

2011-01-01

An Analysis of the Zone of Proximal Development as a Practicable Learning Theory of Organizational Culture in the Workplace

Patricia Ann Gonzalez

University of Texas at El Paso, pagonzalez@miners.utep.edu

Follow this and additional works at: https://digitalcommons.utep.edu/open_etd



Part of the [Communication Commons](#)

Recommended Citation

Gonzalez, Patricia Ann, "An Analysis of the Zone of Proximal Development as a Practicable Learning Theory of Organizational Culture in the Workplace" (2011). *Open Access Theses & Dissertations*. 2493.

https://digitalcommons.utep.edu/open_etd/2493

This is brought to you for free and open access by DigitalCommons@UTEP. It has been accepted for inclusion in Open Access Theses & Dissertations by an authorized administrator of DigitalCommons@UTEP. For more information, please contact lweber@utep.edu.

AN ANALYSIS OF THE ZONE OF PROXIMAL DEVELOPMENT
AS A PRACTICABLE LEARNING THEORY OF
ORGANIZATIONAL CULTURE IN THE WORKPLACE

PATRICIA ANN GONZALEZ

Department of Communication

APPROVED:

Samuel C. Riccillo, Ph.D., Chair

Patricia D. Witherspoon, Ph.D.

James M. Wood, Ph.D.

Patricia D. Witherspoon, Ph.D.
Dean of the Graduate School

Copyright ©

by

Patricia Ann Gonzalez

2011

AN ANALYSIS OF THE ZONE OF PROXIMAL DEVELOPMENT
AS A PRACTICABLE LEARNING THEORY OF
ORGANIZATIONAL CULTURE IN THE WORKPLACE

by

PATRICIA ANN GONZALEZ, B.A.

THESIS

Presented to the Faculty of the Graduate School of

The University of Texas at El Paso

in Partial Fulfillment

of the Requirements

for the Degree of

MASTER OF ARTS

Department of Communication

THE UNIVERSITY OF TEXAS AT EL PASO

May 2011

ACKNOWLEDGMENTS

First and foremost, I wish to thank my chair, Dr. Samuel C. Riccillo, for his compassion, mentorship and belief in my ability to finish this thesis when my own waned. Without his help and willingness to champion my efforts, I would not have had any hope of completing this study. I am also deeply grateful to my committee members, Dr. Patricia D. Witherspoon and Dr. James M. Wood, for committing their time and knowledge to improving my study.

I would like to thank my participating test company who opened their doors, and lent their resources, time and personnel to expanding the knowledge of cultural learning in the workplace. Their own intellectual curiosity was inspiring and very much appreciated.

I need to thank my brothers Ruben Gonzalez, Jr. and Larry Gonzalez, and my friends Mary Jane, Ruben and Val who I am so grateful for encouraging and supporting me during my many isolated days and nights while I worked singularly on this study.

Finally, I would like to take this opportunity to formally express my love and gratitude to my mother, Ophelia Gonzalez, and my father Ruben Gonzalez, Sr., who passed away after a long illness as I began this thesis. I would like to dedicate this work to them as a testament to their lessons in the importance of education, the satisfaction of self-discipline and hard work, and the rewards of continually exploring our potential and pursuing our dreams.

*“...It matters not how strait the gate
How charged with punishments the scroll,
I am the master of my fate:
I am the captain of my soul.”*

William Ernest Henley, 1888, excerpted from poem *Invictus*.

ABSTRACT

This study analyzes and tests Lev Vygotsky's theory of the Zone of Proximal Development (ZPD) as a practicable learning model of organizational culture in the workplace. The ZPD poses a possible clarifying theory of the individual internalization of organizational culture in the workplace that enhances current theories of organizational assimilation and learning. Qualitative methods were quantified to test this theory using five categories of organizational culture and a 4-stage model created by Roland Tharp and Ronald Gallimore presented in their book *Rousing Minds to Life* (1988) to organize a 30-question survey that was administered to a representative sample of employees at a large global security company. Responses were treated using Pearson r to determine that while the descriptive statistics showed a support of the stages of the ZPD, the correlation against independent variables (experience, supervisory responsibility, sex, education level) showed varying associations revealing that more variables are influencing cultural learning in the workplace.

TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENTS	iv
ABSTRACT.....	v
TABLE OF CONTENTS.....	vi
 CHAPTER	
1 INTRODUCTION	1
Research Problem	2
Research Questions	2
Theoretical Framework & Matrix	4
Purpose and Limitation of Study	4
2 LITERATURE REVIEW	6
Cultural Learning	6
Study of Culture	12
Organizational Culture.....	15
Cultural Learning in the Workplace	21
3 METHOD	31
Company	31
Participants.....	31
Sampling	31
Demographics	32
Instrument	35
Survey Questionnaire.....	35
Dependent Variables	35
Independent Variables	36
Research Questions and Hypotheses	37
Procedures	39
Pilot Testing.....	39
Questionnaire Dissemination and Data Collection	39
Statistical Treatment	40
4 RESULTS	43
Central Tendencies of Analysis Matrix	43
Dependent Variables Central Tendencies	44
Bivariate Correlations	44

5	DISCUSSION	51
	Summary	51
	Descriptive Statistics.....	51
	Correlation Coefficients.....	52
	Limitations	56
	Future Research	58
	REFERENCES	60
	APPENDIX A – SURVEY QUESTIONNAIRE.....	65
	APPENDIX B – IRB APPROVED PROTOCOL	68
	APPENDIX C – REDACTED COMPANY CONSENT LETTER	74
	APPENDIX D – HISTOGRAMS	75
	CURRICULUM VITAE.....	78

CHAPTER 1

INTRODUCTION

Every employee has the “first day” experience on a new job. There is a nervousness that comes with learning about a new company, meeting colleagues, and most importantly, learning the rules of behavior in an organization. It is these formal and informal rules that make up, in large part, an organization’s culture. And, it is the organization’s culture that sets top companies apart from the rest (Collins & Porras, 1995, p. 121; Deal & Kennedy, 1999, p.24; Peters & Waterman, 1982, p.75).

While formal rules would include items covered in the employee handbook – i.e., dress code, hours of operation, reporting structure – the informal rules represent the prevailing implicit values, beliefs, attitudes and “ways of doing things” in a company that require coaching and explaining by an existing employee (Keyton, 2005, p.5; Kreitner & Kinicki, 1998, p.70). Not only are these informal rules socially transmitted, they are primarily transmitted through the medium of speech.

In the early 80s and 90s, a great deal of attention was paid to the diagnosing and altering of a company’s culture whether to increase effectiveness, efficiency, to reduce turnover, or just manage changing circumstances and environments (Trice & Beyer, 1993, p.5). Over that last decade study of workplace culture has waned. However, in the wake of several corporate and industry implosions and debacles, culture has often been referenced as the cause of the actions that have brought public condemnation. This only underscores the need for further study and a deeper understanding of organizational culture and its impact.

This study will move beyond the analysis of culture itself to an analysis of how culture is learned. Current studies use theories focused on the object-oriented nature of activity (i.e.,

activity theory, communities of practice, situated learning theory) in culture rather than on the process of the mentation of culture (Cole, 1995, p.189).

While Vygotsky's Zone of Proximal Development (ZPD) was introduced as a social mediated learning theory involving children, it was also thought to also be a theory of development and of cultural transmission (Vygotsky, 1987, p.1). Over recent years, there has been particular interest in the study of ZPD and its potential applications beyond childhood development into the work environments of today (Bockarie, 2001, p.3).

This study will analyze the Lev Vygotsky's theory of the ZPD and its unique application as a practicable theory of cultural learning in the workplace.

Research Problem

Cultural learning, whether national, ethnic, societal, or organizational, relies on socialization of newer members by existing members. How this process goes from a socialization process to an internalized self-regulating behavior is the primary research problem. The research question of the following study is: Is the Zone of Proximal Development (ZPD) a practicable learning theory for organizational culture in the workplace?

Research Questions

In their book, *Rousing Minds to Life* (1988), Tharp and Gallimore create a 4-stage model of the ZPD (Figure 1) that reveals the basic principles of its process: the use of person in a superior position or experience/learned peer to provide assistance; the use of informal means of assisted performance; the use of information gained from assisted performance to aid in employee understanding organizational culture; and the recursive loop of continual learning. Referencing these tenets, it is necessary for several questions to be answered in order to draw

reasonable belief of a relationship between learning and the ZPD as the means of the internalization of workplace culture:

1. Who is teaching? What position do they hold? How much experience do they have?
2. What method of assisted performance is primarily used for the various elements of culture?
3. Does the information help with employee understanding of the organization's culture?
4. Is learning within an organization continued?

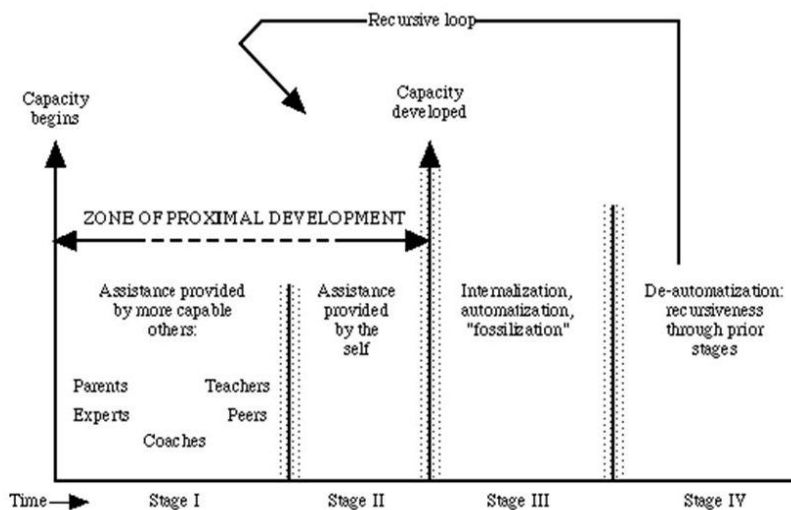


Figure 1: Progression through the Zone of Proximal Development
(Gallimore & Tharp, 1990, p. 185).

To address the primary research problem of this study, these questions will be placed against the most commonly referenced elements of an organizational culture. Since much of the existing literature has sweeping definitions of what constitutes an organization's culture, the most commonly referenced elements have been assembled into the following five categories:

1. Artifacts and symbols; 2. Stories, histories, myths, legends, and jokes; 3. Rites, rituals, ceremonies, and celebrations; 4. Heroes and role models; 5. Rules, codes of conduct, norms, attitudes, and assumptions (Deal & Kennedy, 2000, p.13-15; Keyton, J., 2005, p.20-27; Martin, J., 2002, p.65-92; Trice & Beyer, 1993, p.80-128).

Theoretical Framework & Matrix

These questions and cultural elements will be brought together to form the following matrix to create survey questions that will address the tenets of the ZPD and the elements of organizational culture. The resultant survey will be used to analyze the use of the ZPD as a learning process of organizational culture in the workplace (see Figure 2). The use of an analysis matrix is common in summarizing information and using for analysis of results (Engeström, 2001, p.137; Burke, 1993, p.108).

	Recall of cultural element within organization (Ground)	Is learning of culture through supervisor or more experienced peer? (ZPD 1)	Is learning culture verbal rather than written? (ZPD 2)	Does the information help with the employee's understanding of the organization? (ZPD 3)	Is cultural learning continued? (ZPD 4)
Artifacts & Symbols					
Stories, Histories, Myths, Legends & Jokes					
Rites, Rituals, Ceremonies, Celebrations					
Heroes & Role Models					
Rules, Codes of Conduct, Norms, Attitudes & Assumptions					

Figure 2: Matrix for the analysis of the use Zone of Proximal Development in cultural learning of an organization.

Purpose and Limitation of Study

The purpose of this study is to analyze the theory of the ZPD and its potential as a practicable theory of cultural learning in the workplace, as well as its application and continued study in organizational settings. The responses of employees were analyzed on their perception

of learning organizational culture in workplace using the Zone of Proximal Development model as a framework.

The following chapters elaborate on the areas of study that will establish the foundation for answering the primary research question of this study including: the physical and cognitive development of speech, how speech supports the learning of culture, the anthropological origins of the study of culture, the study of organizational culture, as well as the study of organizational learning that includes theories regarding cultural assimilation and learning. The methodology goes into further detail of the primary research question and the survey used to evaluate questions related to the ZPD and the five elements of workplace culture.

This study is limited to answering the question of the use of the ZPD as a learning theory of organizational culture. As this is an inaugural research study of the ZPD in the area of organizational culture, additional relevant questions were not included in order to fully address the critical and principle research question as a foundation for further studies.

CHAPTER 2

REVIEW OF LITERATURE

Cultural Learning

How does culture become a part of the human organism? This is a question that is being continually researched and theorized. There are phylogenetic and ontogenetic factors of humans that support the acquisition of culture: that humans have a biological advantage to develop a form of consciousness that allows them to be aware of themselves and their surroundings; the ability to speak that allows for linking information through socialization, mentation and regulation of behavior; and finally, the acquisition of culture through scripts, schemas and artifacts.

Humans have undergone a significant phylogenetic process that has provided them with a unique brain and vocal anatomy. The principles of both Charles Darwin and Gregor Mendel focus on the evolutionary aspects of the exceptional ability humans have to phonate. Darwin believed that natural selection results in the differential reproduction of those individuals whose variations provide them and their progeny with statistical advantages in adapting to environmental change or in competing with individuals of the same or different species (Edelman, 1992, p.42). This principle, coupled with Mendel's theory of heredity provided the basis for Neodarwinism and ultimately, modern synthesis which would explain the development of the brain and vocal tract that would allow for speech.

As for brain function, Gerald Edelman had studied human brain's capacity to organize, categorize, develop concepts, store and retrieve memories, as well as its continual capacity to learn and develop language (Edelman, 1992, p.83). He eventually developed a theory of neuronal group selection (TNGS). This theory has only three basic tenets: development, experiential, and reentry.

Developmental selection is concerned with how the brain is first set-up. During the early development of the brain, neurons and circuits are being created by which neural activity will be processed. While each individual is limited to what they inherit genetically, there is a great variation in the development of the neurons and the connection patterns (Edelman & Tononi, 2000, p.83).

The second tenet, experiential selection addresses the development of synaptic connections which are “being strengthened or weakened by specific biochemical processes” (Edelman, 1992, p.85). During an infant’s initial socialization process as they begin to experience the world, the brain begins to form synaptic connections that correspond to the signals created by various behavioral and environmental experiences (Edelman, 1992, p.84). However, during this process synapses that are not being used weaken and die ultimately strengthening the ones that are being used further enhancing the individuality of each human brain (Edelman, 1992, p.85). Through the first and second tenets primary consciousness, which exists in all mammals, becomes possible. Edelman clarifies primary consciousness by referring to it as “the remembered present” (Edelman, 1992, p.121). The remembered present is “...the ability to generate a mental scene in which a large amount of diverse information is integrated for the purpose of directing present immediate behavior” (Edelman & Tononi, 2000, p.103).

Finally, the third tenet, reentry selection, comes into play. “The third tenet of the TNGS is concerned with how the selectional events described in the first two tenets act to connect psychology to physiology” (Edelman, 1992, p.85). They are the foundation for higher-order consciousness. Higher-order consciousness is marked by “a sense of self and the ability in the waking state explicitly to construct past and future scenes” (Edelman & Tononi, 2000, p.102). “The acquisition of a new kind of memory via semantic bootstrapping leads to a conceptual

explosion. As a result, concepts of the self, the past, and the future can be connected to primary consciousness. Consciousness of consciousness becomes possible” (Edelman, 1992, p.132).

Reentrant mapping of TNGS, primary consciousness and higher-order consciousness are the building blocks for learning in the human organism.

This leads to the ontogenetic development of the human organism through orality. During the first six years of childhood, a human is supported by orality since they are illiterate (Riccillo, 1/30/01). Orality provides three basic functions, linking, mentation, and regulation of behavior (Riccillo, 1/23/01).

The first function, linking, is a process in which the human organism’s world becomes coded with words. This process begins through primary socialization and primary consciousness.

As is well known, animals can master the words of human speech and use them in appropriate situations. Before the child reaches this critical point in development, he also masters individual words that are for him nothing more than conditioned stimuli or substitutes for objects, people, actions, states or desires. At this point in his development, however, the child knows words only to the extent that they are given to him by the people around him (Vygotsky, 1987, p.111).

An example of this process can be seen in Edelman’s *Bright Air, Brilliant Fire* in the semantic triangle, or semantic bootstrapping, where an organism repeatedly links an object with its assigned word on different occasions until it becomes a part of its functional vocabulary. Primary socialization, family and parents, are instrumental at this time. This linking process is essential in the developmental years, however it continues throughout life as a learning mechanism as illustrated in the Fifth Dimension project.

The Fifth Dimension project was created at the University of California at San Diego as a uniquely designed cultural medium “for promoting all-around intellectual and social development of 6- to 12-year-olds” (Cole, 1995, p.197). The system is a game staffed by undergraduates where 6- to 12-year old students from area schools learn the rules of the system that requires the participating children to complete tasks in order to advance to the next level.

When they first enter the system, Fifth Dimension participants hear about artifacts like the constitution, Wizard, task cards, and maze from other people. But they are confused about their function and how they fit into the overall pattern of activity (Cole, 1985, p.203).

Undergraduates were allowed to take the class three times, and the children were allowed to participate year after year. Consequently, there was a disparity in knowledge between the newer undergraduates and the experienced school children that created a change in their relations based on their familiarity with the program. Experienced children could be found guiding the undergraduates until they acquired the knowledge about the workings of the system and coached in “unique” ways not set forth in the constitution or task cards that would help them accomplish their goals (Cole, 1995, p.203). This informal oral learning process was used by not only the grade-school students, but also by the undergraduates emphasizing it as a feasible lifelong learning process.

While linking is the first function of orality, the second is mentation. Mentation refers to the mental function of an organism. Vygotsky has been famously credited with creating his theory of the ZPD. The Zone of Proximal Development is defined as “...(the) difference between the child’s actual level of development and the level of performance that he achieves in collaboration with the adult” (Vygotsky, 1984, p.209).

In this process, directions to the child are conveyed through speech. This social speech eventually leads to egocentric and eventually inner speech of the child. Vygotsky had “ideas concerning the ways in which the dialogic organization of speech on the intermental plane is mastered, thereby shaping the intramental plane of functioning (Cheyne & Tarulli, 2000, “Hidden Dialogicality,” para.2). Based on Vygotsky’s idea, J.V. Wertsch provided an ethnographic analysis of the three changes in speech during a puzzle-coping task that took place between a two-and-a-half-year-old child and her mother.

Briefly, Wertsch was interested in the degree to which, over the course of the problem-solving session, the child came to internalize her mother’s directives and questions and, consequently, to perform the task in the absence of her mother’s explicit regulative utterances. While the first two episodes were characterized by the presence of overt, external mother-child dialogue in which the mother responded to the child’s question about the proper placement of a puzzle piece by directing the child’s attention to the model puzzle, a move that, in turn, led to the child’s consultation of the model. By the third episode the child was consulting the model independently of her mother’s explicit directives (Cheyne & Tarulli, 2000, “Hidden Dialogicality,” para. 2).

The child’s consultation of the model in the first episode represented a reaction to the explicit and then to the implicit utterance of the mother. The second episode revealed the self-guiding utterance of the child to be a response to the invisible presence of the mother’s utterance. By the last episode in this series “the child’s egocentric and inner speech (intramental plane) guided this process” (Cheyne & Tarulli, 2000, “Hidden Dialogicality, para. 3). Again, speech and socialization are found to be necessary variables in the development of higher-order

consciousness of the organism. This process leads into the final function of orality, regulation of behavior.

Regulation of behavior is the culmination of the language processing of the human organism. Whether that regulation is of self by others, self by self, or others by self, the use of higher order consciousness is evident. Language is the principle of higher order consciousness, and the cornerstone to thought.

It is not just that communication with human beings is necessary as an integral aspect of the completion of thought. Because human beings are born helpless into a socially organized, culturally mediated human environment, the very existence of human thinking derives from its social nature (Cole, 1994, p.81).

Socialization and thought are significantly affected by culture. As previously stated in this paper, human beings are surrounded by a “culturally mediated human environment” from birth.

Culture consists of learned and shared systems of meaning and understanding communicated primarily by means of natural language. These meanings and understandings are not just representations about what it is in the world; they are also directive, evocative and reality constructing in character (Cole, 1994, p.85).

Such strong environmental influence impacts every facet of the functioning of the human organism. In order to function in a culture, an organism needs to know what the shared system is and how to function within it. The organism identifies schemas and assigns scripts to aid in this activity. “A schema specifies how certain elements relate to one another while leaving other, less essential elements to be filled in as needed according to the circumstances” (Cole, 1994 p.86).

Typically such schemas portray simplified worlds, making the appropriateness of the terms that are based on them dependent on the degree to which the schemas fit to the

actual worlds of the objects being categorized. Such schemas portray not only the world of physical objects and events, but also more abstract worlds of social interaction, discourse, and even word meaning (Cole, 1994, p.86).

Schemas set the scene, where the scripts are the guides to the action (Cole, 1994, p.88). This is where specific information is provided to engage in a full understanding of the interaction that is taking place. “The presence of scripts, embodied in the language spoken,” makes the task of deciphering the action that is taking place (Cole, 1994, p.88). All this harkens back to the concept of categorization and organization of information for later retrieval and use that employs higher-order consciousness.

Culture is the crowning achievement of human development. Through phylogenetic and ontogenetic processes, human beings have the ability to develop beyond any other organism on earth and even beyond previous generations. Culture is what is created and what is left behind. It provides more than the level of intelligence and development, it provides the proof and the definition of a group of people.

Study of Culture

The study of culture has its roots in anthropology as one segment of scientific research that has several classifications that can be segmented into two main areas: 1) the human knowledge, belief and behavior that depends upon the capacity of symbolic thought and social learning; and 2) the shared attitudes, values, goals and practices that characterizes an institution, organization or group. There have been several anthropologists that have advanced the study of culture and provided the seminal work of cultural theories used and referred to today in the study of organizational culture most notably Leslie White, Clifford Geertz, and Michael Pacanowsky.

To adopt the behaviors of a culture is another sub-topic of the study of culture known by several names including cultural integration, assimilation, acculturation, enculturation or socialization. Each of these terms refers to the process of absorption of values and behaviors of those around us to obtain or maintain acceptance in a group (Borden, 1991, p. 45).

Anthropologist Leslie White recognized that while culture is unique to the human species due to their biology, it exists outside of individual and must be learned. “A man is unique: he is the only living species that has culture. By culture we mean an extrasomatic, temporal continuum of things and events dependent upon symboling” (White, 1959, p.3). This process is socially mediated and while most scholars agree that the fundamental form of socialization that humans encounter occurs during infancy and childhood, socialization is considered a lifelong process due to the changing circumstances of our environment (Trice & Beyer, 1993, p. 129; Borden, 1991, p.46; Moore, 2009, p.105).

A baby is born into a group of human beings. It has the capacity – a potentiality at first which will be realized as the infant becomes a child – for symbolic, cultural behavior, but it has no culture. ...He acquires his culture from the world outside himself, from his humans, cultured associates (White, 1959, p.12).

Culture is composed of beliefs, values and behaviors, and is uniquely human due to our biological endowments, with its transmission resting upon our biological endowed ability of articulate speech (White, 1959, p.13; Edelman, 1992, p.83).

While the transmission of culture rests upon speech, Clifford Geertz’s contribution to the study of culture underscored the significance of its meaning.

The concept of culture I espouse...is essentially a semiotic one. Believing, with Max Weber, that man is an animal suspended in webs of significance he himself has spun, I

take culture to be those webs, and the analysis of it to be therefore not an experimental science in search of law but an interpretive one in search of meaning (Geertz, 2000, p.5). Geertz's definition of culture looked at the "interactive creation of meaning" with signs and symbols (Moore, 2009, p.264). An "outsider" recounting the cultural behavior of an organization is fundamentally an act of interpretation. In order to understand the meaning of the behavior and for the behavior to have significance, the "outsider" would need to have an insider's enculturated perspective (Geertz, 1973, p.9). However, interpretation of meaning as an extrasomatic process also led to questions of interpretation as an individual internal process. Geertz queried what human behavior "as symbolic action – action which, like phonation in speech, pigment in painting, line in writing, or sonance in music, signifies" and whether "culture is patterned conduct or a frame of mind" (Geertz, 2000, p.10).

For his part, Pacanowsky took Geertz's suggestions and helped launch the cultural approach to organizational communication. At the time, organizational communication was viewed from a systems perspective (Pacanowsky & O'Donnell-Trujillo, 1983, p.126-127). "Input, output, feedback, and environment were the new buzz words" (Pacanowsky, et al., 1983, p.126). Pacanowsky and O'Donnell-Trujillo preferred the organizational culture metaphor as it comprised both the notions of organization and communication.

We believe that the particular potential of the organizational culture metaphor lies in its ability to liberate our thinking about both organizations and communication.

Anthropologically considered, communication is not information transfer, but language use. And organizations are not to be seen as computer-like machines, but rather more like tribes (Pacanowsky, et.al., 1983, p.127).

In their view, the greatest limitation of systems theory was the emphasis on the structure of culture without consideration of how the structure was created.

...if culture consists of, as Geertz suggests, 'webs of significance that (man) himself has spun,' and if, as we have suggested elsewhere, spun webs imply some act of spinning, then we need to concern ourselves not only with the structures of cultural webs, but with the process of the spinning as well (Pacanowsky, et.al., 1983, p.129).

Pacanowsky equated the communication process to more of a communication performance, performances that bring meaning and significance of language, symbols, stories, and other cultural elements that are a part of an organization's culture (Pacanowsky, et.al., 1983, p.129).

These three theorists underscored three very important points of the enculturation process: first, that culture is socially mediated and that speech is a fundamental component in cultural transmission; second, that cultures are significant because of the shared understanding of the significance of the values, beliefs and assumptions; and third, that an organization does have a cultural life brought into existence by the individuals with it.

Organizational Culture

It wasn't long before the anthropological perspective of culture was borrowed from for the study of organizational culture, case in point: the Hawthorne studies.

In the 1930s there was a pioneering organizational study called the Hawthorne studies at the Western Electric Company in Chicago, Illinois where there was a problem with low plant efficiency (Eisenberg & Goodall, 1993, p.72). Managers were concerned about the numerous complaints and high employee dissatisfaction that were leading to high employee turnover and in turn, was affecting the plant's efficiency (Trice & Beyer, 1993, p.24). A faculty member from Harvard's School of Business, Elton Mayo, was hired as a consultant by Western Electric to

conduct the bank-wiring room study. In short order, he convinced the dean of the business school to allow him to hire a young assistant professor, W. Lloyd Warner, from the anthropology department to assist him in the study.

Mayo argued that Warner would adapt the anthropological methods he had employed to uncover social structure and belief systems in tribal societies to the current work community within the Western Electric plant (Trice & Beyer, 1993, p. 24).

Warner's influence introduced anthropological field methods of observation and interviewing that would reveal the technical, social and ideological systems of a group of people in the study of organizational culture (Trice & Beyer, 1993, p.24; Trice, 1993, p.xiv).

While this study is most noted for its results from a humanistic rather than company perspective, it also initiated the use of established anthropological research methods in the study of organizational culture, as well as establishing the existence of cultural milieu in organizations.

To understand what is meant in using the term "organizational culture", Edgar Schein, author of the 1992 book entitled *Organizational Culture and Leadership*, offered the following definition:

A pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems (p.12).

By this definition, much of what constitutes an organization's culture would not be contained in an employee manual, an organizational chart, or outlines of policies and procedures. Indeed, in the book *In Search of Excellence* that pushed the concept of corporate culture to center stage in

the 1980s, Peters and Waterman emphasized the orality of corporate culture in the following way:

...the stronger the culture and the more it was directed toward the marketplace, the less need was there for policy manuals, organizational charts, or detailed procedures and rules. In these companies, people way down the line know what they are suppose to do in most situations because the handful of guiding values are crystal clear (Peters & Waterman, 1992, p.75).

This is a very important distinction that seems to further support the use of Zone of Proximal Development (ZPD) as a learning model of organizational cultural learning for adults since it is a model supported by speech in cultural transmission.

The prevailing purpose of organizational culture is to have rules of belief, norms, and values that provide guidance for members to manage uncertainties, reduce ambiguities, and create some form of order (Borden, 1991, p.95; Trice & Beyer, 1993, p.3). An employee's acculturation into an organization's culture gives an employee a deeper understanding of the work, the organizations expectation of them, and what it will take to get ahead in the organization (Deal & Kennedy, 1999, p.210; Keyton, 2005, p.141). On a more personal level, most people want to work in environments that resonate with their own values, beliefs and ideas (Keyton, 2005, p.2). In fact, employees who are successfully acculturated into an organization are likely to be more satisfied with their work, less likely to leave their jobs, and have a higher sense of belonging to the organization (Keyton, 2005, p.140). Moreover, as with ethnic or national culture, organizational culture cannot exist independently of its members, nor is it the result of the actions of one member (Trice & Beyer, 1993, p.4)

There are many elements that constitute culture from dress to attitudes. Gleaned from current literature, five categories have been developed as elements of study that will be evaluated in the learning process of organizational culture: artifacts and symbols; stories, histories, myths, legends and jokes; rites, rituals, ceremonies and celebrations; heroes and role models; rules, codes of conduct, norms, attitudes and assumptions (Deal & Kennedy, 2000, p.13-15; Keyton, J., 2005, p.20-27; Martin, J., 2002, p.65-92; Trice & Beyer, 1993, p.80-128). Each of these categories holds important cultural information about the organization and the values that would impact employee behavior.

Artifacts: Whether a “wall of fame”, the prototype of the first product that rolled off the assembly line, a 10-year anniversary pin, or the Statue of Liberty, artifacts and symbols provide an example of what is important in an organization and even a country. It is more than the written word, it is the beliefs behind the artifact or symbol that give it value. “Symbols, are tangible and sensory objects, integrate feelings, thoughts, and actions into a shared meaning” (Keyton, 2005, p.50).

Stories, myths, legends and jokes are used internally as elements to unify a group under one purpose by teaching newcomers, and reinforcing to current employees, of their shared experience and history. Externally, stories, myths, legends and jokes create an identity for an organization that gives it a unique spirit (Deal & Kennedy, 1982, p.85-103; Trice & Beyer, 1993, p.101-107). Examples of these would be jokes about lawyers shared within the industry, or a story of winning a contract over a competitor.

Rites, rituals, celebrations and ceremonies provide a tangible way of showing employees what is important in an organization’s culture (Deal & Kennedy, 1982, p.59). For example, in the past seventeen years a significant ceremony has permeated medical schools

called “the white coat ceremony” (Arnold P. Gold Foundation). First held in 1993 at Columbia University College of Physicians and Surgeons, this ceremony not only presents first year medical students with their first white “doctor’s” coat, but also has the purpose of establishing a “psychological contract” for the practice of medicine that underscores the importance of compassionate care for the patient as well as scientific proficiency (Arnold P. Gold Foundation).

At the ceremony, students are welcomed by their deans, the president of the hospital, or other respected leaders who represent the value system of the school and the new profession the students are about to enter. The cloaking with the white coat—the mantle of the medical profession—is a hands-on experience that underscores the bonding process. It is personally placed on each student's shoulders by individuals who believe in the students' ability to carry on the noble tradition of doctoring. It is a personally delivered gift of faith, confidence and compassion (Arnold P. Gold Foundation).

Today, over 90% of medical and osteopathic schools have a white coat ceremony or similar rite of passage (Arnold P. Gold Foundation).

Heroes and role models: every organization needs a hero. A hero provides an example of an extraordinary achievement within the organization that gives a “memorable and teachable moment that encapsulates the values of a company” (Deal & Kennedy, 1982, p.14). These are the high achievers that give an example of how to succeed in the company. By comparison, a role model is more of a mentor that provides a day-to-day guide of expected behavior to follow (Deal & Kennedy, 1982, p.14). These individuals can be a model for making presentations, handling conflict, or writing memos for a young professional or even new hire that may have previous work experience (Deal & Kennedy, 1982, p.14).

Rules, codes of conduct, norms, attitudes, and assumptions are “informal or unconsciously followed rules of how people should behave and communicate” and are considered powerful forms of social control (Keyton, 2005, p. 24). An example of this can be seen on the treatment of competing companies, or even departments. On June 20, 1985 the Gadsden Times of Alabama reported that Dexter Gooden, a Coca-Cola employee, was suspended from work for being caught drinking a Pepsi while on the job for Coca-Cola by what was later described as an overreacting supervisor (Gadsden Times, 1985, p. 83). While it was never explicitly stated that employees could not consume a competitors’ product, it was believed to be implicitly understood. After Gooden was reinstated, the plant manager said that “permitting an employee to drink a Pepsi on company property, wearing a company uniform, undermines ‘everything we stand for’” (Gadsden Times, 1985, p. 83). Representatives from other national brands understood the reaction in their “take no prisoners” environment and believed the same thing could have happened at any of their own plants (Gadsden Times, 1985, p.83). Norms, attitudes, behaviors and the like, outline codes of conduct that employees are expected to follow. The codes turn “outsiders into fully functioning insiders by promoting and reinforcing the organization’s core values and beliefs” (Kreitner & Kinicki, 1988, p. 70). Violation of these codes can have drastic results.

On the flip side of culture, the very beliefs, values and assumptions that define an organization’s culture requires consistency from all participants and can create a limitation on behaviors and outcomes. Often thought of as the most difficult challenge in shaping an organization’s culture, every person is putting themselves and their beliefs on display all the time (Deal & Kennedy, 1999, p.210). If there is one thing that people do not tolerate is the inconsistency and hypocrisy as words fail to match deeds (Deal & Kennedy, 1999, 209). When

this occurs, expectations and structures are thrown into question weakening the cultural ties and conformity (Deal & Kennedy, 1999, p.209; Keyton, 2005, p.5).

Cultural Learning in an Organization

Cultural learning, or socialization, is recognizably different for a child as opposed to an adult. For an adult there may be a need to “unlearn” previous accepted behaviors and expectations, as well as confront competing beliefs and values (Lave, 1988; Trice & Beyer, 1993). There are many existing theories including Activity Theory, Situated Learning Theory, Constructivism, Communities of Practice, and Organizational Assimilation Theory that address learning in the workplace. It is important to note that the ZPD does not compete with these theories, rather it illuminates the individual’s internalization process referenced but not detailed (Bockarie, 2002, p.3)

Activity Theory was a precursor to the ZPD with Vygotsky aiding in its initial development. This theory makes an effort to bring together the relevant systems that impact learning. The first incarnations of the theory showed a reformulation of the semantic triangle where the stimulus (S) and response (R) provoked a mediating act (X) as illustrated in Figure 3.

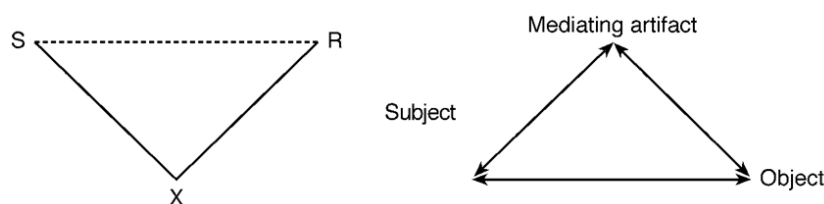


Figure 3: Semantic Triangle (Engeström, 2001, p.134)

However, this simple diagram did not address the complex interrelations that included the impact of cultural–historical collective activity on individual human activity and learning. So, subsequent revision of the theory became more complex in order to capture the elements of

diversity, culture, and community in the learning process. This led to the third version of Activity Theory where multiple perspectives were included and the complex network of interacting activity systems was created to diagram the learning of an individual in a group setting as illustrated in Figure 4 (Engeström, 2001, p.135).

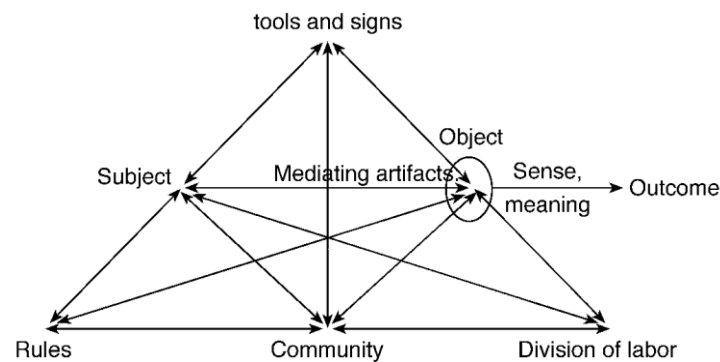


Figure 4: The structure of a human activity system (Engeström, 2001, p.135).

With regards to organizational enculturation, activity theory partially explains how individual conceptions are brought into alignment with a community of practice through artifacts, signs and activities (Clancey, 1995, p.53).

A second theory, the theory of situated learning, “claims that knowledge is not a thing or a set of descriptions or collection of facts or rules” (Clancey, 1995, p.49). Rather it places learning primarily on the process of co-participation instead of in the internalization of an activity by an individual (Lave & Wenger, 1988, p.13). This particular theory is centered on how learning occurs every day recognizing that knowledge is created as individuals become cognizant of what is happening in a social context that influences what they think, how they behave, and what they say in relation to their role as a member of a community (Clancey, 1995, p.49). The focus is on the participation in a culturally valued practice of collaboration. However,

once the collaboration has concluded, the dimension of self-mediated behavior is missing that is the hallmark of learning that will impact the individual for their lifetime.

Another theory of workplace learning that is externally focus is communities of practice.

In a community of practice, social relations are oriented around work, and knowledge and its production becomes of individual's identity and takes its place in the community. As opposed to being created to carry out a task, the shape and membership of a community of practice emerges in the process of activity as people work and learn collaboratively.

(Bockarie, 2002, p.5).

Learners become involved in a community of practice that is characterized by shared social relations working toward a common purpose (Engeström, 2001, p.140). As these communities are mostly informal, they pervade many workplaces and guide learning through participation (Wenger, 1998, p.7). Like most informal learning structures, terms of members' participation can be implicit and set the boundaries around their learning (Bockarie, 2002, p.3). Once again, this theory has an external focus and only addresses internalization of learning through the participation and identification with a particular group.

Finally, a prevailing theory of enculturation and learning that needs to be addressed is Fredric Jablin's Organizational Assimilation Theory (OAT). Jablin offered this cognitive theory of the individual to counter the research that focused on the perceptions of organizational climates that existed at the time (Jablin, 1982, p.255). He described three stages to this theory: 1) the Anticipatory Socialization stage – this is when a potential employee forms their expectation not only for the job, but also for the organization they hope to be working; 2) the Encounter stage – once the employee begins working at their anticipated organization, they undergo a reconciliation period when their expectation are compared to the reality that they are

experiencing; and 3) the Metamorphosis stage – a stage when the recruit makes the necessary alteration in their attitudes and behaviors to align with the organization’s expectations (Jablin, 1982, p.256). OAT provides an individualistic cognitive development process of assimilation in relation to the group with broad generalized stages that probably more appropriately describes the original cultural assimilation process into an organization rather than a life-long learning theory. However, as stated earlier in this paper, the ZPD does not compete with this or any of the previously discussed theories. The ZPD actually expounds upon an internalization process by the individual that is either assumed or suggested in these theories.

Vygotsky’s Zone of Proximal Development (ZPD) provides a potentially clarifying model of not only an individual’s organizational enculturation, but also life-long learning. While current theories provide stages of socialization, ZPD emphasizes the personal development of the learner as an ongoing process. Originally created through research in childhood learning, Vygotsky used ZPD to describe and illustrate “the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers” (Vygotsky, 1978, p.86). Vygotsky recognized the interaction between changing social conditions and biologically guided behavior.

According to scholars, there are at least three reasons for the popularity of Vygotsky’s work: 1) his emphasis on the active contributions of humans to the development of their own consciousness; 2) the importance of social interaction in development and learning; and 3) the notion of the mediational role of language in the communicative process (Emihovich & Souza Lima, 1995, p.375-383). Vygotsky believed that the internalization of culturally produced sign systems brings about behavioral transformation and forms the bridge between early and later

forms of individual development making learning a life-long process of constructing, deconstruction, reframing and internalization (Vygotsky, 1978, p.7). Moreover, the ZPD takes into account individual differences, and concentrates on “the communicative nature of learning in which participants come to an understanding of the operations they are performing” (Wink & Putney, 2001, p.31).

Vygotsky’s initial experiments showed the interrelationship of a child’s use of language for problem-solving that led to their learning and his hypothesis that the “human capacity of language enables children to provide for auxiliary tool in the solution of difficult tasks, to overcome impulsive action, to plan a solution to a problem prior to execution, and to master their own behavior” (Vygotsky, 1978, p.7). This is the groundwork for his theory of the Zone of Proximal Development that provides a process of the internalization of information and culture that can enhance the understanding of the process of cultural learning in the workplace.

The developmental progress of the child through the four stages of ZPD, as described by Gallimore and Tharp, utilizes the social and cultural heritage of the child to move his/her understanding from external social plane to the internal psychological plane; from assisted socially-regulated help of others to unassisted self-regulated performance (1990, p. 184).

In Stage I, the child must rely on the assistance of an adult or more capable peer to complete the task. Of course, the amount of assistance will depend on the child’s age, the complexity of the task, prior exposure, etc. (Tharp & Gallimore, 1988, p.33). During this stage, the child will gradually understand the meaning of the parts and how they relate to one another in the performance of the task by taking language queues and other assisting devices such as questions and feedback. For an adult entering a workplace environment, this person could be a supervisor or more experienced colleague that would help them execute their job functions.

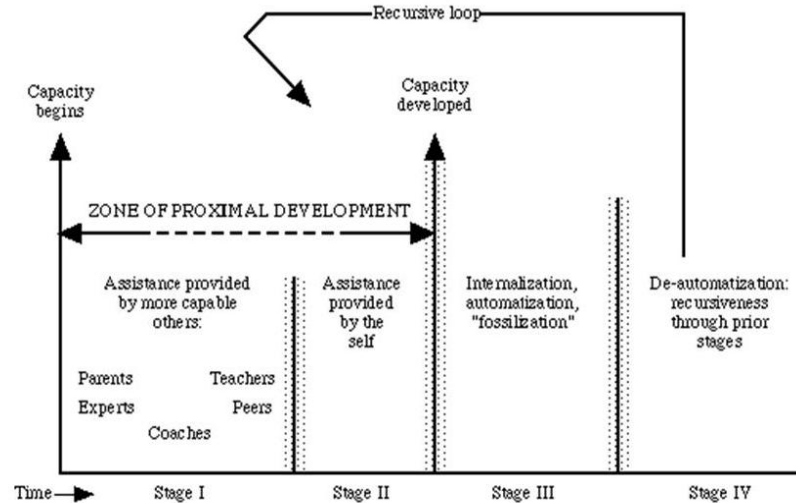


Figure 1: Progression through the Zone of Proximal Development (Gallimore & Tharp, 1990, p. 185).

After receiving help from other experienced individuals, the child begins duplicating the initial effort on their own entering Stage II of ZPD. During this stage the child has not yet internalized the task and will guide their actions and behavior through self-directed speech (Tharp & Gallimore, 1988, p.36). Moreover, while Vygotsky's research focused on children, "identical processes of self- and other-assistance in the ZPD can be seen operating in the learning of adults" (Gallimore & Tharp, 1990, p. 186). Through a 1969 case study, a small demonstration school was created that, in addition to many other educational activities, allowed researchers/consultants to study and observe the skill acquisition process of teachers learning new education methods.

...the most common form of self-assistance reported by teachers with whom we worked appears to be self-talk: self-instruction, self-praise, self-scolding, self-questioning. ... This is a stage intermediate between external regulation and full individual competence (automaticity). It may also be seen as a stage in which the "voice" of the regulating other is gradually acquired by the learner...(Tharp & Gallimore, 1988, p.253).

Stage III marks the point where assistance and self-regulation is no longer necessary. Instead, the child's tasks have been fully integrated and are now internalized and integrated into their knowledge base. At this stage, further unsolicited assistance is not only distracting but possibly detrimental to the task performance.

Since learning is a continual process, there is a reoccurrence of the other-assistance to self-assistance of new capacities by the learner. This designates Stage IV of the recursive loop (Gallimore & Tharp, 1990, p. 186). "The lifelong learning by any individual is made up of these same regulated, ZPD sequences...recurring over and over again for the development of new capacities" (Tharp & Gallimore, 1988, p.38).

It might be helpful to address the notion of the means for assisting performance that it often referenced in the ZPD process. Different theories across various disciplines over many years have introduced numerous assisting devices to aid performance whether in education, the workplace, or personal development. Vygotsky emphasized that speech was the primary means of assistance for higher mental processes, however he didn't limit it as the only method of assistance.

Learning, and for that matter teaching, in the context of an organization can take many forms including modeling, contingency management, feedback, instructing, questioning and cognitive structuring (Dunphy, 2003, p.51). Whether in school or in the workplace, three basic assisted performance functions of instructing, questioning and feeding back offer effective methods of enhancing ability (Gallimore & Tharp, 1990, p.177).

Instructing is a basic function of teaching or coaching that provides the introduction to the student or employee of a new process or task, and how it is to be performed (Gallimore & Tharp, 1990, p.181). Instructing works along with questioning for both the teacher and a

feedback mechanism for the student. For the teacher, feedback can provide a less directive guide in assisting the student to reflect on how their actions will help accomplish the goal. Feedback is such a normal part of everyday life it can often go unnoticed, however it is a vital component to progressive performance achievement (Gallimore & Tharp, 1990, p.180). In school this interactive component of teaching can be provided by testing, graded work sheets, or responses to questions; in the workplace the most commonly identifiable feedback mechanism would be employee evaluations, performance reviews, and customers' comment cards. However, for feedback to be relevant and effective it needs to be compared to a set standard or goal.

Modeling provides an example of a desired behavior or action. Whether consciously or unconsciously done, modeling is an effective form of assisted performance that is first utilized to socialize new members into cultures with continued effectiveness into adulthood (Gallimore and Tharp, 1990, p. 178). It is not unusual for individuals, early in their careers, to employ informal learning tactics, such as adopting role models that have been successful in an organization, in order to be sure they will meet expectations and not violate crucial norms (Deal & Kennedy, 1999, p.210; Trice & Beyer, 1993, p.162). In fact, there have been several studies that cite that as much as 70% of workplace learning is informal making it the most pervasive form of learning (Brockner, 2002, p.3).

Contingency management is the “carrot or the stick” of assisted performance. This form rewards those behaviors that are to be encouraged and, conversely, provides reprimands to discourage unwanted behaviors or actions (Gallimore & Tharp, 1990, p.179). Rewards can come in many forms from symbolic awards, increased privileges, or monetary incentives; while reprimands can include anything that can serve as a deterrent for unwanted behavior such as increased restrictions or loss of opportunities. While the theory provides for positive/negative

option, it is often preferred to maintain an encouraging learning atmosphere by utilizing positive reinforcement.

Cognitive Structuring is a teaching technique of aiding the student to organize information that they are learning that will structure their thinking and acting (Gallimore & Tharp, 1990, p.182). Examples would include categorizing, grouping or sequencing information that would reveal similarities or patterns that would help the student recall and utilize information. Part of the lifelong process requires learners to constantly construct, deconstruct, and reconstruct their knowledge base and skills required to function in the world (Bocharie, 2002, p.5; Lave & Wagner, 1991, p.47; Wink & Putney, 2001, p.31). It is through the interaction with others, and the connecting of the internal and external worlds, that meaning is created for each individual. That meaning is always being evaluated and adjusted as new situations are experienced (Bockarie, 2002, p.6).

Adult learning in the workplace also brings the unique issue of the reconstruction of learned knowledge in addition to the internalization of new ideas. A fundamental principle of adult learning is what we learn is associated with the interpretations of our experiences in relation to new information and how it connects to old information (Bockarie, 2002, p.6). This form of learning occurs as individuals create, or construct, their own new understanding and knowledge through interaction with and reflection on what is already known and believed. This is balanced against the ideas, people, events and activities in everyday life (Bockarie, 2002, p.6).

From what is known about workplace learning, the ZPD lends itself as a viable theory to chart the process of organizational enculturation. It brings together the most recognizable tenets of organizational learning in a simple, timeless and flexible theory. The study of the ZPD in the context of the workplace has the potential of revealing a process of knowledge acquisition in

various areas of the workplace beyond enculturation to include employee decision-making, behavior.

CHAPTER 3

METHOD

Company

Several companies were approached to participate in the research project. Unfortunately, at the time the economic downturn made such participation problematic since many of the companies had to lay-off employees, while others had initiated their own surveys that would have affected the response rates of the project.

In the end, a large global security company granted a rare agreement to provide the sites for the survey as long as they could remain anonymous, and the source of the project could remain confidential by the company. The test company is a highly diversified global enterprise primarily engaged in the research, design, manufacture and integration of various advanced-technology products. Internationally, this company employs approximately 132,000 highly-skilled and professional personnel. Agreement to this research project was granted by the company due primarily to test the internal infrastructure of the company's surveying procedures, as well as the possibility that the study could generate beneficial results for the company.

Participants

Sampling

One division of the test company was chosen for sampling for the survey. Several locations within this division, with a total of 28,000+ salaried employees, were selected to pull a probability sample of 3,000 employees that were representative of the general employee population with the hope that at least 384 employees would complete the survey in order to have a 95% confidence level in the results. This level was set using the following formula for

constructing confidence intervals based on sample proportions isolating N as the unknown interest (Healey, 1996, p.166):

$$N = \frac{(z^2)(Pu)(1 - Pu)}{(.05)^2}$$

Only non-union workers were surveyed to expedite the process since all requests involving union workers would need to be routed through union representatives for approval and changes.

Of the 3,000 employees invited to participate, 395 employees completed the survey providing a 13.2% response rate. This is a large enough sample to permit a 95% confidence level in the results, as well as some assumptions under the definition of Central Limit Theorem “that when samples are large (above about 30) the *sampling distribution* will take the shape of a *normal distribution* regardless of the shape of the population from which the sample is drawn” (Field, 2009, p.782).

Demographics

Of the participants, 78.1% were male and 21.9% were female, 47.8% had over 15 years with the company (see Table 2) while 76.7% had over 15 years of total professional experience as shown in Table 3. Regarding supervision of employees 32.8% were in some form of supervisory position with 67.2% who were not responsible for supervising any employees as illustrated in Table 4. Tables 1 through 4 provide a detailed categorization of the education level, years with the company, year of experience, and supervision responsibility.

Table 1

Education Level

	Frequency	Percent	Valid Percent
High School or GED	6	1.5	1.5
Some College or Associates Degree	54	13.6	13.7
College (Bachelors Degree)	176	44.4	44.6
Graduate School (Masters or higher degree)	159	40.2	40.3
Total	395	99.7	100

Table 2

Years with Company

	Frequency	Percent	Valid Percent
Less than 1 year	21	5.3	5.3
1 - 5 years	55	13.9	13.9
6 - 10 years	88	22.2	22.3
11 - 15 years	42	10.6	10.6
More than 15 years	189	47.7	47.8
Total	395	99.7	100

Table 3

Total Professional Years of Experience

	Frequency	Percent	Valid Percent
Less than 1 year	5	1.3	1.3
1 - 5 years	22	5.6	5.6
6 - 10 years	42	10.6	10.6
11 - 15 years	23	5.8	5.8
More than 15 years	303	76.5	76.7
Total	395	99.7	100

Table 4

Employee Supervisors

	Frequency	Percent	Valid Percent
1 - 5 employees	52	13.1	13.2
6 - 15 employees	37	9.3	9.4
16 - 25 employees	15	3.8	3.8
more than 25 employees	25	6.3	6.4
No employees	264	66.7	67.2
Total	393	99.2	100

Instrument

Survey Questionnaire

The survey instrument was a thirty-item questionnaire (see Appendix A). It was designed to be a web-based, self-report survey using a 5-point Likert-type scale that would measure the participants' perception of agreement on statements regarding their organizations' culture using the ZPD as a framework. Each question was formed as a statement relating to the stage of the ZPD and the cultural element, and was derived from various literature relating to organizational culture (Deal & Kennedy, 2000, p.13-15; Keyton, J., 2005, p.20-27; Martin, J., 2002, p.65-92; Trice & Beyer, 1993, p.80-128). At the end of the questionnaire the respondents were asked five demographic questions. These independent variables were selected by inferred relevance from pertinent literature regarding theories of workplace learning and assimilation (Brockner, 2002; Engeström, 2001; Jablin, 2001). The independent variables were placed at the end of the questionnaire since research suggests that participants are more willing to answer questions about themselves after they have committed to the completion of a survey and found relevance in answering the questions (Church & Wacławski, 1998, p. 45; Kraut, 1998, p. 165).

Dependent Variables

The survey asked five questions in each of the five sections that represent the elements of workplace culture. Each section included one "grounding" question to focus attention of the respondents on an applicable cultural example within their organization, and four additional questions related to the four tenets of the Zone of Proximal Development (ZPD). These questions comprise the dependent variables of the project. Using the matrix introduced previously in this paper, the questions were presented in the following sequence:

	Recall of cultural element within organization (Ground)	Is learning of culture through supervisor or more experienced peer? (ZPD 1)	Is learning culture verbal rather than written? (ZPD 2)	Does the information help with the employee's understanding of the organization? (ZPD 3)	Is cultural learning continued? (ZPD 4)
Artifacts & Symbols	#1	#2	#3	#4	#5
Stories, Histories, Myths, Legends & Jokes	#6	#7	#8	#9	#10
Rites, Rituals, Ceremonies, Celebrations	#11	#12	#13	#14	#15
Heroes & Role Models	#16	#17	#18	#19	#20
Rules, Codes of Conduct, Norms, Attitudes & Assumptions	#21	#22	#23	#24	#25

Figure 5: Questions corresponding to analysis matrix of the Zone of Proximal Development and cultural elements.

The participants were asked to answer each of the twenty-five questions based on their perception using a five-point scale that allows responses for: 5 = Strongly Agree, 4 = Agree, 3 = Neither Agree Nor Disagree, 2 = Disagree, 1 = Strongly Disagree.

Independent Variables

The survey questionnaire has a sixth section that asks for demographic information about the employee with five questions related to the independent variables for the project. Questions were limited to the experience, responsibility, education and sex. See Appendix A for survey questionnaire.

Research Questions and Hypotheses

Analysis of the survey responses will seek to answer the following research questions:

- RQ1: Do employees learn workplace culture from supervisors and more learned peers?
 - H1: Employees learn workplace culture from supervisors and more learned peers regardless of the employee's years of experience.
 - H2: Employees learn workplace culture from supervisors and more learned peers regardless of employee's sex.
 - H3: Employees learn workplace culture from supervisors and more learned peers regardless of the position of the employee.
 - H4: Employees learn workplace culture from supervisors and more learned peers regardless of the employee's educational level.
- RQ2: Do employees learn information about workplace culture verbally rather than in writing?
 - H5: Employees learn workplace culture verbally rather than in writing regardless of the employee's years of experience.
 - H6: Employees learn workplace culture verbally rather than in writing regardless of the employee's sex.
 - H7: Employees learn workplace culture verbally rather than in writing regardless of the position of the employee.
 - H8: Employees learn workplace culture verbally rather than in writing regardless of the employee's educational level.

- RQ3: Does information shared about workplace culture increase the employee's understanding of the company's priorities?
 - H9: Information shared about workplace culture increases employee's understanding of a company's priorities regardless of the employee's years of experience.
 - H10: Information shared about workplace culture increases employee's understanding of a company's priorities regardless of the employee's sex.
 - H11: Information shared about workplace culture increases employee's understanding of a company's priorities regardless of the position of the employee.
 - H12: Information shared about workplace culture increases employee's understanding of a company's priorities regardless of the employee's educational level.
- RQ4: Is learning workplace culture an ongoing process?
 - H13: Learning of workplace culture is an ongoing process regardless of the employee's years of experience.
 - H14: Learning of workplace culture is an ongoing process regardless of the employee's sex.
 - H15: Learning of workplace culture is an ongoing process regardless of the position of the employee.
 - H16: Learning of workplace culture is an ongoing process regardless of the employee's educational level.

Procedures

Pilot Testing

In July of 2010, several individuals were used for a small pilot test to determine the effectiveness, design quality and layout model of the questionnaire. The respondents were employees from different industries and companies with varying degrees of experience and education. Participants were asked to identify items that caused confusion, elicited non-responses, or required additional explanation that needed to be adjusted for clarity.

During this initial testing, areas arose that presented problems in understanding for the respondents. Word such as “speech” or “orally” were awkward when posing questions regarding the mode of learning in the ZPD 2 questions. The word “verbally” was used instead for reading ease and understanding. Another alteration was the use of “experienced peer” rather than “learned peer” since it was found that “learned” was being equated to education level rather than knowledge gained while in the company. Finally, the word “sex” was flagged by testers who preferred the use of “gender”, however since this was a preference rather than a need for understanding, the word “sex” was kept due to its definition as a biological classification rather than a reference to socially constructed behaviors as it relates to gender.

Once changes were made, an additional test with a second group of ten people was conducted to ensure the identified problems in the questionnaire were adequately addressed.

Questionnaire Dissemination and Data Collection

The test company agreed to use the survey for internal purposes as an audit of their infrastructure. Upon completion, they consented to release the findings as secondary, de-identified data with the request that they would remain an anonymous source. The questionnaire was created on their system utilizing a decentralized process: Location A generated a

representative sample of 3,000 employees – all salaried, no one above director level, including individual contributors and leaders – that were across one of the company’s divisions in 9 different states; Location B designed the survey on their internal system; Location C disseminated the survey to internal emails using encrypted technology that would ensure the confidentiality of the responses and anonymity of the participants; Location D collected the responses and placed them in a reportable format.

Due to an advanced firewall system used to protect the company’s network from cyber attacks, the survey was sent internally through email. The email invitation for participation was disseminated in mid-November. The link to the survey site was available to employees twenty-four hours a day, seven days a week for two weeks. It is important to note that respondents did not have to answer a question before advancing to the next question. There were missing values in some of the data, and with respect to the correlation coefficient operation, these values were removed listwise from the results. Collection and organization of responses took approximately 10 days before data was made available for analysis.

Statistical Treatment

Once the de-identified data was received from the company in an Excel file, the data was converted for use with SPSS software for tabulation and testing. This research project used a combination of descriptive and inferential statistics to analyze relevant tendencies and variances in the collected data. The combination provided information on attitudinal responses regarding the Zone of Proximal Development (ZPD) as a learning model in the organization’s culture, as well as the relationships to independent variables that provided insight into the limitations of its application.

Central tendencies and measures of dispersion at an interval-ratio level were conducted to find not only the characteristics of the typical score, but also the heterogeneity of the scores between independent and dependent variables (Healey, 1996, p.90). The data was also measured for correlation coefficient and linear regression using Pearson r to further test the strength or weakness of the linear relationship between dependent and independent variables.

The Pearson correlation coefficient is a standardized parametric measure of the strength of a relationship between two variables that contain interval or ratio data. While this test is accurate under certain assumptions (interval/ratio data, normal distribution, independence, and homogeneity of variance) it does not and cannot be used as an interpretation of causality. In any correlation “causality between two variables cannot be assumed because there may be other measured and unmeasured variables effecting the results” including the direction causality (Field, 2009, p.173).

Pearson bivariate correlations were administered on each of the independent variables with the mean of the responses of the dependent variables. To do this, all responses corresponding to each of the ZPD tenets through the five elements of organizational culture were computed as a single *culture* score producing a mean, median and mode of the responses. Referring to Figure 4 previously presented, the scores of central tendencies of the following grouped questions for each stage of the ZPD were found for each respondent and used as the dependent variable in the calculations:

Grounding Question - #1, #6, #11, #16, #21; ZPD 1 - #2, #7, #12, #17, #22; ZPD 2 - #3, #8, #13, #18, #23; ZPD 3 - #4, #9, #14, #19, #24; ZPD 4 - #5, #10, #15, #20, #25.

In addition to the analysis of correlation through Pearson r , significance value of the correlation was also run, and the coefficient of determination (R^2) was tabulated for

interpretation of significance. Since there was not a directional hypothesis for the study, a two-tailed test was used and missing values were removed listwise to be able to compare correlations of variables with greater certainty.

CHAPTER 4

RESULTS

Central Tendencies of Analysis Matrix

Each question was tabulated for its mean, median and mode of each of the corresponding questions listed in Figure 4 in the previous section. The results shown below in Figure 5 reveal the central tendencies of each question before tabulating into the grand mean, grand median and grand mode that address the four research questions of this study.

	Recall of cultural element within organization (Ground)	Is learning of culture through supervisor or more experienced peer? (ZPD 1)	Is learning culture verbal rather than written? (ZPD 2)	Does the information help with the employee's understanding of the organization? (ZPD 3)	Is cultural learning continued? (ZPD 4)
Artifacts & Symbols	Mean 3.88 Median 4.00 Mode 4	Mean 2.64 Median 3.00 Mode 2	Mean 2.83 Median 3.00 Mode 3	Mean 2.79 Median 3.00 Mode 3	Mean 2.40 Median 2.00 Mode 2
Stories, Histories, Myths, Legends & Jokes	Mean 3.54 Median 4.00 Mode 4	Mean 3.37 Median 4.00 Mode 4	Mean 3.74 Median 4.00 Mode 4	Mean 2.66 Median 3.00 Mode 3	Mean 3.16 Median 3.00 Mode 3
Rites, Rituals, Ceremonies, Celebrations	Mean 3.68 Median 4.00 Mode 4	Mean 3.15 Median 3.00 Mode 4	Mean 2.83 Median 3.00 Mode 3	Mean 2.82 Median 3.00 Mode 3	Mean 2.87 Median 3.00 Mode 3
Heroes & Role Models	Mean 3.86 Median 4.00 Mode 4	Mean 2.94 Median 3.00 Mode 3	Mean 2.97 Median 3.00 Mode 3	Mean 3.06 Median 3.00 Mode 3	Mean 3.58 Median 4.00 Mode 4
Rules, Codes of Conduct, Norms, Attitudes & Assumptions	Mean 3.50 Median 4.00 Mode 4	Mean 3.59 Median 4.00 Mode 4	Mean 2.79 Median 3.00 Mode 2	Mean 3.68 Median 4.00 Mode 4	Mean 3.61 Median 4.00 Mode 4

Figure 6: Central Tendencies using Analysis Matrix of Zone of Proximal Development and Cultural Elements.

Dependent Variable Central Tendencies

Each column from Figure 5, which represents the dependent variables measured for this study, were further tabulated to reflect the overall central tendencies. These scores are the grand

mean, grand median and grand mode of the columns of the analysis matrix in Figure 5 and shown in Table 5 below, and provide an overview of the general perceptions of the respondents regarding all the elements of culture that were presented in this study. Histograms of the frequencies of each variable can be seen in Appendix D.

Table 5: *Dependent Variable Statistics*

		Ground	ZPD 1	ZPD 2	ZPD 3	ZPD 4
N	Valid	395	395	395	395	395
	Missing	1	1	1	1	1
Mean		3.6943	3.1458	3.0344	3.0050	3.1247
Std. Error of Mean		0.0287	0.0328	0.0262	0.0360	0.0313
Median		3.8	3.2	3	3	3.2
Mode		4	3.2	3	3.2	3
Std. Deviation		0.5705	0.6515	0.5197	0.7155	0.6214
Variance		0.3250	0.4250	0.2700	0.5120	0.3860
Range		3.8	3.8	3.5	4	4
Minimum		1.2	1	1	1	1
Maximum		5	4.8	4.5	5	5
Percentiles	25	3.4	2.8	2.8	2.6	2.8
	50	3.8	3.2	3	3	3.2
	75	4.2	3.6	3.4	3.6	3.6

Bivariate Correlations

Along with measuring the central tendencies of the dependent variables, a bivariate correlation was run with the independent variables against the dependent variables. This would provide information if there was a relationship between the two variables, how strong the

relationship is, and direction of the relationship. The measure of the correlation coefficient varies from 0 to ± 1 , with 0 indicating no relationship, +1 indicating a perfect positive, or -1 signifying a perfect negative relationship. In addition to the bivariate correlations an additional measure, the coefficient of determination (R^2), was also tabulated to interpret “the amount of variability in one variable that is shared by the other” (Field, 2009, p.179). It is presented as a percentage that explains the variability between the two variables with the remainder being accounted for by other variables not included in the study. All results for the bivariate correlations are shown on Table 6. It should be noted that while effect sizes appear small, according to experts in the field, large samples (100+ respondents) can yield low correlations that are still significant (Rosenthal, et.al., 2000, p.5).

To analyze the findings, the results are presented in relation to the research questions and hypotheses that were previously presented in this paper using both the central tendencies as well as the correlations. Recall that answers for the dependent variables were: 1 = Strongly Disagree, 2 = Disagree, 3 = Neither Agree nor Disagree, 4 = Agree, 5 = Strongly Agree.

RQ1: Do employees learn workplace culture from supervisors and more learned peers?

Looking at the central tendencies, the grand mean to this question resulted in a score of 3.15 (between 3 - Neither Agree nor Disagree and 4 - Agree) with a standard error of the mean being .033; a grand median score of 3.2; a grand mode of 3.2 with a standard deviation of .652. It would appear that the perception of the participants that learning of workplace culture from supervisors and more learned peers is supported. For histogram of frequencies, see ZPD 1 in Appendix D.

H1: Employees learning of workplace culture from supervisors and more learned peers has no association with the employee's years of experience. Learning from supervisors and

learned peers had a significant, negative correlation to years of experience with the company, $r = -.125$, $p < .05$, and total years of experience, $r = -.159$, $p < .01$. These results reject the hypotheses of no association.

H2: Employees learn workplace culture from supervisors and more learned peers regardless of employee's sex. Sex had a very weak, positive correlation with learning from supervisors and more learned peers, $r = .047$, $p < .05$. This would fail to reject the hypothesis.

H3: Employees learn workplace culture from supervisors and more learned peers regardless of the position of the employee. Position and supervisory responsibility had a very weak, negative correlation to learning from supervisors and more learned peers, $r = -.037$, $p < .05$. This result fails to reject the hypothesis.

H4: Employees learn workplace culture from supervisors and more learned peers regardless of the employee's educational level. Education level had a weak, negative correlation with learning from supervisors and more learned peers, $r = -.095$, $p < .05$. This fails to reject the hypothesis.

RQ2: Do employees learn information about workplace culture verbally rather than in writing? The grand mean of the responses to questions regarding the learning cultural information verbally rather than in writing was 3.03 with a standard error of the mean .026; a grand median score of 3.0; a grand mode of 3.0 with a standard deviation of .52. Based on the responses, while learning culture verbally was moderately supported it, and was not negated. For histogram of frequencies, see ZPD 2 in Appendix D.

H5: Employees learn workplace culture verbally rather than in writing regardless of the employee's years of experience. Experience had an overall negative correlation with verbal learning of culture. Years with the company had a weak, negative correlation with verbal

learning, $r = -.087$, $p < .05$, while total years of experience showed a significant, negative correlation, $r = -.133$, $p < .01$. So, one correlation failed to reject the hypothesis, while the second rejected the hypothesis by its significance.

H6: Employees learn workplace culture verbally rather than in writing regardless of the employee's sex. Sex had a very weak, positive correlation with verbal learning, $r = .041$, $p < .05$. This finding failed to reject the hypothesis.

H7: Employees learn workplace culture verbally rather than in writing regardless of the position of the employee. Position and supervisory responsibility had a very weak, negative association, $r = -.041$, $p < .05$. Result failed to reject the hypothesis.

H8: Employees learn workplace culture verbally rather than in writing regardless of the employee's educational level. Education level showed a very weak, positive correlation with verbal learning, $r = .013$, $p < .05$. This finding failed to reject the hypothesis.

RQ3: Does information shared about workplace culture increase the employee's understanding of the company's priorities? The grand mean of this question was 3.0 with a standard error of mean at .036, a grand median score of 3.0, a grand mode of 3.2 with a standard deviation of .716. While the perception of information increasing the employee's understanding of a company's priorities was mildly supported, and it was not rejected. For histogram of frequencies, see ZPD 3 in Appendix D.

H9: Information shared about workplace culture increases an employee's understanding of a company's priorities regardless of the employee's years of experience. There was a significant, negative correlation regarding years of experience and information for cultural understanding. Years with the company had a significant, negative correlation with understanding, $r = -.119$, $p < .05$, while total years of experience also had a significant negative

correlation at a higher level, $r = -.164$, $p < .01$. These two findings rejected the hypotheses of no association.

H10: Information shared about workplace culture increases employee's understanding of a company's priorities regardless of the employee's sex. Sex was weak, positive correlation with understanding, $r = .071$, $p < .05$. The result failed to reject the hypothesis.

H11: Information shared about workplace culture increases employee's understanding of a company's priorities regardless of the position of the employee. Position and supervisory responsibility had a very weak, negative correlation with understanding, $r = -.009$, $p < .05$. This result fails to reject the hypothesis.

H12: Information shared about workplace culture increases employee's understanding of a company's priorities regardless of the employee's educational level. Education level had a very weak, negative correlation with understanding, $r = -.035$, $p < .05$. This finding fails to reject the hypothesis of no association.

RQ4: Is learning workplace culture an ongoing process? The grand mean of the questions regarding learning as an ongoing process was 3.12 with a standard error of the mean of .031, a grand median score of 3.2, a grand mode of 3.0 with a standard deviation of .612. Results showed participants validated, and did not negate learning as an ongoing process. For histogram of frequencies, see ZPD 4 in Appendix D.

H13: Learning of workplace culture is an ongoing process regardless of the employee's years of experience. Experience showed a negative correlation to the perception of culture as an ongoing process. Years with the company has a significant, negative correlation, $r = -.114$, $p < .05$, while total years of experience had a weak, negative correlation, $r = -.092$, $p < .05$. The first score rejects the hypothesis while the second fails to reject the hypothesis.

H14: Learning of workplace culture is an ongoing process regardless of the employee's sex. Sex had a significant, positive correlation at a higher level of confidence, $r = .130, p < .01$.

This result rejects the hypothesis.

H15: Learning of workplace culture is an ongoing process regardless of the position of the employee. Position and supervisory responsibility has a very weak, negative association with ongoing learning, $r = -.023, p < .05$. The result fails to reject the hypothesis.

H16: Learning of workplace culture is an ongoing process regardless of the employee's educational level. Level of education had a weak, negative correlation with ongoing learning, $r = -.071, p < .05$. This result fails to reject the hypothesis.

Table 6: *Bivariate Correlations*^a

		Years with Co	Total Prof Yrs	Employees Supervised	Sex	Education Level
Culture	Pearson Correlation	-0.036	-.114*	-0.005	.112*	0.019
	R ²	0.0013	0.0123	0.00003	0.0125	0.0004
	Sig. (2- tailed)	0.48	0.024	0.916	0.027	0.716
ZPD 1	Pearson Correlation	-.125*	-.159**	-0.037	0.047	-0.095
	R ²	0.0156	0.0252	0.0014	0.0022	0.009
	Sig. (2- tailed)	0.014	0.002	0.473	0.358	0.061
ZPD 2	Pearson Correlation	-0.087	-.133**	-0.041	0.041	0.013
	R ²	0.0076	0.0127	0.0002	0.0017	0.0002
	Sig. (2- tailed)	0.086	0.009	0.416	0.417	0.805
ZPD 3	Pearson Correlation	-.119*	-.164**	-0.009	0.071	-0.035
	R ²	0.0142	0.0269	0.00008	0.005	0.0012
	Sig. (2- tailed)	0.019	0.001	0.866	0.164	0.493
ZPD 4	Pearson Correlation	-.114*	-0.092	-0.023	.130*	-0.071
	R ²	0.013	0.0085	0.0005	0.0169	0.005
	Sig. (2- tailed)	0.025	0.072	0.654	0.01	0.163

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

a. Listwise N=387

CHAPTER 5

DISCUSSION

Summary

This study sought to analyze the Zone of Proximal Development (ZPD) as a practicable learning theory of organizational culture in the workplace. Relevant literature suggested that a model like the ZPD provided a framework for cultural transmission, as well as a life-long learning. Even the way cultural learning has been perceived supported the use of the ZPD as a model of individual internalization of culture. Quantifying qualitative research methods were used to find the frequencies and associations about the general perceptions in using the ZPD as a learning model that yielded interesting information.

Keeping in mind the responses available to participants and the fact that they could advance to the next questions without answering, which actually gave them six responses including “no response” to the questionnaire items, there is a valid claim for support of the ZPD model. Overall, the general perceptions shown in the descriptive statistics of the study supported the stages of the ZPD.

Descriptive Statistics

The first stage of the ZPD in the questions (ZPD 1 in Appendix D) that related to supervisors and more experienced peers providing the information, the reportable mean was 3.15, with a median of 3.2, and a mode of 3.2 as shown in Table 5 in the previous section. When considering the frequencies in the corresponding histogram shown in Appendix D, there is clear agreement respondents perceived that supervisors and more experienced peers provide the information about culture.

The second stage of the ZPD (ZPD 2 in Appendix D) related to information being explained verbally rather than in writing, the reportable mean was 3.03, with a median of 3.0, and a mode of 3.0 (See Table 5). While this doesn't show a strong agreement, it does not deny its validity either.

The third stage of the ZPD (ZPD 3 in Appendix D) referred to information about the organization's culture increased understanding for the company's priorities and expectations of the company as illustrated in Table 5. The mean for this question was 3.0, with a median of 3.0, and a mode of 3.2. A view of the corresponding histogram shows the frequencies higher on the 3.0+ levels suggesting a support in the perceptions of the respondents for the this stage in the learning model.

The final stage of the ZPD (ZPD 4 in Appendix D) referenced the recursive loop of learning as an ongoing process. The results from Table 5 showed a mean of 3.12, with a median of 3.2, and a mode of 3.0. Once again, the histogram illustrates the greater distribution of frequencies at the 3.0+ levels, thus showing a greater agreement of the recursive loop of the ZPD.

Summarily, the perception of the respondents in the descriptive statistics showed greater agreement of the perceived presence of the ZPD in the learning process of organizational culture, and just as importantly, did not invalidate its presence.

Correlation Coefficients

The correlation coefficients provided perspective regarding the associations between dependent and independent variables. As was reported in the previous chapters, some of the variables had a negative correlation, most notably between experience (years with the company and total years of experience) and all the stages of the ZPD including the grounding question that

asked the participants to recall a cultural element within their organization. The significance of this result shows that as the respondents increase in experience there is less perceived association with the stages of the ZPD. In addition to this finding, the coefficient of determination of these scores showed at the most a 2.69% variability that could be accounted for between the experience and the respective stage of the ZPD leaving approximately 97% explained through other variables not included in this study. This result was interesting especially when in consideration that over 47.8% of the employees had been with the company for over fifteen years, and 76.7% had over fifteen years of total professional experience as illustrated in Figures 7 and 8 – clearly, the majority of respondents.

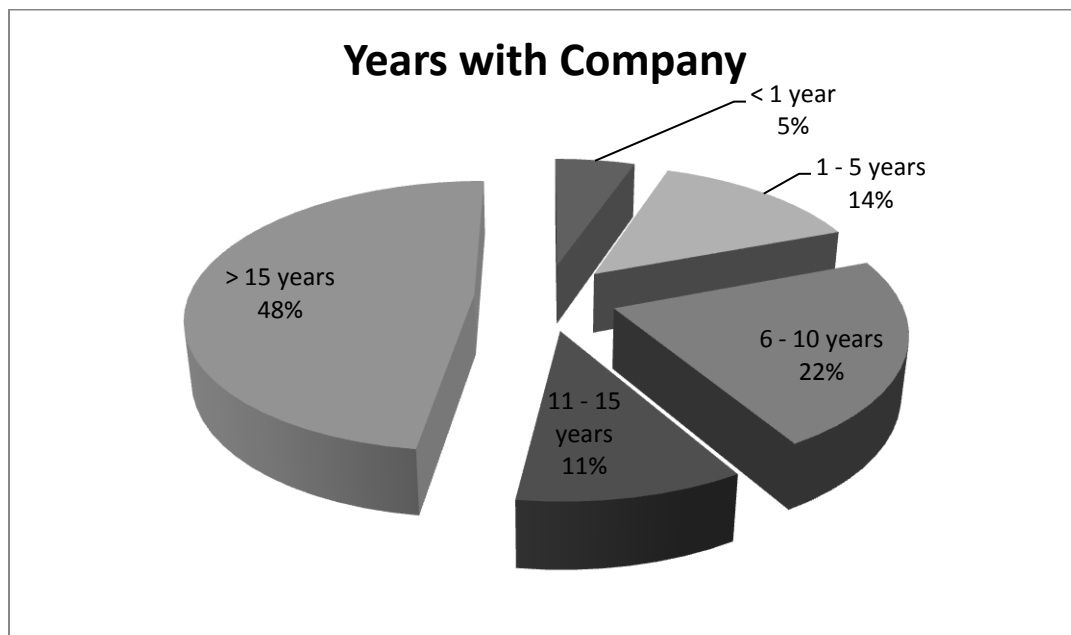


Figure 7: Years with company of respondents in percentages.

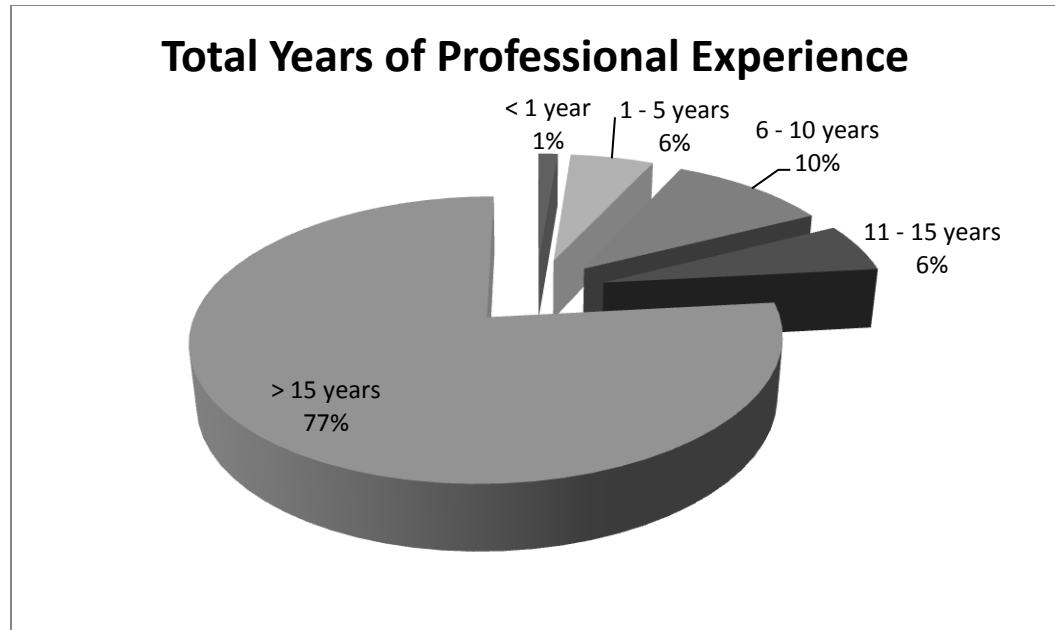


Figure 8: Total years of professional experience of respondents in percentages.

An explanation for the negative correlation could lay with the fact that this survey was focused on the *learning* process, and not the *teaching* process. It needs to be considered that with over fifteen years of work experience, a person would take more of a teaching role within the company rather than a learning role. The remaining questions are when and what would constitute having enough knowledge to assume a more instructive role.

One area that wanted to be considered was the position held by the respondents. In the test company, the majority of employees have no supervisory responsibility as illustrated in Figure 9. Since this survey was designed to be administered to more than one company, there was a concern for using titles that would be inconsistent from company to company. Instead of titles, it was decided to use the number of employees supervised as a measurement standard. As for the supervisory responsibility, the association across all stages of the ZPD showed a very weak association that could be categorized as no association thereby supporting the hypotheses.

Even the coefficient of determination had a less than 1.4% explained variability between the dependent variables and the independent variable involving supervisory responsibility. This combined finding is significant since the statistics showed a support for the stages of the ZPD regardless of supervisory responsibility and position within the company.

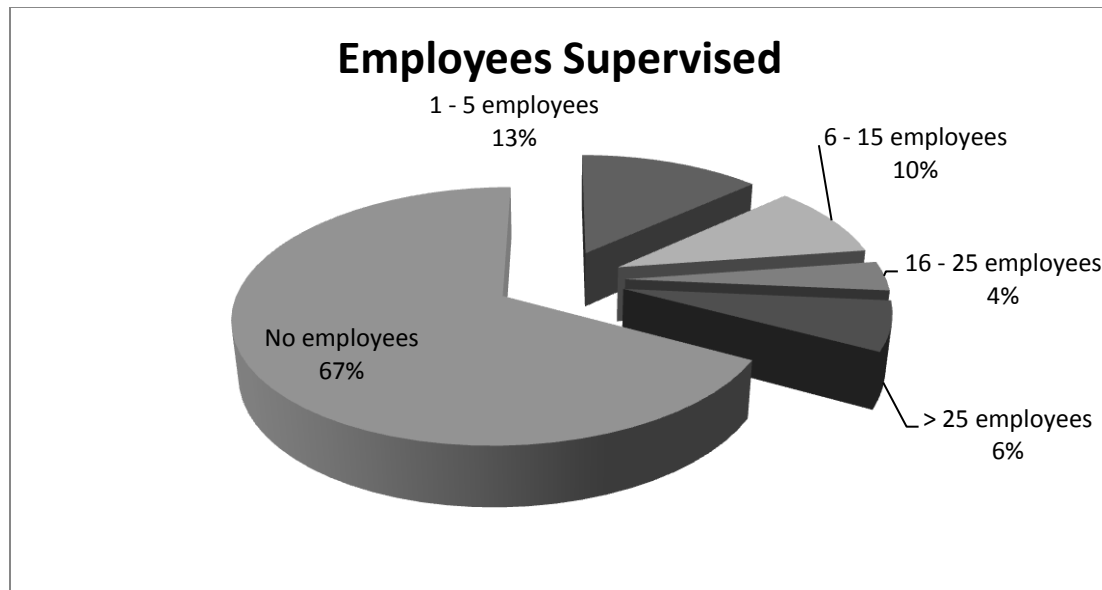


Figure 9: Number of employees respondents supervise in percentages.

Sex of the respondent showed a weak, positive association through all the dependent variables of the stages of the ZPD. When considering the coefficient of determination that at the most 1.69% of variability between the two variables could be explained by sex, and it appears that other factors need to be considered. While sex did show a moderate impact on the perception of the learning through the stages of the ZPD, it was not a significant to categorize the correlation as an association.

As with supervisory responsibility, the independent variable of education level showed an almost non-existent association with the dependent variables which would support the

hypotheses of no association. The resultant correlation coefficients between the variables were very weak. The coefficient of determination across the board had less than 1% explained variability between education level and the dependent variables.

In evaluating the coefficient of determinations, very little of the variability in the dependent scores could be attributed to the independent variables studied, and overall showed no association with the exception of areas related to experience. Ultimately, this shows support of the ZPD as a practicable learning theory regardless of sex, supervisory responsibility, and education level. There seems to be a correlation to learning through the ZPD and experience.

Limitations

There were several limitations to this study that were mentioned in the introduction of this paper, and several more that need to be examined with the results from this analysis. The use of a single company, concentration of profession within the company, and the considerations of the demographic statistics were among some of the limitations of the study.

As mentioned in the Methods chapter of this paper, it was difficult to find a company willing to participate in this study. The one company willing to open its doors provided as much variation as possible in the sample by working across several states within one division. However, this does leave a question as to if there would be different results if the study occurred in another organization. While this company has been written about in literature for their culture, an analysis of the culture was not included in the survey. This might be helpful if this research is repeated in the future.

The limitation on the diversity of participants could also be seen in the demographic statistics: 47.8% of the respondents have over fifteen years with the company, 76.7% had over fifteen years of total professional experience, 67.2% had no supervisory responsibility, 40.3%

had a master's degree or higher, and over 78% were male. This is clearly not a typical composition of every company.

With regards to sex and educational attainment, the percentages of this company are far greater than numbers reported by the U.S Census Bureau for 2010 that estimates 52.5% of the employed workforce (25 years of age and older) is comprised of men, and approximately 13% of the entire employed workforce (25-years of age and older) have a master's degree or higher. Unfortunately, information regarding experience and supervisory responsibility was not available, but can be seen as a significant consideration in relation to the results.

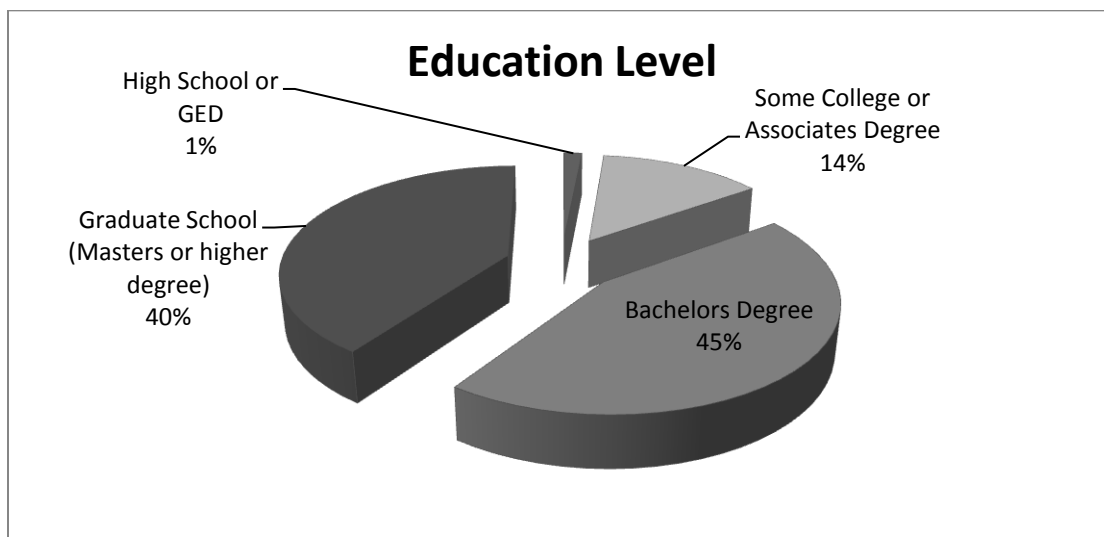


Figure 10: Education level of respondents in percentages

Language, not only in companies but also within subgroups of companies, can impact communication and understanding of the survey questions. This potential problem had not been anticipated in the design of the survey since the test groups had enough diversity that it was not seen as a problem. However, using words such as “more experienced peers” with a highly

educated and experienced group could rankle some respondents and prove to be a distraction that could influence their responses.

Also, in dealing with participants that are in a highly technical profession that are accustomed to working with known quantities and elements, the need to provide relevant cultural examples from their organization when referring to cultural elements in the questionnaire may have been preferable rather than describing the element from other organizations as examples.

Finally, an interesting twist came with the realization of the level of experience among the respondents that may have perceived themselves in more of a teaching capacity rather than a learning position after being in an organization for over fifteen years. This study was primarily focused on the learning process of organizational culture rather than the teaching. This could be responsible for the negative correlations seen in the results.

Future Research

In the process of answering the research questions of the ZPD as a practicable learning theory of organizational culture, several other questions emerged.

In finding the lack of association with the independent variables, questions developed as to what other variables impact learning. Current results appear to reinforce that the ZPD does not compete, but fits within more complex theories. This offers an opportunity for further research on the variables that would influence cultural learning in the workplace.

Another variable that drew attention was the learning/teaching issue with regards to experience. It stands to reasoning that there is a tipping point when the student becomes the teacher in an organization after a certain period of time. When does that point occur? The answer could provide illuminating information on the dynamic process of cultural assimilation of employees. Along with the process is the question of testing other forms of assisted performance,

and modes of communication that were limited to verbal and written communication in this study.

Researching how organizational culture impacts the decision-making of employees is another area that could be explored. In the past, several industries have brought scrutiny to themselves by the decisions made by their executives and employees. The culture of these companies and industries was often cited as the central factor in these decisions. This would be an interesting area to further explore of how culture impacts the decision-making of employees in the workplace.

Finally, there are opportunities for studying the ZPD as a life-long learning model especially in areas of specialization where little literature or other forms of assisted performance exist through “more experienced peers”. What is the process used by experts who set the standards in their fields to gain and share knowledge they originate and/or seek?

As was stated in the introduction of this paper, this study was to investigate if an existing learning model, the Zone of Proximal Development, could be seen as a practicable learning theory of organizational culture. The results showed that regardless of sex, level of educational attainment, and supervisory responsibility, that it can be a practicable learning theory. There is still so much unknown on how we process what we perceive into action. This is just another step toward understanding our world, the workplace and ourselves.

REFERENCES

- Arnold P. Gold Foundation. (2010). White Coat Ceremony. [On-line]. Retrieved from www.humanism-in-medicine.org/intros/gWcc-checklist.html
- Berk, L. & Winsler, A. (1995). *Scaffolding Childhood Learning: Vygotsky and Early Childhood Education*. Washington, DC: National Association for the Education of Young Children.
- Bockarie, A. (2002). The Potential of Vygotsky's contribution to our understanding of cognitive apprenticeship as a process of development in adult vocational and technical education [on-line], *Journal of Career and Technical Education*, 19:1. Available: <http://scholar.lib.vi.edu/ejournals/JCTE/v19n1/bockarie.html>
- Borden, G. A. (1991). *Cultural Orientation: An approach to understanding intercultural communication*. Englewood Cliffs, NJ: Prentice-Hall.
- Burke, W.W. (1993). *Organization Development: A Process of Learning and Changing*. (2nd ed.) New York: Addison-Wesley Publishing Company.
- Cairns, T. (2001). How acquiring basic skills should be a part of everyday life. *Adult Learning*, 13, pp.20-23.
- Cheyne, J. A., & Tarulli, D. (2000). Dialogue, Difference, and the 'Third Voice' in the Zone of Proximal Development. In *The Vygotsky Project* [On-line]. Available: <http://nateweb.info/bakhtin.htm>.
- Clancey, W. J. (1995). A tutorial on situated learning. Proceedings of the International Conference on Computers and Education (Taiwan) Self, J. (Ed). Charlottesville, VA: AACE. 49-70, 1995.

Coke employee reinstated, but he can't drink Pepsi. (June 20, 1985) Gadsden Times. Retrieved from: <http://news.google.com/newspapers?nid=1891&dat=19850620&id=DbgfAAAAIBAJ&sjid=qdcEAAAAIBAJ&pg=1415,4248248>

Cole, M. (1985). The zone of proximal development: where culture and cognition create each other. In J.V. Wertsch (Ed.), *Culture, Communication, and Cognition: Vygotskian Perspectives* (pp.146 – 161). New York: Cambridge University Press.

Cole, M. (1994). A Conception of Culture for Communication Theory of Mind. In Vocate, D.R. (Ed.), *Intrapersonal Communication: Different Voices, Different Minds*. (pp.77 -96). Hillsdale, NJ: Erlbaum.

Cole, M. (1995). Socio-Cultural-Historical Psychology: Some General Remarks and a Proposal for a New Kind of Cultural-Genetic Methodology. In J.V. Wertsch, P. Del Rio, A. Alvarez (Eds.), *Sociocultural Studies of the Mind*. (pp.187 – 213). New York: Cambridge University Press.

Collins, J. C. & Porras, J. I., (1994). *Built to Last: Successful Habits of Visionary Companies*. New York: Harper Business.

Church, A. I. & Wacławski, J. (1998). *Designing and Using Organizational Surveys: A Seven Step Process*. San Francisco: Jossey-Bass.

Deal, T. E. & Kennedy, A. A. (1999). *The New Corporate Cultures*. Reading, MA: Perseus Books.

Deal, T. E. & Kennedy, A. A. (2000). *Corporate Cultures: The Rites and Rituals of Corporate Life*. Reading, MA: Perseus Books. (Original work published in 1982).

- Dunphy, S. L. (2003). Assisted Performance and the Zone of Proximal Development (ZPD): A Potential Framework for Providing Surgical Education. *Australian Journal of Educational & Developmental Psychology*, 3, 48-58.
- Edelman, G. M. (1992). *Bright Air, Brilliant Fire On the Matter of the Mind*. New York: Basic Books.
- Edelman, G. M., & Tononi, G. (2000). *A Universe of Consciousness, How Matter Becomes Imagination*. New York: Basic Book.
- Eisenberg, E. M. & Riley, P. (2000). Organizational Culture. In F. Jablin & L. Putnam (Eds.), *The New Handbook of Organizational Communication: Advance in Theory, Research and Methods* (pp.291-322). Thousand Oaks, CA: Sage.
- Emihovich, C. & Souza Lima, E. (1995). Introduction: The Many Facets of Vygotsky: A Cultural Historical Voice from the Future. *Anthropology and Education Quarterly*, 26(4), 375-383.
- Engeström, Y. (2001). Expansive Learning at Work: toward an activity theoretical reconceptualization. *Journal of Education and Work*, 14(1), 133-156.
doi:10.1080113639080020028747
- Gallimore, R. & Tharp. R. (1990). Teaching mind in society: teaching, schooling, and literate discourse. In Moll, L. C. (Ed.), *Vygotsky and Education: Instructional implications and applications of sociohistorical psychology* (pp. 175-205). New York: Cambridge University Press.
- Geertz, C . (2000). *The Interpretation of Cultures: selected essays*. New York: Basic Books.
(Original work published 1973). Retrieved from:
<http://o-hdl.handle.net.lib.utep.edu/2027/heb.01005>.

- Healey, J.F. (1996) *Statistics: A Tool for Social Research* (4th Ed.). New York: Wadsworth Publishing Company
- Jablin, F.M. (1982). Organizational Communication: An Assimilation Approach. In M. Roloff & C. Berger (Eds.), *Social Cognition and Communication*. Beverly Hills, CA: Sage Publications.
- Jablin, F.M. (2001). Organizational Entry, Assimilation, and Disengagement/Exit. In F.M. Jablin & L.L. Putnam (Eds.), *The New Handbook of Organizational Communication: Advances in Theory, Research, and Methods*. Thousand Oaks, CA: Sage Publications.
- Keyton, J. (2005). *Communication and Organizational Culture: A Key to Understanding Work Experiences*. Thousand Oaks, CA: Sage Publications.
- Kraut, A. I. (1998). Planning and conducting the survey: keeping strategic purpose in mind. In A.I. Kraut (Ed.), *Organizational Surveys: Tools for Assessment and Change*. San Francisco: Jossey-Bass.
- Krietner, R. & Kinicki, A. (1998). *Organizational Behavior* (4th Ed.). New York: McGraw-Hill.
- Lave, J. (1988). *Cognition in Practice*. New York: Cambridge University Press.
- Lave, J. & Wenger, E. (1991). *Situated Learning: Legitimate Peripheral Participation*. New York: Cambridge University Press.
- Martin, J. (2002). *Organizational Culture: Mapping the Terrain*. Thousand Oaks, CA: Sage Publications
- Moore, J. D. (2009). *Visions of Culture: An Introduction to Anthropological Theories and Theorists* (3rd Ed.). New York: Alta Mira Press.
- Pacanowsky, M.E. & O'Donnell-Trujillo, N. (1983). Organizational Communication as Cultural Performance. *Communication Monographs*, 50(2), 127-147.

- Peters, T. J. & Waterman Jr., R. H. (1982). *In Search of Excellence*. New York: Warner Books.
- Riccillo, Samuel C. "Contemporary Rhetoric." University of Texas at El Paso, Spring 2001.
- Rosenthal, R., Rosnow, R. L., & Rubin, D. B. (2000). *Contrasts and Effect Sizes in Behavioral Research: A Correlation Approach*. New York: Cambridge University Press.
- Schein, E. H. (1992). *Organizational Culture and Leadership* (2nd ed). San Francisco: Jossey-Bass.
- Tharp, R. G., & Gallimore, R.G.(1988). *Rousing Minds to Life: Teaching, Learning and Schooling in Social Context*. New York: Cambridge University Press.
- Trice, H. M., & Beyer, J. M. (1993). *The Cultures of Work Organizations*. Englewood Cliffs, NJ: Prentice Hall.
- U.S. Census Bureau. (2010). *United States Census: Educational Attainment of the Population 25 and Over, By Selected Characteristics*.
<http://www.census.gov/hhes/socdemo/education/data/cps/2010/tables.html>.
- Vygotsky, L. S. (1987). Thinking and Speech (N. Minick, Trans.). In R.W. Rieber & A.S. Carton (Eds.), *The Collected Works of L. S. Vygotsky*. New York: Plenum Press. (Original Work published in 1934).
- Vygotsky, L. S. (1978). *Mind in Society: The Development of Higher Psychological Processes*. In M. Cole, V. John-Steiner, S. Scribner (Eds.). Cambridge, MA: Harvard Univ. Press.
- Wenger, E. (1998). *Communities of Practice*. New York: Cambridge University Press.
- Wertsch, J. V. (1985). *Vygotsky and the Social Formation of Mind*. Cambridge, MA: Harvard University Press.
- White, L. A. (1959). *The Evolution of Culture*. New York: McGraw-Hill.
- Wink, J. & Putney, L., (2002). *A Vision of Vygotsky*. Boston: Allyn and Bacon.

APPENDIX A

SURVEY QUESTIONNAIRE

Thank you for participating in this pilot study about your company's culture. The following questions concern your opinions about your company and how you learn about its culture.

A company's culture is the traditions, customs, and values that create its "spirit." Culture can help guide and support the decisions and behaviors of its employees and managers. Listed in the following survey are several statements about your company's culture in five areas:

- Symbols
- Stories, Histories and Jokes
- Celebrations and Ceremonies
- Heroes and Role Models
- Rules, Norms, and Codes of Conduct

Please answer each of the statements based on your experience in the company. Please take your time and read each statement carefully, then mark the response that best matches your opinion:

- 5) Strongly Agree
- 4) Agree
- 3) Neither Agree nor Disagree
- 2) Disagree
- 1) Strongly Disagree

In order to move forward through this survey, please use the following buttons:

- Click the "Next" button to continue to the next page.
- Click the "Previous" button to return to the previous page.
- Click the "Submit" button to submit your survey.

Your feedback is very important, and all responses are completely confidential and anonymous. The survey takes about 10-15 minutes to complete.

Thank you for your participation!

Definition: *Symbols* are signs or objects that have a certain meaning for a particular company. For example: a company's logo, a slogan, or a unique anniversary pin for years of service.

1. My company has symbols that have a unique meaning..... 5 4 3 2 1
2. The meaning of our company symbols are commonly explained by my supervisor or experienced coworker5 4 3 2 1
3. Information about the meaning of our company symbols are shared verbally rather than explained in writing5 4 3 2 1
4. Our symbols have helped my understanding of what is important in my company5 4 3 2 1
5. As new symbols (logos, company images, etc.) are created, I normally consult with my superiors or experienced coworkers about their meaning.....5 4 3 2 1

Definition: Stories, histories, and jokes of a company can help shape reputations or strengthen stereotypes. For example, a television station that has a rivalry with a competing station may have stories of how they were first on location to air breaking news while their competitor was still looking for the keys to their news department's van.

6. I can recall stories about my company that are part of its reputation.....5 4 3 2 1
7. Most of the stories I hear about my company come from upper management or colleagues who have been here before me.....5 4 3 2 1
8. I find that most of the stories, histories, and jokes about my company are more often told rather than written down.....5 4 3 2 1
9. Because of the stories passed along in this company, I have learned what is expected of me in my position.....5 4 3 2 1
10. New stories are always being created about our company5 4 3 2 1

Definition: Celebrations and ceremonies are events that bring attention to what is important in a company. For example, a retirement party that is attended by the top executives from the home office, an awards ceremony during the annual company Christmas party, or participation in a United Way fundraising competition.

11. My company has reoccurring celebrations or ceremonies.....5 4 3 2 1
12. I learned about our company's celebrations through my experienced peers or supervisor.
.....5 4 3 2 1
13. The history and purpose of most of our company's celebrations or ceremonies are often explained verbally to us rather than put into writing.....5 4 3 2 1
14. Our company's celebrations and ceremonies have given me a better understanding of the priorities of our company5 4 3 2 1
15. New ways to celebrate important achievements are a part of our company's customs..... 5 4 3 2 1

Definition: Heroes and role models are high-achievers within a company that give an example of how to be successful in a company and provide a model for behavior. For example, the salesperson that is known for being able to handle the most difficult clients and still make their monthly sales goal.

16. There are people in my company that set an example for how to behave 5 4 3 2 1
17. Supervisors or experienced colleagues in our company share stories of successful employees as examples of how to handle situations5 4 3 2 1
18. Stories about successful employees are often told informally rather than saved in writing at our company.....5 4 3 2 1

19. Regarding the achievement and behavior of some employees in our company, I sometimes think, "They did it, so can I"..... 5 4 3 2 1

20. There are employees in our company that are setting new standards of success that can be learned by other employees to aid in their success5 4 3 2 1

Definition: *Rules, norms, and codes of conduct* are the beliefs of how an employee should behave who works for a particular company. For example, in the highly competitive beverage market, a Coca-cola employee is expected to drink only Coca-cola products and not their competitors', especially while on the job or in a company uniform.

21. There are certain rules of behavior that are unique to my company.....5 4 3 2 1

22. I prefer to talk with my supervisor or an experienced coworker rather than someone with less responsibility than me about what would be appropriate behavior in a given situation5 4 3 2 1

23. In my company we usually reach an informal agreement on how to handle situations rather than trying to find a written rule.....5 4 3 2 1

24. After having more experience in my position, I find I understand what is expected of me and therefore know how to handle most work situations without discussing it with anyone5 4 3 2 1

25. As our company continues to grow and change, new standards of behavior and conduct are expected by management5 4 3 2 1

The following items deal with your background and will be used for descriptive purposes only.

26. How many years have you been with this company? _____

27. How many total years of professional work experience do you have? _____

28. How many employees are you responsible for supervising? _____

29. What is your sex? Male Female

30. What is the highest level of education you have completed? (Please circle one):

a.) High School degree or GED c.) College (Bachelors degree)

b.) Some college or Associates degree d.) Graduate school (Masters or higher degree)

Thank you for participating in this study.

APPENDIX B

IRB APPROVED PROTOCOL

THE UNIVERSITY OF TEXAS AT EL PASO
Office of the Vice President for Research and Sponsored Projects
Institutional Review Board
El Paso, Texas 79968-0587
phone: 915 747-8841 fax: 915 747-5931

DATE: February 23, 2011

TO: Patricia Gonzalez

FROM: University of Texas at El Paso IRB

STUDY TITLE: [186261-1] An Analysis of the Zone of Proximal Development as a Practicable Learning Theory of Organizational Culture in the Workplace

IRB REFERENCE #: 186261-1

SUBMISSION TYPE: New Project

ACTION: DETERMINATION OF EXEMPT STATUS

APPROVAL DATES: February 23, 2011 through February 23, 2012

Thank you for your submission of New Project materials for this research study. University of Texas at El Paso IRB has determined this project is EXEMPT according to federal regulations.

We will put a copy of this correspondence on file in our office.

If there are any changes or modifications to the originally approved protocol, it must be submitted and reviewed in order to determine if exemption status remains. Please submit a continuing review report two weeks prior to the date of expiration or a study closure report upon study completion.

If you have any questions, please contact Athena Fester at (915) 747-8841 or afester@utep.edu. Please include your study title and reference number in all correspondence with this office.

cc:

IRB Research Proposal

I. Title: An Analysis of the Zone of Proximal Development as a Practicable Learning Theory of Organizational Culture in the Workplace

II. Investigator: Patricia A. Gonzalez

III. Hypothesis, Research Questions, or Goals of the Project

The purpose of this study is to analyze the responses of employees on their perception of learning organizational culture in workplace using the model of the Zone of Proximal Development (ZPD) as a framework.

ZPD is a more widely known as a childhood learning model created by Lev Vygotsky in 1930s that could have the potential of serving as a learning model of organizational culture in the workplace for adults. What brings these two very different applications of this theory together is that both situations base their learning in orality; the use of superiors or learned peers as facilitators in learning; that this process of learning aids in the employees' understanding of the organization; and this process aids in the continual learning in the organization.

A survey will be used to evaluate questions of the four tenets of ZPD in five elements of workplace culture then placed against personnel demographic variables relevant to workplace experience. Analysis of the survey responses will seek to answer the following research questions:

- RQ1: Do employees learn workplace culture from supervisors and more learned peers?
 - H1: Employees learn workplace culture from supervisors and more learned peers regardless of the employee's years of experience.
 - H2: Employees learn workplace culture from supervisors and more learned peers regardless of employee's sex.
 - H3: Employees learn workplace culture from supervisors and more learned peers regardless of the position of the employee.
 - H4: Employees learn workplace culture from supervisors and more learned peers regardless of the employee's educational level.
- RQ2: Do employees learn information about workplace culture verbally rather than in writing?
 - H5: Employees learn workplace culture verbally rather than in writing regardless of the employee's years of experience.
 - H6: Employees learn workplace culture verbally rather than in writing regardless of the employee's sex.
 - H7: Employees learn workplace culture verbally rather than in writing regardless of the position of the employee.
 - H8: Employees learn workplace culture verbally rather than in writing regardless of the employee's educational level.
- RQ3: Does information shared about workplace culture increase the employee's understanding of the company's priorities?
 - H9: Information shared about workplace culture increases employee's understanding of a company's priorities regardless of the employee's years of experience.

- H10: Information shared about workplace culture increases employee's understanding of a company's priorities regardless of the employee's sex.
- H11: Information shared about workplace culture increases employee's understanding of a company's priorities regardless of the position of the employee.
- H12: Information shared about workplace culture increases employee's understanding of a company's priorities regardless of the employee's educational level.
- RQ4: Is learning workplace culture an ongoing process?
 - H13: Learning of workplace culture is an ongoing process regardless of the employee's years of experience.
 - H14: Learning of workplace culture is an ongoing process regardless of the employee's sex.
 - H15: Learning of workplace culture is an ongoing process regardless of the position of the employee.
 - H16: Learning of workplace culture is an ongoing process regardless of the employee's educational level.

IV. Background and Significance:

In the early 80s and 90s, a great deal of attention was paid to the diagnosing and altering of a company's culture whether to increase effectiveness, efficiency, to reduce turnover, or just manage changing circumstances and environments (Trice & Beyer, 1993). Over that last decade study of workplace culture has waned in favor of more tangible management strategies to increase corporate revenues and effectiveness. However, in the wake of several corporate and industry implosions and debacles, culture is often referenced as the cause of the actions that have brought public condemnation. This only underscores the need for further study and a deeper understanding of culture.

This study will move beyond the analysis of culture itself to an analysis of how culture is learned. Current studies use theories focused on the object-oriented nature of activity (i.e., activity theory, communities of practice, situated learning theory) in culture rather than on process of the mentation of culture (Cole, 1995). This study will analyze the Lev Vygotsky's theory of Zone of Proximal Development (ZPD) and its unique application as a practicable theory of cultural learning in the workplace.

In general, culture, whether national, ethnic, societal, or organizational, has informal rules of behavior and understanding that represent the prevailing implicit values, beliefs, and attitudes that are often transmitted socially due to their intangible nature (Deal & Kennedy, 1982). Through ZPD, the learning at a childhood level prior to written language acquisition is believed to occur when more capable "others" (parents, teachers, supervisors, peers) guide the learner by speech and modeling in the area of they need to learn (Vygotsky, 1934; Tharp & Gallimore, 1998). This study will reveal if workplace culture has the same learning pattern due to its intangible nature that uses the ZPD framework that includes:

- Relying on supervisors or more learned peers to guide learning;
- Reference of verbal instruction over written for transmission;
- The use for increased understanding of organizational priorities;

- That the process is used for continual learning.

V. Research Method, Design, and Proposed Statistical Analysis:

The survey instrument was a thirty-item questionnaire. It was designed to be a web-based, self-report survey using a 5-point Likert-type scale that will measure the participants' perception of agreement on statements regarding their organizations' culture.

The survey asks five questions in each of the five sections that represent the elements of workplace culture. Each section includes one "grounding" question to focus attention of the respondents on an applicable example, and four additional questions related to the four tenets of Zone of Proximal Development (ZPD). These questions comprise the dependent variables of the project. The participants will be asked to answer each of the twenty-five questions based on their perception using a five-point scale that allows responses for (5) Strongly Agree, (4) Agree, (3) Neither Agree Nor Disagree, (2) Disagree, (1) Strongly Disagree.

The survey questionnaire has a sixth section that asks for information about the employee with five questions related to the independent variables for the project. Questions were limited to the experience, responsibility, education and sex.

This research project will use a combination of descriptive and inferential statistics to analyze relevant tendencies and variances in the collected data. The combination will provide information on attitudinal responses regarding Zone of Proximal Development learning (ZPD) in the organization's culture, as well as if there is a relationship to independent variables that will give insight into the limitations of its application.

Central tendencies and measures of dispersion at an interval-ratio level will be conducted to find not only the characteristics of the typical score, but also the heterogeneity of the scores between independent and dependent variables (Healey, 1996).

The data will also be measured for correlation coefficient and linear regression using **Pearson's r** to further test the strength and weakness of the linear relationship between dependent and independent variables. To do this, all responses corresponding to each of the ZPD tenets through the five elements of organizational culture will be computed as a single score of the dependent variable providing internal validity of the survey instrument.

VI. Human Subject Interactions

A. Source of potential participants:

A large global security company provided the sites for the survey as long as they could remain anonymous, and internally the source of the project could remain confidential. Agreement to this research project was granted due primarily to test the internal infrastructure of the company's surveying procedures while utilizing the questionnaire created by the principle investigator.

Several locations totaling over 28,000 salaried employees were selected to pull a probability sample of 3,000 employees that were representative of the general employee population. Only non-union workers were surveyed to expedite the process since all requests involving union workers would need to be routed through union representatives for approval and changes.

B. Describe the procedures for the recruitment of the participants:

A representative sample of 3,000 company employees were emailed an invitation to participate in a brief survey from the regional communications department of the company. The employees were given an encrypted internal link to access the survey.

C. Describe the procedure for obtaining informed consent:

Informed consent was granted de facto by the company who implemented the survey for internal purposes. Active written consent of each participant was not be obtained, as per agreement with the company.

D. Research Protocol:

The regional communications department of the company sent the employee sample an encrypted internal link to access the survey. A thirty question, web-based, self-report survey was administered to the participants. The questionnaire used a 5-point Likert-type scale to measure the participants' perception of agreement on statements regarding their organization's culture. Completion of the survey took approximately 10-15 minutes. Charge numbers are reference in the invitation which are used as an internal accounting device.

E. How will you protect the privacy and confidentiality of participants?

The questionnaire is a nonintrusive instrument that limits personal specifics to four broad questions: sex, years of experience, education and number of people the survey participant is responsible for supervising.

In addition to utilizing encrypted technology to protect the anonymity of participants and confidentiality of responses, an internal, decentralized survey procedure was also used by the company. Location A generated a representative sample of 3,000 employees – all salaried, no one above director level, including individual contributors and leaders – that were across one of the company divisions in 9 states; Location B designed the survey on their internal system; Location C disseminated the survey to internal emails using an encrypted link that would ensure the confidentiality of the responses and anonymity of the participants; Location D collected the responses and placed them in a reportable format. The link to the survey site was available to employees twenty-four hours a day, seven days a week for two weeks. Collection and organization of responses took approximately 10 days before data could be made available for analysis

F. Confidentiality of the research data:

The company will forward secondary, de-identified data to the principle investigator through email. Once data is collected, the principle investigator will not be able to identify participants' names or emails with responses. Data will be stored on the principle investigator's computer that is password protected. The final report will not reference the company, individual names, geographical locations or industry. Data will be received, studied, and reported in the aggregate.

G. Research resources:

The use of SPSS software and a computer with the capacity to support statistical analysis is necessary for this research project. All necessary equipment and software will be provided under Technology Support Student Center at the University of Texas at El Paso.

VII. Potential risks:

There are no potential physical or psychological risks identified with this study. Participation was voluntary with an option to abort the survey at any time, and all participants were over 18 years of age.

VIII. Potential benefits:

There are no direct personal benefits to the respondents for their participation. However, it is anticipated that the study will reveal new insight into learning of organizational culture and give professionals and academics a new model to work with to enhance workplace culture and environment.

IX. Sites or agencies involved in the research project: Lockheed Martin Corporation – Aeronautics Division is the participating organization with the understanding that, outside of the IRB process, they will remain anonymous. See attached letter.

X. Review by another IRB: N/A.

APPENDIX C

REDACTED COMPANY CONSENT LETTER

October 27, 2010

Ms. Patricia Gonzales
6607 Pino Read Drive
El Paso, TX 79912

To Whom It May Concern:

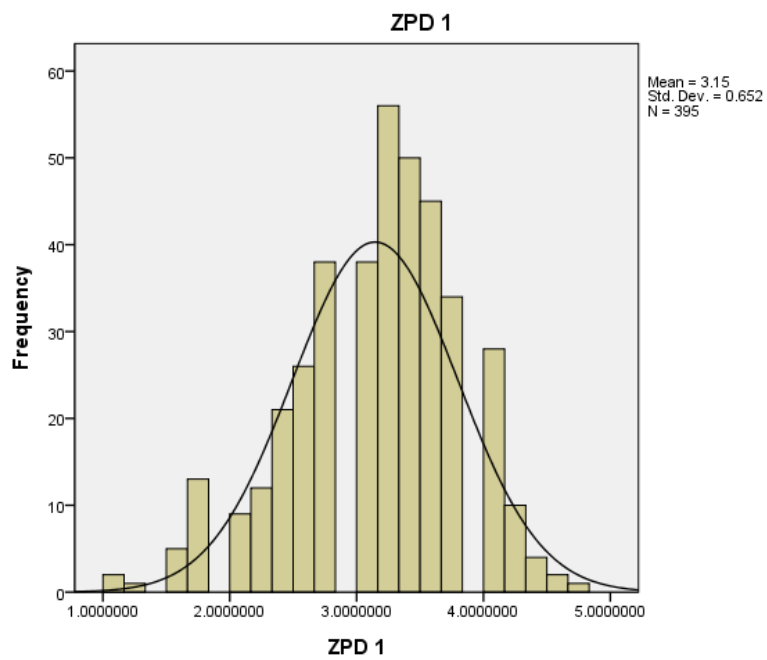
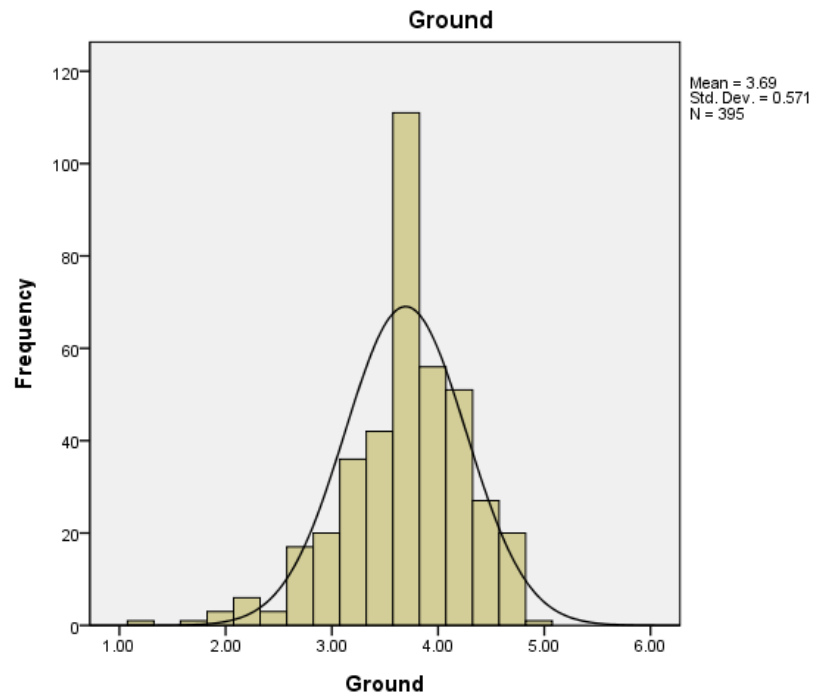
The purpose of this letter is to grant Patricia Gonzalez, a graduate student at the University of Texas at El Paso, permission to conduct research at [REDACTED]. The project, "An Analysis of the Zone of Proximal Development as a Practicable Learning Theory of Organizational Culture in the Workplace," entails administering a 30-question survey during the month of November. [REDACTED] will identify a cross-section of employees that will be given the survey provided by Ms. Gonzalez in the hopes of collecting 150 to 385 surveys.

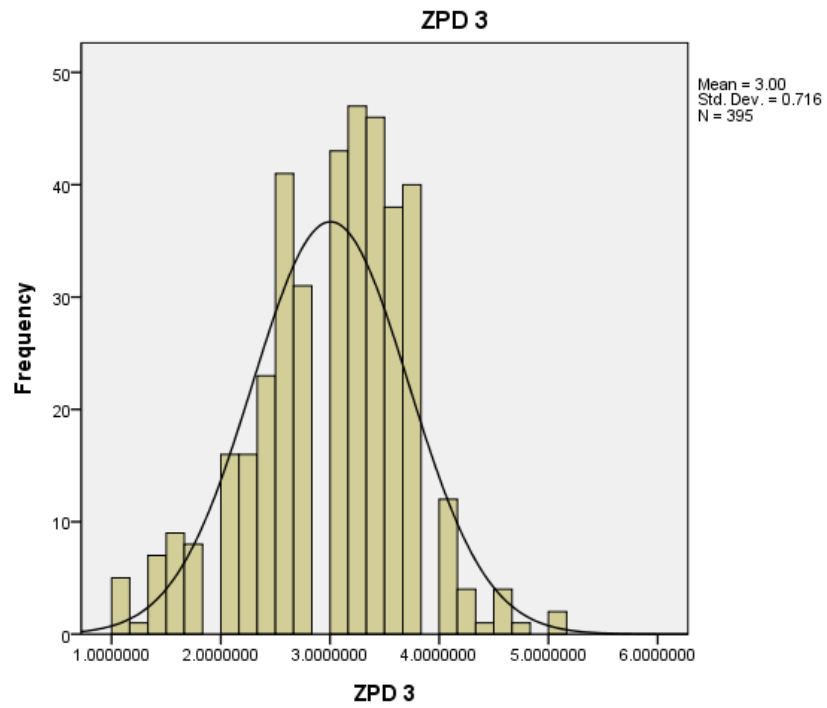
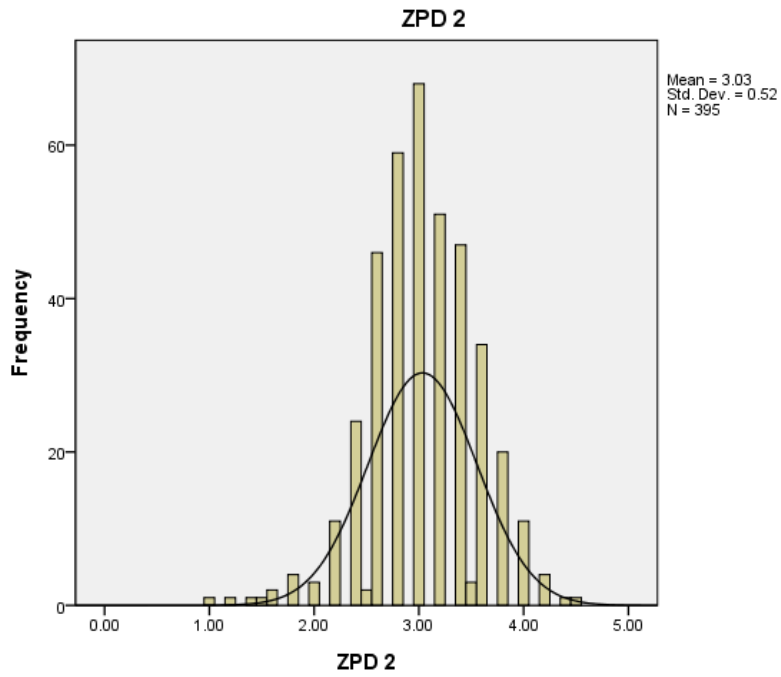
Sincerely,

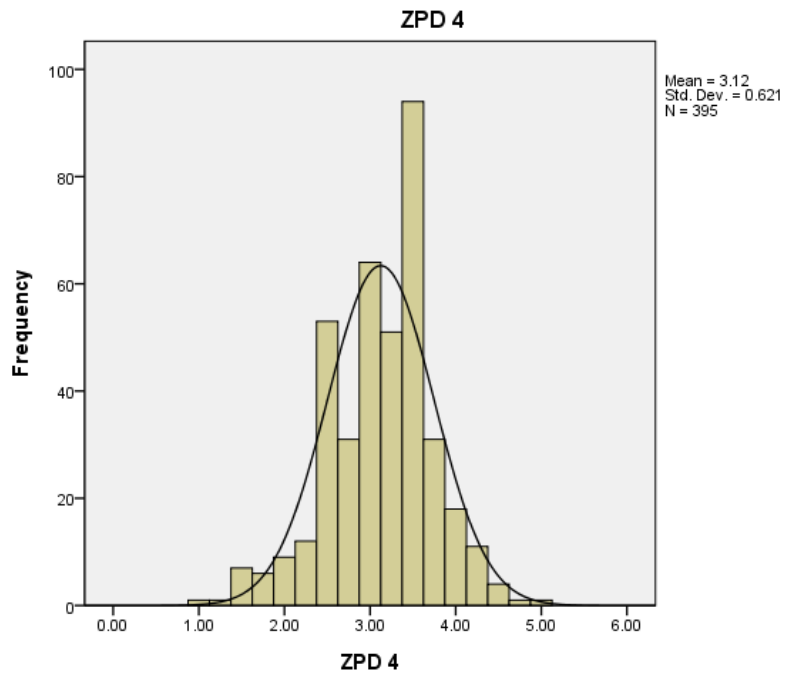

[REDACTED]

APPENDIX D

HISTOGRAMS







CURRICULUM VITAE

Patricia Ann Gonzalez, the second of three children by Ophelia Gonzalez and Ruben Gonzalez, Sr., was born in Dallas, Texas. Her father worked in civil service for the Federal Aviation Administration and consequently, the family was transferred several times during her childhood which allowed her to experience a variety of public schools during her elementary, junior high and high school years. After graduating from Winston Churchill High School in San Antonio, Texas, she enrolled at San Antonio College, and transferred after her first semester to the University of Texas at El Paso. Being the first generation of her family to attend college, she worked her way through her undergraduate studies at a women's fashion boutique and eventually graduated with a Bachelor of Arts in Journalism with an emphasis in Advertising and Public Relations in July of 1988. Over the past 20 years, she has successfully held management positions in marketing and communications for both private and public sector organizations. Presently, she is training for her first triathlon.

Permanent Address: 6607 Pino Real Dr.
El Paso Texas, 79912