document the response of

participants to their view of parental involvement at the school and their own involvement.

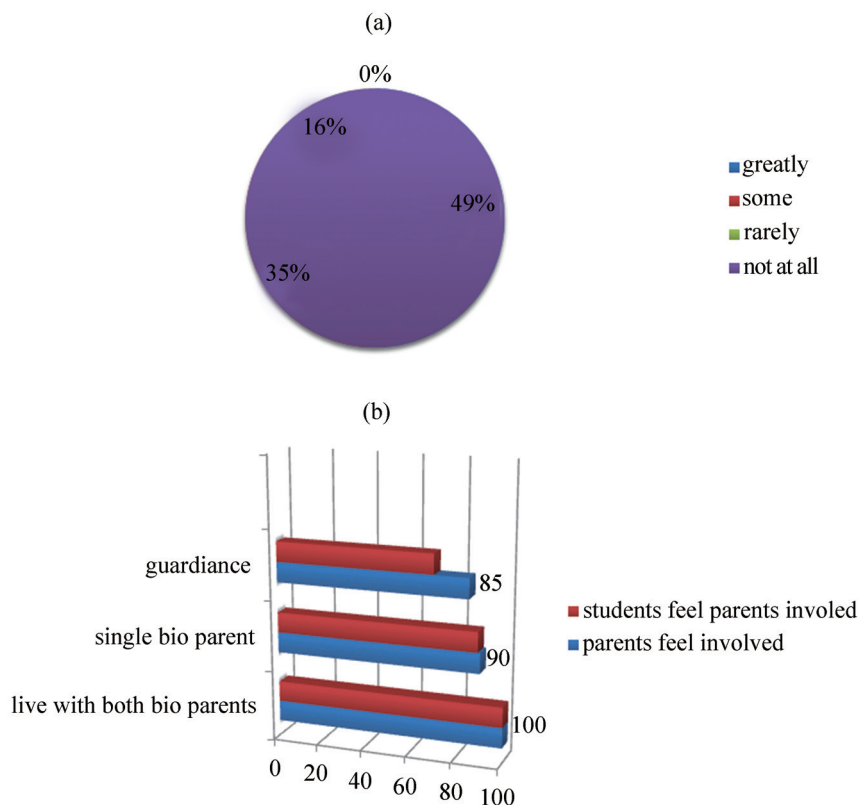Follow-up question was provided in order to get more actuate data.

(a)

(b)

Figure 1

The Survery for Students (a) and Students Archivment Compared With Parents Invovment Rate (b)

3. RESULTS AND IMPACT

Parental involvement did not independently improve children's learning, but some involvement activities did prevent behavioral problems. An interaction analyses suggested that the involvement of parents with low socioeconomic status might be more effective than that of parents with high socioeconomic status. Most parents wanted information about how to best support their children's education, but teachers had little time or resources to devote to promoting parental school involvement, and some parents were simply "hard to reach". By using digital tools in class, technology might go far to support family-school collaboration. Linking research on parental school involvement to teachers' and parents' training programs might even make all tools easier to be implemented. Programs and policies designed to promote parental school involvement in advantaged districts might be ineffective in promoting parental school involvement in high-risk or disadvantaged communities. Understanding each community's unique barriers and resources was and is important for establishing and maintaining effective

collaboration between families and schools.

4. GRANT

4.1 Description

There is a need for language teaching for schools because of today's global economy. Trade, cultural understanding, and political issues depends strongly on our understanding of the language of our global neighbors. As a foreign language teacher who taught Chinese to 6th, 7th, and 8th grade American students, I used Wiki and some other cutting edge technologies in my classroom to enhance students learning. The iPod was used with the iTunes library and the iLife software (Apple Inc., USA), which were powerful tools for teaching Chinese in my classroom. Because of its portability, ease of use, and large file storage capacity, the iPod helped my students increase their skills in learning Chinese language both in and out of the classroom. I purchased ten iPod Touches for my classroom, plus Apple apps that were related to my subject area of teaching Chinese language.

4.2 Rationale

Multimedia tends to have long term effects on understanding and retention. In a study of eighth graders, which used a hypertext/multimedia tool to design their own lessons about the American Civil War, the scores of students who used the multimedia tool did not differ from the scores of the control group on a test given at the completion of the lesson. However, when tested one year later by an independent interviewer, the multimedia group displayed elaborate concepts and ideas that they had extended to other areas of history. In contrast, the control group of students remembered almost nothing about the historical content of the Civil War lesson (Lehrer, 1993). Based on the brain rules, long term memory requires repetition (Brain rules). There are a lot of visual and audio resources available on the school's Wiki site and other related web sites, which the students can download to their iPod and use as a great learning resource in school or at home.

4.3 Assessment

Students were pre-tested at the beginning of the year and post-tested at the end of the year in the areas of grammar, language writing, comprehension, and cultural awareness. These scores were compared to the scores that students achieved the previous year before iPods were purchased.

4.4 Sustainability and Dissemination

Because the school system was a technology oriented district, any support as well as repairs was to be taken care of by our technology staff. As the students and teacher became proficient in the use of the iPods, they began to share their expertise with other classroom staff and students. Hopefully, because of the results in academic performance, the school will see a need for more iPods and a whole lab of 30 iPods will be purchased for the coming year.

4.5 Budget

10 iPods @ $229.00 each	$ 2,290.00
Apps purchased from iTunes	$ 700.00
TOTAL	$ 2,990.00

5. MARTHA HOLDING JENNINGS GRANT

Project title: Using iPods in the Chinese classroom by Xiaosu Tang

5.1 Description

I am a middle school teacher who is teaching Chinese to 6th, 7th, and 8th grade students. With this grant money, I would like to purchase ten iPod Touches for my classroom, plus Apple apps that are related to my subject area. There is a need for language teaching in our schools because of today's global economy. Trade, cultural understanding, and political issues depend strongly on our understanding the language of our global neighbors. Despite the potential for increasing jobs available for those who can speak a second language, only a small percentage of students are leaving American schools with even rudimentary skills in a language other than English. Current technology offers opportunities to increase language skills. The iPod, used with the iTunes library and the iLife software, can be a powerful tool for teaching Chinese in my classroom. Because of its portability, ease of use, and large file storage capacity, I feel the iPod can help my students increase their skills of the Chinese language both in and out of the classroom.

5.2 Qualifications and Alignment

I am the Chinese language teacher in the Perkins School District in Sandusky, Ohio. The grade levels taught are 6th, 7th, and 8th. Our school system has undergone a system wide technology initiative over the past three years. All teachers have received extensive training by Apple, Inc. and are encouraged to use technology in their classrooms to extend curriculum needs. The use of iPods in my room will be another avenue to help my students learn the Chinese language. I will also make these iPods available to other staff members in my school who would like to use them with their students.

The technology support for training, help, and service is always available by our support staff within the district. The use of iPods in my class will fit in with our district-wide technology plan.

5.3 Timeline

SEPTEMBER	Purchase of hardware, Apps. Setup of the iPods, download apps. In service of students/parents on use and responsibilities.
OCTOBER	Students begin using iPods.
NOV-APRIL	Implement the use of iPods in the class and continue to download software, videos, and audio.
MAY	Assessment of the project.

5.4 Effectiveness

The category that I will be increasing my effectiveness is improving language literacy. Best practices in teaching foreign language literacy are:
* Slowing the rate of speech
* Providing contextual support
* Encourage speaking to others who speak the language
* Foster a comfortable environment
* Use vocabulary appropriate to the age of the learner

All these goals can be achieved by using the iPod as a teaching tool. The iPod can deliver speech and context support to students through repetition and at rates that children can understand. The iPod makes

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available thousands of files that students can use at their convenience at school as well as at home. Teachers can enhance the audio components of the curriculum with pictures and video delivering it entirely in the target language through the iPod.

5.5 Plan of Action

a) Students will be exposed to Chinese at more comprehensible levels.

b) The iPod will be checked out for student use in the classroom as well as taken home for additional practice.

c) Students can make podcasts, websites, documentaries, slideshows, and videos of their practice sessions.

d) All my lectures will become available for students to review as needed.

e) Cultural images, videos, and displays will be downloaded so students will learn the customs of the people of China.

f) Lectures from other University teachers will be made available for students to view.

g) Schools in China will be contacted so American students can establish pen-pals with Chinese Middle school students.

h) Other student materials will be created that supplement the textbook.

5.6 Assessment

Students will be pre-tested at the beginning of the year and post-tested at the end of the year in the areas of grammar, language writing, comprehension, and cultural awareness. These scores will be compared to the scores that students achieved the previous year before iPods were purchased.

5.7 Sustainability and Dissemination

Because our school system is a technology oriented district, any support as well as repairs will be taken care of by our technology staff.

As my students and I become proficient in the use of the iPods, we will begin sharing our expertise with other classroom staff and students. Hopefully, my school will see a need for more iPods and a whole lab of 30 iPods will be purchase for the following year.

5.8 Budget

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Apps purchased from iTunes	$ 700.00
TOTAL	$ 2,990.00

REFERENCES

Bain, A., & Ross, K. (1999). School reengineering and SAT-1 performance: A case study. *International Journal of Education Reform, 9*(2), 148-153.

Bain, A., & Smith, D. (2000). Technology enabling school reform. *T.H.E. Journal (Technological Horizons in Education), 28*(3), 90.

Boster, F. J., Meyer, G. S., Roberto, A. J., & Inge, C. C. (2002). *A report on the effect of the UnitedStreaming TM application on educational performance.* Cometrika, Inc., Baseline Research, LLC, and Longwood University.

Boster, F. J., Meyer, G. S., & Roberto, A. J., et al. (2004). *A report on the effect of the UnitedStreaming TM application on educational performance.* The 2004 Los Angeles Unified School District Mathematics Evaluation.

Cradler, R., & Cradler, J. (1999). *Just in time: Technology innovation challenge grant year 2 evaluation report for Blackfoot School District No. 55.* San Mateo, CA: Educational Support Systems.

Domina, T. (2005). Leveling the home advantage: Assessing the effectiveness of parental involvement in elementary school. *Sociology of Education, 78.* doi:10.1177/003804070507800303

Epstein, J. L. (1995). School/family/community partnerships: Caring for the children we share. *Phi Delta Kappan, 76* (9), 701-712.

Flaxman, E., & Inger, M. (1992). Parents and schooling in the 1990s. *Principal, 72* (2), 16-18.

Grolnick, W. S., & Slowlacczek, M. L. (1994). Parents' involvement in children's schooling: A multidimensional conceptualization and motivational model. *Child Development, 65*(1), 237-252.

Hickman, C. W., Greenwood, G., & Miller, M. D. (1995). High school parent involvement: relationships with achievement, grade level, SES, and gender. *Journal of Research and Development in Education, 28*(3), 125-134.

Hill, N. E. (2001). Parenting and academic socialization as they relate to school readiness: The role of ethnicity and family income. *Journal of Educational Psychology, 93,* 686-697.

Hill, N. E., & Craft, S. A. (2003). Parent-school involvement and school performance: Mediated pathways among socioeconomically comparable African-American and Euro-American families. *Journal of Educational Psychology, 95,* 74-83.

Koedinger, K., Anderson, J., Hadley, W., & Mark, M. (1997). Intelligent tutoring goes to school in the big city. Pittsburgh, PA: Human-Computer Interaction Institute, Carnegie Mellon University. *International Journal of Artificial Intelligence in Education, 8,* 30-43.

Lee, S. (1994). *Family-school connections and students education: continuity and change of family involvement for the middle grades to high school* (Unpublished dissertation). The John's Hopkins University. Baltimore, Maryland.

Mann, D., Shakeshaft, C., Becker, J., & Kottkamp, R. (1998). *West Virginia story: Achievement gains from a statewide comprehensive instructional technology program.* Santa Monica, CA: Milken Exchange on Educational Technology.

Rioux & Berla. (1993). *Innovations in parent and family development.* New Jersey: Eyes on Education Publishers.