

LOCAL IMPLEMENTATION OF ONLINE HIGH  
SCHOOL GERMAN COURSES: THE INFLUENCE OF  
LOCAL SUPPORT ON STUDENT ACHIEVEMENT

By

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## CHAPTER I

### INTRODUCTION

Distance learning has been a form of education for about a century, but it has been used in the past predominantly by adult learners. In the K-12 sector, this form of education has gained importance in the last decade through online learning, made possible through the spread of computers and the Internet. Online learning in grades K-12 has experienced a rapid growth since 2001: Zandberg and Lewis (2008) report a 60% increase for K-12 enrollment in “technology-based distance education” courses from 2002/2003 to 2004/2005, and Picciano and Seaman (2009) estimate a total enrollment of 1,030,000 in K-12 online courses for the 2007-2008 school year. Reasons for utilizing distance education with younger students differ somewhat from those for adult learners: whereas adults usually resort to distance learning when they cannot attend a traditional course, public schools use distance learning when a teacher cannot be found, in order to broaden their curriculum by giving students access to specialized courses, to allow for credit recovery, and to alleviate scheduling conflicts (Berge & Clark, 2009; Cavanaugh et al., 2004; Roblyer, 2006; Roblyer & Davis, 2008; Smith, Clark, & Blomeyer, 2005; U.S. Department of Education, 2009).



Distance education, especially in its online format, is well suited to fulfill these needs, and as a result it is “the fastest growing form of domestic and international education” (Gunawardena & McIsaac, 2004, p. 355). However, the rapid increase in enrollment has not been accompanied, much less preceded, by a comparative increase in research studies examining K-12 online learning. A search of the research literature from 1996 through July 2008 for the U.S. Department of Education’s 2009 meta-analysis identified “more than a thousand empirical studies of online learning” (p. ix), but most of these examined adult learners. The researchers found only five studies for K-12 students during that time that met the criteria for inclusion in their meta-analysis. Cavanaugh et al. (2004) and Smith, Clark, and Blomeyer (2005) found a similar lack of empirical research in K-12 distance learning education.

The scarcity of research examining online learning for the K-12 level is especially detrimental to the efforts of school officials who are seeking to follow the mandate of the No Child Left Behind Act of 2001 to base decisions on “evidence-based practices” (U.S. Department of Education, 2009). In the absence of sufficient data to guide the implementation of online programs, school districts are in danger of using online learning as an ad hoc solution without adequate planning (National Association of State Boards of Education [NASBE], 2001). This concern is shared by Bernard et al. (2004) who warn that lack of pertinent research allows the “‘gimmick of the week’ to become king” (p. 414).

In addition to the scarcity of research, the “wide and unexplained variability” (Bernard et al., 2004, p.406) and heterogeneity (Cavanaugh, 2001) of research studies comparing distance learning to traditional education make it difficult to base decisions for

implementation of K-12 online programs on existing empirical data. The fact that average effect sizes in these meta-analyses are near zero has led some researchers to conclude that there is “no significant difference” in the effectiveness of distance education when compared to traditional classroom instruction. However, the wide variability in the studies suggests instead that there are many distance learning courses with higher student achievement than their classroom counterparts, and many which perform more poorly (Bernard et al., 2004).

In an effort to explain the variability in the comparison studies, researchers have drawn different conclusions. Some have qualified the ‘no significant difference’ statement by adding that distance education can perform as well as or outperform traditional education “in a well-designed distance education environment” (Cavanaugh, 2004, p.16) or “when used appropriately” (NASBE, 2001, p. 4). Clark (2001, 2003) and Hannum (2007) conclude that it is not the media that makes the difference in student achievement, but the pedagogical method regardless of the delivery system. Others assume the presence of unexplored confounding variables (Bernard et al., 2004; Clark, 2001; U.S. Department of Education, 2009).

In examining what constitutes a ‘well-designed distance education environment’, researchers found many of the same factors that promote student achievement in traditional classroom courses: interaction (Gundawardena,& McIsaac, 2004), timely and adequate feedback (Gunawardena & McIsaac, 2004; Hannum, 2007), graphic representation of content (Hannum, 2007), individual tutoring (Hannum, 2007), and teacher effectiveness (Moe & Chubb, 2009). Some researchers concluded that the main difference between a traditional and a distance learning classroom is not the use of

technology but the physical distance between teacher and learner (Morrison, 2001; Bernard et al., 2004). Because the instructor is not physically present with the learner to bring about the learner's engagement with the content, the learner has to possess greater autonomy, maturity, and independence to be successful in a distance learning environment (Cavanaugh, 2001; Holmberg, 1995; Moore, 1991).

Learner autonomy is one of the main elements in Moore's (2007, 1991) theory of transactional distance which provides a pedagogical framework for distance education. The term 'transactional distance' describes "a distance of understandings and perceptions", a "psychological and communications gap" (1991, p. 2) which is present to a greater or lesser degree in all educational situations. In distance education, this transactional distance is caused in part by the geographical separation of teacher and learner. The degree of transactional distance in a learning situation is determined by the amount of structure and dialogue in a program, and in turn determines the amount of autonomy required of the learner. Although Moore does not specifically address younger learners, he points out that "learners vary in their ability to exercise autonomy" (Moore 2007, p. 95) and that "there are conditions ... where a lower degree of autonomy is more appropriate" (p. 93).

Holmberg (1995) found that "full student autonomy" leads to high drop-out and low completion rates with adult learners in distance courses. This becomes even more problematic with younger students who lack the knowledge and experience of older learners (Bransford, Brown, & Cocking, 1999). Vygotsky (1978) stresses the importance of "adult guidance" or "collaboration with more capable peers" (p. 86) for children's development. He believes that in order to progress in their development, children need

assistance from a more capable other who can help them solve problems they could not solve on their own (Vygotsky, 1978). The distance between a child's independent problem solving and problem solving with adult guidance Vygotsky called "the zone of proximal development" (p. 86). Whereas in traditional K-12 education the classroom teacher provides the adult guidance, in online learning the computer at least partially assumes this function according to Gunawardena and McIsaac (2004). However, there are social and administrative aspects of institutional learning that require physical presence and cannot be done by either the computer or the online instructor. Instead, a facilitator who is at the same location as the student has to take over these functions, for instance, making sure that the students actually work with the material and to keep them focused and on task (Kirby & Driscoll, 1997). A number of researchers recognize the importance of local support for online K-12 students (Roblyer & Davis, 2008; Zucker & Kozma, 2003), and there is anecdotal evidence from the 25-year experience of the *German by Satellite/German Online* high school distance learning program at Oklahoma State University that the local facilitator has considerable influence on student performance.

Some examples of this anecdotal evidence for facilitator influence in the German by Satellite program are: at a rural school of about 400 students more than 10% of the student body enrolled annually in the German by Satellite courses for a period of over 10 years, even though German was not the only language offered. Year after year, 100% of the students who enrolled in the courses completed them. Most of the students finished the courses with an A – the grade point average was around 3.5 for both German 1 and German 2 courses. The lowest grade was an occasional C. The facilitator for these

courses learned along with the students, did group activities, took the students on German-related field trips, and established a regular exchange with a German high school.

At another high school, the program thrived under the guidance of a facilitator who was a foreign language teacher with above-average technology skills. Student grades and completion rates remained high for several years until another teacher became the facilitator. With this new teacher, average grades and completion rates dropped noticeably. When after two years a third facilitator was assigned to the German classes, there was such a dramatic drop in student grades and completion rates that one of the German Online instructors visited the school in order to find explanations for the change. He found that with this facilitator, students were supposed to pick up the worksheets for the chapter on their way into the class, sit down at a computer, and work independently for the remainder of the period. The German program at this school was discontinued at the end of that year. At two other schools that had used the German program for over 10 years and had an annual student enrollment between 20 and 25, the program died when the facilitators retired.

Other anecdotal evidence which can be interpreted as supporting the assumption of facilitator influence on student achievement is the observation by the *German Online* instructors that there are a number of As with an almost equal number of Fs with very little in between in the *German Online* courses. The instructors felt that the failing grades were largely due to missing assignments and could be interpreted as an absence of local support to keep the student on task and to check student progress. What is more, it appears that the As and Fs seldom occur at the same school, but that most students at

certain schools complete the courses with an A whereas at other schools, almost all online students failed. This bimodal nature of student achievement has been observed for other online courses (for instance, for the Open High School of Utah as presented by David Wiley at the 2010 Virtual School Symposium in Phoenix, Arizona) but has not been studied.

The assumption that local support through a facilitator is vital for student achievement in online courses is corroborated by other distance learning providers. For instance, Chris Rapp, who served as the executive director for Colorado Online Learning and the curriculum director at the Idaho Digital Learning Academy, stated that “the presence of an organized, adult mentor at the local school had a significant impact on student achievement. In most cases, this Site Coordinator was not a subject matter expert, but they did help the student with a learning plan, study habits and basically ensure that they were on task and moving forward in the online course” (personal communication, March 30, 2011). However, although these examples lend weight to the assumption that the local facilitator may well be the single most important factor in student achievement for online courses, to date this aspect of K-12 online learning has not received sufficient attention by the research community.

To avoid the danger that K-12 online learning will go the way of other technologies in distance education, it is necessary to find ways of successful implementation. This could take the form of ‘best practices’ which can be used to tell schools how to ensure student success with online courses.

## Problem Statement

In the recent decade, online learning has gained importance in K-12 education. There are high expectations for this form of education and some authors expect it to largely replace traditional education in the next few years. However, there is little research on the successful implementation of online learning at the K-12 level. This is preventing school officials from making “evidence-based” decisions as mandated by the *No Child Left Behind* act of 2001. Also, without guidelines for successful implementation, online learning is in danger of suffering the same fate as other technologies in distance education of an initial enthusiastic response with high expectation and a subsequent disillusionment. There are some indications in the literature that the most important factor for student success in K-12 online course is local student support in the form of a local facilitator. This is supported by anecdotal evidence gathered by the *German Online* instructors for the last 25 years. However, this aspect of online learning has not been sufficiently researched.

## Purpose of the Study

According to Holmberg (1995), “the task of scholarship is both theoretical, to bring about explanation, and practical, to provide for application of technology.” The theoretical purpose of this study is to contribute to finding explanations for the success or failure of online education in high schools as shown by student achievement. Student achievement was measured by students’ accumulative grades for all quizzes, tests, and

graded assignments in their courses as recorded by the German Online program. The practical purpose of this study is to provide data that school officials can use to implement successful online programs for grades K-12.

### Research Questions

1. How do high schools implement the online German courses?
2. What do local facilitators do to support students in the online German courses?
3. Which school implementation practices and facilitator activities have a positive effect on student achievement in the online German courses?

### Assumptions, Delimitations, and Limitations of the Study

Online learning has much in common with traditional classroom instruction. However, a major distinction between the two is the fact that in online learning, student and instructor are separated by space and, in asynchronous distance learning, by time. The resulting “transactional distance” (Moore, 2007) has to be taken into account when online learning is implemented for K-12 students. One result of the separation of teachers and students is that those aspects of the traditional teacher role in K-12 education which rely on physical presence have to be assumed by local facilitators. In order to ensure student achievement with online learning, careful planning and implementation of the facilitator role is necessary. Without it, online learning will follow the pattern of other distance learning technologies in K-12 education by assuming a negligible role on the sidelines.



This study is using self-reported data which creates the assumption that the participants understand what they are being asked and that they answer honestly and accurately. Some of the self-reported data, e.g. whether the school has a facilitator, whether and how often this person communicates with the course instructors, can be cross-checked through data available from the *German Online* program.

This study is delimited to four of the five German high school and middle school courses (German 1, German 2, German 3, and German 4, excluding AP German) offered by the *German Online* program of Oklahoma State University. This delimitation was adopted in order to control for differences of content, course design, course delivery system, and online instructor influence. Even with these constants, student success and achievement differ substantially between the schools utilizing the German courses. In the spring semester of 2011, there were 926 students at 353 schools in 41 states and Canada, Costa Rica, Germany, Hungary, Romania, and Switzerland enrolled in the *German Online* courses. Whereas most studies on online learning have concentrated on adult learners, this study is limited to students at the middle and high school levels. Cavanaugh (2001) warns against using the results from studies of adult online learners to generalize to younger learners because of the differing instructional situation and learner maturity levels. By the same token, results from this study should be used with caution with adult distance learners.

The researcher for this study is also the course developer/instructor for the courses being examined. In order to minimize possible researcher bias and improve instrument validity, the research questions and surveys used for this study were examined by two groups of peers and experts for importance of the questions and accuracy of the wording,

as recommended by McMillan and Schumacher (2001). In addition, the surveys were tested in a pilot study.

Data for this study were obtained through descriptive rather than experimental methods. Because of the scarcity of data available for K-12 online learning, the researcher felt that at this point in time it was important to describe how schools are implementing online learning. If the current study suggests that certain practices result in better student achievement in online K-12 courses, an experiment could be devised in a follow-up study to test this by using these “best practices” as a treatment.

### Definition of Terms

The following terms are relevant to this study:

1. *Asynchronous/synchronous distance learning* - distinguishes between distance education where the instructor and student are separated by time (asynchronous) or just by space (synchronous). An example for asynchronous distance learning is an online course where the content is presented through various media, e.g. video clips, sound files, and graphics, which can be accessed by the learner at any time. Synchronous distance education is transmitted live to a remote location, for instance, when a teacher presentation is viewed simultaneously at another school. Many distance education courses combine synchronous and asynchronous elements, for instance by using means of communication that are synchronous (phone, video conference, chat room) and asynchronous (email, blogs, wikis).

2. *Blended Learning* - is education which combines face-to-face and distance learning instruction.

3. *Credit Recovery Courses* – are giving students a chance to gain required credit for courses which they failed in a traditional classroom or which they did not complete because of illness, scheduling conflicts or other reasons.

4. *Course Completion Rate* - is the number of students completing a course expressed as a percentage of total course enrollment. Three factors affect the calculation of this rate: a) the definition of successful course completion; b) the definition of course enrollment; and c) the definition of course length. Unfortunately, there are no commonly accepted criteria for any of these (Hawkins & Barbour, 2010; Pape, Revenaugh, Watson, & Wicks, 2006; Watson & Ryan, 2007).

5. *Distance Education/Distance Learning* - denotes education where the instructor and students are separated in space. In asynchronous distance education, the students and instructor are also separated in time. Distance education utilizes various media for content delivery and for communication between instructor and students.

6. *Drop period or trial period* – is the length of time during which online course providers or local schools allow students to drop an online course. Usually, students who drop a course within this period are not counted as enrolled when the course completion rate is calculated. Hawkins and Barbour (2010) found variations in drop periods from 1 to 185 days.

7. *Facilitator* - is the local teacher providing support for distance learning students. Other terms used in the literature are mentor, site-coordinator, school-based teacher, mediating teacher, learning coach, virtual school counselor, distance learning advisor, and on-site coach. The facilitator typically supervises distance learning students,

monitors student progress, provides assistance with the technology, and communicates with parents and course instructors.

8. *German Online* - is the successor of *German by Satellite*, a distance learning program for high schools developed and taught by Dr. and Mrs. Wohlert at Oklahoma State University beginning in 1984. The program used satellite broadcasts to deliver instruction until 1999 when the broadcasts were discontinued. The name of the program was changed to “German Online” in 2001 when the courses were redesigned to be delivered through the Internet.

9. *K-12* - stands for ‘Kindergarten through 12th grade’. In this study the term is used to designate an age group rather than grades in public schools, because this group also includes private schools and home-schooled students. The age group equivalent to ‘K-12’ is age 5 through age 18.

10. *Online Learning* - describes distance learning which utilizes the Internet for the majority of instruction and learning activities. Another term for online learning is ‘web-based instruction’.

11. *Student achievement* – for the purpose of this study is measured by taking a student’s accumulative grade for all quizzes, tests, and graded assignments in that student’s German Online course.

### Significance of the Study

Distance learning in K-12 education has been around for some time – from correspondence courses starting in the last century to technology-enhanced programs in the last few decades. Especially in its latest form as online learning it can play a

significant role in meeting schools' needs by providing courses that cannot be offered locally because of the lack of a qualified teacher, by alleviating scheduling problems, providing courses for credit recovery, and expanding students' curriculum choices. However, even though distance learning is not a new phenomenon and although there is currently a proliferation of online courses for the K-12 age group, the educational aspects of distance learning at this age level have not been sufficiently studied and are not well understood. In the absence of well-researched data, school administrators lack the knowledge to implement online learning in a way that promotes student success. For this reason, there is a great need for research into the different factors influencing learning and teaching in K-12 online courses.

Educators are beginning to understand that distance learning in general and especially its latest version, online learning, present instructional situations that are fundamentally different from traditional classroom instruction. This study gathers and evaluates data on online learning in grades K-12 in an attempt to contribute to the pool of research in this area. The ultimate goal of the study is to improve distance learning for high school and middle school students by examining implementation practices and their impact on student achievement.

## CHAPTER II

### REVIEW OF THE LITERATURE

This chapter is organized under the following sub headings: theory of distance education, theory of distance education for K-12 students, history of distance education, great expectations, growth in K-12 online learning – a one-sided picture, the “no significant difference” claim, factors for student achievement in online learning, the role of the local facilitator in older forms of distance education, online learning – a paradigm shift in K-12 distance education, the role of the facilitator in online learning.

#### Theory of Distance Education

Although distance education began in the late 1800s with correspondence courses, the systematic and scholarly study of distance education as a discipline did not start until the 1960s with the works of Otto Peters of the FernUniversität in Germany. In his theoretical framework Peters describes distance education as “*the most industrialized form of learning and teaching*” (Peters, 2007, p. 57). He sees distance and online education not as “stopgaps, ... or surrogates for traditional education” (p. 57) but as the most advanced stages of the development of learning which relies on a number of elements of industrial production, namely “division of labor, the use of technology,

systematic approaches, and mass production” (p. 64). This industrialized character of distance education has resulted in increased commercialization of education and has caused a dramatic pedagogical paradigm shift with substantial changes in the roles of teachers and students. Teachers’ work “is divided into separate functions that are performed by specialists who work together in teams ... Students are obliged to become active, to assume responsibility, and to organize their learning” (p. 61).

While Peters tried to develop an overarching theory of distance education based on a macro-pedagogical approach, Michael Moore (2007) focused on the defining element of distance education, the separation of teachers and students. The resulting “transactional distance” is influenced by the three critical elements of distance education: the program’s structure, provisions for dialogue, and the learner’s autonomy (Moore, 2007, p. 90). Structure "expresses the rigidity or flexibility" of the course and "describes the extent to which a course can accommodate or be responsive to each learner's individual needs and preferences" (p. 92). Dialogue describes the exchange of words and other symbols between teachers and learners. Transactional distance is a function of dialogue and structure. When there is a high degree of structure and little or no dialogue, the transactional distance is high (p. 93). Transactional distance is also related to a third element in distance education, learner autonomy, which describes how much influence a learner has on deciding what, how and how much to learn. The greater the transactional distance in a course, that is, the more structure and the less dialogue a course possesses, the more the learners have to exercise autonomy. Moore points out that “learners vary in their ability to exercise autonomy” (p. 95) and need different degrees of structure. He does not address the seeming contradiction of how a highly structured course, that is, a

course with a tightly controlled sequence which allows for little learner freedom, would at the same time require a higher learner autonomy.

Both Peters and Moore address the structural elements of distance education and stress the uniqueness of this form of education. Anderson (2004), on the other hand, assumes that online learning is a subset of learning in general. He looks at general learning theory based on Bransford, Brown, and Cocking (2000) and examines how the principles of learner-centered, knowledge-centered, assessment-centered, and community-centered teaching and learning apply to online learning.

In order to be learner-centered, a teacher “must pay close attention to the knowledge, skills, and attitudes that learners bring into the classroom” (Bransford et al., 2000, p. 23). This means that for online learning, teachers must provide opportunities for students to share their understandings, culture, and individual backgrounds (Anderson, 2004, p. 36) at the beginning of an online learning sequence as well as throughout the course. Online learning itself is a unique cultural context, and instructors must be “constantly probing for learner comfort and competence with the intervening technology” (ibid.). A knowledge-centered approach must include reflection on why something is taught in addition to what competence looks like (Bransford et al., p. 24). In order to be assessment-centered, online learning needs to stress formative evaluation to provide feedback and motivate learners (Anderson, 2004, p. 38). The community-centered aspect of online learning includes the creation of learning communities in order to help students to create knowledge collaboratively.

The creation of learning communities, the online program’s adaptation to learner input, and the participation of learners all depend on interaction, which John Dewey



described as the defining component of the educational process (Dewey, 1916). In online learning, there are various technologies available which facilitate interaction between student-teacher, student-student, and student-content (Anderson, 2004, p. 45). The online environment provides a number of new ways for students to interact with content, including virtual labs and computer-assisted tutorials. An advantage of some online content is the ability to provide immediate feedback to the student.

### Theory of Distance Education for K-12 Students

The theories proposed by Peters (2007), Moore (2007), Holmberg (1995) and Anderson (2004) consider primarily adult learners. In order to adapt these theories to the K-12 online learning environment, both the differences in the institutional settings and in the learners' ages must be taken into account. With some exceptions, such as cyberschools or home-schooled/home-bound students, K-12 students are taking online courses at their school (Watson et al., 2009). Public schools have been fairly resistant to reform efforts that originate from the outside as Tyack and Cuban (1995) point out. These authors believe that lasting changes will be accomplished only if they involve the local teachers who will have to implement the reform, and if these changes provide "resources that teachers can use, with help from each other and outsiders, to help students learn better" (Tyack & Cuban, 1995, p. 138). This opinion is shared by Means (2010) who assumes that instructors will support the use of technology in schools only if they are convinced that this will result in an improvement of student learning outcomes.

A theory of K-12 online learning also must take into consideration the nature of young learners. One of the first researchers to study how young children learn was Jean

Piaget (1928). He believed that children incorporate new knowledge by either assimilating it into existing knowledge structures or by accommodating their existing knowledge schema to the new experiences. While Piaget assumed that children gain knowledge through direct interaction with the objects around them, Vygotsky (1978) stressed the importance of the social and cultural context of the learner. He believed that learning takes place in the area between independent problem solving and problem solving “under adult guidance or in collaboration with more capable peers” (Vygotsky, 1978, p. 86). The role of adult guidance for students in online learning can be assumed by both the online instructor and the local facilitator. This is an instance of division of labor as noted by Peters (2007).

Elements of the theories of Peters, Moore, Anderson and Vygotsky can be adapted to arrive at a theoretical framework for K-12 online learning. Peters (2007) notes traits of industrialism in distance education in the division of labor which results in a substantial change in the role of the teacher (see Figures 1 and 2). For K-12 online learning, the teacher’s role is split up between the online instructor and the local facilitator. This latter role becomes especially important to help students transition into a new role where they have to assume responsibility and have to organize their learning. This is something which students can be taught according to Moore (2007), but the level of mastery of these new skills will vary with different students. Most K-12 students will not achieve the level of autonomy postulated by Moore for adult students. In order to take this into consideration, some schools screen students for participation in online courses according to their motivation, self-discipline and time-management skills

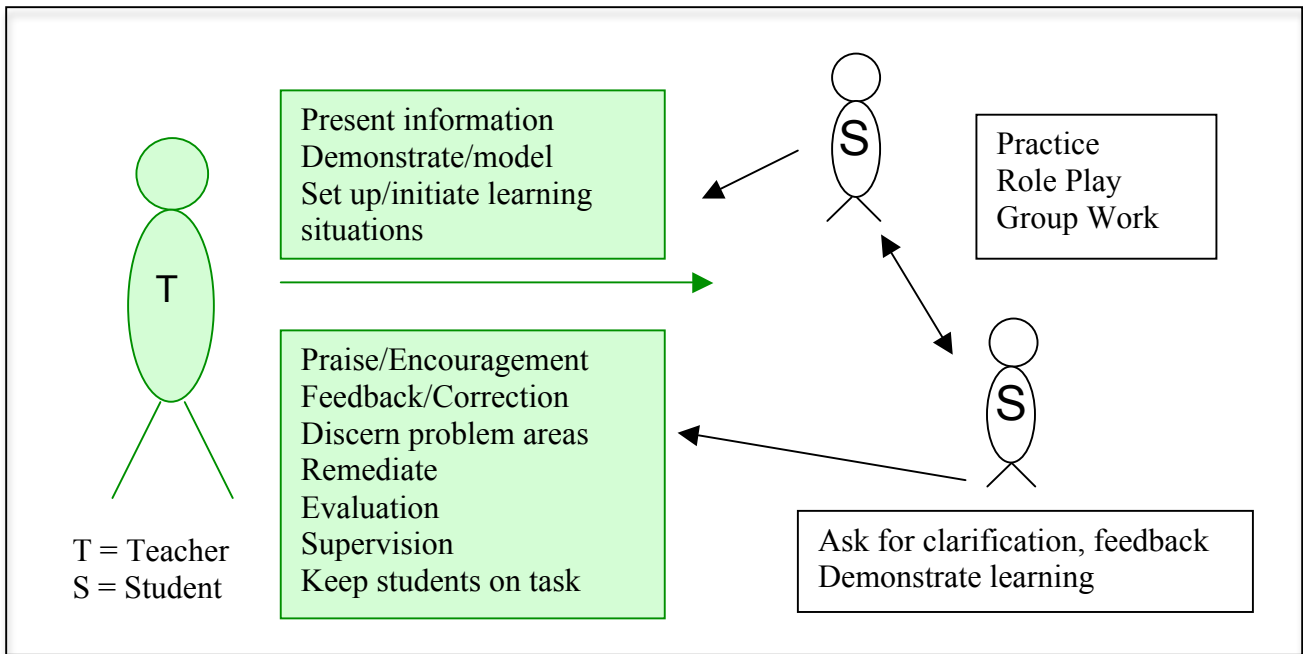


Figure 1. Teacher Role and Interaction in a Traditional Classroom

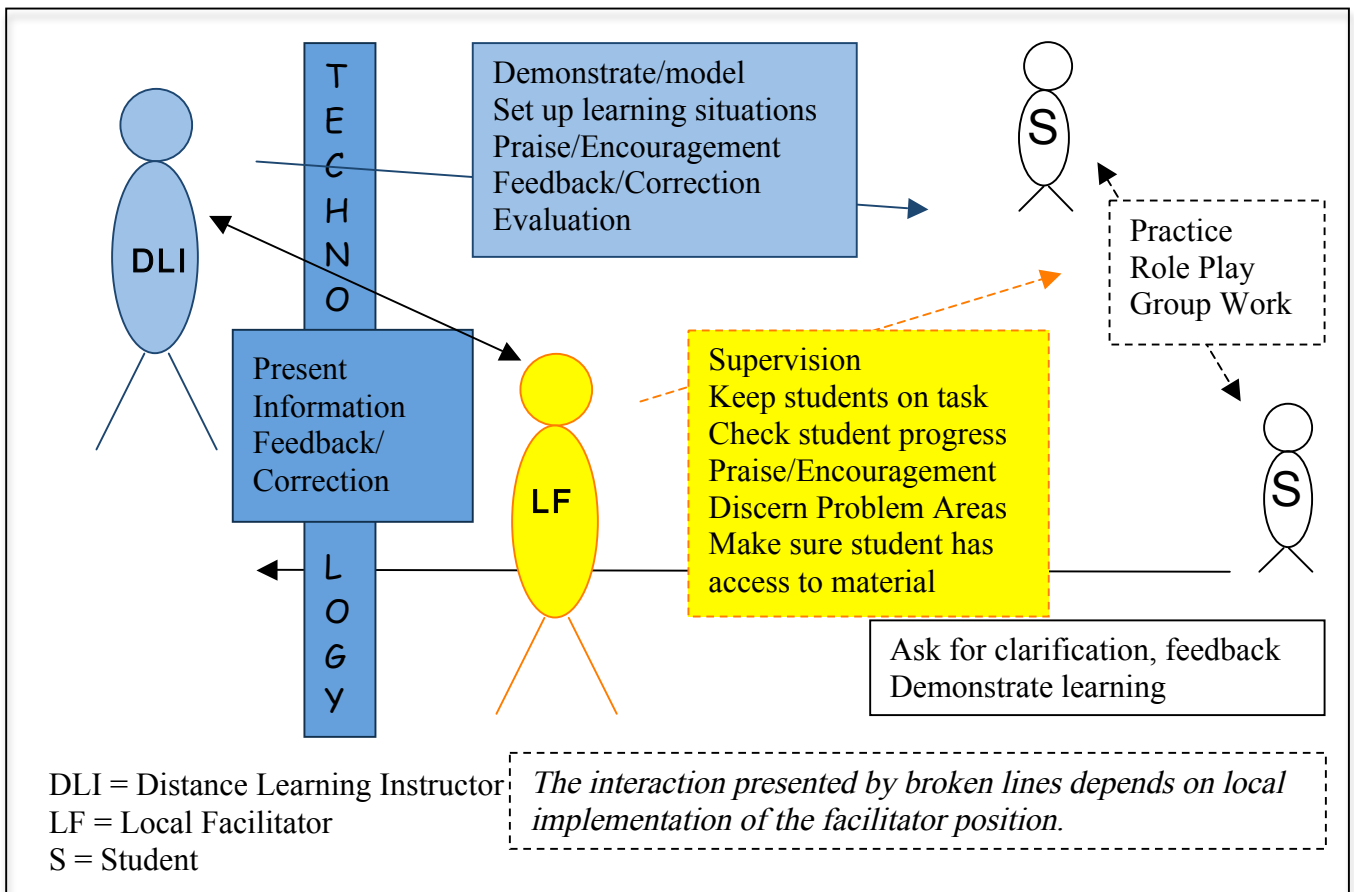


Figure 2. Teacher Roles and Interaction in a Distance Learning Classroom

(O'Dwyer, Carey, & Kleiman, 2007), but this practice severely limits the scope of online enrollment. Online learning will be successful for a broader range of students only if structure and dialogue are increased through a careful design of online courses and through interaction, not only with the online instructor, but also with the local facilitator.

### History of Distance Education

There is very little research on the role of the local facilitator in online learning. To understand the lack of consideration for the role of the facilitator in K-12 online learning today it will be helpful to look at the historical development of distance education for this age group. Examining the history of distance education not only helps to gain a broader view of the current state of online learning, but it may also provide strategies to avoid the mistakes of the past. Unfortunately, the majority of current research in the field is missing the historical perspective and fails to learn from the past (Clark 2000, 2003; Evans & Nation, 2003). Tyack and Cuban (1995) note this ahistorical character of the debate not only for the issue of technology in education, but also for educational reform in general.

One of the main aspects affecting the role of the local facilitator in distance education is that historically, this form of education has been geared towards and utilized predominantly by adults (Barbour & Reeves, 2009; Peters, 1967; Schlosser & Simonson, 2006) who study independently without the need for a local facilitator. The predominance of adult learners in distance education can be traced to the first half of the 19th century when correspondence courses provided an opportunity for systematic learning to adults who either could not or would not attend traditional institutions because of time,

geographical and/or financial constraints (Holmberg, 1995; Schlosser & Simonson, 2006). Beginning with a variety of courses such as composition writing, shorthand, and languages in Sweden, England, and Germany in the early and mid 1800s, correspondence courses were also implemented in the United States in the second half of the 19th century at both commercial and academic schools (Schlosser & Simonson, 2010). This type of education allowed learners to study in their home or any other convenient location at a time suitable to their needs. Unlike self study, this form of independent learning was designed by an institution which provided feedback through a tutor or teacher at a different location (Bernard et al., 2004).

The basic purpose and characteristics of distance education - providing education otherwise not available, separation of learner and instructor, organization through an institution – have remained constant, but the media used for distance education gradually became more sophisticated. To the static paper and textbooks of correspondence study were added audio and visual recordings in the form of cassette tapes, film, video tapes, CDs and DVDs. The audio capability of radio courses in the 1920s added a live component to distance learning which was expanded by the video aspect of television in the 1950s, satellite broadcasts in the 1980s, and the Internet in the late 1990s (Reiser & Dempsey, 2007). Interactive technologies such as two-way radio, the telephone, and the computer (through audio and video conferencing, and chat rooms) allowed opportunities for synchronous dialogue between learner and instructor.

In addition to providing education opportunities for adults who cannot attend a traditional institution for various reasons, distance education has also been utilized in higher education, business and industry, and the military to alleviate the need for a

specialized teacher at a certain location (Reiser & Dempsey, 2007). The ability of distance education to provide instruction which is not otherwise available because of the lack of a teacher is one of the main reasons why in the early 1920s, distance education also found its way into public schools starting with its earliest form, correspondence study (Young & McMahon, 1991). High school students in Benton Harbor, Michigan were able to take vocational courses by correspondence starting in 1923, and in 1929 the University of Nebraska started to offer correspondence courses for high schools. Especially rural school districts, which often do not have the means to offer specialized instruction for college-bound students, considered distance education as an opportunity to provide a broadened curriculum. As a result, a number of rural school districts turned to correspondence courses in the 1920s. In addition to providing advanced courses for college-bound students, correspondence courses were also used to provide an opportunity for credit recovery to high school students who had failed a required course, or for students who were homebound because of illness (Young & McMahon, 1991).

Distance education for public school students is especially attractive for rural and remote areas, as in the United States, Canada and Australia. In Australia, “vast outback regions made the government aware almost a century ago of the need for distance education” (Stacey, 2005). Lessons were distributed to students’ homes in isolated areas through correspondence courses, starting in 1909 in the state of Victoria. Beginning in 1951, these text-based lessons were augmented by the ‘School of the Air’ using two-way wireless radio equipment (Lowrie, 2006).

In the United States about half of all public school districts are rural, and the majority of these are small (McLaughlin, Huberman, & Hawkins, 1997). The lack of

specialized teachers in these districts is exacerbated by the fact that American schools are financed through local property taxes. Small tax bases in rural communities create school districts that lack the funds to offer advanced or specialized courses to their students. The more centralized financing of public schools in European countries together with a higher population density is the main reason why distance education in Europe to this day is used almost exclusively by adult learners.

The earliest form of distance education, whether for children in the Australian outback, European adults, or high school students in the United States, was correspondence study. A problem with correspondence study, as with later forms of distance education, was the low completion rate. The University of Nebraska, who started to provide correspondence courses for high school students in 1929, sought to raise completion rates by requiring schools to provide supervision by “an appropriate and interested adult” (Young & McMahon, 1991, p. 94). As a result, completion rates for the Nebraska correspondence courses ranged from 65% to 75%, much higher than the average completion rate of 30 - 50% for correspondence students working on their own (Billings, 1988). This is an early indication that local support for students in public school distance education plays an important part in student success.

### Great Expectations

The Nebraska correspondence program was successful for over 70 years (Young & McMahon, 1991). With this longevity it fared better than other technologies that were used to bring distance education courses into schools. Media like film and radio in the 1920s, TV in the 1950s, and satellite broadcast in the 1980s and 1990s seemed to follow

the same pattern of initial enthusiastic support with high expectations, only to virtually disappear from the educational landscape a few years later (Cuban, 1986; Reiser & Dempsey, 2007; Schlosser & Simonson, 2006).

Each new technology found enthusiastic supporters who expected it to revolutionize teaching and learning in schools. William Rainey Harper, head of the Chautauqua College of Liberal Arts correspondence courses in the late 1800s, believed that students learned more in correspondence courses than in regular classrooms and that eventually, there would be more work done through correspondence courses than in college classrooms (Schlosser & Simonson, 2006). Thomas Edison stated in a 1922 interview that “the motion picture is destined to revolutionize our educational system, and that in a few years it will supplant largely, if not entirely, the use of text-books in our schools” (Weir, 1922, p. 85). William Levenson, the director of the Ohio School of the Air (as cited in Cuban, 1986), expected the “portable radio receiver” to become “as common in the classroom as is the blackboard. Radio instruction will be integrated into school life as an accepted educational medium” (p. 19). Instructional television was implemented in public schools in the 1950s and 1960s as an answer to teacher shortages, overcrowded classrooms, and school quality in general (Cuban, 1986). In 1968, President Lyndon Johnson praised televised instruction as an efficient, inexpensive, readily available means of teaching children (Cuban, 1986, p. 30).

Claims and expectations similar to those made for earlier forms of distance education have also been voiced for K-12 online learning. The National Technology Plan 2004 is titled “Toward a New Golden Age in American Education: How the Internet, the Law and Today’s Students are Revolutionizing Expectations” (U. S. Department of



Education, 2004). The authors speak of “dramatic changes” and “a new excitement in the vast possibilities of the digital age for changing how we learn, how we teach” (p. 9). According to this plan, the use of new technologies will lead to dramatic improvements in education which in 10 years’ time will comprise “the greatest leap forward in achievement in the history of education” (p. 11). Smith, Clark, and Blomeyer (2005) see K-12 online learning as a “tool for education reform” (p. 3) and Christensen, Horn, and Johnson (2008) predict that “by 2019, about 50 percent of high school courses will be delivered online” (p. 98). The authors of the National Educational Technology Plan 2010 (U. S. Department of Education, 2010) state that we “need revolutionary transformation, not evolutionary tinkering” (p. 3). In contrast to these exuberant expectations and predictions, Zucker and Kozma (2003) conclude from their five-year evaluation of the nationwide Virtual High School organization that virtual schools will be more successful if they do not differ too much from traditional schools (p. 120). They believe that “the promises made for online technologies as a way of improving curriculum or instruction have yet to be delivered” (p. 122).

In addition to the enthusiasm and expectations for the different technologies in distance education, there is also a considerable amount of financial investment, both from public and private sectors. Cuban (1986) found that by 1971 over \$100 million had been spent on instructional television by both public and private sources (p. 28). Satellite instruction was heavily supported by the federal Star Schools program with an initial allocation of \$100 million in 1988 (Barker & Dickson, 1996). The last two decades have seen substantial investment of public funds in computers and the Internet for public schools, as exemplified by the \$2 billion made available through the Technology Literacy

Challenge Fund and the \$2.25 billion spent per year on providing public schools with Internet connections (Federal Communications Commission, 2010). In addition to the proliferation of public spending on technology in schools, there has been a growing number of for-profit vendors of online courses. Picciano and Seaman (2010) report that of those high schools surveyed who had at least one student enrolled in online courses, 36% were using for-profit vendors to provide online courses (p. 15). The increased competition by commercial vendors prompted Watson, Gemin, Ryan and Wicks (2009) to warn of a “‘race to the bottom’ driven by price competition at the expense of quality” (p. 44) and Gunawardena and McIsaac (2004) express concern about the “commercialization of distance learning” (p. 355).

In spite of the considerable financial investment and the high expectations for technology-supported distance education, the initial enthusiastic adoption of film, radio, TV and satellite broadcasts was followed by disuse and disenchantment (Reiser & Dempsey, 2007). Schlosser and Simonson (2006) state that of the 176 radio stations constructed at educational institutions for the purpose of broadcasting distance education courses in the 1920s, “most were gone by the end of the decade” (p. 9). Reid (1961), who examined distance learning courses for foreign language instruction in public schools, found “an explosive expansion” of televised courses in the 1950s, especially in elementary schools. However, by 1960 almost all of these had been discontinued. Satellite broadcasts seemed to follow the same pattern, with a steady drop in enrollment in the 1990s (Lewis, 2001). It is noteworthy that these instructional technologies suffered a decline in use rather than being replaced by new technologies (Reiser & Dempsey, 2007). It is possible that K-12 online learning will suffer the same fate, unless

implementation in local schools is carefully researched in order to arrive at best practices, which ensure student success and facilitate effective integration of online learning in the schools.

### History of Foreign Language Instruction in the United States

Guidelines for the implementation of online learning that are based on empirical evidence and the establishment of best practices are especially needed for online foreign language courses. Foreign languages are not only some of the most often-taught subjects through distance courses because of teacher shortages (Gunawardena & McIsaac, 2004; Hannum et al., 2009), but there is also some evidence that they are more difficult to teach online than other subjects (Cavanaugh, 2005; Oliver et al., 2009).

Foreign language instruction has always played a secondary role in American schools. Although modern languages were introduced in public schools in the second half of the 18th century, they were considered academically inferior because they were thought to have little influence on the training of mind and character (Marsh & Willis, 1999). Often foreign language teachers were native speakers who had little teaching experience (Zeydel, 1961). In the 19th century, the teaching of foreign languages gradually gained popularity through the large influx of European immigrants and through a more utilitarian view of education. This development suffered a severe blow with America's entrance into World War I in 1917. Everything foreign was held in contempt (Grittner, 1969). The teaching of German was forbidden in 22 states (Zeydel, 1961) and some states attempted to ban the teaching of all foreign languages (Simon, 1980). Paul Simon describes the ensuing attitudes in his book "The Tongue-Tied American" (1980)

as “linguistic parochialism” (p. 28), “cultural arrogance” (p. 31), “increasing provincialism” (p. 37), and “international illiteracy” (p. 60).

After experiencing a record low enrollment in 1982, foreign language classes received a boost through several government reports such as “A Nation at Risk” (National Commission on Excellence in Education, 1983), which stressed the importance of foreign language teaching for America’s national interest. Schools introduced foreign language requirements for graduation, and colleges established minimum foreign language entry requirements.

The revitalization of foreign language instruction was hindered by the struggles of the profession to find effective teaching methods. The grammar-translation method, which had been used in the 19th and early 20th centuries to teach the reading and translation of Latin and Greek texts, was not effective when the goal of language instruction shifted to language proficiency as a practical skill (Grittner, 1990). Other methods, which relied more on the speaking and listening aspects of language teaching, such as the Direct Method or the Audio-Lingual Method, failed to lead to language proficiency in students. More recently, Krashen’s “natural approach” which relies on a large amount of “comprehensible input” (Krashen & Terrell, 1983), or the “Total Physical Response Storytelling” method (Ray & Seely, 1997), which uses gestures and sign language extensively, require a great deal of effort and energy on the part of the teacher. As a result, many teachers continue to use the grammar-based approach, even though it is ill-suited to achieve communicative skills in a language.

Another reason why often K-12 foreign language instruction fails to achieve the goal of proficiency lies in the insufficient length of most language studies. The erroneous

assumption that a modern language can be learned in school in two years goes back to the 1893 report of the Committee of Ten formed by the National Education Association. In this report, the committee recommended four years of foreign language study but also provided for a shortened two-year study (Zeydel, 1961). Although the report intended this as an exception from the rule, it created the impression that a foreign language can be learned in two years.

The lack of importance accorded foreign language teaching in schools and the scarcity of generally-accepted efficient teaching methods has resulted in a teacher shortage for all languages except Spanish, which can draw on a large pool of native and heritage speakers. As a result of the lack of qualified teachers, foreign languages are a prime candidate for K-12 distance education (The Public Good, Inc., 2008).

The German high school distance learning program examined for this study was created in 1984 in answer to a request from several rural high schools, who did not have the teachers to prepare their students for the foreign language requirement instated at the state university that year. To meet the needs of these schools, the university charged the German professor with the development of high school distance learning courses which utilized satellite broadcasts twice a week and computer-assisted and textbook exercises for the remainder of the week. Students who were able to view the broadcasts live were able to communicate with the instructors through a telephone connection. With the help of a Star Schools grant the program purchased a number of computers, which were sent to participating schools on loan. The program grew from 333 students at 39 high schools in 1985-86 to 2308 students at 210 schools for the 1991-92 school year.

However, starting with the 1992-93 school year, enrollment in the German courses began to decline steadily, until there were only 501 students at 45 schools for the 2000-01 school year. This drop represents a decline of almost 80% from the 1991-92 figures. Just as for older technologies used in distance education, such as film, radio, and television, there is very little research into why the satellite broadcast method ultimately failed to make the expected impact on education. As Tyack and Cuban remarked in their 1995 book “Tinkering Toward Utopia”, there is a rich paper trail in the advocacy stage of “shooting star reforms ... when people make grandiose claims for them. It is harder to discover why reforms fade, for when they do, strategic silence often ensues” (p. 113).

The German high school program has survived in part because the developers changed to the online format starting in 2001-02 with a sweeping overhaul of the program structure. This included a larger emphasis on instructor-student communication through weekly tutoring sessions which are conducted with individual students or small groups through regular phone lines or utilizing computer phone programs. It remains to be seen if online learning will suffer the same fate as film, radio, television, and satellite broadcasts, that is, being relegated to the sidelines of education after great gains in the first few years.

### Growth in K-12 Online Learning - A One-Sided Picture

Judging from the figures reported by a number of studies, online learning has so far escaped the trend shown by other technologies in education of initial explosive growth with subsequent declining enrollment. Several researchers report a continued steady growth in online course enrollments for K-12 education (Picciano & Seaman,

2010, 2009, 2007; Watson et al. 2009; Watson, Gemin, & Ryan, 2008; Zandberg & Lewis, 2008). However, although the overall enrollment in K-12 online courses is growing, some of the figures need to be considered with caution. For instance, a much-cited number (e.g. by Berge & Clark, 2009; Flores, 2010; Hawkins & Graham, 2010; U.S. Department of Education, 2009; Watson et al., 2009; Wise & Rothman, 2010) is Picciano and Seaman's (2009) estimate of 1,030,000 K-12 students engaged in online courses in 2007-2008 which represents a 47% increase over the 2005-2006 school year (p. 11). It should be noted that Picciano and Seaman arrived at this figure by extrapolating from the 66,239 students which were self-reported by the districts they surveyed. Their survey had a very low response rate, 867 from 10,000 contacted school districts (8.67%). This raises the issue of a "self-selected sample" if school districts who are not using online learning chose not to respond. It calls into question the validity of generalizing from a sample of 867 to a population of 16,098, the number of school districts in the United States in 2007-2008.

Before Picciano and Seaman's 2009 study, the only comprehensive examination of distance education enrollment in K-12 schools was conducted by Setzer and Lewis (2005) who collected data during the 2002-03 academic year with a follow-up study for 2004-05 (Zandberg & Lewis, 2008). The researchers made an estimation of total enrollment in distance courses based on their sample of 2167 school districts in 2002-03 and 2176 school districts in 2004-05. They found an increase from an estimated 317,070 enrollments in 2002-03 to an estimated enrollment of 506,950 enrollments in 2004-05 (Zandberg & Lewis, 2008, p. iv). These estimates represent course enrollments, not student numbers, and they include any course where the teacher and students were

separated by space. In addition to online courses, this figure also includes courses delivered through two-way interactive video, one-way prerecorded video, teleconferencing, CDs, and software packages (p. 59).

The estimate of 1,030,000 K-12 students enrolled in online courses is put into perspective when it is compared to the total number of students in public schools. Total enrollment in public elementary and secondary schools was 49.3 million students for the 2008-09 school year (Sable & Plotts, 2010). Of those, 14.9 million were enrolled in grades 9-12. If we assume that high school students enroll in five courses per school year, we arrive at a total course enrollment of 74.5 million for high school students. Compared to these figures, the estimated enrollment in distance learning courses hardly warrants expressions like “explosive growth” (U.S. Department of Education, 2004).

Whereas the percentages of growth in course enrollment of 60% by Zandberg and Lewis (2008) and 47% growth in student enrollment estimated by Picciano and Seaman (2009) are cited in a number of studies, there are some other figures in these studies that receive no consideration by other authors. For instance, Zandberg and Lewis (2008) found that the percentage of public school districts with students enrolled in technology-based distance education had not changed between the 2002-03 and the 2004-05 school years. The 11% of new school districts were offset by 11% of districts who had had students enrolled in distance courses in the 2002-03 year but did not have any enrollments for 2004-05 (p. 56). This number was larger for rural districts; here there were 13% of districts who no longer had any students enrolled in technology-based distance education courses in 2004-05 (p. 56). Hannum and Irvin (2009) surveyed 417 rural schools in the spring of 2005 and found that 15.7% had previously used distance



education but were not currently doing so. Another instance of no growth or decline in enrollment in online learning are the state virtual schools in Georgia, Utah, Illinois, Hawaii, Virginia, Colorado, Wisconsin, Kentucky, and Maryland who reported the same or lower enrollment in 2008-09 as compared to the prior school year (Watson et al., 2009, p. 21). Even the increase of 40% in enrollment for state virtual schools in the 2009-10 school year reported by Watson, Murin, Vashaw, Gemin, and Rapp (2010) does not present a clear picture of overall growth, because the two state virtual schools in Florida and North Carolina account for 96% of the net growth.

Whereas these last figures represent only a small counter-weight to the general trend of growing enrollment in online learning, they are necessary to gain a balanced picture of the state of K-12 online learning today. These figures also stress the fact that online learning will not automatically be successful in public schools. Instead, researchers and school administrators need to give careful consideration to how online learning is best implemented at the local school level. A factor for successful implementation that is sometimes ignored by school administrators and researchers is the support students receive at their schools. For this, as for any other type of school reform, it is imperative that the teachers who are responsible for implementing the reform are heard (Cuban, 2001). A facilitator quoted in the evaluation of the North Carolina Virtual Public School by Oliver et al. (2009) expressed concern that the online courses provided by the state virtual school will be only “mildly successful” (p.19) unless full-time positions for local facilitators are funded.

## K-12 Online Learning and School Reform

The negative aspects of the K-12 online enrollment trend outlined above give weight to the assumption that online learning will not have the revolutionizing impact on public education that some of its most enthusiastic supporters envision. However, there are areas where online learning can contribute to education reform. Online credit recovery courses can provide an opportunity to gain the credit they need to graduate or to graduate on time to students who failed a required course (Picciano & Seaman, 2010). This can help improve the graduation rate for American high schools which has been around 70% since the late 1960s (Aud & Hannes, 2010; Darrow, 2010; U.S. Department of Education, 2008).

Online courses can also be used to raise graduation rates by providing the opportunity to earn college credit while still in high school and by advanced placement courses (Picciano & Seaman, 2010). Taking college courses while still in high school was in the past limited to students who lived near a college or university. Making these courses accessible to all students regardless of their geographical location provides an incentive for students to finish high school and to go on to college. Taking these advanced courses also reduces the need for remedial courses in college, and taking them online prepares students for the independent learning required at the college level.

A third area where online learning may provide help with an issue facing education today is in the financial sector. State budgets are facing declining revenues over the next several years (Wise & Rothman, 2010). School administrators are faced with the choice of trying to do the same with less or to innovate and implement changes

that will make better use of decreasing funds. Picciano and Seaman (2010) believe that choosing online courses over trying to hire qualified teachers for specialized subject areas with low student enrollment will result in savings even when considering the cost of providing local teacher support.

In order to utilize online learning effectively for areas such as credit recovery, advanced or college-level courses, and cost reduction, a reform of some existing practices is necessary. States' attendance-based funding formulae do not easily accommodate students taking online courses (Picciano & Seaman, 2010). Wise and Rothman (2010) suggest that instead, state and school district funding can be based solely on student results and mastery. This approach has been successfully adopted in Florida, where the Florida Virtual School receives state funding based on the number of students who successfully complete their courses (Florida Tax Watch Center for Educational Performance and Accountability, 2007). As a result of this funding policy, Florida Virtual School has been the fastest growing state virtual school in the United States with a 2010 course enrollment of 220,000 (Watson et al., 2010).

The same principle of freedom from geographical boundaries where state funding follows a student regardless of where the student is taking a course also needs to apply to teacher certification. The requirement that students in a state are taught by a teacher who is certified in that state prevents the utilization of online courses which originate from beyond state boundaries (Flores, 2010).

There are very few researchers who have addressed the reforms and types of implementation needed to make online learning work in public schools. Instead, many researchers have focused on whether this form of education can result in the same or

better student achievement as traditional classroom education. Much effort and money has been expended to compare distance education to traditional education. The results have been inconclusive but have led to the widely accepted claim that students can achieve at the same or a slightly better level with the new technology when compared to traditional classroom instruction.

### The “No Significant Difference” Claim

Starting with correspondence study for high school students, there are studies and meta-analyses of studies for each of the technologies used in K-12 distance education which come to the conclusion that students perform as well as or better than students learning the same subject through traditional classroom education (Clark, 2001).

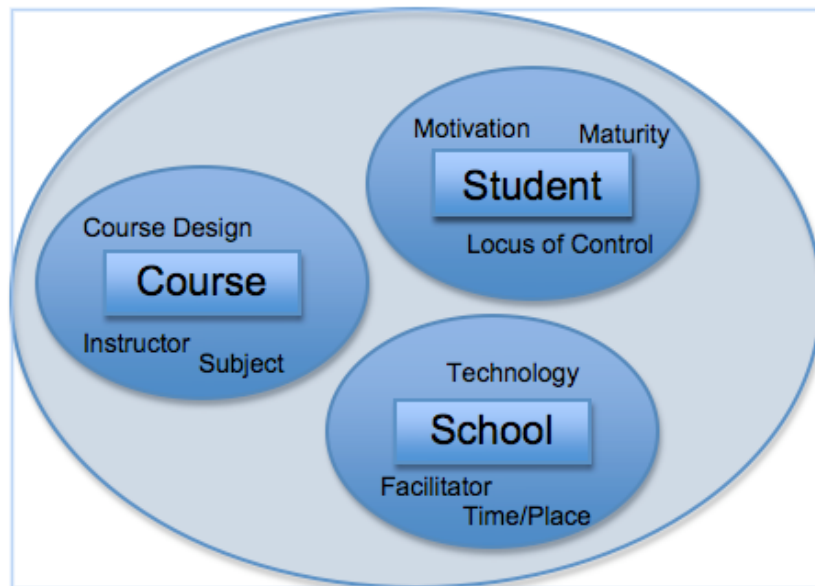
Examples are Childs (1954) study for “supervised correspondence courses”, Jamison, Suppes, and Wells (1974) meta-analysis for radio, Kumata (1960) and Stickell (1963) meta-analyses for instructional television, and Abdous and Yoshimura (2010) study for satellite broadcasts. Although the generally accepted finding is that of “no significant difference”, several of the authors of meta-analyses point out that although there is an abundance of studies comparing distance education to traditional instruction, many of these studies do not follow rigorous standards and are of poor methodological quality (Bernard et al., 2004; Stickell, 1963; U. S. Department of Education, 2009; Ungerleider & Burns, 2003).

Just like their predecessors, the five most recent meta-analyses of comparison studies for distance education which include online learning found either no significant difference between student achievement in distance education courses and traditional

classrooms (Bernard, et al., 2004; Cavanaugh et al., 2004; U. S. Department of Education, 2009; Ungerleider & Burns, 2003), or suggested a positive effect for distance education (Shachar & Neumann, 2003). All of these noted considerable heterogeneity in the findings with a large range of effect sizes. Bernard et al. (2004) conclude that it is “simply incorrect to state that DE is better than, worse than, or even equal to classroom instruction on the basis of mean effect sizes and heterogeneity” (p. 406). They found that the wide variability and heterogeneity in their meta-analysis, rather than pointing to a ‘no significant difference’ outcome, instead supported the assumption that “instructional practices, independent of the medium, are critical to all forms of educational practice” (p. 411), including distance education. This supports Clark’s (2000, 2001, 2003) assumption that it is pedagogy and instructional design that influences student achievement rather than the media used to deliver distance education. For this reason, Clark (1983) questioned the value of comparison studies and recommended that they should be abandoned in favor of research examining the influence of “instructional technology” on student achievement. This shifting viewpoint is documented in Picciano and Seaman’s 2010 survey of 441 high school principals. The researchers found that the school administrators had concerns about the effectiveness of online learning not based on the delivery medium, but on “the students’ motivation and maturity levels, study habits and organizational skills, as well as their academic preparedness” (p. 23). However, these are only some of the factors that affect student achievement in online learning.

## Factors for Student Achievement in Online Learning

As with other areas of K-12 online learning, research into factors affecting student achievement at this level is scarce. The research that does exist sometimes comes to contradicting results. Roblyer, Davis, Mills, Marshall, and Pape (2008) point out that “there is considerable diversity of opinion about factors hypothesized to contribute to online success” (p. 94). They deplore the fact that researchers look at different sets of variables and measure them in different ways, resulting in inconsistent findings that seem to vary with the population.



*Figure 3.* Units of analysis of K-12 online learning with possible factors for student success

To group some of the extant research, variables affecting student achievement in K-12 online learning can be divided into three broad units of analysis: the online course, local school (implementation), and student characteristics (see Figure 3). Studies

comparing traditional and distance education have found very little or no effect of different course attributes on students achievement. For instance, Cavanaugh et al. (2004) examined the following course attributes in a meta-analysis of 14 studies comparing distance education to traditional education: academic content area, length of the program, pacing of instruction, and timing of instruction. The researchers found that none of these had any significant effect on student achievement (p.15). The lack of effect of the subject matter on student achievement in comparison studies is supported by the U.S. Department of Education comparison study of 2009. However, when Oliver, Brady, Patel, and Townsend (2009) compared online courses offered through the North Carolina Virtual Public School in six subject areas, they found that students and teachers rated the foreign language and math courses significantly lower in student success. The researchers felt these two subjects may present greater challenges to teach in an online course and recommend special training for the online instructors in these subject areas. In a follow-up study, Oliver, Kellog, and Patel (2010) noted that over 90% of the high school students felt that lack of facilitator support at the local school was a barrier to their success in these courses. The researchers concluded that for challenging subjects such as foreign languages, adequate support for student learning needs is of prime importance.

Whereas in the Oliver, Kellog and Patel (2010) study the students reported that deadlines in the foreign language courses were hindering their success because they did not allow enough time to successfully master the subject, Weiner (2003) found in a qualitative study of 103 students at a 'Cyberschool' that greater course structure (deadlines, schedules, study guides) improved student outcomes. Another course-related factor contributing to student success mentioned in several studies is the opportunity for

increased interaction between online teachers and students (Dickson, 2005; Oliver, Kellog, & Patel, 2010; Roblyer & Wiencke, 2003).

Some researchers argue that on the K-12 level, teacher quality is among the most important contributors to student achievement (Cavanaugh, 2007). Whereas some skills required by distance learning instructors are similar to those needed for effective classroom teaching, the instructor of an online K-12 course needs to master some special techniques, such as virtual management skills and being able to engage students through virtual communications (Davis, Roblyer, Charania, Ferdig, Harms, Compton, & Cho, 2007).

Cavanaugh et al. found no impact of differences in local implementation of the online courses on student achievement in their 2004 meta-analysis of studies comparing distance and traditional courses. The researchers found no significant effect for type of school, grade level of the students, or setting (at home, non-school location, school). This contradicts the study of Roblyer et al. (2008) who found that a class period set aside at school (as opposed to students working at home or another location) contributed to student success.

Research on student characteristics for success in K-12 online courses yields several variables that relate positively to student achievement not only in online courses, but also in traditional classroom courses (Cavanaugh, 2007; Kirby & Driscoll, 1997). For instance, Weiner's 2003 study suggests that key factors for student success in K-12 online courses are motivation and self-discipline (p. 46). Ferdig, DiPietro, and Papanastasiou (2005) found that the Educational Success Prediction Instrument (ESPRI) measuring the learner's locus of control, internal motivation, self-confidence,



responsibility and time management skills correctly predicted student success in a small sample. Using the same instrument, Roblyer et al. (2008) found that achievement beliefs (internal locus of control), instructional risk-taking, and organization (study habits) have a positive effect on student achievement.

The finding that online learning seems to be most suited for students who also do well in traditional settings has been of concern to some researchers because it contradicts one of the main purposes of distance education in schools. From its inception as correspondence courses, distance education has been considered a means of democratization of education by providing learning opportunities for underserved students (Flores, 2010; Saba, n.d.). In order for online courses to work for all students, not just highly motivated and disciplined ones who are able to work independently, support through a local teacher is necessary (Barbour & Mulcahy, 2004; Davis & Roblyer, 2005; Harms, Niederhauser, Davis, Roblyer, & Gilbert, 2006). This is especially true when online courses are used to help students gain credit for required courses which they failed in a traditional setting or to get dropout students back in school (Ferdig, 2010).

#### The Role of the Local Facilitator in Older Forms of Distance Education

Until the development of online learning in the late 1990s, distance education tried to emulate traditional classroom instruction (Bernard et al., 2004; Moore, 2007) with a group of students focused on an information-provider, such as the radio or TV. The presence of the classroom teacher was not only taken for granted as part of the traditional model of classroom instruction, but the presence of a certified teacher was also

required for accreditation of the school using the distance course (Payne, 1990). After extensive observation of three high school classrooms during their physics class broadcast by satellite, Kirby and Driscoll concluded that “distance education does not constitute a distinct educational process” (1997, p. i). Moore, Burton, and Dodl (1991) observed satellite broadcast classes in 13 high schools and middle schools. They found that many students “reported that after a short time the ‘live’ format was little different than a regular class” (p. 37).

In K-12 distance education, the role of the classroom teacher changes to facilitator of learning by supervising and encouraging the students rather than dispensing knowledge. Assuming the role of a support person may not be easy for practitioners accustomed to their classroom autonomy (Payne, 1990, p. 86) and could be experienced as “threatening” (Gunawardena, 2004, p. 377). Facilitator tasks for earlier forms of distance education included: distributing materials, eliciting student participation, keeping students on task, grading and recording homework, and proctoring tests (Kirby & Driscoll, 1997; Moore et al., 1991). Facilitators were also expected to maintain regular communication with the course instructors and encourage students’ communication with the instructors (Payne, 1990). Kirby and Driscoll (1997) found in their qualitative study that a major task for facilitators was “matching the features and requirements of the distance education course to the local school and students” (p. 12). Facilitator activities that had a positive effect on student performance according to Kirby and Driscoll (1997) are “working to keep ... students on task, paying attention, behaving appropriately and participating in classroom activities” (p. 13). This was true for students who “found it hard to focus and pay attention and relied on the facilitator to keep them on task” (p. 13).

On the other hand, students who were self-motivated and disciplined stated that their facilitator had little effect on their classroom performance (p. 14).

In Payne's 1990 Delphi study of facilitators and administrators, the ten most often named characteristics of effective facilitators are: background knowledge, positive attitude/enthusiasm, active participation in support of the course, motivation skills, dedication to/interest in the distance course, ability to cooperate with the distance education instructor, familiarity with equipment, organizational skills, time management skills, and communication skills. Moore et al. (1991) concluded that having "enthusiastic, skilled, and committed facilitators" (p. 38) is a high priority for success of a distance learning program. While the presence of the local facilitator with media like radio, TV, or satellite broadcast was not called into question, the advent of online learning brought some changes which also affected the aspect of local student support.

### Online Learning - a Paradigm Shift in K-12 Distance Education

The reasons for school districts to turn to distance education for K-12 students remain the same for online learning as they were for older forms: offering courses otherwise not available, offering Advanced Placement courses, credit recovery courses which allow students to get required credits for courses they failed or were not able to take for various reasons, students' scheduling conflicts, and lack of qualified teachers (Berge & Clark, 2009; Cavanaugh et al., 2004; Peña, 2009; Picciano and Seaman, 2010; Smith et al., 2005; Zucker & Kozma, 2003). Some researchers also mention providing educational opportunities for home-bound students (Christensen, Horn, & Johnson, 2008) and possible financial savings (Moe & Chubb, 2009; U.S. Department of Education,

2009). Also unchanged are the basic components of K-12 distance education: the separation of teacher and students by space and time, the use of technology to deliver instruction, and the organization through an institution.

However, there are a number of changes in online learning compared to older forms of distance learning. New technologies such as email, chat rooms, and low-cost video conferencing improve the ease and speed of communication between the student and instructor (Anderson, 2004). Interactive computer exercises and online quizzes provide instant feedback. Course material which is available to the learner at any time does away with the school's scheduling problems encountered with live radio, TV, or satellite broadcasts. Perhaps the most incisive change is the fact that online learners usually are not taught as a group, but instead work with the course material individually at computers. This has allowed for a greater individualization of learning (Christensen et al., 2008; Moe & Chubb, 2009; Smith et al., 2005). It has also disrupted the traditional model of instruction for a group of students by the classroom teacher. O'Dwyer, Carey, and Kleiman (2007) come to the conclusion that "online learning programs provide students and teachers with quite different teaching and learning environments than those provided in traditional, face-to-face settings" (p. 73).

There is a gap in the literature about the practical implications of the fact that K-12 online learning not only differs from traditional education but also from earlier forms of distance education. One of the changes is the greater individualization of instruction. Students are interacting with the course material on an individual basis. Supplemental practice can be offered to students when and as they need it. The online instructor can interact with students on an individual basis as they need clarification, rather than having

to follow the traditional ‘one-size-fits-all’ approach. Pacing and sequence of instruction can be individualized for many courses.

### The Role of the Facilitator in Online Learning

With the advent of online learning, the role of the local facilitator has also changed. The on-site teacher no longer has to distribute materials like textbooks, assignments, and quizzes because materials for most courses are available online. Quizzes can be taken online and are graded either by the computer or the online instructor. Grades no longer need to be recorded by the local teacher as they are available online. The fact that some of the tasks formerly performed by the local facilitator are now assumed by the online system has led some schools to conclude that there is no on-site teacher required for online learning.

However, while the computer can assume several of the tasks formerly assigned to the distance learning instructor or to the local facilitator, it cannot initiate the learning sequence. Actually sitting down and working with the course material requires self-motivation, discipline and time-managing skills which only the more mature and advanced students possess at the K-12 level (Kirby & Driscoll, 1997). For students who for various reasons do not have the initiative to engage the course material on a regular basis, the presence of a local facilitator is of prime importance (Barbour & Mulcahy, 2004).

K-12 programs which assumed that the greater learner autonomy and lesser amount of structure in online courses have made the role of the local facilitator obsolete have experienced increased drop-out and lower course completion rates (Roblyer, 2006;

Zucker et al., 2003). In order to improve student achievement and retention, several online course providers and researchers have stressed the role of local student support (Peña, 2009). The evaluators of the Alabama Access program stated that “[s]tudents at remote sites are less independent than first thought and a facilitator should be available at remote sites to offer support and guidance. ... facilitators that are directly working with students day by day are key to the success of the program” (Roblyer, Freeman, Stabler, & Schneidmiller, 2007, p. 11). Aronson and Timms, who evaluated the University of California College Prep Initiative, found that course completion rates improve considerably “when students receive adequate preparation and support for online study” (2003, p. 4). Peña (2009) reports that one school improved their student success rate in courses provided by the Colorado Online Learning program to over 90% by assigning a local coordinator.

Tasks for the local facilitator in K-12 online courses include monitoring student grades and progress, providing face-to-face individualized support, making sure that students keep up with the course work and submit assignments on time, registering students for the online courses, screening students, maintaining communication with the online instructor and with parents, and providing assistance to students who are having problems with the technology (Aronson & Timms, 2003; Barbour & Mulcahy, 2004; Harms et al., 2006; Oliver, Brady, Patel, & Townsend, 2009; Peña, 2009). Also an important task for the local facilitator is to proctor students during online tests in order to cut down on problems with plagiarism and cheating (Peña, 2009). In order to fulfill these tasks, facilitators need to be “creative problem-solvers” (Aronson & Timms, 2003) and need to be proactive in monitoring students. In a study of more than 1700 students taking

online courses from a state virtual school, Oliver et al. (2009) found that only about half of the students felt that their facilitators were adequately fulfilling their tasks. About a quarter of the students and 85% of the online instructors saw the lack of local student support as a barrier for students to take online courses.

A problem in many of the online programs has been the lack of training for local facilitators (Barbour & Mulcahy, 2004; Roblyer et al., 2007). Barbour and Mulcahy (2004) found that there were great differences in how local facilitators fulfilled their roles. They noticed that at some schools, online students were “largely unsupervised” and that communication with online instructors was hindered by technical problems (p. 8). Facilitators did not receive adequate training in the hardware and software used for the online courses. Online teachers in the Alabama Access program complained about lack of student supervision at the receiving sites and felt that better facilitator training is needed (Roblyer et al., 2007).

In order to develop a training program for local facilitators, the effect of facilitator activities on student achievement in K-12 online learning must be studied. The only study this researcher was able to find which mentions local teacher impact on student achievement is O’Dwyer, Carey, and Kleiman’s 2007 comparison study of the Louisiana Algebra I project. This project utilizes a hybrid model of online courses where students are taught Algebra I by an online instructor. Each class is supervised and led locally by a teacher who is mentored by the online instructor in order to become certified to teach the subject. This in-class teacher is taking over some responsibilities for teaching course content in this model, in addition to fulfilling the role of facilitator. The researchers compared student achievement in these classes to matched comparison classrooms where

students were taught with traditional methods. They found no significant difference in the achievement of both groups, but they did note some variation in achievement between different project classes. In classes where the in-class teacher reported ‘lack of teaching experience’, ‘lack of familiarity with technology’, and ‘difficulty substantiating student participation’, students had a significantly lower mean score on the posttest. Students of in-class teachers who frequently communicated with the online teachers about planning lessons and assignments had a significantly higher mean score on the posttest as did students whose teachers spent a larger amount of time working with individual and small groups of students. Not significant were reports of technical difficulties by teachers and communication with online instructors regarding grades.

Although local facilitators have been described as “the key to the success of the program” (Roblyer et al., 2007, p. 11) there is very little research on the role of the local facilitator, and a number of researchers agree that additional research is needed. Cavanaugh (2005) stated that “[i]t is no longer enough to ask whether distance education is effective, we need to understand why” (p. 306) and “We need to know how to make it more effective” (ibid.). Irvin et al. (2009) call for research “on ways to improve course completion and student achievement” (p. 30) and specifically for studies “that clarify factors that support and enhance the activities of the facilitators” (p. 34). Kleiman et al. (2005) recommend “additional research on local implementations to determine what are the most effective practices” (p. 44). The current study will examine local implementation of K-12 online courses with special emphasis on the role of the local facilitator.



## CHAPTER III

### METHODOLOGY

#### Research Questions

This study has two parts. First, a descriptive exploratory design was used to gather data on the local implementation of the *German Online* courses in order to find answers for the first two research questions:

1. How do high schools implement the online German courses?
2. What do local facilitators do to support students in the online German courses?

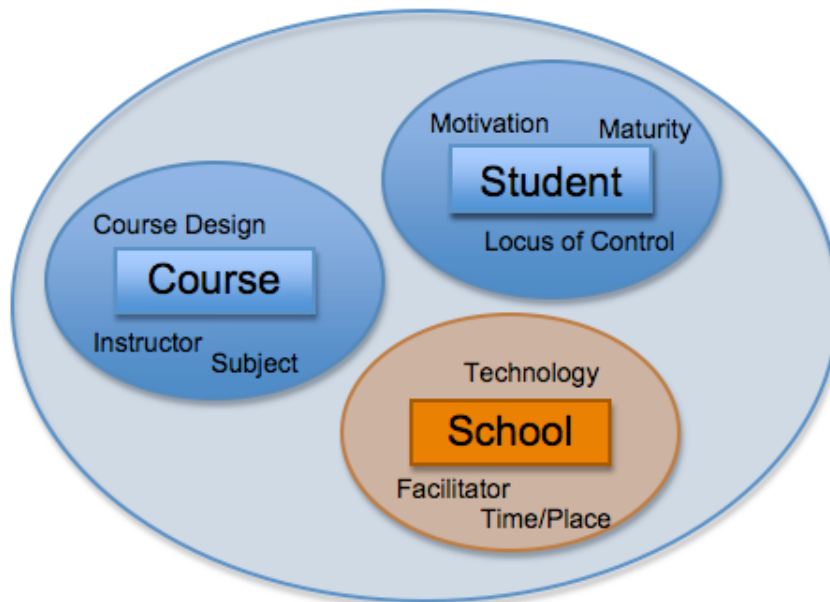
For the first question, a survey with six questions was sent in March and April 2011 to the principals of 255 schools that had at least one student enrolled in one of the *German Online* courses (see Appendix A). To obtain data for the second question, a survey with seven questions was sent to the facilitators at the same schools (see Appendix B).

Secondly, in order to examine whether any of the implementation practices and facilitator activities had a positive effect on student success, the researcher compared answers to the survey questions for schools with high average student grades and to those with low average student grades. The research question for this part of the study was as follows:

3. Which school implementation practices and facilitator activities have a positive effect on student achievement in the online German courses?

### The Setting

Components of K-12 online learning can be divided into three units of analysis: the course, the local school, and the student. This study focused on the implementation of the online German courses at the local school (see Figure 4). Influence of the course unit of analysis on student achievement was controlled in this study by examining the same courses of the German Online program at different schools.



*Figure 4. Focus of Study*

The *German Online* high school courses German I, German II, German III, German IV, and AP German were developed from 2001 to 2003. Although the *German Online* program is based on the older *German by Satellite* courses (1985-2001), there were substantial changes in the course design in order to take advantage of the online medium. Instead of using a commercial textbook, the course material is presented through video clips, animation clips, and sound files. While students watch the clips, they fill in the missing information on “Info Sheets” which they can either download to complete on their computer or print to fill in by hand. The material is practiced through self-checking computer exercises with immediate feedback and through worksheets. Keys for both the info sheets and the worksheets are available to the local facilitators on the course website. Students keep their printed info sheets and worksheets in a three-ring binder which at the end of the course represents a ‘textbook’ that the students have helped to write.

Students can be registered through the program’s website at any time of the year, either through their local school or as individuals. Within 24 hours of registration, the person shown as the school contact on the registration form receives log-in information for both the student(s) and the facilitator which allows immediate access to the course material. The course facilitator also has access to students’ grades and to a list of passwords for the online tests and quizzes that have to be proctored.

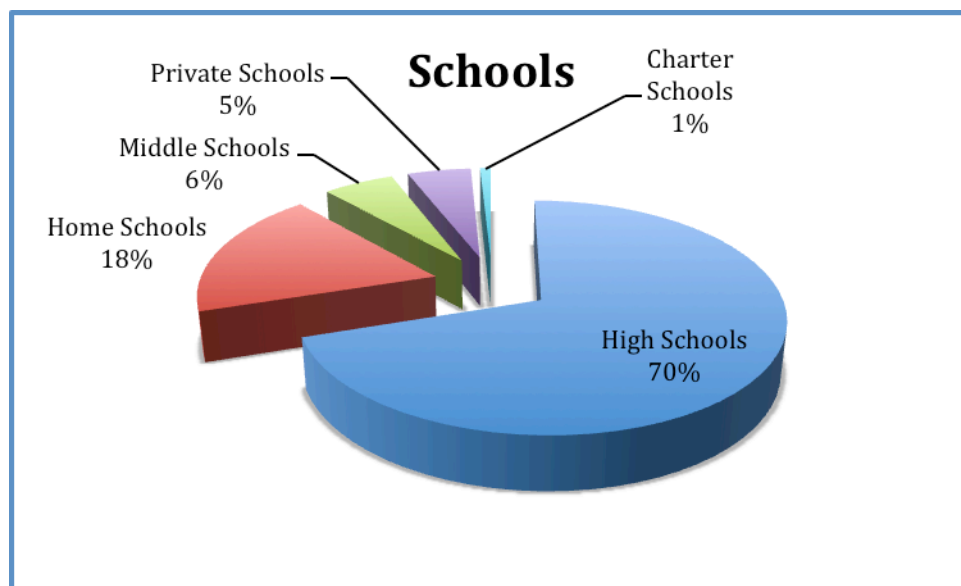
The *German Online* office has a staff of five to seven part-time tutors who are upper-division college students majoring in German, two full-time instructors, and one part-time instructor. In order to accommodate various time zones, office hours are 7:00 am to 6:30 pm Central time. During these hours, the *German Online* staff is available for questions and to conduct weekly tutoring sessions with students. The tutoring sessions

are set up with individual students or groups of up to five students at the same school. Students contact the *German Online* office for these sessions by either calling the toll-free number or using the computer phone applications Skype or Google phone. For interaction other than the tutoring sessions, students, teachers and parents use the toll-free phone number, the computer phone Skype, or email.

Once students are registered for a *German Online* course, they can work in the program for at least six weeks to see if the course is what they expected. During this time they can cancel the course without any repercussions. If students continue after this initial trial period, the *German Online* office issues an invoice for the course fee. For the 2010/2011 school year, the fee is \$250.00 per student per course. The fee is paid by the school, the school district, the state virtual school, or the parents of the students.

### Description of the Sample

Participants for the study were the principals and facilitators at schools utilizing the *German Online* high school courses during the spring 2011 semester. In the spring semester of 2011, there were 926 students at 353 schools in 41 states and Canada, Costa Rica, Germany, Hungary, Romania, and Switzerland enrolled in the *German Online* courses. Of the 353 schools, 247 (70%) were high schools, 65 (18%) home schools, 20 (6%) middle schools, 18 (5%) private schools, and 3 (1%) charter schools (see Figure 5). This study did not examine the home-schooled students because their situation is different from public schools, with a parent paying for and supervising the student. Of the 353 total schools, 221 (63%) high schools, middle schools, and charter schools were enrolling students for the German courses through their state virtual school.



*Figure 5.* Distribution of schools enrolled in the *German Online* program in the Spring of 2011.

The *German Online* program uses an open enrollment system that enables students to enroll and finish the courses at any time. This system enables schools to use the courses both for a whole school year or for a semester. Of the 353 schools in the Spring 2011 semester, 185 were on a block schedule with 85-90 minute class periods. Students at these schools take the courses in one semester which lasts from about the end of August/beginning of September to the middle of January for the fall semester and the middle of January to the end of May/beginning of June for the spring semester. The remaining 168 schools were using a year-long schedule with 40-45 minute class periods. At these schools, students take the same online course as the students on block schedules, but they start at the end of August/beginning of September and finish the course by the end of May or early June.

## Data Collection

Data for this study were collected February through June 2011. School implementation data were collected through a six-item survey for school administrators (see Appendix A). The administrators at 255 high schools and middle schools were contacted by email that contained a link to the online survey. The survey was anonymous, but asked for the school name for coding in order to facilitate association of school, facilitator, and student data. The first email was sent in March 2011 to 255 principals. Two follow-up emails were sent in April 2011 to those administrators who had not responded.

Facilitator data were collected through a seven-question survey (see Appendix B). The facilitators at 255 high schools and middle schools were contacted by email in March 2011 with a link to an online survey. The survey was anonymous but asked for the school name for coding in order to facilitate the association of school, facilitator, and student data. A follow-up email was sent in April 2011 to those facilitators who had not responded.

Student achievement data (course grades) were obtained in June 2011 from *German Online* records. These data were anonymous but were coded by school in order to facilitate the association with school and facilitator data.

## Instrumentation

The researcher developed two survey instruments based on the literature and the researcher's 16-year experience as course developer, coordinator and instructor for the

German high school distance learning courses. The instruments were reviewed by two panels of experts and peers. Their suggestions for improvement were incorporated in a revised version. The revised surveys were piloted in February 2011. Participants in the pilot studies felt that the surveys were easily understandable and that the questions were relevant. Both the survey for administrators and the one for facilitators asked participants to note their school name at the beginning of the survey. This enabled the researcher to compare answers from both surveys for the same school and to match school implementation data with student achievement data. This feature also made it possible to eliminate duplicate surveys which may have resulted from participants double-clicking the 'Submit' button or by participants taking the survey again at a later time. The school names were replaced by codes in order to preserve the anonymity of the participants.

#### Survey for School Administrators

The survey for school administrators contained six questions about local implementation of the online German courses (see Appendix A). The survey was intentionally kept short as an incentive for busy administrators to take the time to answer. In Question 1, administrators were asked to indicate whether there is a place (classroom) and time set aside at the school for students to work on their *German Online* courses. Roblyer and Davis (2008) found that setting aside a class period at school (as opposed to students working at home or at another location) contributed to student success. Also, if students are not taking the course at school, it is likely that there is no teacher supervision for their online activities.

In Question 2, administrators were asked whether there is a facilitator, and if so, whether this facilitator is fulfilling this role full-time, part-time, or in addition to his/her main duties, e.g. as counselor or librarian. The importance of a facilitator for student success is often recognized (Aronson & Timms, 2003; Barbour & Mulcahy, 2004; Good, 2005; Harms et al., 2006; Peña, 2009; Roblyer et al., 2007) but not well documented through research. The necessity for a full-time facilitator is stressed by Barbour and Mulcahy in their 2004 study on the role of “mediating teachers” in Newfoundland, and by Oliver et al. (2009) in their study of a large state virtual school. Facilitator support becomes especially important for students who are taking credit recovery courses online because they failed the courses in the traditional classroom environment (Barbour & Mulcahy, 2004).

Question 3 on the survey sought to ascertain whether the school had any selection criteria for students who wish to take an online course, and if so, on what these criteria are based. Student selection such as the one described by O’Dwyer et al. in their 2007 study of the Louisiana Algebra 1 Online courses can increase the chance of student success, but it limits participation in online courses. Selection criteria for students in online courses possibly skew the results of studies that compare student achievement in online courses to traditional education. Student selection also negates the claim that online education can be an “equalizing force in education” (Flores, 2010) and can contribute to the democratization of education by giving all students access to quality courses and teachers.

To determine the needs of the school that are met by the online course, administrators were asked in question 4 why their school was using the *German Online*



courses. The German distance learning program was originally conceived in the 1980s in answer to the request of rural high school administrators to help students meet the foreign language admission requirements which were introduced by the state universities at that time. The German Online program has attempted to be receptive to schools' needs and to make changes requested by individual schools, but there has been no systematic attempt to study the needs of the schools for this particular program.

Question 5 asked who was paying the course fee. This question has been largely ignored by researchers, but there is some evidence that it influences the amount of effort invested in the online courses by local schools and students. An example is the case study of a school that increased the number of students earning a passing grade in their online courses from less than 50% to 96% by requiring that students pay the course fee if they do not earn a passing grade (Good, 2005). An experience by the German Online staff has been that when the parents are paying the online course fee, schools are often not willing to provide a supervising teacher or a space for the student to work on the online course. Hawkins and Graham's (2010) study of enrollment and completion rates for the Utah Electronic High School showed an overall completion rate of 25.6% with 41% of students as "non-starters" (p. 2945) who enrolled but never earned any points in their course. The researchers speculated about possible causes for the low completion rate, but they did not consider that Utah Electronic High School is offering the online courses at no cost to students and schools (<http://www.schools.utah.gov/ehs/>).

The survey concluded with an open-ended question asking for suggestions to make the German Online courses easier to use for the local school. The intent for this question

was to elicit responses about the problems a school might experience with the implementation of the online courses.

### Survey for Facilitators

The second survey consisted of seven questions on the role and activities of the facilitator (see Appendix B). The first question on the facilitator survey asked how much time the teacher spent in this role to find out whether the participant was a full-time or part-time facilitator or fulfilled this task in addition to other duties such as counselor or librarian. Some studies found that having a full-time facilitator seemed to contribute to student success (Barbour & Mulcahy, 2004; Oliver et al., 2009).

Question 2 asked about the tasks the facilitators were performing and how much time they spent on each. The tasks were derived from the literature (Barbour & Mulcahy, 2004; Good, 2005; Harms, 2006; O'Dwyer et al., 2007; Oliver et al., 2009; Peña, 2009; Zucker & Kozma, 2003) and from the researchers' experience as course instructor. It included an open-ended item for tasks that were not explicitly listed.

Next, facilitators were asked what kind of training they received for their role. Facilitating an online course differs substantially from the traditional classroom teacher role and "requires highly motivated people who are willing and able to master new skills" (Zucker & Kozma, 2003, p. 109). Gunawardena et al. (2004) described the role shift from being the source of information to facilitating online learning as "difficult" and "threatening" (p. 377). Irvin et al. (2009) found in a preliminary study that facilitator training seems to influence student completion rates. "Insufficient facilitator training" was cited as the second highest-rated problem area out of 10 for online courses in a

survey of online teachers by Roblyer et al. (2007). One goal of the current study was to gather data which can be used to provide better training to teachers facilitating *German Online* courses.

In Question 4, facilitators were asked whether they experienced problems with the technology and if so, by whom these problems were solved – the facilitator and students, the school’s technology personnel, or the German Online course providers. This question could provide information on the level of technology knowledge of the facilitator and on the level of local technological support. The study of O’Dwyer et al. (2007) suggested that in-class teachers’ lack of familiarity with technology has a negative impact on student achievement.

Question 5 asked about the frequency of facilitator contact with the German Online instructors, parents, and other facilitators. It has been the experience of the German Online staff that facilitators who do not or only rarely contact the German Online office usually do not provide much help to the online students which in most cases results in lower student scores. This is corroborated by O’Dwyer et al. (2007) who found that the students of in-class teachers who frequently communicated with the course instructors showed significantly higher scores.

The survey concluded with two open-ended items. Question 6 asked facilitators for input on which facilitator activities, techniques, and strategies had the most impact on student success in the German Online courses. Question 7, also open-ended, asked for suggestions for what the course providers could do to make the job of the local facilitator easier.

## Data Analysis

To analyze the data from the administrator and facilitator surveys, the researcher used frequency distributions, mode and percentages. For the second part of the study, the examination of the effect of different implementation practices on student achievement, the researcher recorded the average grades at all high schools and middle schools in the *German Online* program. From all schools with at least three students in the *German Online* courses the researcher then selected 13 schools with a grade average of 80% and above for the group of 'high-scoring schools' and another 13 schools with a grade average of 70% or below for the group of 'low-scoring schools'. For each group, the frequency distribution of grades was shown (Tables 11 and 12). The survey answers of the two groups were then compared to see if items like time and place to work on the online courses, the presence of a facilitator and different facilitator activities made a difference in student achievement.

Descriptive, rather than inferential statistics, were used for two reasons. First, the population for this study were the facilitators and administrators for 255 high schools and middle schools with students enrolled in the *German Online* courses. Responses were received from 174 or 67% of the sites. Grade distribution at these sites resembled closely that at all of the schools enrolled in the *German Online* program. Because the sample consisted of two-thirds of the population and its grade distribution looked like the population's, the researcher determined that descriptive rather than inferential statistics were appropriate.

Secondly, inferential statistics are based on the assumption of a normal distribution of data in the population. However, the researcher found that students' grades for the online German courses not only were not normally distributed, but that their distribution resembled the opposite of a normal curve with peaks at both ends rather than in the middle. The researcher did not use non-parametric tests because the sample was too large.

The bimodal distribution of grades with mostly As/Bs or Fs, with few Cs and Ds had been observed by the course instructors based on anecdotal evidence but had never been captured through descriptive statistics. Another observation made by the online instructors pertained to the distribution of students' grades at individual schools. It seemed that at the majority of schools with several students, grades were either mostly high or mostly low, with very little in the middle. To check this assumption and to analyze the influence of local implementation on student achievement, the researcher recorded the average grades at all high schools and middle schools in the online German program and then grouped all high-scoring and low-scoring schools with three students or more as described above.

## CHAPTER IV

### FINDINGS

#### Methodology Summary

This study was conducted in two parts. In the first stage of the research, data were collected from those high schools who are using the *German Online* courses by sending a survey to the principal and another survey to the school's facilitator. The participants' responses were analyzed to find answers to the first two research questions:

1. How do high schools implement the online German courses?
2. What do local facilitators do to support students in the online German courses?

This part of the study used descriptive methods to find the frequency and the central tendency (mode) for the survey items.

In the second stage of the research, answers from the two surveys were examined in relation to student achievement as measured in final grades for the German courses in order to find an answer for the third research question:

3. Which school implementation practices and facilitator activities have a positive effect on student achievement in the online German courses?

As in the first part of the study, descriptive rather than inferential statistics were used to describe and relate the data.

## Chapter Outline

The chapter begins with a description of the data on local school implementation of the online German courses gathered through the survey of school administrators. Most of the data are presented in tables showing the frequency, mode, and percentage of respondents' answers. Next, data from the facilitators' survey are tabulated. In the last part of the chapter, the distribution of students' grades for the German I through IV courses is shown. The students' failing grades from this distribution are examined to see whether these grades are due to poor performance on the quizzes and assignments or to non-completion. In order to examine the possible influence of local implementation on student achievement, answers to the survey questions are then compared for low-scoring and high-scoring schools at the end of the chapter.

### Local Implementation of the German Online Courses –

#### Administrator Survey

The response rate for the survey sent to high school principals was low: of the 255 surveys sent out only 71 responses were received. After eliminating duplicate answers from surveys submitted more than once, only 59 surveys were considered for analysis, a response rate of 23%.

In answer to question 1, 50 of the principals (85% of respondents) indicated that there was a place (classroom) and time (class period) set aside for the students to work on their online German classes. The same 50 schools also had a local teacher who acted as a

facilitator for the students (question 2). One more of the 59 total schools did have a facilitator as can be deduced from the follow-up question about the position of the facilitator, which was answered by 51 schools. However, this facilitator was not a teacher. This leaves 9 schools (15%) without a place and time set aside for the online students and 8 schools (14%) without a facilitator to give local support. In other words, the students at these schools had to work on their online courses mostly on their own, outside of regular school hours and at a location other than their school.

The follow-up question about the position of the facilitator was answered by 51 schools as outlined in Table 1.

Table 1

*Position of the Local Facilitator*

	Frequency	Percent
A full-time facilitator whose only duties are to facilitate online classes	20	39.2%
A part-time facilitator who supervises some online classes and also teaches other classes	15	25.4%
A staff member who mostly has other duties (e.g. counselor, librarian)	10	19.6%
Other	6	11.8%
	51	100%

The six ‘other’ answers were: teacher assistant, staff member who monitors a study seminar, half-time position, works as facilitator for all on-line classes but serves as the computer lab assistant if teachers need help in the lab or have computer issues, part time



instructor and student place with another teacher in the classroom, assistant. All of these could be counted as part-time facilitators, which would bring the total to 21 or 41% for this category. It appears that for those schools who do have a facilitator for online classes, about the same number (about 40% for each) are full-time online facilitators or part-time facilitators, and the remaining 20% are staff members with mostly other duties.

The next question (“Can any student sign up for the German Online class?”) sought to ascertain whether there were any selection criteria for students wishing to take the online German classes. Of the 59 schools, 37 (63%) allowed any student to sign up for the online classes. As shown in Table 2, the remaining 22 schools (37%) had various prerequisites and conditions for students wanting to take an online German course. The administrators were asked to choose all that applied which caused the total number of answers to exceed 22. The last four items named by administrators under “Other” as criteria for making the online German course available to their students (student transferred in, class not offered, scheduling conflict, taking a language out of sequence), are not based on students’ aptitude but rather represent the school’s response to particular students’ needs. For instance, in the cases where students transferred into the school from another district, the online course provided a way for the student to gain credit for a German course started at another school with a traditional classroom teacher. Both the “prior course work” and the “class not offered” criteria indicate that students were allowed to take advanced levels of German not offered at their school.

Table 2

*Selection Criteria for Student Enrollment in the Online German Courses*

Criteria	Frequency	Percent
Grade level	7	24%
Recommendation by teachers	5	17%
Grade Point Average	3	11%
Honor students	2	7%
Aptitude test	0	0%
Other:		
Prior course work	3	11%
Proven ability to work independently	1	3%
School planning to offer German in the future	1	3%
Student transferred in	3	11%
Class not offered	2	7%
Scheduling conflict	1	3%
Taking a language out of sequence	1	3%
	29	100%

The fact that the students' "grade level" was most often named as a criterion to take an online German course can be interpreted as the administrators' belief that online courses work best for more mature students. This is in contrast to the fact that in recent years, a growing number of middle schools are utilizing the *German Online* program, and that

there are some home-schooled students who successfully take the online German courses as 11- or 12-year-olds.

Question 4 “Why is your school using German Online courses?” was aimed at discovering which needs the online German were meeting. Participants could choose all of the answers that applied, resulting in 98 responses. Percentages were calculated based on the number of participants (59), not the number of answers, so that the sum of percentages exceeds 100%. Administrators answered as shown in Table 3.

Table 3

*Reasons for Schools to Use Online German Courses*

Reason	Frequency	Percent
Expand curriculum offerings	37	62.7%
Fulfill a foreign language requirement	30	50.8%
Parent/student request	19	32.2%
Other:		
Too few students for on-site instructor	5	8.5%
Not currently using the program	3	5.1%
Meeting the need of one specific student	2	3.4%
Budget cuts/no finances for instructor	2	3.4%
	98	

Almost two-thirds of the administrators named “expanding the curriculum” as a reason for using online courses. This supports assumptions made by other studies (Berge & Clark, 2009; Clark, 2003) on the benefits of online learning. “Meeting a foreign language requirement,” named by half of the respondents, was the decisive factor for originally developing the *German by Satellite* program which eventually evolved into the *German Online* courses. However, the third response, “because of parent/student request” chosen by roughly a third of the respondents is not mentioned in other studies as a reason for implementing online courses. This factor may be especially pertinent for German, because about 17% of all Americans have German ancestry (U. S. Census Bureau, 2006-08). It would be interesting to know if parent request is a factor in schools offering online courses for other subjects.

The 12 answers under “Other,” which were not specifically outlined as choices on the survey, show a little-researched or discussed aspect of online courses. To a certain extent (12 of the 98 answers or 12%) high schools see online courses as an emergency or stop-gap measure to be used when traditional classroom instruction is not feasible because of low student numbers/interest or financial restraints. The fact that schools choose online learning to meet the needs of individual students is reflected by the average class size of 2.5 (926 students at 353 schools) for the online German courses which is substantially lower than the average class of 7 students for the *German by Satellite* courses, the predecessor of the *German Online* program in the 1980s and 90s.

To examine another aspect of online learning which has received little attention from the research community, question 5 asked “Who is paying for the German Online courses?” Participants could choose all of the options which applied. This resulted in 66

answers from the 59 participants. The school administrators answered this question as shown in Table 4.

Table 4

*Party Responsible for the Payment of the German Online Course Fee*

Payment made by	Frequency	Percentage
School district	38	64.4%
Parents	11	18.6%
State	9	15.3%
School	5	8.5%
Other:		
School in the past, parent in the future	1	1.7%
Free if part of 6 period day, charge for 7 <sup>th</sup> period	1	1.7%
[no comment]	1	1.7%
	66	

For almost two thirds of the schools, the course fee was paid by the school district. This is a fairly recent development for those schools who are subscribing to the online German courses through their state’s virtual school, because that program offered online courses to the local schools at no cost. Having to pay for the courses makes schools more selective in choosing which students will be allowed to take an online course, as indicated by the answer to the next, open-ended survey question. An administrator wrote: “Our state is making it harder to use these on-line programs. It was free for three

or four years and then last year they began to charge. ...Our number of students taking on-line courses have been reduced greatly to those that need a course to graduate or need a specific course that is only offered on-line.” Colorado Online Learning experienced a similar drop in enrollment when they raised their course fees to \$300 per course to offset a decrease in funding (Good, 2005).

At about one-fifth of the schools, parents paid for their children’s online German courses. Even when the two items under ‘Other’ (parents will pay in the future, are presumably charged if the course is taken as a 7th period) are added to the 11 schools who report charging parents for the course fee, this figure is lower than the 19 schools who indicated in question 4 (“Why is your school using German Online courses?”) that the courses were offered pursuant to parents’ requests. In other words, not all schools charge parents for the online courses they request.

The last question on the administrators’ survey was open-ended and asked for suggestions on how to make the German Online courses easier to use. Of the 30 responses to this question, 21 indicated that there were no changes needed or that they were pleased with the German Online courses. Five suggested better coordination with the state virtual school in reporting grades, two asked for more help for setting up the technology required for the courses, and one complained about the difficulty in mailing certain assignments and student projects to the German Online office. One administrator pointed out that in the past, the state had offered the online German courses at no charge to the schools through the state virtual school. However, starting with the prior year, the state began to charge school districts for the courses based on predicted enrollment. As a

result, this school limited their enrollment to students who needed the courses to graduate or needed a specific course that was provided only online.

### Summary – Administrators’ Survey

At 85% of the responding schools, there were a time and place set aside for students to work on their online German classes, and either a full-time or part-time facilitator giving student support. These figures must be viewed with caution, however, because less than one-third of the contacted administrators responded to the survey. There may have been some self-selected bias if the administrators at schools without these accommodations for online learning chose not to respond.

Two-thirds of the responding schools did not employ any selection criteria for students to take the online German courses. Those schools who did select students most often limited participation to students of a certain grade level, perhaps because of the assumption that a certain age and maturity level is required in order for students to be successful in online courses. As in some older studies, administrators named “expanding the curriculum” as the main reason for using the online courses. Unlike other studies, parents’ or students’ requests were also named as a reason by about a third of the respondents. Open-ended answers under ‘other’ showed that schools are using online courses as a stop-gap or emergency measure to meet individual students’ needs.

In most cases, the fee for the online courses was paid by the school district. This is a fairly recent development for those schools who are taking the online German courses through their state virtual school, because that organization used to pay the course fees, offering the courses to the local schools at no charge. Having to pay for the courses

caused schools to be more selective in choosing which students are allowed to enroll in the online courses.

Over two-thirds of the responding administrators stated that they were pleased with the program and that there were no changes needed. However, the quality of the courses do not necessarily guarantee the success of the program as was shown by the decreasing enrollment in German Online's predecessor, German by Satellite. The assumption that school officials' praise for an online program does not ensure its success is supported by Good who stated in his 2005 study of the Colorado Online Learning program that "the long-term sustainability of online learning is threatened by the ad hoc nature of its development. Despite widespread support from educators and a strong record of quality service, Colorado Online Learning's long-term sustainability remains in question" (9).

#### Local Student Support - Facilitator Survey

The survey sent to local facilitators of schools using the online German courses had a much better return rate than the administrators' survey: of the 255 facilitators contacted, 164 or 64% responded. The purpose of the survey was to find out how much and what kind of support the local school provides for students taking online courses. Whereas the administrators' survey looked at the general implementation factors such as whether there is a time and place set aside at the school for the online courses, the facilitators' survey concentrated on the role of the local support person.

The first question asked how much time the local teacher devotes to online course facilitation. Participants answered as shown in Table 5.



Table 5

*Amount of Time Spent Facilitating Online Courses*

Time	Frequency	Percentage
Add-on, in addition to other duties, such as counseling, librarian	61	37.2%
Full-time	37	22.6%
Part-time, in addition to teaching other classes	32	19.5%
Other:		
Full-time, facilitating various online classes	13	7.9%
Part-time	6	3.7%
Add-on	6	3.7%
Little to no time	5	3.0%
Parent	2	1.2%
[not answered]	2	1.2%
	164	

The answers under ‘Other’ show that this question was ambiguous. There were a number of teachers whose only task was facilitating online classes. They were serving as facilitators full-time, but not just for the online German classes, because there were often only one or two students taking German. Adding the full-time, part-time, and add-on categories from the direct and the ‘other’ responses results in the following: full-time facilitators – 56 or 34%, part-time facilitators – 38 or 23%, staff members who were facilitating online classes in addition to other duties such as being a librarian, counselor,

or principal – 67 or 41%. Five participants stated that they had little or no time to help the online students who were basically on their own. Two of the respondents were parents, one of whom stated that he or she helped the online student “because the school doesn’t do it”.

Although it may be of some concern that the largest group (41%) was fulfilling their facilitator task in addition to other multiple duties, this may be the case predominantly at schools where there are perhaps only one or two online students. This question will be examined in conjunction with the student achievement figures. Slightly more than half of the schools had a full-time or part-time facilitator which may be an indication that the other half of the schools does not consider facilitating online classes a priority. One of the reasons may be that some schools are not convinced of the necessity for a facilitator.

The second question asked about the duties of the facilitators. For each activity, facilitators indicated whether they were doing this daily, about once or twice a week, about once or twice a month, several times per school year, or never. Respondents answered as shown in Table 6. On each of the survey questions, one to three participants did not answer so that the number does not total up to 164 or 100%. The most common activity reported was keeping students on track, a task which half of the facilitators performed daily and another 25% several times per week. This finding supports the argument that because of the age and maturity level of high school students, even in a computer-delivered course the support of a local facilitator is necessary to help students progress through the course in a timely manner.

Table 6

*Facilitator Duties and Activities*

Activity	Frequency (Percent)				
	Daily	1-2/week	1-2/month	Several times per year	Never
Proctoring tests	31 (18.9)	<b>58 (35.4)</b>	25 (15.2)	16 (9.8)	33 (20.1)
Keep students on track	<b>83 (50.6)</b>	40 (24.4)	22 (13.4)	14 (8.5)	4 ( 2.4)
Check student grades	6 ( 3.7)	<b>65 (39.6)</b>	42 (25.6)	32 (19.5)	18 (11.0)
Check student work	8 ( 4.9)	25 (15.2)	18 (11.0)	8 ( 4.9)	<b>103 (62.8)</b>
Check participation in tutoring sessions	6 ( 3.7)	51 (31.1)	21 (12.8)	21 (12.8)	<b>63 (38.4)</b>
Contact instructors	1 ( .6)	16 ( 9.8)	47 (28.7)	<b>80 (48.8)</b>	17 (10.4)
Contact parents	0	11 ( 6.7)	38 (23.2)	<b>74 (45.1)</b>	39 (23.8)
Help with problems	32 (19.5)	33 (20.1)	32 (19.5)	<b>45 (27.4)</b>	21 (12.8)
Other:					
Activities from survey (contacting parents, etc.)			11		6.7%
Grade reporting			10		6.1%
Registration			6		3.7%
Hand out material and quiz passwords			9		5.5%
Little to no support			6		3.7%
Other			19		11.6%

The need for a local facilitator is often overlooked in the literature on online learning when findings are based on research with adults. Of the six facilitators who reported little or no student support in the 'Other' response, two had only one student who either did not need a lot of help or notified the facilitator of any problems. Another two indicated that the students were working on the online course at home and did not receive support at their school.

Another activity which facilitators performed once or twice a week was checking grades, which could also be interpreted as checking on students' progress. The *German Online* program makes students' grades accessible to local facilitators on the program's website, but it should be noted that many facilitators find the process cumbersome and contact the *German Online* office asking for grade updates instead. Especially for those schools who are enrolling students in the German courses through their state's virtual school, the process could be made easier by tying the German courses into the virtual school's grade-reporting.

About half of the facilitators reported proctoring tests as a task they performed either daily or one to two times per week. Because a lot of the material tested especially in the lower level courses involves vocabulary which students would be able to look up either in the course material or online (i.e. by using a translator), all of the online tests and quizzes are closed-book and have to be proctored. Each test or quiz has its own proctor password which is accessible only to teachers, not to the students themselves. When a student is ready to take a test, he or she has to obtain the password from his/her local teacher. This gives the facilitator the opportunity to proctor the test. Of some

concern is the fact that 33 or 20% of the respondents indicated that they never proctor tests, which means that either the student is taking tests at home with a parent serving as a proctor (after signing a proctor agreement form) or that the facilitator is giving the whole list of proctor passwords to the students. This latter practice would explain why the German Online graders encounter a certain amount of computer translations on chapter tests.

Tasks mentioned in the survey which facilitators performed seldom or never were checking student work, making sure students participated in their weekly sessions with the German Online tutors, and contacting the online instructors. The largest number of answers in the 'never' category was given for "checking students' work, e.g. with answer keys." Almost two-thirds (103 of 164) of the facilitators reported that they never did this. This feature of the German program is a carry-over from the satellite broadcast days. Part of the course material consists of 'info sheets' which students fill in with information presented through video clips, animation clips and sound files. There are also worksheets to practice the material learned. In contrast to self-checking computer exercises, the answers to these sheets need to be checked either by the student or by the facilitator with answer keys provided on the program's website. Comparing student work to answer keys provided by the course instructor was a common practice for satellite instruction (Kirby & Driscoll, 1997) but seems to have fallen into disuse for online instruction. Although the German Online program also uses self-checking computer exercises, the program developers found the use of info sheets helpful in keeping students' attention during video and animation clips.

Almost two-fifths of the facilitators (38%) indicated that they never checked whether their students were participating in the weekly sessions with German Online tutors. These sessions provide real-time contact with the course instructors or tutors and give the students an opportunity to ask questions, practice speaking the language, and to go over the material they have studied. Students or their facilitators schedule these sessions for individual students or small groups of up to five. It has been the experience of the German Online staff that most students need reminders and prodding from the local teachers to call in for those sessions. In the opinion of the course developers and instructors, these sessions form an important part of the language courses, and the fact that 63 of the 164 facilitators never checked to see whether students participate in these is of some concern.

About half of the facilitators (80 of 164) contacted the course instructors less than once or twice a month, and 10% never did so, although the program provides an email address and a toll-free phone number for this purpose. Almost a quarter of the facilitators never contacted the students' parents, and more than a third rarely (less than once or twice a month) or never helped students with technology or course-related problems.

Question 3 asked about the training the facilitators had received for their role. Participants' answers are shown in Table 7. The amount and level of training that facilitators receive for their tasks varies greatly, from no training indicated by more than a quarter of the participants to certification through college courses. The largest group (28.7%) received some basic written instructions at the beginning of the course. Another fifth reported having attended training sessions or workshops before the course. The remaining fifth learned through word-of-mouth, general, not course-specific training,

Table 7

*Facilitator Training*

Training	Frequency	Percentage
Some basic written instructions at the beginning of the course	47	28.7%
None	45	27.4%
Training session(s)/workshop(s) before course	36	22.0%
Word of mouth	15	9.1%
Other:		
General training, not course-specific	9	5.5%
On-the-job or in-house training	6	3.7%
Trial and error	2	1.2%
Contact course providers	2	1.2%

on-the-job training, trial and error, or contact with the course providers.

This question did not specifically ask about training for the German courses, which is why about a third mentioned training they received for their role as facilitator in general, either through the state’s virtual school, a university, or the school district. There is some instruction regarding the facilitator’s role and the course set-up on the homepage for the German Online courses, but the course providers’ experience has been that some facilitators do not read this section. This is supported by the fact that more than a quarter of the study participants indicated that they had not even received basic

written instructions at the beginning of the course. Lack of training for local support staff was most often quoted as a barrier to implementing distance education in a 2009 study by Hannum and Irvin. Because facilitating an online course differs substantially from teaching a subject in a traditional classroom, sufficient training is necessary to fulfill this role.

Question 4 asked about problems with the technology for the online courses and how and by whom these problems were resolved. Table 8 shows how facilitators answered this question. The researcher had asked this question, because in one of the few studies where facilitator activities were compared to student scores, O'Dwyer, Carey and Kleiman (2007) found that students whose in-class teachers frequently communicated with the online instructors and course providers about assistance with technology had significantly lower test scores. Two-thirds of the facilitators in the current study reported either no problems or problems that were solved in the classroom. The fact that almost half of the participants had no problems with the technology could be ascribed to the program's longevity with a chance to work out technological issues over the last 25 years. It could also indicate that teachers are becoming more familiar with the most common technologies used in the classroom. Another quarter of the respondents reported problems that were resolved either by the course provider or by the school's technology person. None of the respondents reported any unresolved problems.



Table 8

*Problems with Technology*

Problems and Solutions	Frequency	Percentage
No problems	80	48.8%
Some problems, solved in the classroom	29	17.7%
Some problems, solved by course providers	21	12.8%
Some problems, solved by school tech	20	12.2%
Frequent problems, solved by either school tech or course providers	8	4.9%
Other:		
Unaware or not applicable (students work at home)	2	1.2%
Registration problems with state virtual school	1	0.6%
Only in the beginning, with all language courses	1	0.6%
Some problems solved in classroom, some by provider	1	0.6%

Question 5 asked facilitators how much contact they had to the German Online instructors, parents, and other facilitators. Part of this question was similar to the second survey item which had asked about contact with the course instructors and parents as part of the facilitators' activities. Although the emphasis in question 5 was slightly different since it did not specify who initiated the contact, this question could serve as a cross-check to question 2. Facilitators' answers are shown in Table 9.

Table 9

*Contact with Course Instructors, Parents and Other Facilitators*

Contact with	Frequency (Percent)			
	1-2/week	1-2/month	A few times per year	Never
Online Instructors	7 (4.3)	48 (29.3)	<b>97 (59.1)</b>	11 (6.7)
Parents	7 (4.3)	42 (25.6)	<b>88 (53.7)</b>	26 (15.9)
Other Facilitators	20 (12.2)	24 (14.6)	<b>58 (35.4)</b>	59 (36.0)

When comparing the answers to this question with answers from question 2, facilitator activities, it appears from both questions that most facilitators had contact with the online instructors and contact with parents a few times per school year. The figures for question 5 were higher than for question 2. 97 of the respondents reported having contact with the online instructors a few times per year compared to 80 who indicated in question 2 that they initiated this contact. Contact with parents occurred several times per year for 88 of the facilitators, compared to 74 who had indicated in question 2 that they were contacting parents. Figures for ‘never’ having contact with either were lower for question 5 than the figures in question 2 for never initiating this contact. This again points to contact initiated by either the course instructors or the parents.

Peters (2007) describes “division of labor” (p. 64) as one of the defining elements of distance education. Teachers’ work “is divided into separate functions that are performed by specialists who work together in teams ...” (p. 61). For the online high

school courses, both the online instructor and the local facilitator perform functions that in traditional education are combined in the person of the classroom teacher. In order to efficiently work as a team, the online course instructor and the local facilitator have to communicate with one another. For more than half of the respondents, this communication only rarely takes place.

More than two-thirds of the respondents reported never or seldom having contact with other facilitators. There may be a number of reasons for this: in most schools who are using the online German courses, there is only one person acting as facilitator. In order to have contact with others in the same position, facilitators would have to go outside of their immediate work place, probably by using electronic means of communication. Also, this position is fairly new and is not commonly recognized as a teaching position. Because of the novelty of the position, sharing experiences with other facilitators should be beneficial to the local teachers. One step to facilitate this interchange would be for the course providers to establish an electronic discussion list.

Question 6 of the facilitator survey asked for the participants' opinion on which facilitator activities, techniques and strategies have the most impact on student success. There were 160 answers to this question which covered a wide range of items. The two activities named most often by one-fifth each of the respondents were "daily contact/keeping students on task" and "checking progress regularly/making sure students keep up with the course schedule." Almost as many answers referred not to facilitator activities but to course features such as the weekly tutoring sessions, immediate feedback, worksheets, and the possibility to call the course instructors for help. "Communicating with the course instructor" and "checking student work" were mentioned only by two

facilitators each. The wide range of answers to this question suggests that there is not a common consensus among the respondents as to which facilitator activities have the greatest effect on student achievement in online courses. The fact that almost one fifth of the respondents named a course feature as having most impact on student success (ignoring the fact that the question was asking about “facilitator activities”) suggests that some facilitators do not recognize the impact of their role on student achievement.

The last survey question asked for suggestions for how the course providers could make the facilitator’s job easier. Of the 108 responses, 60 (56%) either praised the course or stated that they did not have any complaints or suggestions for improvement. Respondents especially appreciated the fast and efficient response to facilitator and student questions, either through email or the phone. One fifth of the respondents suggested better grade reporting. Grades are available on the program’s website, but several facilitators stated that it was cumbersome to look these up and asked that the course instructors would send grades and progress reports regularly, rather than expecting facilitators to do this on their own. The remaining 26 responses mentioned a variety of items, from more instructor-initiated contact to a formal orientation for facilitators and students. Six of the responses were asking for items (such as access to student grades) which are already incorporated in the program.

The majority of positive responses to the program mirrors answers received on the 2001 survey on the program’s predecessor, *German by Satellite* (Lewis, 2001). Although administrators and local teachers praised that program, the enrollment in the satellite high school courses decreased steadily from 1992 to 2001. This led the program developers to

believe that the success of the courses depended not so much on the courses themselves, but on local implementation factors.

### Summary – Facilitator Survey

Most responding facilitators took on the task of supporting students in their online courses in addition to other duties such as librarian, counselor, or principal. Only about half of the schools had a full-time or part-time facilitator which may indicate that at the other half there were either not enough online students to warrant a full-time position or that at those schools facilitating online classes is not considered a priority. Facilitators were most often engaged in keeping students on track, checking students' grades, and proctoring tests. In an open-ended question at the end of the survey, facilitators indicated that in their opinion keeping students on task and checking their progress regularly was vital to student success.

Low priorities were checking student work, contacting the online instructors, checking students' participation in tutoring sessions, and contacting parents. The division of labor in distance education between the online instructor and the local facilitator necessitates frequent communication between the two. Also, since the physical separation between instructor and student is a given in distance education, communication between them becomes a vital part of online instruction. The fact that facilitators neither communicated frequently with the online instructor nor made sure that the online students participated in the weekly tutoring sessions is unfortunate. In a second question, most facilitators indicated that they had contact with online instructors, parents, and other facilitators only a few times per school year.

More than half of the facilitators reported either receiving no or only very basic training for their role. Because facilitating an online course differs substantially from teaching a subject, training for this role is vital. This is especially true for the technological aspect of online learning. Malfunctioning technology can cause stressful situations for local teachers. In this connection it is noteworthy that half of the respondents reported no problems with the technology for the online German courses. About the same number of facilitators reported no problems in general with the online German courses and had no suggestions for improvement.

### Student Achievement

The German Online instructors had observed several peculiarities about student grades in the online German high school courses over the past 25 years:

1. There seemed to be a lot of students achieving an A, and a large number with an F at the end of the school year, but not many students with Bs, Cs, or Ds.
2. The Fs seemed to be mostly due to students missing quizzes and assignments, not so much to failing grades on quizzes students had taken.
3. There seemed to be an uneven distribution of grades between schools, with students at some schools having mostly As and Bs, whereas at other schools most students scored in the lower range.
4. This distribution of grades seemed to continue year after year for these schools, with changes only when the facilitator changed.

All of these observations led the instructors to believe that the local facilitator has a significant impact on student achievement as measured in grades. However, this

conclusion was based on anecdotal evidence and not on the analysis of data. One purpose of this study was to gather and analyze data in order to check these assumptions and to find answers to the last research question:

3. Which school implementation practices and facilitator activities have a positive effect on student achievement in the online German courses?

### Grade Distribution in the Online German Courses

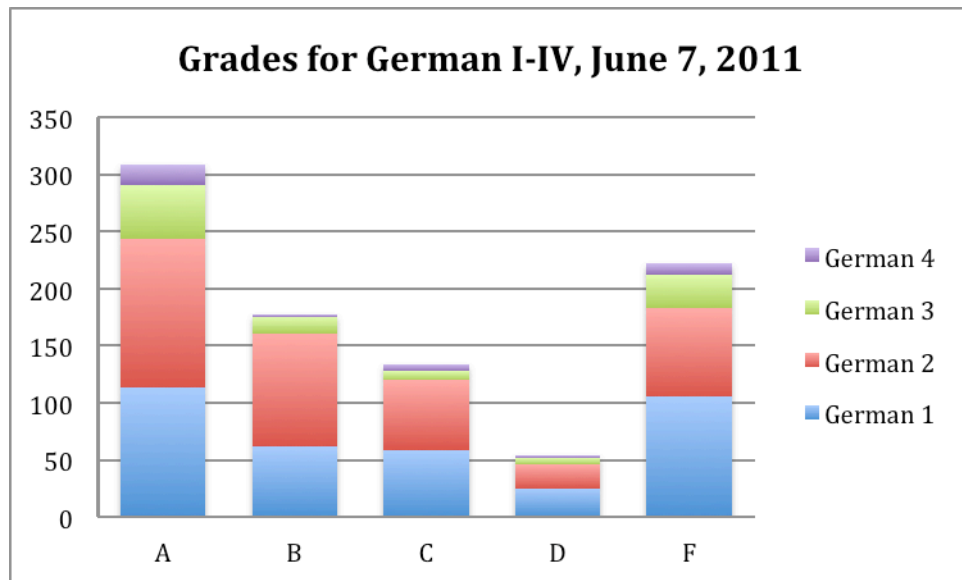
In order to examine the grade distribution in the online German courses, the overall course grades for all students in the German I, German II, German III, and German IV courses were recorded as of June 7, 2011, which for most students was after the end of the 2010-11 school year or spring 2011 semester. These final grades were based on the average of all quizzes, tests and graded assignments for the individual courses, about 40 to 45 items per course. Grades were recorded as percentages and were converted to letter grades on a ten-point scale, e.g. 90-100% was A, 80 – 89% equals B, etc. Results for the 896 students in the German I – IV courses who had at least started the course were as shown in Table 10. The number of grades for each of the four courses does not represent a normal distribution. Instead, it resembles a bi-modal inverted curve with peaks at both ends, which can be seen more clearly when the data is graphically represented (see Figure 6).

Table 10

*Grades for German I – IV on June 7, 2011*

Letter Grade	Frequency	Percentage
A	309	34%
B	177	20%
C	134	15%
D	54	6%
F	222	25%
Totals	896	100%

The graph shows that this distribution is essentially bimodal, with peaks at the A and F values.



*Figure 6: German Grade Distribution in the Online German Courses*



This is also true for the 766 students at the schools who responded to the surveys, as shown in Figure 7.

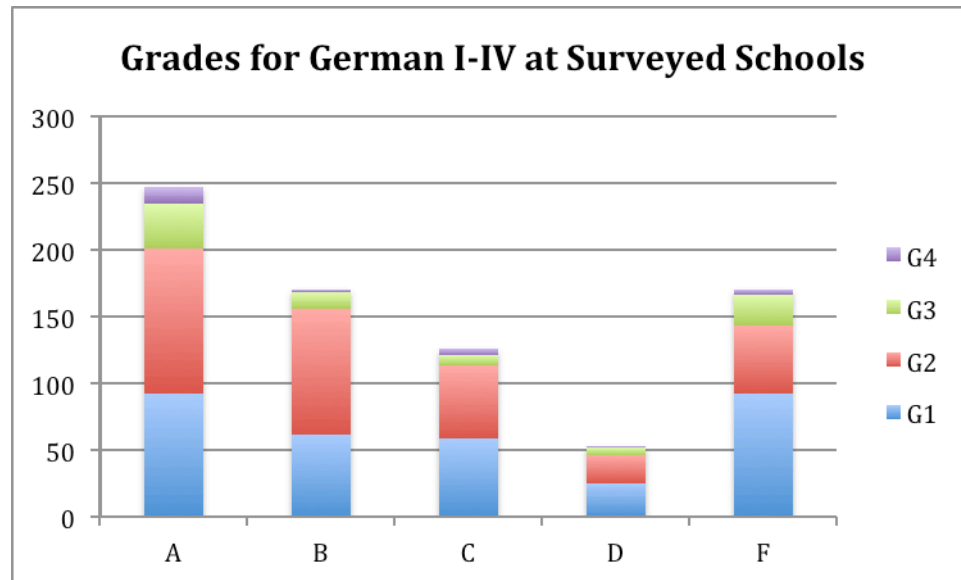


Figure 7: Grade Distribution at Participating Schools

With data like in this case where about 60% of the values are located at the extreme ends of the distribution, the parameters for normal distributions, the mean and the standard deviation, are not meaningful. For instance, for the German I grades in Table 11 the mean is a C similar to what it would be in a normal distribution. But the data in the distributions above do not cluster around the mean, and the mean itself is one of the less frequent values in the distributions. Similarly, statistical tests which assume normal distributions, such as the independent t-test or the ANOVA, do not yield valid results in cases like this one.

In searching for an explanation for the non-normal distribution of grades in the online German courses, the three main components of online learning, namely the course,

the students, and the local implementation, could be considered (see Figure 1 on p. 39). Because the course is the same for students who achieve an A and those with a failing grade in the German Online program, it seems logical to exclude the curriculum as a cause. Furthermore, a similar extreme distribution was found for other online high school courses by David Wiley et al. (2010) and by Zucker and Kozma (2003). Wiley et al. examined the time students spent working with the online courses offered by the Open High School of Utah and found a bimodal distribution with a sizable group of students who logged on to the course material regularly and a slightly smaller group of students who logged on much less often, with few students in the middle. They also found a positive correlation between the time students spent in the courses to their grades, resulting in mostly very good or very bad grades for these courses.

In their five-year examination of the Virtual High School program, Zucker and Kozma (2003) also looked at students' grades. They noticed that grades were not normally distributed, with more than half of the students achieving As and Bs, but 16% had Fs. The authors were puzzled by this phenomenon and cast about for an explanation. Since other assumptions could not be substantiated upon closer examination, the authors finally concluded: "One other hypothesis is that certain schools are at fault. Perhaps the site coordinators and guidance counselors in those schools were just not doing their job very well, allowing students to enter and complete VHS courses who should not have enrolled or who needed much more support than they actually received" (94). Zucker and Kozma also noted that there were 19 schools out of the total 174 where more than 60% of the students had Ds or Fs. The authors concluded that "some schools seem to be much less successful with online courses than others" (95).

Assuming that the non-normal distribution of grades is due to differences in student characteristics is not a satisfying explanation. Most character qualities are normally distributed in the population and would support the expectation of a (more or less) normal curve for student grades. The fact that the distribution of grades in the online German courses deviates substantially from a normal curve points to some influence other than student characteristics. In other words, the bimodal curvilinear distribution of grades for the online German courses supports the assumption that local implementation factors have an impact on student achievement.

Another aspect of student grades which supports the assumption of local implementation influence on student achievement is the fact that the German Online instructors had observed a similar phenomenon to David Wiley's 2010 study with students not logging in enough to complete quizzes and assignments. They thought that most of the failing grades at the end of a school year were due to missing work. Again, this observation was based on anecdotal evidence.

### Failing Grades in the Online German Courses

In order to check the assumption that most grades of F in the online German courses were due to missing quizzes and assignments rather than to failing grades on the course work, all 222 failing grades in German I through IV as of June 7, 2011 were examined. The researcher found that of the 222 students, only six students (less than 3%) had actually completed the courses with an F. The other 216 failing grades were due to missing tests and assignments which had been included in the overall course grades as zeros. It should be noted that the German Online courses do not have an official ending

date and that some students who had a failing grade on June 7, 2011 actually completed their courses with a passing grade at a later time.

A possible explanation for the number of students who did not complete their assignments and quizzes for the courses by the end of the school year could be that these students actually dropped the courses and that the local school failed to notify the course providers of this fact. Another possibility is that these students needed a local teacher to make sure that they got their work done, and that there was not sufficient support at the school to make sure that the student was not procrastinating. The importance of having someone at the local school checking on the student's work is supported by the fact that almost half of the facilitators who answered the survey named "keeping students on track" as their most frequent daily activity. In addition, on the open-ended survey question about which facilitator activities had the most impact on student success in online courses, the most frequent answers were "keeping students on track" and "checking students' progress regularly." In order to examine facilitator activities and their possible impact on student achievement, the researcher examined the third observation made by the German Online instructors, namely that there seemed to be an uneven distribution of grades between schools, with students at some schools having mostly As and Bs, whereas at other schools most students scored in the lower range.

### Differences Between High- and Low-Scoring Schools

Zucker and Kozma had observed in their 2003 report on the Virtual High School Consortium that students' grades in online courses were distributed unevenly between schools, with students at some schools achieving mostly As and Bs whereas at other

schools, 60% or more of the students failed the courses. A similar phenomenon appears in the 2007 report on the Alabama Access program by Roblyer et al. The authors examine grade differences between four sending and receiving sites for online courses. Whereas the researchers note that students at sending sites (with a classroom teacher) scored better than students at receiving sites, they do not comment on the fact that there is a substantial difference in grades at the four receiving sites. Average grades for groups of 13-14 students at these schools were 85%, 79%, 76%, and 65% (p. 24). In other words, at the school with the 85% grade average, most students must have had As and Bs, whereas at the school with the 65% average, most students scored Ds and Fs. The researchers do not address this difference between schools.

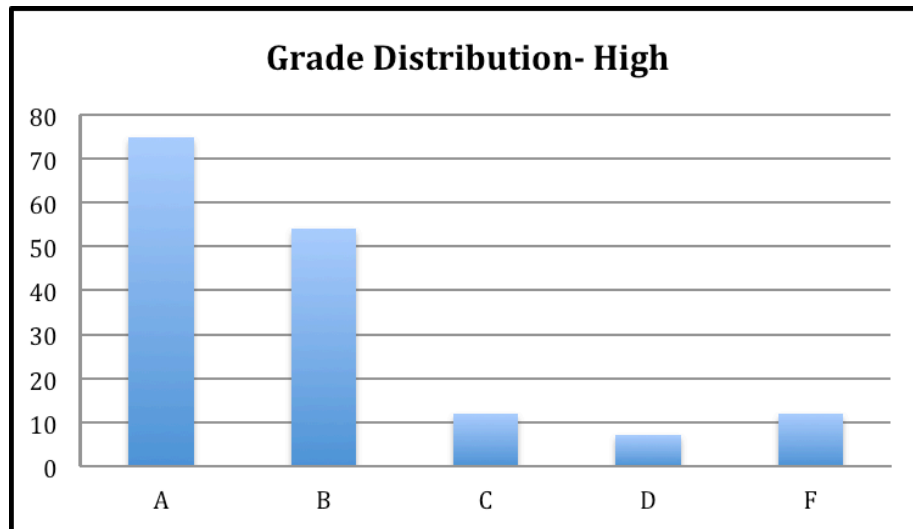
Because statistical tests like the independent t-test and simple ANOVA did not yield any significant results when comparing the answers on the facilitator surveys with student grades because of the non-normal distribution of the grades, the researcher decided to examine administrators' and facilitators' survey answers for schools with high student scores and compare them to schools whose students scored mostly in the lower range of the grading scale. Thirteen schools who showed an average student grade of 80% and above and who had at least three students were selected as high-scoring schools as shown in Table 11.

Table 11

*Student Grades at High-Scoring Schools*

School	Student Grades					Number of Students
	A	B	C	D	F	
B040	17	15	4	5	4	45
NB017	4	1				5
NB028	4	2			1	7
NB042	4	2	1		1	8
NB044	3				1	4
NB054	6	2				8
NB073	2	2	2		1	7
NB088	3	2	1		1	7
NB097	4	3				7
NB105	18	17	3	2	3	43
NB128	2	1				3
NB152	4	3				7
NB232	4	4	1			9
Totals	75	54	12	7	12	160

The graphic representation of grade distribution at the high-scoring schools is shown in Figure 8.



*Figure 8: Grade Distribution for German Online courses at 13 High-Performing Schools*

The researcher selected another 13 schools who had at least three students enrolled and where the average grade was 70% or lower. The grade distribution at these schools is shown in Table 12. These data support the observation which the German Online instructors had made for several years, namely, that the grades for students at individual schools are also not distributed according to a normal curve. The fact that this skewed distribution occurred with the same curriculum and even at schools where thirty or forty students are taking the online courses points to the influence of a factor other than the courses or the students. To trace some of these factors, answers from the administrator and facilitator surveys were compared for low- and high-performing schools.

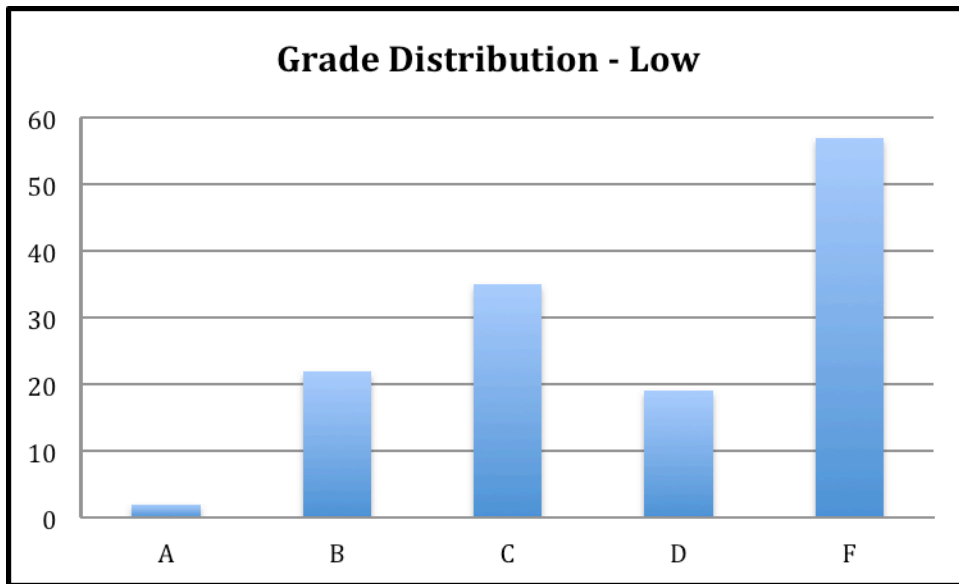
Table 12

*Student Grades at Low-Scoring Schools*

School	Student Grades					Number of Students
	A	B	C	D	F	
NB002			2	1	4	7
NB043		1	1		1	3
NB135		1	1		4	6
NB177					4	4
NB182			3		1	4
NB229		3	2		2	7
NY188	1	5	5	4		15
Y019		7	7	5	15	34
Y038	1	2	6	5	2	16
Y045				1	3	4
Y117			2	2	11	15
Y129		3	6	1	3	13
Y190					7	7
Totals	2	22	35	19	57	135

Figure 9 shows the graphic representation of the grade distribution at low-scoring schools.





*Figure 9: Grade Distribution for German Online courses at 13 Low-Performing Schools*

#### Local Implementation Factors for Low- and High-Performing Schools

Of the 59 surveys received from high school administrators, only three were from high-performing schools and four were from low-scoring schools. The others were mostly from schools where less than three students are enrolled in the online German courses. Both groups had a place and time set aside at school for the students to work on the German Online classes, and both had a local teacher or teaching assistant who acted as a facilitator. None of the schools had any selection criteria for students wanting to enroll in the online classes. All of the schools were offering the online courses for the same reasons, i.e. to expand their curriculum offerings and to help students fulfill a foreign language requirement. For all seven schools, the district was paying for the online courses. The only survey item where there was a difference between the two

groups was in the position of the local facilitator. At all three high-scoring schools this role was filled by a full-time teacher or teaching assistant, whereas all four low-scoring schools had a part-time facilitator who taught other classes in addition to working with the online students.

This was supported by the facilitators’ survey. There were 10 surveys from facilitators at high-performing schools and 8 from low-performing ones. For a number of survey questions there were only minor differences. Both groups reported that they proctored tests either on a daily basis or once or twice a week, that they kept students on track daily, checked grades several times a week, were about evenly split on checking students’ work either several times a week or never, and contacted the online instructors and students’ parents either once or twice a month or several times per school year. However, there were other items where there were differences between both groups. These differences are detailed in Tables 13 through 17.

Table 13

*Time Spent Facilitating the Online German Courses*

Time	Frequency	
	High-Scoring Schools	Low-Scoring Schools
Full-time	6	1
Part-time	1	6
Add-on	3	1

The fact that most facilitators at high-scoring schools were spending all of their time in this role whereas low-scoring schools had teachers who also taught other classes is supported by the finding from the administrators' survey. Having a full-time facilitator rather than a part-time one seems to have positive impact on student achievement.

Table 14

*Making Sure Students Participate in Tutoring Sessions*

Time	Frequency	
	High-Scoring Schools	Low-Scoring Schools
Daily	2	7
Once or twice a week	3	0
Once or twice a month	1	0
Several times per school year	0	0
Never	4	1

During these weekly tutoring sessions which are conducted either one-on-one or with small student groups, the German tutors practice pronunciation, go over the material a student has covered since the last session, and find out whether students have questions or problems. These sessions provide the only live contact of instructors and students and the course developers consider these sessions to be vitally important for student success with the online courses. In light of these facts it seems surprising that most of the facilitators at low-scoring schools indicated that they daily made sure the students were participating in these sessions whereas several of the high-performing schools never did.

However, when checking German Online records it appears that several of the facilitators at high-scoring schools actually make the call for the students, thus eliminating the need to make sure that the students themselves are calling. Also, from tutors' notes about these sessions it becomes obvious that at several of the low-scoring schools the facilitator is not present during the calls which caused problems for the tutors trying to work with the students.

Table 15

*Training Facilitators Received for Their Role*

Type of Training	Frequency	
	High-Scoring Schools	Low-Scoring Schools
None	4	1
Basic written instructions	1	5
Training sessions/workshops	3	2
Word of mouth – other facilitators	2	0

Facilitators at high-scoring schools received either no training for their role or they attended training sessions or workshops. Some also received help from others in the same role. In contrast, most of the facilitators at low-scoring schools had to rely on some basic written instructions. It should be noted that the online German courses only provide basic written instructions whereas the state virtual school using the German courses conducts training sessions and workshops for their facilitators. In this context it is noteworthy that 12 of the 13 high-scoring schools in this study are enrolled through the

state virtual school who offers training workshops for facilitators before the beginning of the school year. The low-scoring group, on the other hand, contained six schools who did not sign up through the state virtual school. This would indicate a need for better training through the German course developers.

Another area where there was a difference between facilitators at high- and low-scoring schools was dealing with technology-related problems. Whereas most facilitators at high-scoring schools reported either no problems or were able to solve them in the classroom, several facilitators at low-scoring schools indicated that there were frequent problems for which they needed outside help (see Table 16). This corroborated findings by O’Dwyer (2007) who found that online students whose in-class teachers reported a lack of familiarity with technology had significant lower scores on a post-test.

Table 16

*Problems with the Technology*

Type of Training	Frequency	
	High-Scoring Schools	Low-Scoring Schools
No problems	4	2
Problems solved in classroom	3	2
Problems solved by school’s tech	2	0
Problems solved by course providers	1	1
Frequent problems	0	3

The two groups also differed in regard to the amount of contact they had with other facilitators. Whereas several of the high-scoring facilitators had contact with others in the same role at least a few times during the school year, most of the facilitators at the low-scoring schools had no such contact, as shown in Table 17. Because contact with other facilitators seems to have a positive impact on student achievement, it would be beneficial if the course providers established an online forum where facilitators could exchange ideas and discuss common problems.

Table 17

*Contact with Other Facilitators*

Frequency of Contact	Frequency	
	High-Scoring Schools	Low-Scoring Schools
About once or twice a week	1	0
About once or twice a month	0	2
A few times during school year	5	0
Never	4	6

Summary of Findings Relating to Student Achievement

In order to find local implementation practices which may have a positive impact on student achievement, the researcher first examined the grades for students in the German Online courses and then compared grades at different schools with the way the

online courses were implemented at these schools. In examining the grades for the German I through German IV courses, the researcher found a distribution which was quite different from a normal curve, with peaks at both ends (a lot of very good and a lot of failing grades) and substantially fewer in the mid-range. The researcher interpreted this bimodal curvilinear distribution as an indication that local implementation factors had more of an influence on student achievement than student characteristics did.

Another indication for the importance of local student support was the fact that 97% of the students' failing grades were due to non-completion of quizzes and assignments rather than poor performance on graded items. Since "keeping students' on track" and "checking students progress regularly" were the two most often-named facilitator activities, it could be argued that if there is a local facilitator who performs these tasks effectively, students will have fewer missing assignments and consequently, fewer failing grades.

A third indicator for the importance of local implementation of the online courses for student achievement was the fact that at most schools with three or more students in the online German courses, the distribution of grades was either skewed towards the high or the low end of the grade scale. None of the schools had a normal distribution of grades for these courses. In order to find which local implementation practices have a positive effect on student achievement, the researcher selected 13 schools with at least three students and an average grade of 80% or above and 13 schools with at least three students and an average grade of 70% or below. The researcher then compared the survey answers for these schools and found that high-scoring schools had full-time rather than part-time facilitators, the facilitators were more likely to have had training sessions

or workshops for their role, reported less problems with the technology, and had more contact with other facilitators. In regard to tutoring sessions, the survey question proved to be inadequate. Facilitators at low-scoring schools reported that they made sure daily that students participated in tutoring sessions with the German Online staff. However, when examining German Online records it was found that facilitators at high-scoring schools were more likely to make the call themselves rather than reminding students to do so, and they were also more apt to be present during tutoring sessions.



## CHAPTER V

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### Summary

It is the first week in June, the end of the school year for many of the schools enrolled in the German Online program. Every morning the number of ungraded online tests hits the three-digit mark and the phones keep ringing off the hook with students calling for last-minute speaking tests. The mailbox is full with email requests for grades by local facilitators and with students submitting last-minute projects to be graded. Occasionally, a counselor or local teacher asks for grades of students who never logged on to our website and for whom there are no grades to report. If this is a surprise to the inquiring person they do not show it – “thank you for your speedy reply.” There are always a few students who are only half-way through the course (“but she was sitting at the computer every day!”) and two or three who need to finish the course in order to graduate (“he is supposed to walk next Friday”) and who feel confident that they can do several weeks’ worth of work in the next few days. I sigh inwardly and give them my cell phone number so they can call me over the weekend for speaking tests. I wonder if at this point in time it would make sense to remind the local teacher that most fourteen- to eighteen-year-olds do not possess the discipline, motivation, and initiative required to

work on a course without someone at their school to check on their progress and keep them on track. Would it make any difference to point out that we have known this for years and now we have the data to support it?

There are several hindrances to school administrators realizing the importance of having a full-time facilitator for online students. First of all, online courses are often considered to be a cost-saving measure, an aspect which becomes very important in strained financial times. Some administrators believe (or want to believe) that in an online course, the technology and the online instructor eliminate the need for a local teacher. In this way of thinking, the course fee replaces the cost of hiring a teacher. This would explain why in most schools participating in this study the local facilitator is a counselor, librarian, or principal who performs the duties of supervising the online students without receiving extra pay. Having a full-time local facilitator would make online courses not much cheaper than having a classroom teacher.

Secondly, there is not much research in K-12 online learning. Most of the research on this type of education has been done with adults who not only bring different strategies and motivation to the task, but also usually learn independently. Legislation such as the *No Child Left Behind* act of 2002 and the federal *Race to the Top* initiative of 2009 require school administrators to make ‘data-based’ decisions. If there is little data available, as is the case with online learning at this level, schools are forced to resort to ad-hoc measures that often lead to less than optimal implementation practices.

A third issue is the inflated expectations for online learning reflected in much of the literature on this topic. Online learning is described as movement which will revolutionize education and will replace traditional classrooms within the next decade or

so. Even comparatively small gains in enrollment for K-12 online courses are touted as “explosive growth” and figures showing any negative enrollment trend are ignored. Most of the authors of these glowing predictions seem to be completely unaware of or simply ignore the fact that the same claims were made for every other technology in distance learning. These much-publicized expectations create a certain amount of pressure on school officials to embrace this new trend in order not to appear backwards. However, without guidelines for successful implementation and a realistic assessment of the capabilities of online learning, this form of education is in danger of suffering the same fate as past technologies in distance learning – an initial enthusiastic response with high expectations for the revolutionizing power of the technology, followed by disenchantment and a relegation to the sidelines.

In order to provide data that school officials can use to implement successful online programs this study has looked at how the courses of the German Online high school program are implemented at the local level and which implementation practices coincide with high student achievement as measured in course grades.

### Discussion of Research Findings

This study examined surveys from administrators and facilitators at 174 sites in order to obtain data on how these high schools and middle schools implemented the German Online courses, and then compared a selection of high- and low-scoring schools with respect to the data gained from the surveys.

The survey for school administrators had a low return rate of 23%: only 59 of the 255 contacted school officials responded. Several of the principals answering the first

email did not even seem to be aware of the fact that there were students taking an online course at their school. This may be due to the fact that at many schools there were only one or two students taking the online German course. It is also possible that parents had requested the course for their children and even though the school had agreed to put the completed course on the students' transcripts, they were taking the course at home with the parents paying the course fee, without involvement of the local school.

In order to answer the first research question, "How do high schools implement the online German courses?" the answers on the administrators' survey were evaluated. There was a time and place set aside for the online students at most of these schools, with a local teacher as facilitator. The majority of facilitators fulfilled this role in addition to their regular duties as counselor, librarian, or principal. Most schools did not employ any selection criteria for students to enroll in the online German courses, but rather used the courses as a means to meet individual students' needs. In about a third of the cases, schools acted in response to parents' or students' request. For most schools, the school district paid or will be paying the course fee for the online students. Having to pay for the courses (as opposed to being offered the courses free of charge through their state virtual schools) made schools more selective in determining which and how many students will be allowed to take online courses. Schools base their decisions more on student needs than wants.

From these responses, quite a different picture emerges compared to the one sometimes painted by enthusiastic advocates of online learning who expect this form of education to have a revolutionizing impact on K-12 schools. For most of the surveyed schools, the online German courses are used as a last resort, a stop-gap measure to be

used when the traditional form of classroom instruction is not available. There is no indication that online learning will replace traditional classroom instruction at these schools.

To find answers to the second research question, “What do local facilitators do to support students in the online German courses?” the researcher evaluated the answers from the facilitators survey. Activities most often performed by facilitators were keeping students on track, checking student progress, and proctoring tests. The first two were also mentioned by facilitators most often as having the most impact on student success in their opinion. Supervising students and making sure that they do what they are supposed to do when they are supposed to do it emerges as the most important task for facilitators. On the down side, most facilitators received little or no training for their role and had little contact with the online instructors or other facilitators.

The second part of the study attempted to answer the third research question “Which school implementation practices and facilitator activities have a positive effect on student achievement in online German courses?” In order to find answers to this question, facilitator answers of schools with high-scoring students were compared to those whose students did poorly in the online courses. Facilitators whose students did well in the online courses were performing their task as a full-time rather than part-time position, had better training, reported less problems with the technology, and had more contact with the online instructors and other facilitators. To improve these areas for all facilitators, the course developers could offer better training and perhaps make this training mandatory for facilitators. The online instructors could follow up on initial

contact attempts with facilitators who do not respond. Contact with other facilitators could be offered as a course feature through a forum or discussion board.

At the local level, not only having a facilitator but allowing this teacher to perform this task full-time rather than in addition to other (main) duties seems to be important for student success. In order for this to happen, school administrators should realize that this role is as demanding and important as teaching a subject in a classroom.

### Conclusions

Primary conclusions from this study are as follows:

1. The online German courses are most often used by local schools as a stop-gap measure when traditional instruction is not available and when there is an obvious student need for such a course.
2. For successful implementation of the German Online courses, the role of the local facilitator is vital and should be given as much standing and consideration as teaching any other class. In order to ensure student success with the online format, facilitators should keep students on track and make sure that they are progressing within the course time frame.
3. Course providers should provide thorough training for the local facilitators, especially in the area of technology used to deliver the courses.
4. Course developers should consider providing an opportunity for contact with other facilitators, perhaps through an online forum.

5. Because of the non-normal distribution of grades in the online courses the researcher should carefully consider the statistical methods to be used in order to avoid the ‘non-significant’ findings of some older studies.

### Recommendations for Further Research

1. This study found that the participating schools used the German Online courses predominantly to meet individual students’ needs and to provide an emergency solution when traditional classroom instruction was not possible. More research is necessary to see if this is also true for other subjects. If it is, it would refute the claim that online learning is the form of education of the future and will replace traditional classroom education to a large extent.
2. To further study the role of the local facilitator and its impact on student achievement, an experimental study could be conducted with those schools where the majority of students failed the online classes or did not do well. In the study, local schools could be asked to employ those actions that were used by high-scoring schools, e.g. having a well-trained, full-time facilitator who has frequent contact with the online course instructors and other facilitators.
3. Further research is necessary to study the grade distribution in online courses for subject areas other than German. If a similar non-normal distribution of grades is found, researchers should use statistical methods that are not based on the assumption of a normal curve.
4. Further research should examine the relationship between learner autonomy and course structure with K-12 learners. Specifically, the *German Online* course

developers should study the impact of deadlines for tests and quizzes on student achievement. This course component was implemented in the fall 2010 for schools on block schedules where students are taking the German courses in one semester rather than for a whole school year. However, the effect on course completion and student achievement has not been studied.

5. The impact of student participation in the *German Online* tutoring sessions on student achievement needs to be researched.
6. More research is necessary into the meta-cognitive skills required by students taking an online course. Especially helpful would be a study where local facilitators and online course providers cooperate in teaching students these skills.
7. The two groups who were not included in this study, home-schooled students and students in the AP German course, should be studied with regard to facilitator or parent involvement, students' meta-cognitive skills, and student achievement.



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## APPENDICES

### APPENDIX A

#### SCHOOL ADMINISTRATOR SURVEY

Name of Your School (this information will be used to code and match data. The actual school name will be deleted after coding.)

---

1. Is there a place (classroom) and time (class period) set aside at school for the student to work on the German Online class?

- No
- Yes

2. Is there a local teacher who acts as facilitator/supervisor/distance learning advisor for the student(s) in the German Online class?

- No
- Yes

If yes, is the facilitator

- a full-time facilitator whose only duties are to facilitate online classes
- a part-time facilitator who supervises some online classes and also teaches other classes
- a staff member who mostly has other duties (e.g. counselor, librarian)
- Other (please specify) \_\_\_\_\_

3. Can any student sign up for the German Online class?

- Yes
- No Enrollment in the German Online courses is limited to (choose all that apply):
  - honor students

- students with a certain GPA
- students recommended by teachers
- students who pass an aptitude test
- class status (Freshman, Sophomore, Junior, Senior)
- Other (please specify) \_\_\_\_\_

4. Why is your school using German Online courses? Select all of the following options that apply:

- to expand our curriculum offerings
- to help students fulfill a foreign language requirement
- because of parent/student request
- Other (please specify) \_\_\_\_\_

5. Who is paying for the German Online courses? Select all of the following options that apply:

- the school
- the school district
- the state
- the parents/student
- Other (please specify) \_\_\_\_\_

6. Is there anything we could do to make the German Online courses easier for you to use?

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## APPENDIX B

### FACILITATOR SURVEY

Name of School (this information will be used to match data. The actual school name will be deleted after coding.)

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1. How much time do you spend facilitating the German Online classes?

- Full-time
- Part-time, in addition to teaching other classes
- Add-on, in addition to other duties, such as counseling, librarian
- Other \_\_\_\_\_

2. What are your duties as facilitator for the online classes? Please check how often you do the following:

Proctoring tests

- daily
- about once or twice a week
- about once or twice a month
- several times per school year
- never

Keeping students on track academically

- daily
- about once or twice a week
- about once or twice a month
- several times per school year
- never

Checking students' grades on the German Online website

- daily
- about once or twice a week
- about once or twice a month
- several times per school year
- never

Checking students' work, e.g. with answer keys

- daily
- about once or twice a week
- about once or twice a month
- several times per school year
- never

Making sure students participate in tutoring sessions with German Online tutors

- daily
- about once or twice a week
- about once or twice a month
- several times per school year
- never

Contacting online instructors

- daily
- about once or twice a week
- about once or twice a month
- several times per school year
- never

Contacting German Online students' parents

- daily
- about once or twice a week
- about once or twice a month
- several times per school year
- never

Helping German Online students with technology or course-related problems

- daily
- about once or twice a week
- about once or twice a month
- several times per school year

- never

Other duties/activities – things you do that are related to the German Online courses

---

3. What kind of training did you receive for your role as facilitator/distance learning advisor?

- None
- Some basic written instructions at the beginning of the course
- Training session(s)/workshop(s) before the course started
- Word of mouth from other facilitators
- Other \_\_\_\_\_

4. Did you experience problems with the technology for the German Online courses? Please check all that apply:

- No, there were not any problems.
- Yes, there were some problems but we were able to solve those in the classroom.
- Yes, there were some problems and I had to call in our school's technology person.
- Yes, there were some problems and I had to contact the German Online providers.
- Yes, there were frequent problems for which I had to contact either our school's technology person or German Online or both.
- Other \_\_\_\_\_

5. How much contact do you have with the German Online instructors, parents, and other facilitators?

German Online instructors:

- about once or twice a week
- about once or twice a month
- a few times during the school year
- never

Contact with Parents

- about once or twice a week
- about once or twice a month
- a few times during the school year
- never

Contact with other facilitators/distance learning advisors

- about once or twice a week
- about once or twice a month
- a few times during the school year
- never

6. In your opinion, which facilitator activities/techniques/strategies have the most impact on student success in the German Online courses?

---

7. Do you have any suggestions for what we (the German Online course providers) could do to make your job as facilitator easier?

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## Oklahoma State University Institutional Review Board

Date: Thursday, January 20, 2011  
IRB Application No ED117  
Proposal Title: Local Implementation of Online High School German Courses: The Influence of Local Support on Student Achievement

Reviewed and Exempt  
Processed as:

**Status Recommended by Reviewer(s): Approved Protocol Expires: 1/19/2012**

Principal Investigator(s):

Sabine Lewis	David Yellin
1015 E. Will Rogers Dr.	254 Willard
Stillwater, OK 74075	Stillwater, OK 74078

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The IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval.
2. Submit a request for continuation if the study extends beyond the approval period of one calendar year. This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of this research; and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact Beth McTernan in 219 Cordell North (phone: 405-744-5700, beth.mcternan@okstate.edu).

Sincerely,

  
Shelia Kennison, Chair  
Institutional Review Board

## VITA

Sabine Lewis

Candidate for the Degree of

Doctor of Philosophy/Education

Thesis: LOCAL IMPLEMENTATION OF ONLINE HIGH SCHOOL GERMAN COURSES: THE INFLUENCE OF LOCAL SUPPORT ON STUDENT ACHIEVEMENT

Major Field: Professional Education

Biographical:

Personal Data: Born in Westerland, Germany, on July 31, 1952.

Education: Graduated from Gymnasium Sylt (College-Prep high school), Westerland, in 1971.

Completed the requirements for the Doctor of Philosophy in Education at Oklahoma State University, Stillwater, Oklahoma in July, 2011.

Completed the requirements for the Master of Science in Education at Oklahoma State University, Stillwater, Oklahoma in August, 2001.

Completed the requirements for the Bachelor of Science in German Literature and Language and Bachelor of Science in English Literature and Language at Hamburg University, Hamburg, Germany in 1976.

Experience: Teaching Assistant to Professor Borck, Hamburg University, Germany, 1974 to 1976. After immigrating to United States in 1976 worked as accountant from 1977 to 1995. 1995 to present employed by OSU as course developer and instructor for the German Online high school program. Since 2006 also course developer and instructor for German 1115 online university course.

Professional Memberships: American Association of Teachers of German , International Society for Technology in Education, International Association for K-12 Online Learning, Oklahoma Distance Learning Association, Oklahoma Foreign Language Teachers' Association.

Name: Sabine Lewis

Date of Degree: July, 2011

Institution: Oklahoma State University

Location: Stillwater, Oklahoma

Title of Study: LOCAL IMPLEMENTATION OF ONLINE HIGH SCHOOL GERMAN COURSES: THE INFLUENCE OF LOCAL SUPPORT ON STUDENT ACHIEVEMENT

Pages in Study: 135

Candidate for the Degree of Doctor of Philosophy

Major Field: Education

Scope and Method of Study: Descriptive analysis of online German high school courses through surveys for school administrators and local facilitators and through analysis of students' grades

Findings and Conclusions: Successful implementation of K-12 online courses will largely depend on the availability of data that school officials can use to make informed decisions. However, very little research has been done in this area, and the absence of data forces school officials to make ad-hoc decisions that often have less than satisfactory results. The lack of research is especially regrettable in the area of local student support, because the course instructors for the *German Online* program had noticed over the last 25 years that this support, especially in the role of the local facilitator, is vital to student success. In order to examine this assumption, the researcher surveyed administrators and facilitators at 174 high schools and middle schools to find how these schools implemented the courses of the *German Online* high school program. In a second part of the study, students' cumulative final grades for the online courses were examined to find which implementation practices coincided with high student achievement. The researcher found that the grades for all five online German courses with a total of 926 students were not normally distributed, but instead showed a bimodal distribution with peaks at both ends. In other words, there were a lot of As and Fs, but not much in between. The failing grades were mostly due to non-completion of courses rather than poor outcomes for individual tests and assignments. At some schools, all of the students had final grades at the high end of the grade scale ('high-scoring schools'), whereas at other schools, most students had Cs or below ('low-scoring schools'). The researcher compared these two groups with respect to implementation and student support as shown in the survey answers and found that high-scoring schools had full-time facilitators who in most cases had been trained through workshops, had frequent contact with the online instructors and other facilitators, and did not report problems with the technology. Low-scoring schools, on the other hand, had part-time facilitators who had received only some basic or no training, had little or no contact with the course instructors and other facilitators, and reported problems with the technology for which they had to call on outside help.

ADVISER'S APPROVAL: Dr. David Yellin

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