PERCEPTIONS OF KEY INFORMANTS TOWARD THE USE OF PORTABLE FACILITIES FOR EDUCATIONAL PURPOSES

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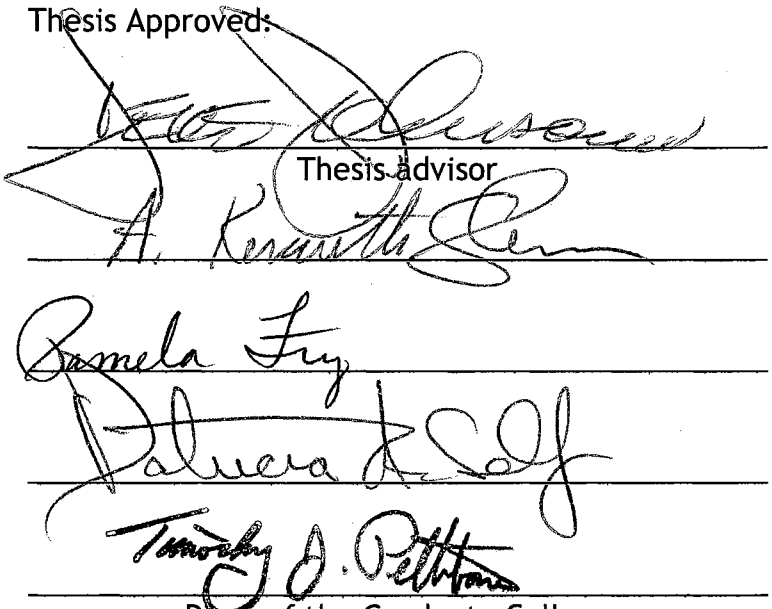

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Proverbs 3, 5-6 says:

Trust in the Lord with all your heart; and lean not on your own understanding, acknowledge the Lord in all your ways, and He will make your paths straight!

Thanks to all and I love you each and every one.

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CHAPTER I

Introduction

With student populations continually growing and class sizes being reduced, school districts across the country are scrambling to provide adequate and accessible classroom space. Lack of funds for new construction and renovation projects has prompted school districts to find new and viable alternatives. To relieve some of the pressure from overcrowded classrooms, many school districts are turning to portable classrooms (Daneman, 1998). Assemblyman Kevin Shelley, D-San Francisco, who was working on a study of safety standards for portable classrooms in 2002, stated: "In the wake of our efforts to reduce class size throughout the country, school districts have taken a hurried approach to the creation of portable classrooms" (The Learning Bricks Project, 2002).

Portable structures are nothing new. As early as 1820, British settlers in South Africa sheltered themselves in three-room, weatherboard cottages. During the 1830s, Manning of London began manufacturing the "portable colonial cottage." In education, modular buildings have evolved primarily as a stopgap measure to house excess students in overcrowded school districts

(Heise and Bottoms, 1990). Portables were used as classrooms as early as the 1950s and 60s, but in the 1990s, business in the education market boomed (Nussbaum, 1999). In the late 1980s, the elementary school populations grew so large so quickly that housing and space were of great concern in many districts across the nation.

Money was also a great concern for many districts. In most elementary facilities, all spaces were full, classrooms were overflowing, and money, as always with education, was in short supply. In an effort to correct this problem, President Clinton called for increased education funding in his 1998 State of the Union Address, deploring schools so overcrowded that students were learning in trailers (Nussbaum, 1999). Therefore, communities all across the nation began seeing the insurgence of quickly-built, cheap, portable buildings springing up on elementary school campuses. Known variously as portables, relocatables, and modulars, these classrooms, anchored in school yards across the country, are not only America's quick fix for overflowing schools, but also the physical symbol of the problem of overcrowding (Nussbaum, 1999).

Governor Siegelman of Alabama (2000) stated that many portables were substandard, and that permanent classrooms were safer for children and more conducive to learning. These buildings, although most were new, were so shabbily built that they were impossible to cool in the summer and heat in the winter. None were airtight or weather tight (Alabama Wants Portables, 2000).

Noise in portable classrooms often makes children struggle to hear and concentrate, defeating the learning process at the onset. In a typical school, students may be bombarded with noise from three sources:

1. Outdoors
2. Mechanical noise generated between rooms or between corridors and rooms
3. Within the classroom, including the ventilation system (Nussbaum, 1999).

In these classrooms, weather conditions often cause great distractions from teaching, and, if severe enough, bring a halt to teaching and learning completely for a period until storm conditions pass. The roof, usually tin, reverberates with hard rain, severely with hailstorms no matter how small. Strong winds seem to shake the walls and often, if strong enough, raise and move ceiling tiles. In some portables, students have to wear jackets to go to lunch, gym, music, art, and even during class in the winter. They have to walk back and forth to other buildings on rainy days, and do not enjoy good heating and air conditioning (Nussbaum, 1999).

Most portables are built away from the main educational facility. This location may create a feeling of disconnectedness for the students as well as the teachers housed there. Until recently, most portables were unconnected to the main facility in any way, which conveyed an undesirable sense of "temporariness" as related to not fitting in with the original, stable campus (Heise and Bottoms, 1990). Florida Sate Rep. Stacy Ritter, D-Coral Springs,

charges that the portables are also isolating. "It's like being in a shack. You're segregated from the rest of the school" (Newquist, 1997). Just recently most portables have been connected to the main building by canopies in hopes of reducing the disconnectedness that hinders the sense of belonging and school pride for those housed in them. Using portables isolates programs and increases custodial and maintenance costs; in addition, portables are usually less secure than the main facility (Rehmer, 1990).

A study in 1993 by Frazier shows that the quality of facilities may be related to student attitudes toward school, self-esteem, and social relationships. It has been firmly established that people are influenced and affected by their environment; children exposed to the environmental conditions in school facilities are no exception (Frazier, 1993). Testing the hypothesis that there is a correlation between student achievements and building conditions, Frazier, (1993) found that, as a school's physical condition improved from poor to fair, students' standardized achievement scores rose an average of 5.45 percentage points. If a school improved its condition from poor to excellent, an increase of 10.9 percentage points in average achievement scores could be expected (Frazier, 1993). Research presents growing evidence showing that unsatisfactory environmental conditions and many other aspects of school facilities have a huge and often negative impact on children's education (Lyons, 2002).

Among the environmental conditions that can affect learning is the quality of light. Exposure to full spectrum lighting, such as daylight, has been

associated with better school attendance, greater concentration, more positive moods and better scholastic performance. Deferred maintenance of portables can result in an environment of peeling paint, inadequate ventilation, and inoperative heating and cooling systems. This type of environment affects both the health and the morale of staff and students (Frazier, 1993). Being housed in unattractive and poorly maintained portables may cause students and teachers to feel diminished and less valued (The American Institute of Architects, 1998). A study of working conditions in urban schools concludes that "physical conditions have direct positive and negative effects on teacher morale, sense of personal safety, feelings of effectiveness in the classroom, and on the general learning environment" (Rushin, Berliner, and Clark, 1998).

A typical portable classroom is fairly small, measuring 30' x 30' at most (California State Department of Education, 1969). Within this space is a single restroom with a sink. There is also a utility sink with water fountain and two rows of cabinets, one running along the ceiling, the other half way up the wall. There is a main entrance in front and a back door for emergencies. There is no room for lockers, only a row of double pronged hooks along one wall, for hanging back packs and coats. There are between 25 and 30 student desks, a teacher's desk, up to three file cabinets, a television on a stand, and an overhead projector on a stand. All these items are essential for teaching and learning but they also make for extremely cramped quarters at best.

A variety of problems arise with parents, students, and teachers alike when classroom portables and other temporary measures are used to relieve

overcrowding. Such problems remain unresolved in many school districts, and the longer temporary structures are in use the more permanent these structures become (Miron, 1990). There have been many complaints that students do not feel comfortable using the restrooms in the portables and that it is a real inconvenience for the students to go to the main building to use the restroom. Most portables have no windows. If there are windows, they are in the doors and are usually only 2 x2 feet square. This limits the amount of natural light in the classroom. Also, a pattern seems to emerge with students who are assigned to a classroom in a portable; they often continue to be in the portable classrooms throughout their elementary years (Bache and Edwards, 1990). This pattern tends to alienate and distance these students from the rest of the school population. Teachers who have been in portables for many years feel isolated from other teachers. They often do not have time to leave their rooms at recess, so socialization and peer support are minimized.

Portable classrooms may also be a significant source of exposure to airborne toxins and other cancer causing chemicals (Breaking the Mold, 2000). The Volatile Organic Compounds (VOC's) commonly detected in portable classrooms include such highly toxic compounds as formaldehyde, benzene, toluene, and styrene. These chemicals, of particular concern where children are exposed, can cause eye and respiratory tract irritation, headaches, dizziness, visual disorders, and memory impairment. Short-term exposure to chemicals or toxic molds commonly found in portables can cause nausea, headaches, diarrhea and other health effects. Longer term exposure can

contribute to increased rates of chronic disease like asthma, cancer, and in extreme cases, death (Ross and Walker, 1999). Lyons' (2002) extensive research indicates that the quality of air inside public school facilities may significantly affect a students' ability to concentrate. The evidence suggests that youth, especially those under ten years of age, are more vulnerable than adults to the types of contaminants (asbestos, radon, and formaldehyde) found in some school facilities. Many portables are built on cinder block foundations and therefore have an open space between the actual floor and the ground. If drainage is inefficient, water often stands under portables causing stagnation, mold, and mildew, which in turn causes problems if students or teachers have allergies or asthma. In addition to triggering asthma attacks in susceptible children, poor indoor quality causes drowsiness, inability to concentrate, and lethargy (Lyons, 2002). Infestations, from roaches to rodents, including skunks, often cause health problems if not dealt with appropriately.

Although these problems are distinctive of portables and are consistent across the districts that have them, these problems are frequently overlooked, disregarded, or generally ignored. Gary McElhaney, (December 18, 2002), staff architect with the Oklahoma State Board of Education, stated that, although there are codes and criteria for portable buildings, there is no way to enforce them. He stated that the Oklahoma Department of Health refuses to address any complaints dealing with schools, including portable facilities. Regarding safety issues in portables, the Fire Marshals yearly inspections deal with making sure exits have clear passage, exit signs are in place, and fire drills are

executed in a timely fashion. Fire marshals also tend not to push issues dealing with schools (Gary McElhaney, personal communication, December 18, 2002). Bill Walker, California director of Environmental Work Group (1999) states, "Better ventilation will improve the air quality in portable classrooms, but they still emit airborne toxic chemicals that can harm the students' and teacher's health. The state should either provide schools with the money they need to build permanent classrooms, or require the makers of portable classrooms to reduce the use of toxic construction materials" (p. 15). While it has been said, "A good teacher can teach anywhere," a growing body of research literature also strongly suggests a direct relation between the condition of the school facility and student learning. Because learning requires a reasonable level of concentration for listening, writing, and reading, individual classrooms need to be evaluated, not only on how they meet changing educational requirements, but also on how they meet the environmental requirements for health, safety, and security (Lyons, 2002).

Conceptual Framework of the Study

In today's educational economy, portable classrooms are and have been a reality for over 35 years. However, conflicting perceptions abound as to the value and effectiveness of such portable facilities in education.

There are those who advocate using such portable classrooms because of advantages such as quick availability, the difference in cost between portable

and permanent, and the ease in transferability. There are also those who consider portable classrooms to be detrimental to the learning process because they separate students and teachers from the main facility and student body, which lends to self-esteem problems, and because of health and safety factors. Numerous pros and cons will be addressed concerning the use of portable facilities used for educational purposes. The perceptions of teachers, principals, and a central administrator who are directly connected to portable facilities will be the focus of this study.

Purpose Statement

The purpose of this study was to provide an overview of the use of portable facilities in one school district and to study the perceptions about portable classrooms by those who use them in this district.

Research Questions

This study will be guided by the following research questions:

1. What are the historical perspective and rationale for the use of portable facilities as classrooms in the district within the study?
2. What are the perceptions of the principals toward the use of portable facilities at their particular site?

3. What are the perceptions of those who teach in portable facilities as classrooms?
4. How did the perceptions of teachers, principals, and the central administrator compare?

Delimitations and Limitations

This study focused on the questionnaire responses and interviews drawn from the teachers who are currently teaching in portable classrooms, the principals at the respective sites within the district being studied, and the central administrator of facilities. Being a full time employee of the district in the study, certain limitations were present. Self involvement in and holding loyalties to the district were possible limiting factors in aggressively pursuing information throughout the study.

In this study findings and opinions could be subject to differing interpretations. Also, generalizability is limited because of the small sample area of this study.

Significance of the Study

This study may benefit members of the educational community such as school board members, policy makers, architects, and the society at large by providing differing views and opinions toward the use of portables for

educational purposes by providing an awareness of the portable facilities. The results of the study may assist educators in planning better facilities so that students achieve the optimum amount of learning.

Background to the Study

The district that is the focus of this study is the largest district in a northern county in Oklahoma. It consists of eight elementary schools, two middle junior high schools, and one senior high school that houses grades 9-12. Five of the elementary sites have from two to six portable classrooms, many of which have been on site for more than 10 years. Over the years they have been nicknamed and referred to as "cottages," "outhouses," or just the "out back portables." In the district, those doomed to occupy these portable classrooms have been referred to as outhouse occupants or simply "trailer trash."

The eight portables in the district range from three years to over thirty years of age. They are one and two room portables of various sizes and materials. At present all are in use. (See appendix F for Portable Facilities Demographics)

In a lengthy conversation with district veteran administrator Dr. John Smith, from December 6 through December 20, 2002, on the history of portable facilities, the following information was obtained. The two oldest portables in the district were purchased in the early 1980s from the Tulsa Public Schools. They were moved in to help ease overcrowding at the most southern site in the

district, when its neighbor school was condemned and had to be closed. These portables, built in the 1970s, consisted of wood frames and composite roofing. Each contained two rooms, sat on cinderblock foundations, and were connected by a covered walkway to the main facility.

In 1990, these portables were moved once again. One went to the most northern site in the district and the other went to a site in the central northwestern part. They were used to create the smaller class sizes that were mandated by the passage of H.B.1017 and a slight infusion of students due to shifting populations.

The central northwestern portable is still there and is the only portable at this site. It houses one second and one third grade class. The portable at the far most northern site was joined in 1986 by two more portables that were built on site. Each of these contained two classrooms built of metal frames and roofs on cinderblock foundations and connected to the main facility by a covered walkway. To date, two pre-kindergarten classes, one second grade, one fourth grade, and special education class are housed within. The portables were necessary because of the passage of HB 1017 requiring smaller class sizes and a new housing development resulting from a large business moving into the district.

In 1991, a metal framed portable was constructed at the southern most site. It contained two rooms on a permanent foundation with a covered walkway connecting it to the main facility. The two rooms of this portable housed second grade classes. It was erected to ease class size due to a

temporary shift in population. In 1997, this school became a magnet school and was opened to any fourth and fifth graders across the district, a change which resulted in the need for a single room portable. It was a one-room facility that consists of a wood frame and composite roofing. It houses a special music and dance class.

In 1995, a metal-framed portable containing two small rooms was built on what is considered the most affluent site, located in the north central part of the district. It sits on a permanent foundation and is connected to the main facility by a covered walkway. It houses the two third grade classes at this site. It was needed to help reduce class size due to the surge of young families buying homes in this area.

In 1999, the last two portables were built at the most central site in the district. These metal-framed buildings on cinderblock foundations, sit on the northeast edge of the playground, are completely disconnected from the main facility, and contain one small room each. These portables originated by the addition of a pre-kindergarten class and to help ease a small gain in enrollment. To date, they house a small fourth grade class and a special needs lab. Dr. Smith mentioned that all of the portables in the district have resulted from fluctuating populations at different periods of time (Dr. John Smith, personal communication, December 6-20, 2002).

Researcher Biases

Since I started teaching in this district, my classroom has been located in one of the six portable classrooms that are part of the elementary school located at the farthest point north in the district. When I began teaching, the school was considered the most affluent and best school in the district. Over the past few years, the clientele has changed and the school has dropped in social standing within the community. Although test scores and school accomplishment, which are highly acclaimed in the district, are better than ever, because of the shift in socioeconomic clientele, our status has dropped to second. The school student population contains not only high income families, but a mix of families of all economic levels. This, in part, is because of the development of two low-rent apartment complexes within the school's boundaries.

Seven of my years in this district have been spent in the fifth portable farthest north on the east side of the campus. Two years were spent in the first portable on the southeast end of the campus. In my tenth year at this school, I moved into the main building. For the first time in 15 years, I am not teaching in a portable. When I began my career in this district, I was assigned to a classroom in the city, district, and school where I had always wanted to be. It was the ideal situation. Now, after experiencing over nine full years in a portable classroom, I have come to understand the large difference between

being in a portable and being in the main building with everyone else. Some of the differences are subtle and some are not.

In my experience teaching in a portable, I have come to believe that, since portables are on a cinderblock foundation, certain administrators, at the central office believe they meet the definition of a permanent facility. Because of an ever-changing student population among schools within the district, certain administrators feel that portable facilities will always exist. However, maintenance personnel believe that portable facilities are only temporary. Because they are only temporary, maintenance workers do not feel the need to put much effort or money into the repair and upkeep of these facilities. Therefore, getting repairs done poses a problem. Usually it takes many months of submitted work orders to have repairs, even simple ones, completed. It took three years of constant pleading to get an entrance door replaced that was broken and would not shut or lock. The maintenance supervisor reported that they had put off replacing the door as long as they could. All classrooms are scheduled to be painted on a basic three-to-five year rotation. The portable classrooms were painted, on the inside, during the summer of 1998, the first time in ten years for the interior of my portable classroom to be painted. This shows the inconsistency often encountered in maintenance scheduling.

The combination heating/air conditioning unit for my classroom was over 15 years old and in desperate need of replacement. I had been told year after year that it was on the brink of dilapidation and that I was to receive a replacement. However, the last time I checked, the old unit was still there. A

portion of wall under my heating/AC unit and right above the sink was black from mold, peeling, and foul smelling. I tried to get this repaired for over two years, to no avail. These are just a few of the problems dealing with repairs that are encountered by those housed in portable classrooms. All of these situations create an environment that is not conducive to learning.

Other concerns of greater importance were the attitudes of the students who were assigned to portable classrooms. I visited throughout the years with parents of different students who voiced their concern that their children were assigned a classroom in the portables because they were not good enough to be in a class in the main building. In the 1999-2000 school year, I had eight fourth-grade students who had been in a portable classroom since they were in kindergarten. I am not sure if this was coincidental or not, but it made these students feel cheated and set apart from the rest of the school.

On the other hand, I found comfort in my portable classroom. I was so far away from the rest of the main building that I was not bothered by some of the internal goings on in the main building. I was left alone to do my job, which I did very well, the way that I wanted to do it and know is the best for each of my students. The downfall to this was that I was often left out or forgotten about when it came to whole-school activities or even teacher functions.

Since being moved into the main building, I have realized that the disadvantages of portable buildings for students and teachers are far greater than commonly thought. Some of the advantages of being housed in the main facility have proven to be great. The students feel more a part of the school.

Time on task is greatly improved. Transition times are greatly decreased. Parents and students seem to be happier than they would be if the students were in a portable facility. Crowding is greatly decreased in the main facility compared to portable facilities. Both my students and I are praised and complemented on a daily basis by both administration and fellow staff members because of the positive goings on in our class. This positive feedback does a lot for morale and self esteem. Such things never happened when I was in the portable facility, simply because of the disconnectedness. No one took the time to come all the way out to see what was going on.

Although I have some strong biases against the use of portable facilities, I control them by being professional in my position, by being positive toward my situation and my students, and through the support of the staff and administrator at the site. I enjoy being at the school and am very close to the faculty and the staff. Therefore, not wanting to leave the school and position, I worked hard at making the best of the situation, for myself and for those who passed through my classroom door.

As a researcher, I controlled my biases by following standard protocol, by asking neutral questions, and by being very careful in interpreting the data. I was very conscious about my biases and did not allow them to influence the study.

Summary

Numerous pros and cons can be found for both sides of the issue of using portable buildings for educational purposes. One must weigh each to ensure that the final outcome is best for student achievement and learning. All aspects of education, including the learning environment and facilities, must be scrutinized so as to enhance, as much as possible, the student's ability to learn and achieve.

In Chapter II a review of the relevant literature pertaining to the positive and negative aspects of portable facilities is discussed. Chapter III covers the method used for this study. It describes in depth the selection of key informants, the instrumentation, the collection and analysis of data, and how trustworthiness was attended to. Chapter IV looks at the data from the perception questionnaires and the one on one interviews. These data were analyzed to ascertain the positive and negative perceptions of the informants and to understand/identify any conflicting perceptions between teacher informants and administrative informants. Chapter V discusses findings and recommendations of the study.

CHAPTER II

Review of Literature

The review of the relevant literature supports the purpose of this study. Journal articles, newspaper articles, and ERIC documents were compiled to give a broad representation of the relevant literature. Chapter II is divided into the following sections: Positive aspects of portable facilities, which include historical aspects, educational reform, and uses of portable facilities, and negative aspects of portable facilities, which includes health issues and Herzberg's "Hygiene theory," problems caused by poor design, and air quality issues.

Positive Aspects of Portable Facilities

Historical Aspects

Portable facilities are not new. They date back as early as the 1920s. Portable facilities were used in early times to alleviate housing shortages caused by rapid community growth in boom towns during gold rushes. Since

then, they have evolved primarily as a stopgap measure to house excess students in overcrowded school districts (Heise and Bottoms, 1990).

Over the years, educational populations in the larger school districts across the United States have grown extremely fast, requiring school districts to come up with a way to house the constant influx of students. With these student populations continually growing, school districts across the country have scrambled to provide adequate and accessible classroom space. Lack of funds for new construction and renovation projects have prompted school districts to find viable alternatives. To relieve some of the pressure from overcrowded classrooms, many districts have turned to portable classrooms. Portables have been desirable because they could be delivered to the site quickly and they are relocatable (Daneman, 1998).

Educational Reform

Along with the increase in educational populations came the recognition by many of our state leaders of the need for educational reform. Well-intended state reform to reduce class size and reduce pupil-teacher ratios compounded by the space issue, increased the use of portables and forced scarce resources to fall inequitably on already weaker school systems (Miron, 1990). The chronic problems of overcrowded and inadequate school facilities are highlighted by the use of portable classrooms, which have been heralded as the first step in

helping to ease these problems occurring all over school districts in the United States.

From the East coast to the West coast, from the farthest northern to the farthest southern boundaries of the United States, portable classrooms have popped up in response to the need for immediate facilities to ease overcrowding caused by an influx of students brought about by economic growth or in some cases well- intended school reform. Portable classrooms can be a viable solution, as they provide flexibility, can be cost effective, and can save time, but using them requires advanced planning (Rehmer, 1990).

Uses of Portable Facilities

When faced with the need for more housing space, educators must keep in mind all aspects that will be affected, including extra cost, location, accessibility, and student needs. Buchanan, Papalewis, and Roberts (1990) stated that pre-fabricated portables cost about 50% of what built-in-place portables cost, but may not be as well constructed. Regardless of type, portables can be integrated into the campus design and can look attractive and be functional (Buchanan, Papalewis, Roberts, 1990).

Some major reasons for using portable classrooms are (1) enrollment growth that exceeds the ability of the district to provide permanent space, (2) unusual one-time, short duration enrollment increases, (3) temporary housing during remodeling or removal of asbestos, and (4) housing for special programs

such as alternative schools, additional administrative space, resource center space, special education, and other programs.

Portable classrooms have been an effective solution to student housing in virtually all "growth trend" districts. They provide the flexibility to respond to enrollment increases, while allowing time to evaluate whether permanent space is truly needed. In addition, they provide the flexibility to respond to changing program needs and emerging educational trends such as daycare and preschool (Rehmer, 1990). Portable facilities have been viewed by school district administrators across the United States as viable, cost effective, quick fixes to overcrowding and space issues.

Summary

In the late 1980s and early 1990s when the economy was good and populations were growing and causing overcrowding in many of the nation's schools, nation-wide school reform focused on shrinking class size and teacher-student ratios. This forced many already stressed districts into emergency overload. For most, the quickest, cost effective fix to their worsening problem was portable facilities. From this point what was meant to be a temporary fix, in some districts has become a permanent fixture.

Negative Aspects of Portable Facilities

Portable facilities have become an ever increasing presence across the nation's districts. They are in such large numbers in California, Florida, and Washington, to name a few states that there is a feeling that these districts will not ever be without them. However, they are seen as the downfall and scourge of public education (Portable School Buildings, 1998).

Health Issues and Herzberg's "Hygiene Theory"

Portable facilities convey an undesirable sense of "temporariness" because they do not fit in with the original, stable campus. Studies cite a high rate for deterioration of exterior paint, ceiling tiles, carpets, and electrical wiring and the negative impact of additional classrooms/students on existing campus facilities such as restrooms, cafeteria, and offices. The flexible flooring, adds to classroom noise and "bounciness." Health concerns include increases in allergy problems and respiratory illness for both teachers and students. In addition, an overall feeling of isolation from the rest of the staff, campus and/or facilities was cited (Heise and Bottoms, 1990).

Location, safety, and health are not the only problems linked to portable facilities. A few studies have indicated that when the physical environment is in disrepair, student and teacher morale and achievement suffer (Earthman and Lemasters, 1996 and Adams, Bernay, and De Ruosi, 1990 and Alabama

Wants Portables, 2000) A national survey conducted by the American Association of School Administrators found that 74 percent of portable school facilities should be repaired or replaced immediately; another 12 percent were identified as inadequate places of learning (Frazier, 1993).

Old and obsolete portable facilities that have not been well maintained have been shown to negatively affect the student's learning process. Pon's study reported the relationship between the condition of a building and student attitudes and behaviors. As can be expected, students in newly modernized buildings had better attitudes and fewer discipline problems than students in old and dilapidated facilities (Pon, 1990).

The adverse environmental conditions can be troublesome because of their negative impact on learning. For example, poor indoor air quality can trigger asthma attacks in susceptible children. It can also cause drowsiness, the inability to concentrate, and lethargy. Portables are often constructed of materials that put off gas-formaldehyde, a significant health-risk for some individuals (Classrooms or Gas-rooms, 2000). They are generally located away from the main school facility and sited on inadequately prepared fields where walking and lighting are poor.

Although, "A good teacher can teach anywhere," a growing body of research literature strongly suggests a direct relationship between the condition of the school facility and student learning. According to a report from the American Association of School Administrators, "Students are more likely to prosper when their environment is conducive to learning" (Lyons, 2002).

According to planning for Education: Space Guidelines for Planning Educational Facilities, Senate Bill Number 625 passed by the Oklahoma Legislature in 1983 states in part in SECTION 2, "It is hereby declared to be the intent of the Legislature to assure that students in the public schools of this State occupy facilities which are designed for adaptability to program offerings. Such facilities should be structurally safe, well maintained, and contain adequate space to meet the instructional needs of each student. It is further declared to be the intent of the Legislature that these facility standards be implemented through the Common School Capital Improvement Act" (State Finance Division).

Criteria and codes for permanent as well as portable facilities are in place for school districts across the State. However, a veteran administrator from the district in this study, stated that the State could recommend minimum criteria and standards for portable facilities, but it has no power to enforce these standards (Dr. John Smith, personal communication, December 6-20, 2002).

By the very nature of the structure, the portable facility is usually an isolated classroom unit, physically separated from the main school plant to which it has been assigned. Several studies have focused on the size of portables, their isolation, and toxic fumes that have caused problems for teachers and students. It is clear today that the isolated classroom, a 30 x 30 cell for 30 students and one teacher, is not sufficient for the total education of the students who occupy it. (Agron, 1998; Biehle, 2002; Wyatt, 1997).

The quality of facilities may be related to student attitudes toward school, self-esteem, and social relationships. Students attending unattractive and poorly maintained schools may feel diminished and less valued as a consequence (American Institute of Architects, 1998).

Frederick Herzberg, researcher in the field of human relations and group working, stated that there are two dimensions to job satisfaction: motivation and "hygiene." Hygiene topics include company policies, supervision, salary, interpersonal relations and working conditions, and issues related to the employee's environment. The hygiene cannot motivate employees but can minimize dissatisfaction (Syptak, Marsland, and Ulmer, 1999).

Problems Caused by Poor Design

Portables are often poorly put together with cheap materials that deteriorate at a faster pace than they should. These materials frequently cause allergic reactions to the occupants of the buildings. These buildings also attract residues such as mold and mildews. Such problems can result from a combination of manufacturing defects and the improper setup and installation of the portables on the school sites. School systems have been forced to replace rotting, moldy floors of the portable classrooms because the structures were designed and installed with moisture-trapping dirt berms packed underneath and around them. Portable classrooms are not built of bricks and mortar. They are a temporary solution (Sandham, 1997).

Students and teachers must transfer not within a building, but between buildings for restrooms, media centers, and other activities. All portables, whether they are the most basic structures or something substantially more, require high maintenance.

Air Quality Issues

A California report examined the air pollution risk levels in the state's portable school facilities. The report reveals that over two million California students spend the school day in buildings that may be harmful to their health. It states that some portable classrooms can expose children to toxic chemicals at levels that pose an unacceptable risk of cancer or other serious illnesses (Ross and Walker, 1999).

Another article states that many U.S. children attend school in portable classrooms saturated with formaldehyde, benzene, toluene, and arsenic (Weber, 2001). These portables are poorly ventilated "temporary" classrooms where children are exposed day in and day out to chemicals, molds, and mildews that can cause headaches, nausea, nosebleeds, asthma, cancer, and brain damage. High levels of toxic chemicals have been found in some students' blood while others have been diagnosed with immune system dysfunction. One student was sickened by a poisonous mold growing on her lungs. Housing children in this type of environment reminds them that their society does not think very highly of them (Classrooms or Gas-rooms, 2000).

Summary

In looking at the related literature for this study, two distinctive types of research were found. A few coming from the administrative point of view focused on the positive aspects of using portable facilities as classrooms. The cost is relatively low and portables offer a quick fix to the problem of space issues and overcrowding.

The other studies, that were much more prevalent, looked at the negative aspects of using portable facilities as classrooms: health factors, size issues, air quality, isolation, and low morale and self-esteem. The most prominent studies point out that portables should be only temporary while the permanent structures are being constructed. This would be the best situation for teachers and students subjected to portable facilities and would greatly reduce the problems that occur with their use.

CHAPTER III

Method

The purpose of the case study was to explore and analyze the differing perceptions of persons directly related to the use of portable facilities within a specific public school district. A qualitative-quantitative combination of short interviews and a questionnaire derived from the research questions was used for the study. Individual perceptions were analyzed to derive any patterns among those teaching in portable classrooms, the site principals, and a central administrator of facilities, which might provide links between learning and portable classrooms.

Two sources were used as guides throughout the study: *Research Design: Qualitative and Quantitative Approaches* by John W. Creswell and *Case Study Research in Education: A Qualitative Approach* by Sharan B. Merriam. These sources helped develop the method of the study, as well as determine prominent themes that appeared throughout the study.

Using this two-pronged approach of blending qualitative and quantitative design allowed me to draw ample data from a small study group and to focus on and clarify dominant perceptions. The advantage of using this method is

that comparing data from the questionnaires and the personal interviews resulted in a consistent picture.

Selection of Key Informants

The participants in this study were 14 teachers who taught in the portable buildings across the largest district in a northern Oklahoma county, the five principals at the sites which had portable classrooms, and the central administrator in charge of these facilities. Participants varied in age, gender, and experience in both teaching and administration. The teachers ranged from Pre-K to fifth grade and all of the administrators had taught at every grade through the senior high level.

Instrumentation

The perception questionnaire was researcher-generated and field tested by six teachers and one principal who read the instrument for readability and accuracy. Two of the teachers and the principal that field tested the perception questionnaire were participants in the study. These seven believed that the instrument would be effective in getting the responses that was necessary for this study. The instrument was developed after great deliberation as to the type of information needed. Data from the teachers, principals, and the administrator of facilities who were directly connected to portable

classrooms gave a clear picture of the situation. The questionnaire contained two open-ended questions to obtain positive and negative insight into the perceptions of the use of portable facilities. Five demographic questions probed participant positions held and experience in the field of education. The data from the questionnaires were analyzed for patterns, both positive and negative, that would provide a complete picture of the perceptions regarding the use of portable facilities. (See appendix B for a copy of the questionnaire instrument.)

Interviews

Out of the20 perception questionnaires sent, one-on-one interviews were conducted with the 19 key informants who returned the questionnaires. Interviews lasted 30 minutes, and were conducted at their respective sites. Questions for the interviews stemmed partly from attempts to clarify responses on the questionnaires. Most of the questions were driven by conversations between the researcher and the informant to clarify previous responses. These interviews probed more deeply into the responses generated through the questionnaires.

The interviews were recorded on tape as well as in notes taken at the time of the interview. Data from the interviews were analyzed for patterns that might help develop the leading themes in the study.

Collection and Analysis of Data

The 14 teachers, the four principals, and the central administrator of facilities completed a questionnaire about their personal perceptions toward using portable facilities as classrooms. This was followed by individual interviews that lasted not more than 30 minutes each. Information from both the questionnaire and the interviews was compiled and analyzed so as to discover any generalities, patterns, or commonalities that might support the literature reviewed. The researcher also followed up with five teachers and one principal informant, randomly selected, as to generalities, patterns, and commonalities that arose throughout the study. Perceptions of teachers, principals, and central administrator were compared and contrasted. The responses were triangulated between informant data, relevant literature, and personal observations of the researcher to develop a richer picture for the study.

The data were coded and cataloged by the researcher to strong commonalities or patterns as to themes of positive or negative aspects related to the use of portable classrooms. Data and tape transcriptions were then analyzed in depth by prominent themes to allow the researcher to clarify the general focus and findings of the study.

Complete confidentiality for the participants was assured throughout the study by changing names of sites and participants so as to make them unidentifiable. Teacher informants were assigned a capital letter "T" and a

number from 1-14 for identification. Principals and the central administrator were assigned a capital letter "A" and a corresponding number from 1-5 for identification (See Appendix G for Teacher Respondent Demographics and Appendix H for Administrator Demographics).

Trustworthiness

Trustworthiness and validity were attended to throughout the course of the study through triangulation of informant data, relevant literature, and district information. These were also compared to the past knowledge and beliefs of the researcher. Authenticity was maintained through detailed descriptions of how the data were collected, questions were answered, patterns were formed, and decisions were made throughout the exploration.

Summary

Chapter III discussed in depth the method used throughout the study. 19 key informants answered perception questionnaires and were subjected to one on one interviews which lasted a maximum of 30 minutes. The information from the questionnaires and interviews was compiled and analyzed so as to discover any generalities, patterns, or commonalities that might support the literature reviewed and the personal biases of the researcher. Trust worthiness and validity were attended to through triangulation of informant data, relevant

literature, and district information. Chapter IV will discuss data gleaned from key informant responses from both the perception questionnaire and the clarification interviews.

CHAPTER IV

Outcomes of the Study

Introduction

Teachers and administrators face numerous situations that can cause an already difficult job, teaching today's students, to be even more difficult by hindering the learning process for children. This chapter provides a complete discussion of all data related to perceptions of using portable facilities for classrooms. Chapter IV is divided into the following sections: Purpose statement, Research questions, Respondents, and Findings.

Purpose Statement

The purpose of this study was to provide an overview of the use of portable facilities in one school district and to study the perceptions about portable classrooms by those who use them.

Research Questions

This study was guided by the following research questions:

1. What are the historical perspective and rationale for the use of portable facilities as classrooms in the district within the study?
2. What are the perceptions of the principals toward the use of portable facilities at their particular site?
3. What are the perceptions of using portable facilities as classrooms by those who teach in them?
4. How do the perceptions of teachers, principals, and the central administrator compare?

Respondents

Twenty potential key informants were asked to complete a questionnaire dealing with their perceptions, both positive and negative, toward the use of portable facilities as classrooms and the reasons for these perceptions. They were also asked to state their perceptions, both negative and positive, toward the relationship between the use of portable classrooms and the effectiveness of learning that takes place within them and the reasons for these perceptions.

Ninety-five percent of the questionnaires were returned and each of these respondents participated in a clarification interview to help bring a

clearer picture to the answers given on the questionnaire. The one questionnaire not returned was from a principal who was new to the district and chose not to participate in the study.

The participants had a total of 290 years of experience in the field of education for an average of 15.26 years. The 230 years of teaching ranged from second year teachers to a 29-year veteran. There were 43 years of combined administrative duties. Among the participants, 52 years were spent teaching in portable buildings. The participants had taught every grade level from Pre-Kindergarten to High School, including special education and music classes, in portable buildings. (See Appendix I for Combined Respondent Demographics).

Findings

The following section discusses responses from each part of the questionnaire followed by data gained through the interviews. The major themes from the data that showed the positive side are accessibility, safety, and time on task.

Positive Perceptions Toward the Use of Portable Facilities as Classrooms

Accessibility

Teachers stated positive perceptions of portable facilities as classrooms in that restrooms, sinks, and water fountains are readily assessable. This positive perception was more prevalent with the teachers of younger students. The fact that most portables have restrooms and sinks helps with time on task. Disruptions from having to let students leave the room for drinks and/or restroom breaks were minimized. The lack of noise from the hustle and bustle of the everyday school life within the main facility was mentioned by those housed in portable classrooms as being one of a few positive aspects that helped, in the least, with time on task.

One teacher informant stated:

> The sink and restroom in my portable is a great asset. We have procedures that we follow that allow us to use the restroom and get a drink in the classroom without causing disruptions for the other students in the class. The sink is also helpful when we do activities in which we need to use water. Water is readily available so we don't have to haul it in from another area (Informant T11, sentences 6-10, October 15, 2002).

This aspect was positive because the teachers did not have to worry about unsupervised students wandering the halls as they left the room to get a

drink or use the restroom. Also, portable facilities allow accessibility to neighborhood schools.

One teacher informant stated:

> Portables are positive in that they allow students to attend school in their neighborhood schools instead of having to be bused to another school because of overcrowding. It is always better for the students to be able to attend school at their home school and portables quite often allow for this (Informant T7, sentences 1-5, October 14, 2002).

The central administrator agreed:

> It is so hard to anticipate movement of student numbers from one school to another. Portables help in this situation because they can be moved in and set up quickly. This helps in emergency situations to help reduce classroom overcrowding (Informant A5, sentences 1-5, October 15, 2002).

Safety

One teacher informant stated that safety was a positive issue for her students.

> My students, because of being special needs students, feel secure in the portables. They are away from the main building and have less chance of being made fun of. They feel special

> because they get to go outside to go to their class. They are away from the hustle and bustle and distractions of the main building (Informant T12, sentences 16-20, October 15, 2002).

Time on Task

Two teacher informants stated:

Increased time on task was stated to be a plus in the portables because of the separation of most portables from the main flow of things.

> I like being away from the office, hall, and people noises of the main building. We do not have the interference of people sticking their heads in and disrupting class as rooms in the main building often have. The halls in the main building are often full of activity that can be disruptive. My portable is away from all this and is pretty much sound proof to outside noises. This allows us to stay on task and not be disturbed (Informant T2, sentences 2-10, September 30, 2002).

Portables often are quieter, depending on where they are located. Students are less distracted by outside forces. The teacher and students can create their own environment with few interruptions. They are able to develop an atmosphere of being set apart and special from the rest of the school population. Portables allow the teachers to have more flexibility in the environment; in which they can develop their own little world away from the

mainstream business of the school. Teachers are not interrupted as often in portables as they might be in the mainstream of the main building.

> Portables afford more privacy for the teacher and students. The portables, being set away from the main building, are not subjected to the ebb and flow disturbances of the main building (Informant T7, sentences 7-10, October 14, 2002).

> One principal agreed that portables are not subjected to the high traffic and hall noises that are found in the main flow of the school. They are spared the distractions caused by other students and their movements (Informant A4, sentences 14-16, October 15, 2002).

Summary

These positive statements reflect the themes of accessibility, safety, and time on task as related to the use of portable facilities as classrooms. They are strong points that warrant some thought as to the merits of using such facilities.

Negative Perceptions Toward the Use of Portable Facilities as Classrooms

In these days of budget cuts and monetary shortfalls, portable facilities will probably become even more common than they are already. Several

themes emerged from the data concerning negative perceptions of the use of portable facilities as classrooms. Discussed in order, they are alienation, safety, low morale of teachers and students, size restraints, time on task, health issues, general negative aspects, and maintenance issues. Time on task is often greatly influence by noise levels from outside sources. Weather, from hard rain, hail, and strong winds often cause interruptions in teaching and learning by pounding and reverberating on the roof of the portable.

Alienation

Significant negative perceptions toward using portable facilities as classrooms for educational purposes emerged from the data. One of these perceptions was that portable facilities created a feeling of segregation and isolation for both the students and the teachers. They often felt ignored by the main body of the school.

Two teacher informants felt that:

> My students feel separated from the main building because of being in the portable. They show this in their drawings by showing that they see themselves somewhere else other than school but they don't know where they are or really how to draw where they are (Informant T6, sentences 1-2, September 30, 2002).

> We are a social group of students but we feel that we are isolated from the school and our friends that attend class inside the school. We are often not included in different happenings within the school simply because we have been forgotten (Informant T1, sentences 1-2, September 30, 2002).
>
> One principal agreed:
>
> Teachers and students often feel left out and alienated from the rest of the building when they are housed in a portable (Informant A4, Sentence 43, October 14, 2002).
>
> The portables and those housed within are away from the core group. They often miss out on things. They are not accessible as those in the main building. Often it is found that "out of sight-out of mind" applies to those in portables. This could be a good thing but more than likely it is a bad thing for all concerned (Informant A4, sentences 1-5, October 15, 2002).

Safety

Strongly negative perceptions of safety issues related to portables as classrooms were stated. Weather conditions contributed to safety issues because the students had to go outside before entering the main building for shelter for tornado drills and thunderstorm warnings. Because portables are not connected directly to the main building there is always the threat of danger

from strangers. Quite often visitors enter the portables without going through the appropriate channels in the main building. In most portables the emergency alarm systems are not connected. The secretary has to use the intercom to alert those in portables of a fire drill, tornado drill, intruder on campus drill, or even of bomb threats. There is always the threat that in real life the intercom will not work or in the chaos those in the portables could be forgotten. These teacher informants stated:

> The emergency alarms are not connected to our portables. I feel, especially with younger students, that we are in more danger in the event of an emergency. One cold morning our fire alarm was set off by the heating unit. We weren't on fire, but no one in the main building even knew that the alarm was going off. This really bothers me. I worry about being forgotten with no one to help during a real emergency (Informant T5, sentences 8-15, October 14, 2002).

> Not being connected to the emergency alarm system creates uneasiness. The disconnectedness of this is very unsafe. Being out of sight, out of mind especially for the students creates an unsafe feeling for the teacher (Informant T7, sentences 19-21, October 14, 2002).

Low Morale of Teachers and Students

One principal informant stated:

It has been my experience that student and teacher morale become low when consecutive years are spent in a portable. They often miss out on the excitement of the environment and the teamwork concept that forms by being unified under one roof. Because of being segregated by portables the students and teachers often remove themselves from being part of the main building (Informant A1, sentences 26-30, October 14, 2002).

Size Restraints

The size of most portables was an issue with many of the informants. They stated that most portables were too small for the active learning that is expected these days.

Five of the teacher informants stated:

The small size of the portables is extremely detrimental to the special students, especially those with ADHD. They quite often can't handle it and tend to become behavioral problems (Informant T3, sentences 1-2, October 14, 2002).

The portable is so small that I don't have room to leave my centers set up. I constantly have to rearrange to make room for

new centers which takes up a lot of my time (Informant T4, sentences 22-23, October 14, 2002).

My portable has no space, especially with 25 students. We are in tight quarters and cannot move as freely as we would like. Our centers cannot be left up at all. They are designed to where the student picks up the center materials from a general area, takes the materials back to his desk, and does the assignment at the desk. Because of the limited space we have to work this way (Informant T6, sentences 6-11, October 14, 2002).

Portable classrooms are fine for 20 students or less. Too many students in a small space are a problem. Twenty-five to 27 students in a portable are way too many (Informant T11, sentences 52-55, October 15, 2002).

Large classes in a small portable create a lot of problems. The students are crammed in so tight and so close that they tend to distract each other. There is no room to separate anyone. We have to have procedures in place to be able to move around the classroom at all (Informant T1, sentences 18-22, September 30, 2002).

One principal agreed:

The size of the room was a big hindrance for me. It became a real issue in teaching my younger students. There wasn't room to move around freely. This hindered cooperative learning, large

> group activities, and center time. To do most of the activities, we had to go outside, if weather permitted, or to the gym if it was open. I really feel that the small size of the portable becomes a real hindrance for all ages (Informant A4, sentences 34-40, October 15, 2002).

Informants stated that it was more difficult to keep the students in portables focused. Having to go outside caused a loss of attention in many students. Transition time also affected focus and attention because it took much longer to get from a portable into another area of the main building.

Time on Task

This teacher informant said:

> Great distractions often arise when students have to go outside to get to a portable classroom or into the main building. The students feel that this is their walk and talk time simply because they are walking outside. They tend to forget that walking outside is still our hallway and that the hallway procedures have to stay intact. We have to practice collecting ourselves before entering the classroom or building so they remember that they are still in school. I constantly have to pull them back in after venturing outside. (Informant T10, sentences 2-7, October 15, 2002).

Another informant stated:

> Weather conditions and outside sources often bring teaching and learning to a halt. Hail, hard rain, and strong winds shake and pound the portable so loudly that we can not hear and have to stop what we are doing until the noise level drops. (Informant T1, sentences 29-30, September 30, 2002).

Health Issues

Environmental issues were cited as being a concern. Mold and mildew, dust, insects, bad air quality, and the impact of weather on the students were issues to the informants.

Two teacher informants stated:

> I have mold all up and down the wall underneath my heating-air unit. It is also under my sink. I have been sick more this year than last and have had parents complain that their children are sick more than usual. I feel that it is because of the mold in my room (Informant T6, sentences 3-5, October 14, 2002.)

> I believe that the mold and mildew inside and under my portable classroom is the reason for me being sick more often, having headaches and itching eyes. Also, I have two to three students who are out sick constantly. I tend to believe that this is

caused by the mold and mildew (Informant T1, sentences 22-25, September 30, 2002).

A principal informant agreed:

> Being in a portable has raised some serious issues about health for both students and teachers. We are struggling with mold and mildew in our portables. This is caused by leaky pipes and heating-air units leaking down the wall. It is also brought about by standing water under the portables. After it rains there is always water standing under the portables. I have had complaints from parents of students and teachers that the smells are making them sick. It seems that children in portables tend to be sicker and miss more school than those in the main building (Informant A1, sentences 31-34, October 14, 2002).

General Negative Aspects

Two administrative informants, a principal and the central administrator of facilities, with vast experience stated some strong negative aspects to the use of portable facilities as classrooms as follows:

> A portable is just that - a portable. They need constant care because they are out in the elements more than classrooms in the main building and so they need more. They are called portables

but in this district they are permanent because we are constantly growing and we will always have portables.

I had a problem arise where I had two veteran master teachers teaching the same grade level. One was in the main building and the other was in a portable. The parents got together and all of them requested their children be placed in the class of the teacher who was in the building. They could not be swayed so the result was to move that teacher into the other portable so that both sections were housed in portables. This arose simply out of parental dissatisfaction with portables. My goal would be to get the kids out of the portables someday to help with negative perceptions of parents and the feeling of alienation for the students (Informant A3, sentences 11-20, October 14, 2002).

The central administrator stated:

All principals will state that it is best to have all the students in the main building. Ideally having all students in the main building if possible is the best all around. It is a very strong disadvantage that portables quite often become permanent. This is really disturbing and bothers me. At this time, through bond issues we are trying to correct our portable situation for the better (Informant A5, sentences 44-49, October 15, 2002).

Maintenance Issues

Heating and cooling of portable classrooms is the last negative aspect found in using portable facilities as classrooms.

The teacher informants felt that:

> It is hard for the children to pay attention if they are too cold or if they are sweating. When it is hot outside it is really hot in our portable and we have to get drinks a lot more often. This takes up a lot of class time and is time off task. The heating-air unit just cannot keep up with the changes in the weather and it is hard and almost impossible at time to keep the room comfortable (Informant T4, sentences 7-10, October 14, 2002).

> The only real complaint that I have about my portable is the heating-air unit. We either freeze out or burn up. It isn't ever efficient enough to keep my room at a comfortable level (Informant T12, sentences 30-32, October 15, 2002).

> I like my portable, but the heating-air units are not the best. They are loud and their filtering system is not great which affects the air quality in the classroom. It is especially noticeable when we come back to school after the weekend. The air quality in a classroom can affect learning. The students are not as alert or focused when the air is musty or stale (Informant T2, sentences 14-18, September 30, 2002).

One principal agreed:

> The heating and air units in portables are not energy efficient and leads to a learning environment that is not conducive to optimum learning. The units are loud. They don't cool efficiently when they need to nor do they heat efficiently when they should. Air quality is not the best in portables because the heating-air units don't circulate the air efficiently enough. I believe that air quality is directly linked to learning. Parents are always complaining that they want their child in the main building because they are always cold, too hot, or sick from the smells in the portables (Informant A1, sentences 41-46, October 14, 2002)

The central administrator felt that:

> The heating-air units in the portables are a big disadvantage. They don't cool efficiently on hot days and don't heat very well in the winter. Most are aging units that break down often (Informant A5, sentences 40-42, October 15, 2002).

Positive Perceptions Toward the Relationship Between the Use of Portable Classrooms and the Effectiveness of Learning

The informants do their best to be upbeat and encouraging to the students so that the optimum amount of learning takes place. They struggle against odds that are annoyances at best. Today, as well as in the past, learning is not restricted to books. Optimum learning includes of social issues,

environmental issues at school and at home, and much more. If everyone concerned works together to make every aspect of learning positive for all, then the benefits will be great.

A small portion of informants stated positive relationships between portable classrooms and the effectiveness of learning. The themes that arose from the data are time on task and creating positive environments.

Time on Task

Two teacher informants stated:

> I like the portable because we encounter less distraction from hall noises, outside noises, and distractions. We don't lose our focus as much as we might in the main building. Our portable is really sound proof. I am not bothered by the class next in the connecting portable. We are not distracted by outside noises. The teacher next door and I work closely together. I feel that the learning potential is greater in our portables because we do have fewer distractions and are in more control of the students. They are easier to keep focused when they aren't bothered by hallway noises and distractions (Informant T2, sentences 19-26, October 15, 2002).

> I like being away from the inside noises of the main building. I think the students don't encounter as much disruption

which helps them keep focused on what they are learning. I do think that the size of a class that is in a portable can have an affect on learning. The smaller the class, the more learning can take place (Informant T11, sentences 2-5, October 15, 2002).

Creating Positive Environments

Two principal informants expressed that:

I believe that the attitude of the teacher affects the overall aspects of the learning environment. If the teacher is positive towards the portable as a classroom then the students really won't give it a thought. But, if the teacher has a negative attitude toward the portable then the students will pick up on that and will be negative themselves. In this case there would be a direct affect on student learning. Anybody's perceptions can be controlled by positive attitudes and reinforcement.

The teachers in portables are free to create their own environment. They can be in their own little world or community within a community. The students can be made special and set apart from the rest of the school by doing this. A really positive environment can be made out of being in a portable and this can really affect the learning of the children housed within (Informant A2, sentences 24-32, October 14, 2002).

> Teachers in portables seem to have more freedom to do their own thing without bothering their neighbors. The teachers in my portables are able to do more team teaching because they are on the same grade level and have a door that connects their rooms. They depend on each other quite a lot and have to because they are so separated from the other teachers (Informant A4, sentences 78-80, October 14, 2002).

Negative Perceptions Toward the Relationship Between the Use of Portable Classrooms and the Effectiveness of Learning

Although a small number of informants believed that portables positively affected the learning of the students, the majority of informants had negative comments about the relationship between portable classrooms and learning. The major themes emerging from this data and discussed in order were alienation, size restraints, time on task, general negative aspects, and maintenance issues.

Alienation

Two principal informants believed:

> Portables often had a sense of out of sight-out of mind to the administration. Since I am an administrator, I found this to be true. I had to work at making myself go out to the portables

because they were so far out and the main building doors are always locked and I didn't always have my keys. I know this gave the teachers and students a feeling of isolation, segregation, and separation in not being included in main building happenings. The students like to receive visitors and when they don't I believe that it bothers them, makes them feel like they aren't good enough. I also think that students who have attended class in portables for the majority of their elementary school years could begin to feel resentful about never being in the main building with their friends (Informant A3, sentences 36-42, October 14, 2002).

As an administrator, I had to make a special effort to go out to see those in the portable. This added to the disconnectedness that they felt. It just seemed that it took more time and that it was out of my way to walk all the way to the portables for the short amount of time that would be spent there (Informant A4, sentences 21-23, October 15, 2002).

Size Restraints

Two teacher informants expressed:

My portable is very small. I usually have a large number of students packed into the portable. When it is crowded, learning

is often limited to seat work. Active learning is almost impossible. There is no room to move. This can create chaos among the students. Cooperative learning is hindered. Centers are hard to do. There has to be some alternative way to distribute center materials because the portables lack storage to put them away and the lack of space to be able to leave them up. All these together hinder learning (Informant T8, sentences 1-10, October 14, 2002).

The small area of my portable is packed with 25 fourth graders. We are basically elbow to elbow. This hinders our ability to do large group activities. We are so crowded that the small flexible group activities disturb the students that are working independently. Cooperative learning activities can become chaos quickly. We have to have stricter procedures for everything to maintain order. When weather permits we do large group activities outside but this is really a short time span at the first and last of the year. The students are so close that they tend to disturb each other and because the room is so small that there is no place to separate anyone. I don't have enough room to teach. Students in portables aren't afforded the same chance to learning as those in the main building (Informant T1, sentences 3-12, September 30, 2002).

One principal informant stated:

Since becoming an administrator, it has been a while since I have taught in a portable. I see room size restraints and time restraints as being a hindrance to learning with all ages (Informant A4, sentence 28, October 15, 2002).

Time on Task

One teacher informant said:

I feel that learning is affected greatly because of time off task. My portable doesn't have a bathroom or a sink. The students must leave the room and enter the main building to use the restroom and get a drink. While they are out of my view they are unsupervised. We use hands-on science kits to teach science. These are large and bulky. There is hardly room to se them up and no way to leave them set up so time is lost dragging the materials out everyday and putting them back at the end of the class. If the kit uses water, we have to haul it in from the main building. It just takes more time in a portable which lends to time off task and learning. I can't think of any advantages to using portables as classrooms (Informant T9, sentences 25-34, October 14, 2002).

General Negative Aspects

A teacher informant expressed that:

Special needs children tend to have even harder time learning in portables. The disconnectedness of portables, the isolation, and the smallness of the classrooms tend to hamper even more the already struggling special needs student. For this reason it is actually against the law to house special needs classes in a portable. They are supposed to be in the main flow of the main building. Quite often room restraints and other factors cause the special needs classes to be put in portables (Informant T3, sentences 3-7, October 14, 2002).

Maintenance Issues

One teacher informant stated:

When students are not comfortable, when they are too hot or too cold, they don't learn as well. They are distracted and edgy. The heating-air unit never keeps my room at a comfortable temperature and it is so loud that I often catch myself yelling to be heard over it. This is not the best learning situation (Informant T4, sentences 11-14, October 14, 2002).

The following is an extensive conversation that took place with a veteran administrator in which the historical perspective and rationale for the use of portable facilities was discussed.

Portable facilities came into play in this district in the early 1980s. They were used to ease overcrowding at sites that were experiencing a fluctuation in student population due in part to a new housing development and an influx of young families in certain areas of the district. The new families tended to have between two and four children (Dr. John Smith, personal communication, December 6-20, 2002).

The economy was thriving and a major oil company was flourishing. This brought a constantly fluctuating population. This scenario was played out, off and on, at different sites across the district. This influx tends to go in cycles, where people move in or people move out, to cause the fluctuating population at various sites. (Dr. John Smith, personal communication, December 6-20, 2002).

Quite often it is hard to anticipate the movement of students from one school to another. Turn-around in big business happens quite often. People transfer in, people transfer out, and people move up the ladder of success. All of these can affect the movement of students within a certain school district. (Dr. John Smith, personal communication, December 6-20, 2002).

Across this district, over a span of 30 years, different circumstances caused various school populations to fluctuate either up or down. During the 1970s, the oil glut and a prospering oil company brought in workers, which in turn caused an increase in school populations. In the early 1990s, the district had to reduce class sizes due the passage of HB 1017. Also, during this time new housing developments, both low income and single dwellings, added to the fluctuating population within certain cites. In the late 1990s, a major fluctuation in population from one school site to another was caused by the south side home buyout by the major oil company located in the city. Many of the home owners who sold out were able to buy larger and nicer homes in what they considered to be better neighborhoods. (Dr. John Smith, personal communication, December 6-20, 2002).

Program changes added to the fluctuating population during this time as well. These fluctuations were considered, by the district, as temporary and did not warrant redrawing boundary lines for the sites that were experiencing the fluctuation. The district is limited to boundaries with space availability. The district felt a strong need to keep the neighborhood school concept for the elementary sites. It considered how far the students would have to walk to get to their neighborhood school, what streets they would have to

cross, and the stability for the students. All of these came into play in the decision not to redraw boundaries every time an influx of students occurred at any one site. Portable facilities helped make this possible because they are less expensive than adding onto the original school, and can be moved in and set up quickly. They are an easy, quick fix to an emergency situation. (Dr. John Smith, personal communication, December 6-20, 2002).

The situation that brought portable facilities to this district was the fluctuating populations at different sites. Portables were a reasonable, quick, less expensive way to handle this situation. It would have taken hundreds of thousands of dollars and many months to build permanent classrooms onto an existing facility. The quick, easy fix was to purchase portable facilities that could be moved in and for thousands of dollars less than permanent facilities and be ready to accept students in a matter of days. Every portable in the district was built using building fund money. The district has always kept its bond indebtedness as high as possible. The bond issue monies were used strictly for maintenance, which included remodels of existing facilities, building maintenance, technology, and special programs. (Dr. John Smith, personal communication, December 6-20, 2002).

The latest bond issue that passed September 17, 2002 was an exception. A portion built into the bond issue was specifically set aside to replace six portable classrooms with six permanent classrooms located at the farthest northern site in the district. Once replaced, the portables were to be moved. Since the passage of the bond issue, building of the permanent classrooms has begun, but plans for moving the portables have changed. One site in the district is to be completely gutted and remodeled. To accomplish this, the district will close the site completely for the 2003-2004 school year. The portables will stay on site to house six sections from the closed site. In this instance, students will be moved to portables instead of the portables being moved to the students. The patrons of the closed neighborhood school are willing to accept the situation since the students will be returning to a brand new facility in the 2004-2005 school year. This move will save the district hundreds of thousands of dollars and in the money crisis of today, people are willing to be flexible and understanding. Once again, portables will probably always exist and have a place in this district.

Once in place the portables could follow the numbers. If a school with a portable dropped large numbers of students and another school picked them up, then the portable facility could follow with little added expense to the district. This seemed like the ideal situation.

This scenario was played out in 1995 when a large home buyout caused a mass exodus from one school and a large influx to another. The school that experienced the exodus had portable facilities that were then moved to the

site of the school that experienced large growth in numbers from the influx of students. Moving the portable facilities allowed students to attend school in their neighborhood schools. The district was able to ease an emergency situation quickly without a large outflow of hard-to-come-by monies.

> With respect to replacing portable facilities with permanent facilities, this district takes a "like to"- "need to"- "have to"- stance. All concerned would "like to" be rid of all portable facilities and have them replaced by permanent facilities. Yes, they probably "need to" have all students in permanent facilities and out of the portable facilities. Do they "have to" replace them? No, they do not. With the constant shortage of money, they will probably always have a use for the portable facilities. (Dr. John Smith, personal communication, December 6-20, 2002).

Summary

Portables have both positive and negative aspects related to usage and learning.

Teachers and administrators who are in direct contact with portable facilities can state positive aspects as easing over crowded classrooms, flexibility, enabling children to attend neighborhood schools, more freedom for teachers to do their own thing, to create their own environment, their own

community within a community, and less distraction from normal noises found inside the main building. Accessibility, safety, and time on task were the emergent themes here.

The negative aspects of using portable facilities as classrooms greatly overwhelm the positive. The themes emerging from this data were alienation, safety, low morale of teachers and students, size constraints, time on task, health issues, general negative aspects, and maintenance issues. Both teachers and administrators stated strong perceptions that portables caused students and teachers alike to feel isolated, segregated, and disconnected from the flow of the main building. The isolation led to some strong safety issues related to unforeseeable outside forces such as weather, strangers, and emergencies of all kinds.

Environmental issues from mold and mildew to all kinds of bugs and spiders, to the instability of the portables themselves were considered as negative perceptions. Distractions, noises, and smells from outside made their way freely inside the portables because of the poor construction. The large majority of informants had strong negative perceptions toward using portable facilities as classrooms.

A small number of positive perceptions of the relationship between the use of portable classrooms and the effectiveness of learning were found. The themes that arose from the data were time on task and creating positive environments. The teachers had more freedom to do their own thing without being bothered; they had more control over the learning environment, which

made it easier to maintain student flows. They were able to build their own little community with little or no outside distraction.

The negative perceptions toward the relationship between the use of portable classrooms and the effectiveness of learning were abundant. The emergent themes were alienation, size restraints, time on task, general negative aspects, and maintenance issues. Informants stated that alienation from the main facility, size of classrooms, cramped quarters due to oversized classes, and limited space for active learning became great hindrances to learning. Falling into this category as well were heating-air problems and environmental issues that detracted from optimum learning conditions.

Teachers' Perceptions

In looking at teachers' perceptions of portable facilities, most were negative perceptions. Teachers felt that having to teach in a portable facility and forcing children to be housed in them for any part of their education was unjust. They did understand the monetary and overcrowding issues that come into play with portable facilities, but most felt that the administration was not trying to remedy the problems or the situation soon enough.

Some informants were happy to have their own room--even if it meant being in a portable. They felt at ease in the portables and felt that being in the portables were as good as or better than being in the main building. These

teachers felt that the positive aspects of portable facilities were equal to the negative aspects.

The two informants who taught special needs children had conflicting views. One felt that portable facilities strongly segregated her students from the main student body. Other negative aspects in dealing with her students were that the small room and cramped quarters often brought on behavior problems and being away from the main building and having to travel outside often brought up safety issues.

The other special needs teacher has spent the last three years traveling from school to school and classroom to classroom using a cart to transport her materials. Therefore, she was ecstatic to have her own classroom. She also felt that her students enjoyed coming outside to her class. She stated that it made them feel special and set them away from the glares and ridicule of students in the main building.

Principals' Perceptions

The principals' perceptions were varied. They all believed that being in portable facilities was not in the best interest of the teachers and students. One felt that this could be overcome by the attitudes of the teachers. She felt that a positive attitude was the main force in bringing about positive attitudes and motivation in students. Another did not like portables but realized that because of growth in population in her area, there would always be portable

facilities on her campus. One felt that portable facilities were a detriment to both teacher and student morale if they were housed in them for any length of time. He also realized that because of funding shortfalls and population growth, his campus would always have some portable facilities. The last principal felt that both the permanent building and the portables were very detrimental. Her main building is close to 100 years old, so she had the same issues with the main building that she had with portable facilities. The teachers' and principals' perceptions of portable facilities were very similar, but differences from site to site arose from the individual beliefs of each informant.

Central Administrator's Perceptions

The central administrator understood the vast number of disadvantages with portable facilities and stated that the problem that bothered him most was that the portable facilities quite often became permanent. This situation really bothered him, but he also stated that monetary issues were the cause.

CHAPTER V

Overview, Findings, and Recommendations

Introduction

This chapter presents an overview of the study, its purpose, the research questions, and the findings. Conclusions and recommendations are also included, based on the analysis of data collected from the questionnaire and interviews.

Purpose Statement

The purpose of this study was to provide an overview of the use of portable facilities in one school district and to study the perceptions about portable classrooms by those who use them.

Research Questions

This study was guided by the following research questions:

1. What are the historical perspective and rationale for the use of portable facilities as classrooms in the district within the study?
2. What are the perceptions of the principals toward the use of portable facilities at their particular site?
3. What are the perceptions of using portable facilities as classrooms by those who teach in them?
4. How do the perceptions of teachers, principals, and the central administrator compare?

Findings of the Study

This study took place in the largest district in this northern county of Oklahoma. The study explored and analyzed the differing perceptions of those directly related to the use of portable facilities within a specific public school district. Key informants were teachers and administrators who were directly affected by the use of portable facilities by having to teach in one or having portables at their administrative site.

The researcher used a perception questionnaire and short interviews from September 13 through October 15, 2002. Information from the questionnaires and the interviews was analyzed so as to discover any

generalities, patterns, or commonalities that might support the related literature reviewed. The study was guided by four research questions.

1. What is the historical perspective and rationale for the use of portable facilities as classrooms in the district within the study?

After a lengthy review of district materials proved to be fruitless in the gathering of historical data, a 36 year veteran administrator over maintenance and facilities assisted greatly in obtaining the information needed. The lack of data sources available and the inability to acquire the needed information from the materials that were available led to the fruitless search.

The veteran administrator stated that portable facilities were introduced into the district in the early 1980s to help ease overcrowding due to an influx of new families moving into the district. Fluctuating populations at different sites across the district brought about the need for more classroom space. This was dealt with by placing portable facilities at sites where overcrowding was occurring.

Over 30 years fluctuating populations were caused by various reasons. In the 1970s it was an increase of workers brought in by the oil industry. In the early 1990s class size reduction due to H.B 1017 was noted. In the late 1990s, a home buyout program brought about population fluctuations at some sites. Fluctuating populations were considered to be temporary and did not warrant changing boundaries. Portable facilities came into play as being a reasonable, quick, and less expensive solution.

The district, having a "like to"- "need to"- "have to"- stance toward portable facilities, is attempting to replace some portables through the passage of a bond issue in 2002. Permanent facilities are being built to replace the portables at one site, but due to the closing of an entire school the portables will be in use for another year.

Quick and easy fixes to emergency situations due to changing student numbers from year to year without enormous cash expenditures and long building periods are the major reasons that portable facilities have become common in this district as well as in districts across the U.S.

2. What are the perceptions of the principals toward the use of portable facilities at their particular site?

All principals who had portable facilities at their site had a keen insight as to the financial aspect of choosing portable structures over permanent. They were all flexible to some degree and understood the underlying factors that bring about the continuance of portable facilities at their specific sites. In these days of continuing budget crunches and cuts along with a somewhat growing student population in certain areas, there will more than likely always be portable facilities somewhere in the district.

The principals agreed that the best situation, especially for the students, is for every teacher and student to be housed under one roof in the main building. The district is trying hard to accomplish this goal by passing bond issues that will slowly replace the old and deteriorating portable facilities across the district.

The majority of the principals felt strongly that the negative perceptions of portable facilities outweighed the positive perceptions. They believed that portable facilities fell far short when it came to meeting all requirements for providing an optimum learning environment for the students. They felt that portable facilities hindered the social development, safety, health, and positive learning environment by promoting disconnectedness, segregation, isolation, and to some degree alienation from others.

School ownership and pride are strong building blocks for elementary school children, Old, dilapidated, set off portables are detrimental to this part of a young student's education. Learning consists of numerous aspects beyond books. Home life, family, friends, relationships at home and at school, morale, self-worth, self-confidence, the environment at home and school, health, and a sense of pride in one's self and every aspect of one's life, all play a part in learning. With all these factors playing into education and learning, we must try to improve the physical surroundings so as to improve learning for every student.

These principals felt that students housed in the main building had more chances and gained more experiences than those in portable facilities simply because of the numerous restraints related to the use of portable facilities. One principal said the ideal situation would be to have all students in the main building. She also realized that because of the economy and movement of student numbers, there would always be portable facilities in the district. She felt that the portables at her school were better than most and that the

teachers in them had no real negative comments about them. However, her perceptions and her teachers' perceptions were quite different.

One principal's perceptions varied slightly from the other participants' perceptions. This principal agreed that portable facilities were not the best for learning, but felt that the teacher's attitude was the main factor in how well children learned. If the teacher's attitude was outgoing, bubbly, and positive then that would overcome all of the outside factors. She felt that portable facilities were more a physical inconvenience than an educational detriment stating once again that a teacher with a positive attitude would overcome all outside hindrances. In general, the principals' perceptions leaned to the best situation for the students which would be to house them in the main building not in a portable facility.

3. What are the perceptions of using portable facilities as classrooms by those who teach in them?

Perceptions of portable facilities by those who teach in them were overwhelmingly negative. There were a few exceptions.

One informant stated that she loved her portable because it was a classroom. This was a huge step above not having a classroom and having to wheel all her materials from class to class and building to building on a cart. She also believed that her students felt special because they got to go outside to go to class and they were not subjected to teasing and ridicule that they might get by going to a class in the building. She did allow for some negatives,

but the portable was much better than having no classroom and hauling her materials from classroom to classroom on a cart.

Two informants felt that the negative perceptions and the positive perceptions toward portable facilities equaled each other out. They said that the location of their portables and the way that they were built cut down on many of the negative perceptions that many of the other informants had. Their portables were shielded on two sides by the main building. They were also built on black top so they had a solid foundation underneath them. These two aspects protected them from wind and many outside noises. They had no problems with many outside noises. The teachers had no problems with the mold and mildew because of the foundation of their portable. They were generally happy with their portables and could work around the negative perceptions without any problems.

The majority of the informants felt strongly that the negative greatly outweighed the positive aspects. They felt that portables were a detriment to students' health, social lives, and ability to learn to the fullest. They perceived problems with weather, outside distractions, inefficient heating and cooling, the inability to have repairs done, and the disconnectedness from the main school body to be directly linked to student well being and learning.

They felt that portables should be used how they were meant to be used--as a temporary fix to a problem. They knew that portables, although meant to be temporary, usually became permanent but were always considered temporary when it came to repairing and fixing up. This led to the teachers

perceiving themselves as being forgotten, left out, and segregated from the rest of the school community. In a sense, they felt that they were not good enough to receive the same treatment as the teachers in the main building received.

Generally, the majority of the teachers' perceptions were highly negative toward the use of portable facilities and their effect on student learning. Their perception is that portable facilities are not in the best interest of the children that they teach.

4. How do the perceptions of teachers, principals, and the central administrator compare?

The perceptions of all the informants were that portable facilities did not provide the ideal situation for optimal learning. They were all aware of many problems in their use and noted a few positive aspects as well. They all realized that monetary shortfalls brought about the need for portable facilities.

Varying perceptions, both positive and negative, arose from site to site depending on location, size, and type of foundation of each portable. All informants' responses were similar in many aspects.

Conclusions

The data and the findings from the research questions support the relevant literature reviewed, the district information, and the biases of the researcher. The data gathered from the perception questionnaire and

clarification interviews were consistent with the relevant literature reviewed and the district information in both positive and negative aspects.

The triangulation of informant perceptions, relevant literature, and personal observations of facilities showed that monetary shortages were given as the main reason portable facilities exist. The participant responses derived from both perceptions questionnaire and personal interviews brought out that the lack of money throughout the district was a large factor in the presence of portable facilities. The participants stated their understanding that as a result of the ever-changing student population and the shortage of funds throughout education, portable facilities would probably always exist at certain sites throughout the district. In the information collected from the district administrator in charge of facilities stated that the quickness and ease of erecting portable facilities as well as the difference in cost between portable and permanent facilities as the reason for the existence of portable facilities. This same reasoning was found in the articles by Adams, Bache, Buchanan, and Daneman as well as additional reviewed literature listed in the annotated bibliography and references.

Triangulation also showed health and safety issues as a major concern in portable facilities being used as learning spaces. Teacher responses from both perceptions questionnaire and personal interviews were overwhelmingly negative to the fact that health issues stemming from poor air quality, mold and mildew, and other toxic substances used in the construction of portable facilities were detrimental to the learning process. The principal participants

agreed with the teachers' beliefs. The administrative participant suggested that these were problems in the past, but they had been resolved. The reviewed literature that dealt with health and safety issues of portable facilities as being unfavorable to the learning process was abundant. Such articles as Classrooms or gas rooms?, Alabama wants portables gone, The Learning Bricks Project, and Portable school buildings: scourge, saving grace, or just part of the solution support the conclusions. The information obtained from the district administrator showed that there were at times problems that arose with certain individual students, but in general health and safety was not a big concern. The data suggest that a vast number of problems must be dealt with when portable facilities are used for educational purposes.

However, education is influenced by the funds available at any given time, and portable facilities come into play for numerous reasons, from overcrowding due to growing populations to not enough money to build permanent facilities. These are situations that we must endure and work through with professionalism, positive attitudes, and hope that the future will bring great changes for the better.

Personal Thoughts and Feelings

It is my feeling that portable facilities, if needed at all, should only be temporary. They should only be used for as long as it takes to build permanent ones. I believe that portables affect learning, that the air quality of portable

facilities contributes to health issues for both teachers and students, and that the small size of most portables is not conducive to active teaching and learning.

Portable facilities could be improved by regular upkeep and maintenance. They need to be promptly repaired when something breaks and they must be replaced when they are old and deteriorating. They should never be used for more than five years or as a permanent facility.

Using portable facilities is not in the best interest of either the teachers or the students. With the pressures and high expectations associated with education today, we must consider every aspect of learning. Because portables are a detriment to education, they need to be phased out as soon as possible.

Recommendations for Practice

This study can have immediate benefits for members of the educational community including school board members, policy makers, architects, and the society at large by providing differing views and opinions toward the use of portables in education. The results of the study will assist educators in planning better facilities to house students so that they derive the highest possible achievement in learning.

In these times of continual budget cuts and crunches and sporadic growth in student numbers, portable facilities will probably always exist. However, all concerned agree that the best and ideal situation would be to

have all students housed under one roof in the main school building. If this cannot become a reality and portable facilities come into play, then the school board members, administration policy makers, and architects need to pay closer attention to the fine details in building portables so that they provide a better environment for learning.

The first point to be followed is that portables are portables--they are a temporary fix. They should be used only long enough for a permanent solution to be reached, which should be months and not years.

Even though portables are temporary, they should be taken care of and maintained in a reasonable manner. It should not take two to three years to fix something in a portable that is broken, especially if it pertains to heating and cooling.

Portable facilities should be built with quality in mind. They can be more weather tight with better insulation that will help with climate control and cleanliness. This would also help to cut down distractions from outside noises caused by rain, wind, and other storms.

Portable facilities should be located as close to the main building as possible. They should be placed on a solid foundation, a cement or asphalt base. Doing so would almost eliminate mold, mildew, and odors from beneath as long as water could not stand under the portables. To improve the feeling of belonging and connectedness, a breezeway should connect the portable and the main building. The portable should be at least the size of a regular

classroom inside the building, and it should have ample storage and counter space and at least a sink with running water.

The heating and air unit needs to be top quality. It should be big enough to cool comfortably on the hottest days and warm the room on the coldest. The air return and filtering system must be able to filter and clean the air appropriately.

Safety issues should be a major concern. All portables should be connected to all emergency alarm systems, the intercom, and have a phone connection if possible. At the least, each door should have a window that would allow the teacher to see who is calling or what is going on outside.

The roof of the portable facility needs to be insulated if it is a metal roof. Insulation would greatly decrease weather noise caused by heavy rain, hail, or thunderstorms. Keeping portables nice inside and out would help promote pride in the facility for the children housed in them. The main thing to remember is that we are dealing with children and we must do all we can to develop an optimum learning experience for them.

Recommendations for Further Research

The performance of students housed in the main facility should be compared with the performance of students housed in portable facilities. Further research into air quality and health issues related to portable facilities and their effect on student learning would be beneficial. A study that followed

a group of students from being housed in a portable facility one year to being housed in the main building the next year and comparing performance from year to year might bring to light some interesting information about the effects of portable facilities. It would also be helpful to extend a study to include the perceptions of parents toward the use of portable facilities and their effects on learning. A case study of a district that continues to use portable facilities and what the ramifications are might be beneficial in providing insight into the use of portable facilities. In future studies, interviewing children who are housed in portable facilities, their parents, board members, and former superintendents might provide a clearer picture into the use of portable facilities for educational purposes.

Concluding Statement

This study and the process of completing it has been an enormous learning experience for me. It has removed the blinders and opened my eyes. It has softened my very strong biases against portable facilities and enabled me to see portable facilities from an administrative view point and look at the whole picture. I have learned that the administration feels that the portables should be replaced, but money issues keep them from being replaced. I have come to realize that portable facilities are the least of an in-depth list of worries that are faced by the administration on a daily basis. I still believe, as a teacher, that portable facilities are a detriment to a student's self-esteem,

morale, and learning. But, if the administration would repair and maintain portable facilities in a reasonable fashion, the situation would be greatly changed. After all, we are in education for the students, and their well being and ability to learn should be ranked above all else.

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Appendix A

Annotated Bibliography

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This article outlines the process followed by the Fresno Unified School District in creating a relocatable school. Large numbers of Asian refugees settled in the district resulting in a high increase in the student populations in Fresno Unified School District. The construction of a temporary school became an alternative solution to the immediate housing priority.

Agron, J. (1998) Celebrating 70 years of education facilities and business developments. *American School and University*. Retrieved June 23, 2000, from http://asumag.com/ar/university_celebrating_years_education/index.htm

The history of educational facilities, beginning in the fall of 1928 and covering from 1930 through the present, this article deals with issues such as spanking, lasting impressions, a complex market, the future, changing demographics, safety and building issues, colleges, increasing numbers, and environmentally friendly issues.

Alabama wants portables gone. (2000, January). *American School & University.* 72, 3.

Gov. Don Siegelman has made elimination of portable classrooms a top priority in his administration. He contends that portables are substandard. Permanent classrooms are safer for children and more beneficial to learning.

The American Institute of Architects. (1998, November). Building schools that enhance learning. *American School and University.* Retrieved June 23, 2000, from http://asumag.com/ar/university_building_schools_enhance/index.htm

Many factors related to facilities have come to be understood as playing a part in enhancing learning. Structural condition, size and capacity, environmental quality, safety and security, location of site, aesthetics, and symbolic value are just a few that play a role in the way students achieve.

Bache, R. & Edwards, C. (1990). History repeats itself: Another look at relocatables. *CEFPI's Educational Facility Planner.* 28, 17-19.

California School Districts are trying to accommodate the rise in student population. The Department of Education estimates an additional 1.5 million kids will enter K-12 public schools in the next ten years. Portables are nothing new. They have been traced back in history. Today relocatables are a way to provide a fast and economical solution to a school's expanding student population.

Biehle, J. T. (2000, January). Designing safer schools. *American School and University*. Retreived June 23, 2000 from http://asumag.com/ar/university_designing_safer_schools/index.htm

Biehle discusses how school design encourages pride in a school, creating an atmosphere in which students are less likely to feel isolated and form spaces that are less likely to be supervised.

Breaking the mold on air quality. (2001, November). *NEA Today*. 20, 18-19.

Plainfield High School in Connecticut is an aging, leaky, stuffy, and stained structure. The Plainfield staff is pushing for a better indoor environment by using the U.S. Environmental Protection Agency's "Indoor Air Quality Tools for Schools" kit. This kit has been adopted by 9,000 schools nationwide. Staff and industrial hygienists are working to stop indoor air quality problems.

Buchanan, F., Papalewis, R., & Roberts, L. (1990). Building functional schools: mobility, viability, and flexibility. *CFEPI's Educational Facility Planner*. 28, 6-7.

This article considers the pros and cons of pre-fabricated versus built-in-place portables as used in California's state program where 30% of all new classrooms must be portable. It is pointed out that pre-fabricated portables cost about 50% of what built-in-place portables cost, but may not be as well constructed. Regardless of type, portables can be integrated into the campus design and can look attractive and be functional.

California State Department of Education. (1969, January 1). *Portable school buildings*. (Report No. BBB00042) East Lansing, MI: National Center for Research on Teacher Learning. (ERIC Document Reproduction Service No. ED072553)

This article provides an overview of the difficulties that California faces in determining how much money to invest in school facilities. It describes the dimensions of the school facility crisis and ways the facilities can affect the quality of education in student performance. Administration must agree on the minimum acceptable quality needed in school facilities.

Creswell, J. W. (1994). *Research* design: Qualitative & quantitative approaches. Thousand Oaks: Sage Publications.

This book discusses a framework, a process, and compositional approaches for designing a qualitative or quantitative research study in the human and social sciences.

Classrooms or gas-rooms? (2000, Spring). *Earth Island Journal*. 15, 3.

Many students attend school in portable classrooms saturated with formaldehyde, benzene, toluene, and arsenic. The "temporary" classrooms are poorly ventilated. Children are exposed to chemicals that can cause headaches, nausea, nosebleeds, asthma, cancer, and brain damage. High levels of toxic chemicals have been found in the blood of children who have been diagnosed with immune system dysfunction.

Daneman, K. (1998). Portable authority. *American School & University*. Retrieved June 23, 2000 from http://asumag.com/ar/university

_portable_authority/index.htm

School districts are pushed to utilize portable classrooms to address the demands imposed by rising student populations. It is a desirable alternative since the portable buildings can be delivered quickly and relocated when necessary.

Earthman, G., I. & Lemasters, L.. (1996, October 8*). Review of research on the relationship between school buildings, student achievement, and student behavior*. (Report No. BBB32795). East Lansing, MI: National Center for the Research on Teacher Learning. (ERIC Document Reproduction Service No. ED416666)

The most persistent question in the field of school facility planning relates to the relationship between the performance and behavior of the students or users and the built environment. Two variables are explored through the environment: student behavior and student achievement. Studies show a relationship between student achievement and behavior and the condition of the built environment.

Frazier, L. M. (1993, May). *Deteriorating school facilities and student learning.* Report No. OERIRI88062004). East Lansing, MI: National Center for Research on Teacher Learning. (ERIC Document Reproduction Service No. ED306660)

Many American students and teachers find themselves in a physical environment that adversely affects their morale and health. Several studies

have indicated that when a school building is in disrepair, student achievement suffers.

Ganster, W. A. (1955, October). *Functional schools, relative values of permanent vs. temporary school buildings.* (Report No. EF000849). East Lansing, MI: National Center for Research on Teach Learning. (ERIC Document Reproduction Service No. ED 000849)

Architect William Ganster believes that temporary or portable buildings are only justified if a school district is under such financial duress that it cannot provide permanent buildings.

Heise, B. L. & Bottoms, J. (1990). Portable/relocatable classrooms: A user's point of view. *CEFPI's Educational Facility Planner*. 28, 13-16.

The proliferation in the use of portable classrooms prompted a research study focused on gaining information through a survey on portables as they compare to permanent buildings from a user's point of view. The study surveyed 128 teachers in California's San Joaquin Valley who were currently teaching, or had previously taught, in both permanent and portable classrooms. Comparisons of satisfaction were made on 19 characteristics including size, lighting, window placement, noise level, safety, maintenance, location, etc. While levels of satisfaction varied among individual characteristics, overall results showed 15% of the respondents expressed more satisfaction with portables, 48% expressed the same satisfaction as with permanent classrooms, and 37% expressed less satisfaction with portables. Some of the negative comments had to do with lack of seating flexibility due to the shape of the

classroom and the location of chalkboards, window placement, bounciness of floors, isolation on campus, and maintenance. Security was another concern. (Most of the portables in this survey were less than 10 years old. It is known that the maintenance curve increases rapidly after 15 years. Comments showed more dissatisfaction with older portables.) Survey results indicate many valid concerns in areas of safety and security, along with factors that affect educational effectiveness.

Kennedy, M. (1999, September). Making an impact. *American School & University*. Retrieved June 23, 2000 from http://asumag.com/ar/university_making_impact/index.htm

A delayed upgrade for portables was agreed upon due to the lack of dollars in Orange County, Florida. Students will be kept in old and possibly unsafe portable classrooms, delaying a required upgrade on the books for four years. Senators agreed to delay until 2004 an additional mandate that school districts replace 20+ year old portables. It was previously scheduled to take effect in July 2003.

The Learning Bricks Project. (2002, February). Portable classrooms. Retrieved February 3, 2002 from http://www.schoolwisepress.com

This website takes the viewer on a tour of different states using portable classrooms. Various civic personalities are quoted. They cover topics from overcrowding, air quality, toxins, odor problems, heating/air problems, portables becoming permanent, and aesthetics of campuses strewn with portables.

Lyons, J. B. (2002, January). Do school facilities impact a child's education? *New Ohio Institute Publication*. Retrieved June 23, 2002 from http://www.newohio.org/PRIMER/Jan02_primer.html

A growing body of research literature has suggested a direct relationship between the learning and the condition of the school. The classroom is the most important environment conducive to learning. "Students are more likely to prosper when their environment is conducive to learning"

Merriam, S. B. (1988). *Case study research in education: A qualitative approach*. San Francisco: Jossey-Bass Publishers.

This text consists of three parts and 11 chapters that discuss all aspects of case study research. Part one covers foundations of qualitative case study research, part two discusses the mastering of qualitative data collections and methods, and part three talks about analyzing and reporting case study data.

Miron, L. F. (1990, May-June). Portables and school reform: The urban context. *CEFPI's Educational Facility Planner*. 28, 11-12.

This article cites two cases from Orleans Parish which highlight many of the chronic problems caused by overcrowded and inadequate facilities with the use of portables. In Louisiana, a well-intended state reform to reduce class size and reduce the pupil-teacher ratio compounded the space issue, increased the use of portables, and forced redistribution of scarce resources to fall inequitably on already weaker schools in the system. Reform efforts in both relatively affluent magnet schools and under-financed schools stand to lose as a result of the problems brought on by the use of portables and other

temporary measures to alleviate a well-intended, but poorly-thought-out state "reform."

Newquist, C. (1997, October 6). Living with the permanence of portables. *Education World.* Retrieved February 3, 2002 from http://www.education-world.com/a_admin/admin027.shtml

Using portable classrooms to relieve school overcrowding is a solution heralded---and hated. The pros and cons of using portable classrooms are discussed in depth along with coping strategies to assist survival of portable classroom life.

Nussbaum, D. (1999). The school room debate. *Philadelphia Newspapers, Inc.* Retrieved February 3, 2002 from http://www.phillynews.com/sunmag/328/feature2.5html

Choosing between taxes and class size ----- and how you feel about trailers. Nussbaum discusses the influx of portable trailers being used throughout districts in New Jersey to ease overcrowding at schools in which the population has grown at a rapid pace. The article points out that using trailer should be an interim solution. Also discussed are various pros and cons dealing with trailers among educators as well as citizenry that are affected.

Pon, K. (1990). Relocatable classrooms: Schools get what they pay for. *CEFPI's Educational Facility Planner.* 28, 4-5.

A great deal of time, energy, and dollars are spent in finding solutions for the increasing student population in many California school districts. The

most economic, functional solutions from a limited list of alternatives must be found quickly.

Portable school buildings: Scourge, saving grace, or just part of the solution? (1998, April). Retrieved June 30, 2000 from http://www.edsource.org/pub_edfact_port

With the absolute uncertainty of how many children will be attending school, The California Public School System is resorting to portable classrooms. They can be put into place faster than permanent school buildings. Schools can respond quickly to rapidly changing populations. However, the districts will scrimp on quality, in that portables are penny wise and pound foolish.

Rehmer, H. W. (1990). Relocatable classroom buildings-- Are they the solution? *CEFPI's Educational Facility Planner*. 28, 5-6.

The use of relocatables in the rapidly growing Lake Washington School district in Kirkland, Washington, is described in terms of the major reasons for use, criteria for selection, location, and major advantages and disadvantages. It is concluded that relocatable classrooms can be a viable, but not simple, solution to facility needs. They provide flexibility, can be cost effective and time saving, but require advance planning. Also care must be taken in adding portables not to overload existing core facilities. While the use of relocatables may appear "reactive," in actuality their use can be part of a "proactive" plan to effectively manage enrollment growth in already weaker schools in the system.

Ross, Z. A. & Walker, B. (1999, May 1). Reading, writing, and risk: Air pollution inside California's portable classrooms. *Environmental Working Group*. Retrieved June 30, 2000 from http://www.ewg.org/reports/readingwritingrisk/pressrelease.html

This extensive report covers the risks that California is encountering and the use of portable classrooms pertaining to air quality and the harmful effects surfacing in some of the students housed within.

Rushin, T., Berliner, D. & Clark, B. (1998, April 8). Forum on school construction and modernization. *Phoenix, Arizona: Phoenix Preparatory Academy*. Retrieved July 10, 2001 from http://www.cefpi.org/1998schoolforum.html

This forum discusses the impact of inadequate school facilities on student learning and teacher instruction. Students who attend schools in a good state of repair will score 5 to 11 percentile points higher on national tests than students who attend schools in disrepair.

Sandham, J. L. (1997, October 1). Minnesota district closes 16 portable classrooms. *Education Week*. 17, 3.

The 16 portables in Minnesota's Lake Forest School District were closed due to structural defects which could have resulted in ceiling beams collapsing due to heavy loads of snow. The school system in Orange County, Florida was forced to replace rotting, moldy floors in many of the district's modular classrooms. The portables were designed and installed with moisture-trapping dirt beams packed underneath.

State Finance Division: Capital Improvement Section Common School Capital Improvement Needs Assessment Committee. (1998). *Planning for education: Space guidelines for planning educational facilities.* (Publication No. 70 O.S.3-104). Oklahoma City, Oklahoma

Guidelines designed to allow for the requirements of all Oklahoma school districts regardless of size or educational program. Recommendations have been included for various specialized facilities to assure that the proper spaces can be provided beyond the typical classroom space.

Syptak, M. J., Marsland, D.W., & Ulmer, D. (1999). *Job Satisfaction: Putting Theory into Practice*. Retrieved October 26, 2002 from http://www.aafp.org/fpm/991000fm/26.html

It is possible for employers and employees to be happy on the job. The key is in how two factors are handled: motivation and 'hygiene.' In the late 1950s Dr. Frederick Herzberg was considered by many to be a pioneer in the theory of motivation. He theorized that employee satisfaction has two dimensions: "Hygiene" and motivation.

Weber, D. (2001, September 25). Portable classrooms fail safety rules, but being replaced slowly in Florida. *The Orlando Sentinel*. Retrieved June 23, 2000 from http://www.orlandosentinel.com

School officials are balking at making needed improvements to portable classrooms due to the cost. Consequently, thousands of students are going to school in portable classrooms that do not meet new state safety standards. Lake and Osceola are among two dozen Florida school districts that have made

no attempt to certify to the state that they have staff trained to assure that the improvements are done to comply with the law.

Wyatt, J. (1997). Temporary quarters. (Relocatable Classrooms) (Includes Related Article on Reasons for Considering Relocatable Space). *American School & University*. Retrieved June 23, 2000 from http://asumag.com/ar/university_temporary_quarters/index.htm

The need for relocatable classrooms is growing because of rapid increases in student populations. This growth requires the relocation of many students in old school facilities. Relocatable classrooms are advantageous because they can be easily installed and removed.

Appendix B

Perception Questionnaire

Please answer the following questions as completely and as honestly as possible. Your answers will be held in complete confidence. No one will see this original document with answers but me, the researcher.

Thank you for your time and assistance in helping me in this research endeavor for the completion of my Ed.D.

Personal information:

- How many years have you taught? _____
- How many years have you been an administrator? _____
- How many years have you taught in a portable facility? _____
- What grade level do you teach? _____
- How many years of experience do you have in education? _____

Please state your perceptions, both positive and/or negative, toward the use of portable facilities as classrooms. Why do you have these perceptions?

Please state your perceptions, both positive and/or negative, toward the relationship between the use of portable classrooms and the effectiveness of learning that takes place within. Why do you have these perceptions?

Appendix C

Consent Form

By reading and signing on the line below, I hereby authorize Darrell Shelton to perform the following procedure.

The title of this project is **Perceptions of key informants toward the use of portable facilities for educational purposes.** This project involves research conducted by the principal investigator, Darrell Shelton, as partial fulfillment of the requirements for the degree of Doctor of Education through the School of Educational Leadership in the College of Education at Oklahoma State University.

I have received an explanation of this research study and understand that it deals with perceptions toward using portable facilities for educational purposes. The purpose of this research is to develop patterns, generalities, and commonalities that will lend credence to the literature reviewed as well as the personal biases of the principal investigator. A short perception questionnaire will be completed followed by a short interview, lasting no more than 30 minutes that will enable the researcher to clarify responses found in the completed survey. My responses will provide insight into the perceptions of using portable facilities for educational purposes. All responses will then be analyzed for patterns that bring forth a complete picture for the study. This procedure should take only as long as it will take to express my perceptions as fully as possible.

I understand that there are no risks or discomfort I can expect from my participation in this study. I also understand that there are no direct benefits to me; however, I may benefit indirectly by knowing that I have contributed to the betterment of educational facilities. I understand that the principal investigator as part of a dissertation will use all data collected. Changing names of sites and participants to disguise them will insure confidentiality. Names in general will be omitted from use in the study. Data from questionnaires and interviews will be available to the principal interviewer only. Only the principal investigator will have access to all information gathered for this study. Furthermore, I understand that the information that I provide will not be used outside the research project. After the research has been completed, the information I provide will be destroyed.

I understand that participation is voluntary and that I will not be penalized if I choose not to participate, and that I am free to withdraw my consent and participation in this project at any time without penalty. I understand that I may choose not to respond to the perception questionnaire simply by not returning it to the principal investigator. For questions regarding the research I may contact Darrell Shelton at (580) 767-8899, or the principal investigator's advisor Dr. Deke Johnson at (405) 744-9899. For questions regarding rights of research subjects, I

may contact Sharon Bacher, IRB Executive Secretary, Oklahoma State University, 415 Whitehurst, Stillwater, OK 74078. Phone: (405) 744-5700.

By signing below I agree to the above-mentioned terms and conditions and give my consent to Darrell Shelton to participate in the research study as explained.

Consent signature: _____.

Appendix D

Permission to Conduct Research

Ponca City Public Schools

111 West Grand — Ponca City, Oklahoma 74601
Phone (580) 767-8000 — Fax (580) 767-8007

September 11, 2002

To Whom It May Concern:

Darrell Shelton has asked for permission from the Ponca City Public Schools to conduct research in our district so he can complete his degree of study. Ponca City Public schools understands and agrees to allow him to conduct his research.

Sincerely,

John Scroggins, Ed.D.
Deputy Superintendent Ponca City Schools

JS/wkm

Appendix E

Institutional Review Board Approval

Oklahoma State University
Institutional Review Board

Protocol Expires: 9/11/2003

Date: Friday, September 13, 2002 IRB Application No ED033

Proposal Title: PERCEPTIONS OF KEY INFORMANTS TOWARD THE USE OF PORTABLE FACILITIES FOR EDUCATIONAL PURPOSES

Principal Investigator(s):

Darrell Shelton
29 SW Longview Blvd
Ponca City, OK 74601

Deke Johnson
310 Willard
Stillwater, OK 74078

Reviewed and Processed as: Exempt

Approval Status Recommended by Reviewer(s): Approved *

Dear PI :

Your IRB application referenced above has been approved for one calendar year. Please make note of the expiration date indicated above. 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.

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 projects are subject to monitoring by the IRB. If you have questions about the IRB procedures or need any assistance from the Board, please contact Sharon Bacher, the Executive Secretary to the IRB, in 415 Whitehurst (phone: 405-744-5700, sbacher@okstate.edu).

Sincerely,

Carol Olson, Chair
Institutional Review Board

*NOTE: Please change IRB address to 415 Whitehurst.

Appendix F

Portable Facilities Demographics

PORTABLE FACILITIES	AGE	YEAR BUILT	SQUARE FEET	ROOMS	COMPOSITION
1	Over 30	1970s	1659	2	Wood frame composite roofing moved in
2	Over 30	1970s	1373	2	Wood frame composite roofing moved in
3	16	1986	1430	2	Metal construction Built on site
4	11	1991	1430	2	Metal construction Built on site
5	7	1995	1440	2	Metal construction Built on site
6	5	1997	800	1	Wood frame composite roofing Built on site
7	3	1999	768	1	Metal construction Built on site
8	3	1999	768	1	Metal construction Built on site

(Dr. John Smith, personal communication, December 6-20, 2002).

Appendix G

Teacher Respondent Demographics

TEACHER PARTICIPANTS	YEARS IN EDUCATION	YEARS TAUGHT	YEARS TAUGHT IN PORTABLE FACILITY	GRADE LEVEL TAUGHT
T1	5	5	2	4
T2	20	20	5	2
T3	22	22	5	Pre-K
T4	9	9	2	Pre-K
T5	2	2	2	Pre-K
T6	7	2	2	2
T7	13	13	2	2
T8	17	12	1	3
T9	24	24	2	3
T10	10	10	2	2
T11	21	19	12	1
T12	26	26	3	K-5
T13	28	28	7	5
T14	2	2	2	K-5

Appendix H

Administrator Respondent Demographics

ADMINISTRATOR PARTICIPANTS	YEARS IN EDUCATION	YEARS TAUGHT	YEARS AS AN ADMINISTRATOR	YEARS IN A PORTABLE FACILITY	GRADE LEVEL TAUGHT
A1	8	5	3	2	K-2
A2	14	9	5	2	6
A3	16	13	3	0	1
A4	11	7	2	1	1
A5	36	7	29	0	H.S.

Appendix I

Combined Respondent Demographics

participants	95%
non participants	5%
educational experience	290 years
teaching experience	230 years
administrative experience	43 years
experience teaching in a portable facility	52 years
average educational experience	15.26 years

#2

VITA

Darrell Ray Shelton

Candidate for the Degree of
Doctor of Education

Thesis: PERCEPTIONS OF KEY INFORMANTS TOWARD THE USE OF PORTABLE FACILITIES FOR EDUCATIONAL PURPOSES

Major Field: Curriculum and Instruction

Biographical:

Personal data: born in Ponca City, Oklahoma, December 17, 1963; the son of Ronald D. and Myrna D. Shelton; married Deborah E. Patton on February 15, 1992; children: R.J., born December 5, 1996 and Spencer, born October 7, 2002.

Education: Graduated from Ponca City High School, Ponca City, Oklahoma in May 1982; received associates of Science degree in Business Administration from Northern Oklahoma Junior College, Tonkawa, Oklahoma in May 1984; received Bachelor of Science degree in Agricultural Economics with an option in Farm and Ranch Management from Oklahoma State University, Stillwater, Oklahoma in May 1986; received Masters of Science degree in Curriculum and Instruction from Oklahoma State University, Stillwater, Oklahoma in May 1989; complete the requirements for the Doctor of Education degree at Oklahoma State University, Stillwater, Oklahoma in May, 2003.

Experience: Raised on a farm and ranch setting near Ponca City, Oklahoma; employed Edwards Equipment Company and as a grounds maintenance keeper for Northern Oklahoma Junior College, and in the horticulture department at Oklahoma State University as an undergraduate; substitute taught for Ponca City Public Schools during 1986-1987 school year; employed as an elementary school teacher for Blackwell Public Schools, Blackwell, Oklahoma from August 1988-1993; employed as an elementary school teacher for the Ponca City Public Schools from August 1993-present.

Professional Memberships: Ponca City Association of Classroom Teachers; Oklahoma Education Association; National Education Association.